MATA SUNDRI COLLEGE FOR WOMEN

UNIVERSITY OF DELHI

sankhyiki

VOLUME II 2021-22

DEPARTMENT OF STATISTICS

Mata Sundri Ji

Mata Sundri Ji was a model leader, a charismatic figure, a researcher, a devout Sikh, and a source of inspiration for future generations. She was the wife of the 10th Sikh master, Guru Gobind Singh Ji. She was born in the year 1667, to Bhai Ram Saran ji, in Hoshiarpur, present-day Punjab. She was married to Guru Gobind Singh Ji on 4th April 1684 at Anandpur Sahib. She gave birth to Baba Ajit Singh Ji, the eldest son of Guru Gobind Singh Ji. She was an excellent mother and always taught her son to fight against injustice and help underprivileged people. After the demise of Guru Gobind Singh Ji, she took command of Khalsa Panth and showcased her brilliant leadership skills. She preached Sikh values among the masses and asked people to lead honest and virtuous life. She also issued hukumnamas to sangats under her seal and authority. She ensured that the tradition of 'langar' (free community kitchen) continued to flourish. Gurudwara Mata Sundri Ji is the historical holy shrine raised in memory of Mata Ji where she lived for about forty years. The renowned institution- Mata Sundri College for Women established in 1967 is an ode to her immense sacrifices and contribution in the field of humanity, peace, and truth. The institution is a blend of people from various cultures, regions, and religions adding to the beauty and diversity of the institution. Their experience, knowledge, views, and opinions add to the charm and uniqueness of the institution. The institution is growing and flourishing with each passing day, which is possible only due to the blessings of Mata Sundri Ji.

She is an inspiration for all those who are struggling for justice, equality, sovereignty, and liberty.

We bow our heads as a mark of respect before the greatness of her soul.

From Principal's Desk

Prof. (Dr.) Harpreet Kaur

Dear Friends!

I extend my heartiest wishes to the Department of Statistics for concocting the second volume of their e-magazine 'SANKHYIKI'. It is indeed a proud moment for both students and teachers of the Department of Statistics. The magazine gives insight into the extent of the creativity, ability, and artistry of our students and faculty members.

It is a stage for our students to exhibit and depict their imaginative capacities, unexplored abilities, and skills for writing and composing. The themes, topics, classifications, and subjects picked in this version are assorted and interesting. The semantic variety of the magazine is additionally to be valued and acclaimed.

I would like to take this opportunity to compliment and congratulate the editorial and creative team for their hard work and devotion and also to all those who contributed to the magazine. I, also, likewise want to compliment Dr. Archana Verma and other faculty members for persistently guiding and directing the students. I wish my dear students in all future achievements and hope that they will continue to work meticulously and take the department and the magazine to greater heights.

Prof. (Dr.) Harpreet Kaur

Principal

Teacher In-Charge

Ms. Prabhsharan Kaur

Dear Friends!

It gives me great pleasure to see that the second volume of ‘Sankhyiki’, the annual e-magazine of the Department of Statistics is ready for publication. I take this opportunity to congratulate the editorial board for bringing out this magazine as per schedule, which in itself is an achievement considering the effort and time required.

I congratulate the team of students and the faculty for their tireless efforts that have come to fruition in the form of this magazine. I wish it all success and hope that this tradition that has been set by the previous year's students will be carried through by the following generation of students to come. May all our students soar high in uncharted skies and bring glory to the world and their profession with the wings of education!

My Best Wishes to all !!

Mrs. Prabhsharan Kaur

Teacher-In-Charge

Chief Editor's Desk

Dr. Archana Verma

Putting a magazine together is no cakewalk. I along with my editorial team members have worked hard to bring this magazine out.

So, with immense pleasure, we bring to you the second volume of the Statistics Department e-magazine “Sankhyiki”, 2021 - 2022

Today is the world of Instagram, Facebook, Wikipedia, Goggle Meet, Google Classroom, WhatsApp, and many such interactive platforms. And hence the theme of this magazine…. This magazine is a platform that exhibits the literary skills and innovative ideas of students. Each section has its unique theme and content. The contents are interesting and thought-provoking. It also showcases the artistry skills of our students. The magazine presents the hard work and dedication of the students.

I would like to take this opportunity to thank all my editorial team members for their dedication and hard work. I express my considerable appreciation to all the authors of the articles in this magazine. These contributions have required a generous amount of time and effort. It is this willingness to share knowledge, concerns, and special insights with fellow beings that have made this magazine possible. My best wishes to all my students!

Happy Reading !!

Dr. Archana Verma
Chief Editor

Editor's Desk

Mehak Preet Kaur

With the evolution of the Statistics department in 2017, it has been growing so far day by day and in the best possible way. We've been given the pleasure of creating the magazine for the academic year 2021-2022 and it was no small feat but one made easier by an extraordinary team bringing together a collective of like-minded, passionate game changers, thought leaders, and style makers from all the years of the department. We had a vision – to create the greatest, most stylish, innovative, authentic, conscious, inspiring magazine this time. So, what's it all about? In a world full of imitation and replication, we wanted to do something different, something extraordinary, something that would stand out, be authentic. So, during the pandemic when everything was going online and the use of social media was at its peak, we thought of coming up with the theme of Social Media Platforms.

It gives me immense pleasure to present to you the second Volume of the Department of Statistics annual e-magazine 'Sankhyiki'. This magazine includes informative articles, research work, poetry, and artwork too. It also contains the complete information on different activities and events, and achievements of the department spread over the last academic session. The magazine aims to provide a platform for our department students to showcase their talent and creativity in every possible form.

I would like to thank our Principal ma'am, Prof (Dr.) Harpreet Kaur, for providing us with this opportunity to come up with our department magazine. My heartfelt thanks to our teacher-in-charge, Mrs. Prabhsharan Kaur, Dr. Archana Verma, our chief editor of the magazine for their constant support, guidance, and encouragement throughout. I also want to thank my other department teachers and all the students for their help and for contributing to the magazine.

~ THANK YOU

Mehak Preet Kaur

Editor

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Department of Statistics

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Family | Students | Teachers | Engagement

Statistika
2021-22

Our Faculty (2021-2022)


Ms. Prabhsharan Kaur


Dr. Archana Verma


Dr. Swati Kujal


Dr. Meenu Goel


Dr. Kalpana Yadav


Dr. Komal Goel


Dr. Komaldeep Kaur

Statistika
2021-22

Editorial Board (2021-22)

Dr. Archana Verma

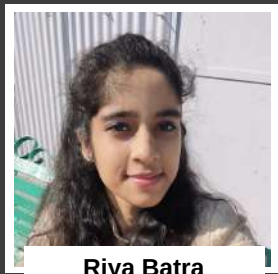
Mehak Preet Kaur
3rd Year

Jessica Kaur Sidhu
3rd Year

Vanshika Bansal
3rd Year

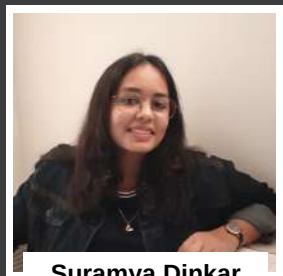
Vrinda Sharma
2nd Year

Davleen Kaur
2ndYear



Riya Batra
1st Year

Suhani Arora
1st Year



Suramya Dinkar
1st Year

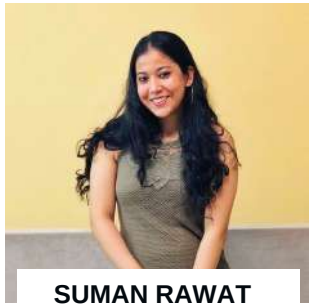
Ananya Puri
1st Year

Shruti Rawat
1stYear

Statistika
2021-22

Department Society Heads
(2021-22)

MEHAK PREET KAUR
(3rd Year)
President



SUMAN RAWAT
(3rd Year)
Treasurer

RASHMI OJHA
(2nd Year)
Vice President

PARUL GARG
(2nd Year)
Secretary

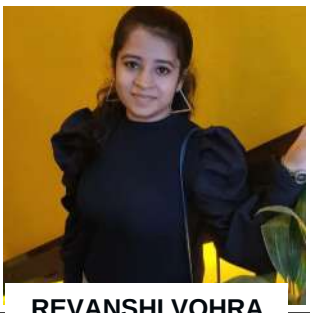
CHHAVI KAINTH
(2nd Year)
Executive Member

AKANKSHA GOEL
(2nd Year)
Executive Member

PREET SHUKLA
(1st Year)
Executive Member

SHRUTI RAWAT
(1st Year)
Executive Member

AMANJOT KAUR
(1st Year)
Executive Member



REVANSHI VOHRA
(1st Year)
Executive Member

SURAMYA DINKAR
(1st Year)
Executive Member

KHUSHI PANDEY
(1st Year)
Executive Member

Statistika
2021-22

College Students' Council President (2021-22)

Deepika Bisht

Words would be less to describe what these 3 years and especially the Student Council experience have been to me. This reminds me of back in July 2019 when I wasn't able to make sense of the happiness, confusion, excitement, and people congratulating me. With a lot of gratitude in my heart, I wished to do extraordinary and at the same time excel academically.

Being the President of the Student Council has given me stories of a lifetime. The experience wasn't all sugar candy for sure. The year which saw a lot happening in college, I feel I can only be thankful to the people who stood by me throughout the unfolding of this journey, my team, faculty, and advisors. I feel honored to have served as the President of the college which in turn helped me understand the different perspectives that people come with, leaving with me a lifetime of lessons. I witnessed women standing for women, for female friendships are cherished here. I saw the power of youth, each one of us empowering each other, for women empowerment is always encouraged here. Council has been a place where you lose track of time and enjoy the impalpable hunger for work. It was about growing, learning, opening up, and speaking up.

The past three years have flooded my memory book with beautiful people and stories I will cherish forever. The department and college helped me change my hesitations into confidence and silence into a brave voice.

Coming to our Statistics family, where I served as joint secretary and treasurer, I love when I see this little journey of our department and it fills me with joy. Our department and team, especially Mehak and Suman, made me truly realize the importance of depth over width. I will miss all the moments with this crazy and talented bunch of budding statisticians and will always cherish the memories, this department has given me.

Lastly, I would like to wish my juniors all the best in their studies. Fellows - Remember to explore yourself, don't be afraid to try something new even if you are the only one to do that thing, and find your calling.

Au Revoir!

Bises

EVENT SECTION

Department of Statistics

9.0
Events Organized

500+
Student Participation

6-16
Page Nos.

Swipe to learn more

About this section:

Coding | Programming | Analysis | Excitement

Statistika
150 people attended
3 days •

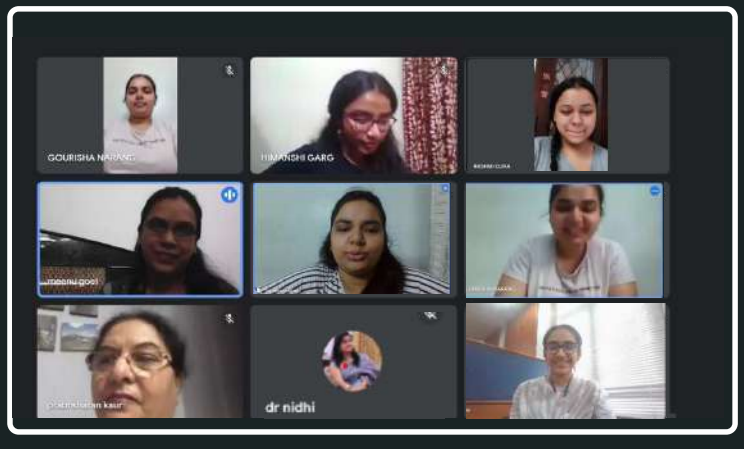
3- DAYS STUDENT TRAINING PROGRAM 'TABLEAU'

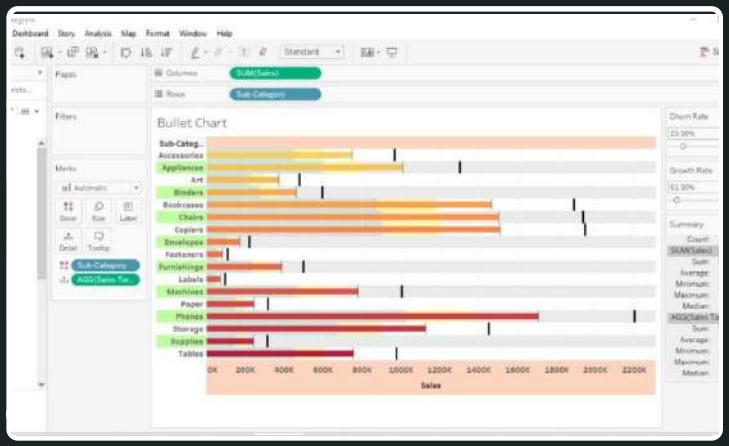
Let's Get Creative with Data!

#TableauSoftware #datarock #dataanalysis

Statistika - Statistics Society of Department of Statistics, Mata Sundri College for Women, University of Delhi, organized a 3-day interdisciplinary workshop on Tableau in collaboration with IQAC from 16th - 18th August 2021 for the students of all undergraduate courses. Himanshi Garg and Gourisha Narang from 3rd year, BSc. (H) Statistics played a dominant role in organizing and managing the whole program. The event was organized under the guidance of our honorable Principal ma'am- Prof. (Dr.) Harpreet Kaur, Dr. Lokesh Gupta, IQAC Co-ordinator, Teacher In-charge Ms. Prabhsharan Kaur and program convener Dr. Meenu Goel.
The response was enormous with the registration of around 150 students from various departments like Computer Science, Mathematics, Psychology, B.Com. (Hons,), B.A. (Prog.), Statistics and so on.

The mentors started the session by giving a brief introduction about "Tableau" and explaining the use of this software. The session focused on constructing graphs, like scatter plots, box plots etc., using the MARKS card and the SHOW ME palette. They also explained how to make representations through graphs such as funnel charts, motion charts, stacked bar charts, bullet charts, doughnut charts, Gantt charts, etc. The entire session was interactive. Attendees had lot of queries which was answered very patiently by the mentors.
The feedback received from the attendees suggested that the overall management and deliverance of the workshop was a big success. The students were able to see a story in the data which was the actual motive of the program.





Vrinda Sharma and 69 others

199 comments

(7)

Statistika
50+ people attended
1 day •

CAREER CLINIC

#careersearch #careerhelp #careerbuilder

The Department of Statistics of Mata Sundri College organized "CAREER CLINIC" in collaboration with the department alumnae on 21st August 2021. It was an interactive webinar to facilitate and consolidate the career-related guidance to the junior students . This event was hosted by Mehak and Shreya from 3rd year.
The alumnae meet was to reconnect with the Alumnae and celebrate their success and achievements. Around 55 students attended the event. The event commenced with enlightening words by the teacher-in-charge Ms. Prabhsharan Kaur and department coordinator Dr. Meenu Goel.
The first speaker of the event was Ms. Mansi Jaiswal (University Topper), who is currently pursuing M. Sc. in Statistics from the Hindu College, University of Delhi. She spoke about her experience in the college and her study routine throughout the three years of her graduation.

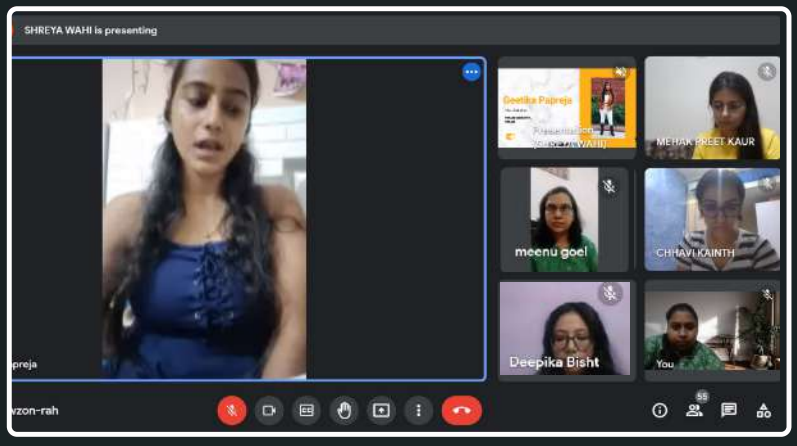
Next was Ms. Rashmeet Kaur, currently pursuing M. Sc. in Data Analysis from Shoolini University, Solan. She talked about data analysis and how she got into it. The audience got thrilled after knowing about Data Analysis and the career opportunities in this field.

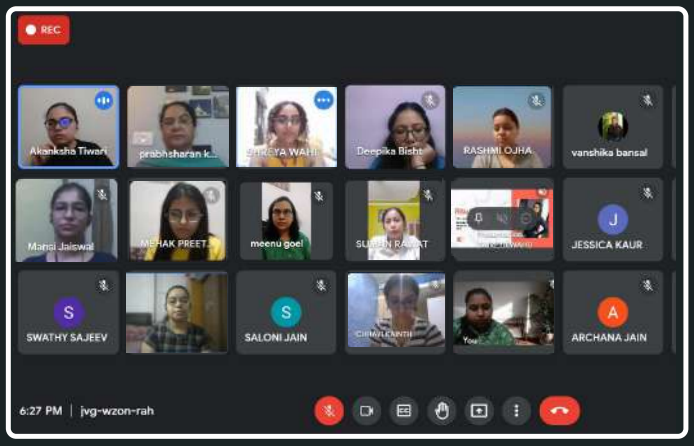
Ms. Ritu Malpani, who is pursuing M.Sc. in Data Science from Vellore Institute of Technology gave some knowledge about Data Science. Pursuing M. Sc. Statistics from Punjab University, Ms. Geetika, shared deep insights on preparation for entrance exams.

This was followed by the journey of Ms. Akanksha Tiwari, pursuing Master of Operational Research from the Department of Operational Research, University of Delhi.
Ms. Chetali Jain (now pursuing Post Graduation from the University of Sheffield, United Kingdom), working as a mentor at White Hat Jr. guided the students on how to put their skills to work and learn while earning.

Ms. Vaishali Kandoi working with KPMG Assurance and Consulting Services LLP shared her experience as an Actuarial Analyst. She shared her ups and downs and how she won her battle in the actuarial field.
Lastly, Ms. Prekshi Singhal also shared her journey in the actuarial field.

Students asked their queries and they answered each of them enthusiastically. Their words gave a sense of inspiration and encouraged students to work harder for their goals. The alumnae also wished their juniors best of luck.
Overall, all the students were quite motivated by the end of the session and decided to experiment, explore and discover their true interests. The teachers applauded the efforts of the hosts in organizing this event successful.





Statistika
100+ people attended
1 day •

TEACHER'S DAY EVENT

#teachersday #teachers #happyteachersday

On September 5, 2021, STATISTIKA - the Statistics Society of the Department of Statistics organized a Virtual Teachers' Day Celebration. The hosts began by greeting everyone with delightful remarks for the respected teachers.
The second and third years performed beautiful dance exhibitions, beginning with effortless old-style movement by Guru Vandana followed by old school Bollywood music.
The students performed a short play after the dance. The play showcased every teacher's journey through hardships, judgments, and problems in the web-based homeroom. It was well organized and functioned splendidly. The teachers were deeply touched by watching their students performing so well and how well the play depicted the true reality of the online education system. The outing down the world of fond memories closes for certain enthusiastic expressions of acclaim for the students' exhibition from the teachers.

As said by Mark Van Doren, " The craft of instructing is the speciality of helping revelation."

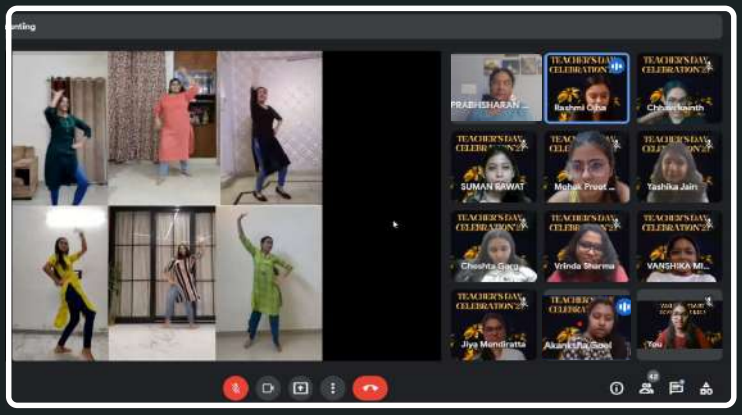
The subsequent segment, the games round, was without a doubt the most cheerful. The game was called "The Bollywood Talkies" and was a rapid-fire game. Surmise the entertainer, surmise the film from the lines, surmise the tunes from the introduced photographs, and surmise the motion pictures from the story are a portion of the rounds in the game.

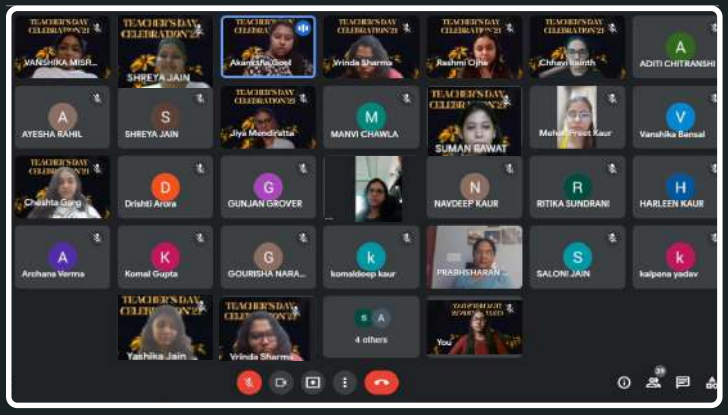
Also, the handmade portraits of every teacher by a second year student was provided to each and every teacher.

The virtual cards were also mailed to the teachers wishing them the best wishes and realising the value of teachers' in students' lives.

The teachers appreciated all the remarkable efforts by their students and enjoyed the whole event which was the sole purpose of conducting it.

The social affair found a conclusion with giggling and chatter.





Statistika
100+ people attended
6 days •

MS-EXCEL: Turn Information into Insight

#excel #excelworkshop #courseonexcel

A one-week workshop on "MS-Excel" was conducted under the "MENTORSHIP PROGRAM" organized by the DEPARTMENT OF STATISTICS of Mata Sundri College for Women, Delhi University, in collaboration with IQAC and the Department of Commerce, from September 6, 2021, to September 11, 2021, for the students of Statistics and Commerce. The whole session was conducted under the guidance and support of our esteemed Principal Ma'am, Prof. (Dr.) Harpreet Kaur, Ms. Prabhsharan Kaur (Teacher In-Charge, Statistics), Ms. Jaspal Kaur (Teacher In-Charge, Commerce), Dr. Lokesh Kumar Gupta (Coordinator, IQAC), Dr. Meenu Goel (Convener), and Dr. Kalpana Yadav (Co-Convener). The mentors for the session were Swathy S. Sajeev and Archana Jain from the 3rd year of B. Sc. (Hons.) Statistics. The enormous response was well demonstrated by the registration of around 190 students. Of the registered students, 100+ students attended the workshop.

The mentors started the session by giving an introduction to MS-Excel and explaining the use of the software. Students were familiarized to format and edit cells along with using some features like autofill, autofill series, autocomplete, sort and filter, find and replace, etc. Moreover, the mentors explained some charts, like line charts, pie charts, and histograms. They also taught how to insert, edit and move charts to new sheets.
The participants were provided with an assignment at the end of the workshop to evaluate the knowledge they acquired during the workshop. The assignments were submitted by the attendees on time. The whole session was concluded by discussing the assignment, which was given to the attendees, and solving their queries.

A feedback form was sent to the participants daily, which contained questions based on the topics discussed on that day. The feedback received by the mentors from the attendees suggested that the overall session was great. The information that the mentors provided was very informative, and the mentees learned many new things about MS-Excel. They were satisfied with the assignments and objective-type questions given to them daily because by doing them they got revisions of all the topics discussed on a particular day.

The main objective of the program to make the students familiar with the basic concepts of MS Excel was fulfilled after getting positive feedback from the attendees.

Statistika
120+ people attended
1 day •

ANUGOONZ'22

#careergoals #careercounseling #careerdevelopment

A one-day career counseling program, "ANUGOONZ'22", was organized by the Department of Statistics, Mata Sundri College for Women, University of Delhi, on January 19th, 2022. More than 120 students, teachers, and alumni of the Department of Statistics enthusiastically partook in the event.
It commenced with the college prayer and a few encouraging remarks from our convenor, Dr. Meenu Goel.

The ten speakers of the program were all alumnae of the Department of Statistics, pursuing their higher studies in the areas of their interest from reputed universities in India and abroad. There were ten speakers from a variety of areas, including M.Sc. Statistics, Masters in OR, Actuarial Science, Biostatistics, Data Science and Machine Learning (from the University of UK), DU, and other reputed universities. They were well prepared and answered all the students' queries. The key purpose of this event was to advise undergraduate students in choosing their future careers and address all the challenges they face when looking for a degree.

Miss Tarushi Aggarwal, who is now pursuing M.Sc. in Statistics from Punjab University, Chandigarh, was the first speaker. She discussed her graduation experience and how the hard effort she put in throughout her graduating years is now assisting her in grasping things with ease. Miss Vanshika Bansal, who is doing M. Sc. in Biostatistics from B.H.U, Varanasi, was the second speaker. Following them were Miss Tanisha Gupta and Miss Anjali Gupta, both of them are pursuing M.Sc. Statistics from Delhi University, and Miss Vani Tiwari, who is completing her Masters in OR from Delhi University.

Vrinda Sharma and 69 others

199 comments

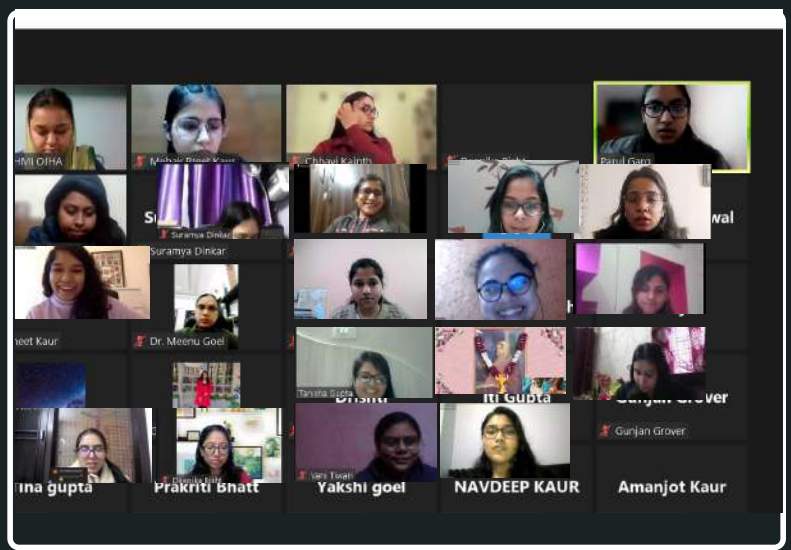
(11)

All of them used a PowerPoint presentation to present their journey. Miss Bhawna Gupta, a Delhi University M.Sc. Statistics student, was our next speaker.

She primarily discussed Statistics and why one should pursue it. Then there was Miss Sampada Kapur, a student at the University of London seeking an International Graduate Diploma in Finance. She shared her three-year journey to get a degree and why she is currently studying in a particular finance sector. Miss Alisha Manku, the college former student president, also spoke some encouraging words and wished her juniors the best of luck. Miss Prekshi Singhal, an Actuarial Analyst with RSA Actuarial Services Pvt Ltd, was the last speaker and she talked about the Actuarial field in brief.
In between, Dr. Ishpreet Virdi, a member of the Central Alumni committee, spoke for few minutes about the NAAC survey.

The team also hosted a short game session to facilitate interaction between members and moderators, which everyone enjoyed.

As a result, alumnae and juniors connected and focused on momentous motivating lectures about further education and placements. Students had all of their queries about placements answered, and alumnae also shared their perspectives. Their remarks motivated students and encouraged them to try harder for their goals. The audience attentively listened and learned about a variety of new job options. All the juniors were stimulated by the graduates who wished good luck to all the students. Their speeches instilled courage and optimism in the audience.



Statistika
90+ students registered
6 days •

6- DAYS STUDENT TRAINING PROGRAM 'R'

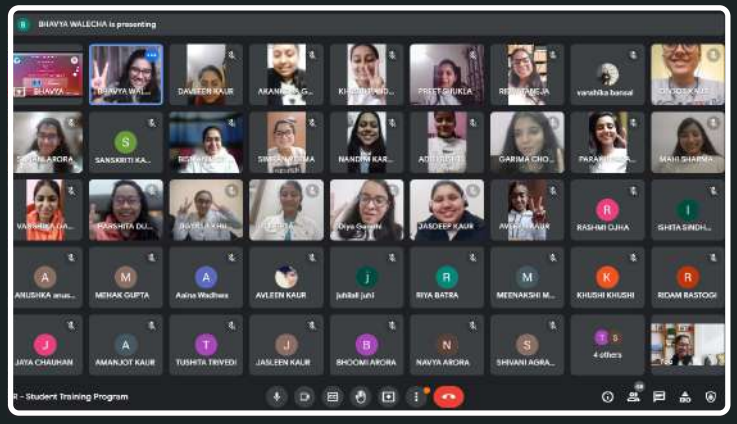
"The goal is to transform data into information and information into insight."
#Rprogramming #coding #dataanalysis

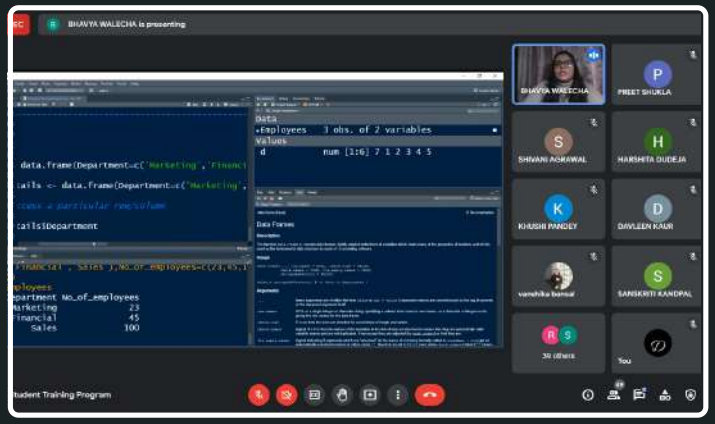
Statistika - the Statistics Society of the Department of Statistics, Mata Sundri College for Women, University of Delhi in collaboration with IQAC and the Department of Commerce organized a 6-day Interdisciplinary Workshop on R Programming from 24th - 29th January 2022 for the students of the Commerce and Statistics department. Bhavya Walecha, Deepika Bisht, Ridhi Taneja from 3rd year, and Davleen Kaur from 2nd year B. Sc. (H) Statistics played a dominant role in organizing and managing the whole program of mentoring this workshop. The event was successfully conducted under the guidance of our honorable Principal ma'am- Prof. (Dr.) Harpreet Kaur, Dr. Lokesh Gupta (IQAC Co-ordinator), Teacher In-charge Ms. Prabhsharan Kaur, and program Convener Dr. Komaldeep Kaur along with Co-Conveners Dr. Komal Goel and Dr. Ishpreet Virdi (Commerce Department).

The enormous response was well recognized by the registration of around 100 students from the Statistics and Commerce departments.

The mentors started the session by giving a brief introduction about "R" and then went on to explain the basics of the software. The class focused on drawing vectors, lists, and data frames. The concepts of correlation and regression were also discussed. Mentors also taught the procedure of plotting line graphs, histograms, bar charts, pie charts, and scatter plots. Students were also acquainted with using different techniques to make the graphs more visually appealing. Students were also familiarized with importing and saving charts.
Daily quizzes were posted to check the growth of the students. Also, all the study material and notes were duly circulated amongst the attendees. The mentors also shared a final assignment to test the knowledge acquired by the students during the training program.

The feedback received by the mentors from the attendees suggested that the overall organization and deliverance of the program were successful as the participants got familiar with the R software. The feedback was filled with positive remarks appraising the efforts of the mentors.
Everyone applauded the efforts of the teachers and the mentors for organizing an insightful and well-organized event.





Statistika
100+ people attended
1 day •

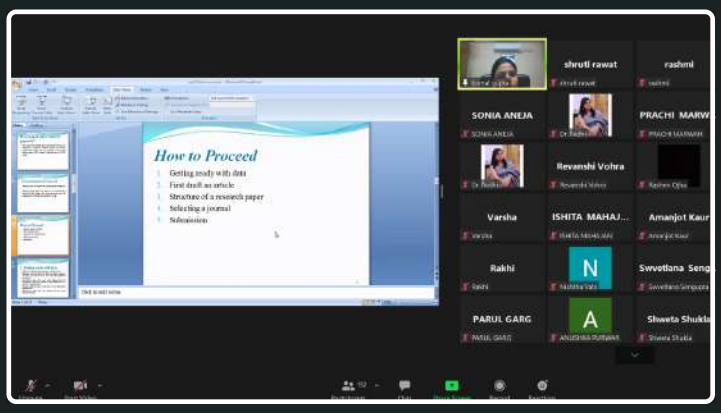
RESEARCH MATRIX

“Research is creating new knowledge “ - Neil Armstrong

#research #symposium #university

To acquaint the students with research and its various aspects, The Departments of Computer Science, Mathematics, and Statistics in collaboration with the Library Progression Committee organized an online Research Seminar- ‘RESEARCH MATRIX’.
It was held on February 17th, 2022 at 4 pm with more than 100 participants. The speakers for the event were Dr. Rashmi Verma (Dept. of Mathematics), Dr. Komal Goel (Dept. of Statistics), and Dr. Megha Gupta (Dept. of Computer Science).
The event was conducted under the guidance and support of honorable Principal ma'am- Prof. (Dr.) Harpreet Kaur. The response was well recognized with the registration of around 300+ students from various departments.
The program started with Dr. Nidhi who welcomed Ms. Mandeep Walia. She welcomed everyone and expressed her gratitude to the Principal, Prof. (Dr.) Harpreet Kaur and Library Progression Committee for organizing a seminar on a theme relevant to students’ requirements.

The session was followed by oral presentations on the topic: Fundamental of research methodology, Effective research paper writing, and Digital Tool used for research.
Dr. Rashmi Verma gave an overview of the "Fundamental of research methodology". She briefed the attendees about what research is, types of research, objectives, research process, etc.
Further Dr. Komal Goel provided insights on “How to write an effective research paper”. She explained how to organize and compose a research manuscript that is clear, concise, readable, and understandable. She also suggested some hands-on tips for writing each section of a research paper- introduction, method, results, and discussion.
In the end, Dr. Megha Gupta discussed "Digital Tools for Research: LaTex". Dr. Megha also gave a hands-on demonstration of how latex works, loading latex to run on.
At the end of the event, the convenor of the Department of Statistics Dr. Meenu Goel proposed a vote of thanks, thanking Principal ma'am, speakers, department heads and every participant, and the team members whose efforts made the event a grand success.



Statistika
200+ people attended
1 day •

ASOMBROSA'22

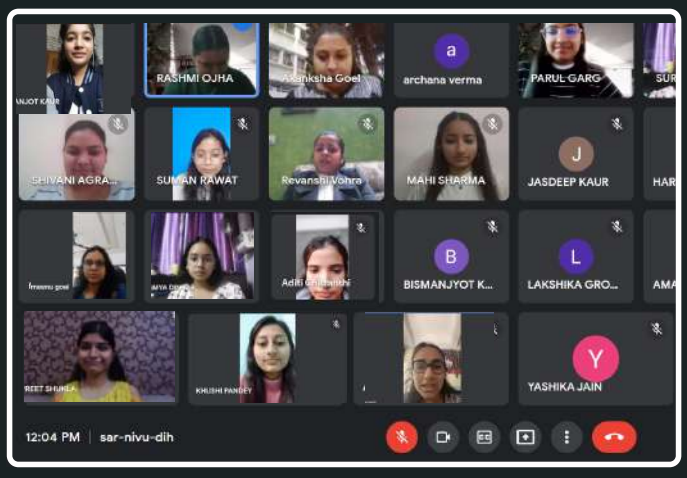
Virtual Freshers cum Oath Ceremony

#freshers #refreshers #fresherspartу

The Statistics Society of the Department of Statistics, Statistika, organized a fun filled virtual freshers party cum oath ceremony to welcome the lovely batch of 2021-2024.
The occasion began with the hosts welcoming all the attendees and teachers, followed by a prayer. Moving forward, Dr. Meenu Goel formally greeted the batch of 2021-24 and introduced the council members of the year 2021-2022. The list of the council members was: Mehak Preet Kaur (President, 3rd year), Suman Rawat (Treasurer, 3rd year), Rashmi Ojha(Vice President, 2nd year), Parul Garg (Secretary, 2nd year), Akanksha Goel and Chhavi Kainth (Executive members, 2nd year). The executive members from 1st year were: Suramya Dinkar, Preet Shukla, Khushi Pandey, Shruti Rawat, Amanjot Kaur, and Revanshi Vohra.

Next was the fun game of "Guess Who?" where the freshers had to identify their classmates by looking at their childhood pictures. They surprisingly did great. It came out to be entertaining for the teachers as well. It was followed by a beautiful poem, "Welcome to DU" by Nandini from the second year, which was very relatable for the newbies and appreciated by everyone in the meet.
Then came a graceful dance performance by Chhavi from the 2nd year and Sampada & Ridhi from 3rd year. The exotic dance performance elevated the mood of the fresher's party.

As college is incomplete without a hefty dose of glamour, fashion and chicness, the results of the first round of Miss Freshers'22 were announced, and Khushi Pandey, Revanshi, and Mahi secured their positions in the race. The finalists were asked a few questions based on which the team chose Miss Freshers. The last game of the event was for sure very fun called, "Guess the traits" where the students had to give a name for the given trait, which unfolded a lot of secrets and gossip.
Lastly, the results of Miss Freshers'22 were announced, along with some titles for the rest of the gorgeous girls. "Khushi Pandey" won the title of "Miss Freshers" for 2022 from the Statistics department, and everybody cheered her for her achievement.
Towards the end of the event, the hosts proposed the vote of thanks with the joy of looking forward to more such events.



Statistika
30+ people attended
10 days•

KIND BEINGS DONATION DRIVE

For stationery items, sanitary items, crayons, comics, toys, sanitizers, masks and clothes.

"Giving does not only precede receiving; it is the reason for it. It is in giving that we receive."
~Israelmore Ayivor

Statistika, the Statistics Society of the Department of Statistics, in partnership with the non-profit 'Kind Beings,' held a donation campaign from March 7 to March 17, 2022. The aim of the drive was to help the underprivileged sections of society by providing them with the essentials required in day-to-day chores. Books, stationery items, sanitary napkins, soft toys, and masks were collected on the college premises to lend a noble helping hand to the unprivileged.

Kind Beings is a Delhi-based Non-Governmental Organisation that aims to bring about cohesive changes in society by performing 'Acts of Kindness'. They are a team of young professionals who have come together with only one goal in mind – to make the world a better place for everyone. The donation campaign began on the University campus on March 7 to help bridge the gap between those who want to help the less fortunate and those who are in dire need of it. The contribution boxes and banners came directly from the NGO. The donation boxes were kept by student volunteers from all three years. Finally, on March 21, 2022, a handover session was held in the presence of all council members and volunteers, during which Dr. Meenu Goel (Convenor), Dr. Kalpana Yadav, and Dr. Komaldeep Kaur handed over the donated products to the appropriate NGO Team. Looking at the number of donated items, the team understood that a little group effort for a good cause may make a significant difference in someone's life. The environment was full of happiness and thankfulness as a result of the enriching learning experience.

The student's sense of giving and empathy improved as a result of the hard work of the STATISTICS department volunteers, who worked under the excellent leadership of instructors.

ARTICLE SECTION

Department of Statistics

13.0	10+	17-46
Article Written	Topics covered	Page Nos.

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Writing | Drafting | Write-up | Engagement

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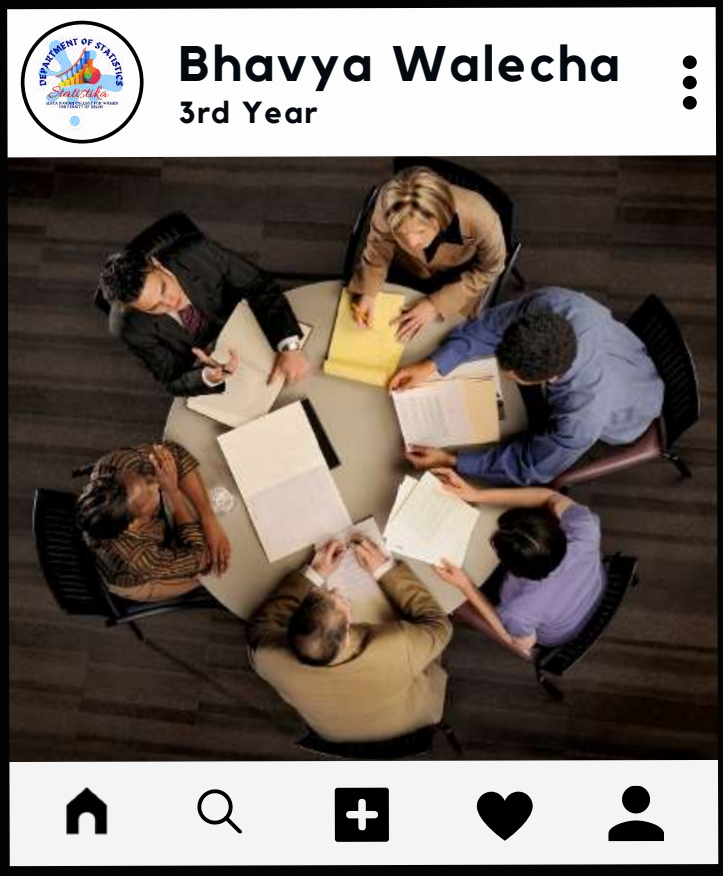
WHAT REPRESENTS YOU? YOU!



"The first impression is the last impression" is the phrase we often hear from elders. Ever wonder why? What represents you? Is it your clothes? Your language? Or your name? I think what best defines us is our experience. We act based on our experience, we make assumptions based on our experience and we make decisions about the future based on our experience. Applying the 15 seconds rule, many HRs judge you, and how you fit the role offered by the company is based upon your experience. After you clear this round, the main challenge comes up where you have to represent yourself. It may be easy to present yourself with a piece of paper, but the problem you will face while working on the job will not be just on paper. No matter what the job is, you would have to encounter people from diverse backgrounds and environments. Their experiences may not be the same as yours. They might think entirely differently from what you think. The interview round is where you are tested based on how you will handle work problems head-on. The candidate who can achieve about 70% of the recruiter's expectations is selected and taught on the job. No matter how many courses you have done or the institute you went to if you cannot think of solutions, the hard work done earlier is a waste. The company trains you how to do the job, but you need to be the one who can cope with problems and can manage work.

So, what can you expect your questions to be in the interview? Will it be technical questions? Will they test our memory? How many formulas are needed to learn? But guess what, the questions are easy, yet 80% of people fail to answer them.

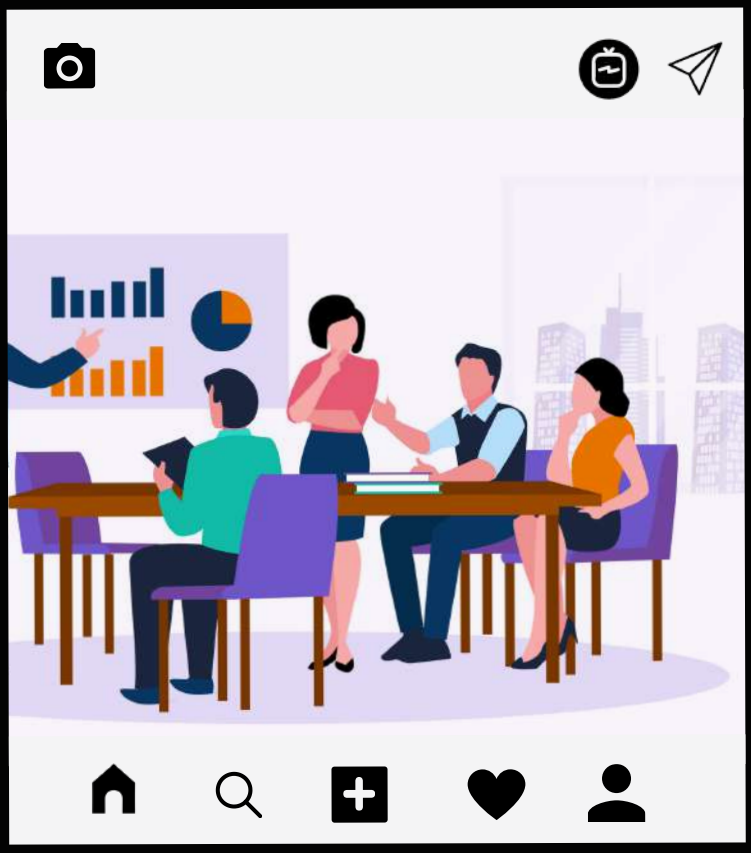
Ever wonder why that is? It is because we do not understand the actual context of these questions! Let's look at the top questions asked in the interview and the real meaning behind these questions.

The first and the foremost question asked in any interview is your Introduction. You tell your name, what you have been studying, hobbies, etc. All this information is already written on the resume but still, we are required to tell them ourselves.

Why is that? The interviewer wants to see what you know about yourself. Your hobbies tell your interest, but that does not mean you have to lie and say, "I study a lot of books." because that's not what they want. Your hobbies tell how creative and flexible you are. Are your hobbies interrelated or diverse? The more eclectic they are, tell them how flexible you are.

Next, you might hear, "What is the riskiest thing you have done in your life?". Some of the answers you might have heard are funny but have you ever wondered why they are asking this question? Are they interested in your personal life? No. They are trying to find out how much and how often you take a risk. The length and the amount of risk you have taken will define you. As mentioned earlier, our experience defines us and how we act. Your work attitude and daily life attitude would be almost identical. So, don't think of writing that you have lied to your parents and doing something daring is cool for writing on the resume. It shows how irresponsible you are, and your interview will end with just two-three questions.

Next, one of the favorite questions of every interviewer is, "Choose between money and

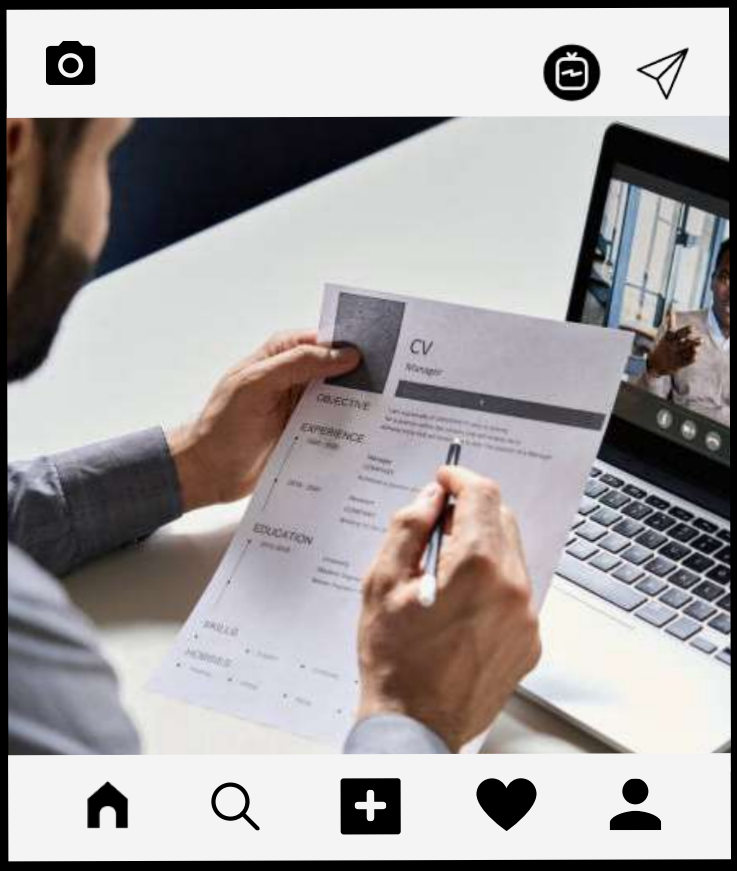


power and Why?" The answers given by the candidate vary from person to person. Some might prefer money, while some might prefer power. Now, who chooses money, people who have something they desire and means to get that is money. Hence money represents your hidden desire and goals.

People who select power are the ones who aim to be successful and love to lead people. They are generally the type who are dominant and have their own way of thinking. Now, what does this mean to the interviewer? It tells the interviewer what can motivate you to work hard. As fresh blood, everybody works hard in the beginning. After some time, you would need regular motivation to keep working harder. The option you choose will inform the interviewer how to keep you motivated and get things done from you. "How old would you be if you didn't know how old you are?", Didn't get it, right!? Well, the interviewer wants to know how old your brain is. They don't want to know your age

but how old is your way of thinking? Your answer above 30 signifies survival and experience. If you answer above 50, it indicates wisdom. If you answer below 18, it means immature. That is assumed when talking about your age. The ideal age of your brain should be between 20 and 28, which signifies fresh talent and ready-to-learn ability.

You may encounter questions that seem totally out of context, "If you had to choose to live without one of your 5 senses (taste, smell, sight, hearing, touch)". Let's see what these options represent if you leave them out. If you choose to live without taste, you don't want things to be amusing.



Most people do not even think before answering it and write the things they are not much affected by.

Let's see what these options represent if you leave them out. If you choose to live without taste, you don't want things to be amusing.

You can work in any department and not choose this job as your first preference. If you pick smell, you are not concerned much about the environment. When you work, you only see work and nothing else. It can be disadvantageous sometimes as some factors affect the environment and shouldn't be overlooked. Let's see if you choose sight, it means you don't look for things before believing in them.

You work what has been given to you and not see for yourself and trust me, no company wants an employee who doesn't use their brain. If you choose to live without hearing, then that means you work according to what you think is right and do not listen to people around you. It is not a good choice to go ahead with. Last but not the least, if you choose to live without touch, then that means you do not involve feelings in your work. All these were examples of questions you might face in an interview. The key to passing an interview is confidence and believing in yourself. Even if you don't know the answer to any question and look it up after the interview when you sit for another interview, you would know the answer to the question you didn't, that is the correct utilization of your experience. Make sure you utilize your knowledge to the fullest and represent yourself as yourself.

ASTROSTATISTICS: STATS WITH STARS

With the explosion of nebula came the Big Bang theory and with it emerged the need for astronomers who could read the behavior of the Sun, galaxies, planets, stars, and whatnot. But to read that astronomers had to play with numbers too, they wanted someone who could study the data, eliminate the possible errors and bring in useful insights, therefore comes the one called an Astrostatistician.

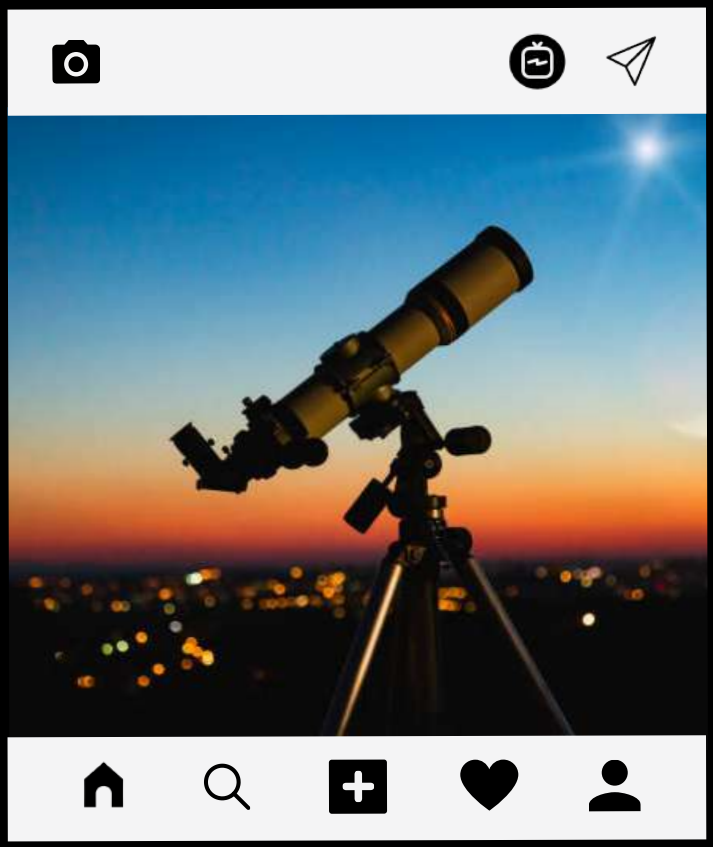
Astronomers, Statisticians, Mathematicians, and Computer Scientists could come under the umbrella of astrostatistics. So, what exactly is Astrostatistics? As the name suggests, it is a field that involves astronomy, data mining, and of course statistical analysis.

The primitive astronomers were worried about the observational errors, which might have occurred due to imprecise instruments and neglectful researchers. With the due passage of time, astronomy showed great advancement in technology, and the invention of powerful telescopes had been revolutionizing. But what didn't evolve with time were the methods to examine the quantitative data. Astronomers today are heavily trained in physics but they lack academic exposure to statistics and probability. Therefore, this hurdle had to be resolved by the necessary collaboration of astronomers and statisticians. Professional statisticians are acquainted with a wide range of statistical methods, and thus capable of providing precise analysis.

There are two objectives behind the use of statistics, first is to predict the future behavior of certain entities based on the previous behavior of the other entities given in the data, and secondly, to find human interpretable

patterns describing the data. Basic statistics concepts which proved to have a significant application on astronomical data are regression, time series analysis, clustering, modeling, and outlier detection. Maximum likelihood estimation, least square method, and Bayesian methods have also been used extensively in extragalactic astronomy and cosmology.

Two of the renowned statisticians who wrote a series of papers in the field of astronomy are Karl Pearson and Jerzy Neyman. Around 1907-11, Karl Pearson wrote about correlations between stellar properties whereas around 1952-64, Jerzy Neyman



with Elizabeth Scott wrote about the clustering of galaxies. But, neither of the papers had a strong influence on further astronomical developments.

Over time, the much-required bridge between statisticians and astronomers was created, and many associations were formed like International Astrostatistics Association, the Center for Astrostatistics at Penn State, California-Harvard Astro-Statistical Collaboration, etc.

The pioneers of the modern field of astrostatistics would be Eric Feigelson and G. Jogesh Babu as they have written a series of influential books on astrostatistics which are being used all over the world as course textbooks for teaching astrostatistics. Some of the valued institutions which now offer courses in astrostatistics are Harvard University, University of Toronto, Carnegie Mellon University, Penn State Emberly College of Science, Imperial College London, etc. In India, the University of Calcutta and Savitribai Phule Pune University have also started courses in astrostatistics with the support of the Inter-University Centre for Astronomy and Astrophysics (IUCAA) and National Centre for Radio Astrophysics (NCRA). So, these could be the options if you want to pursue astrostatistics as a career. What professions to expect once you're profound in this field? Professors at esteemed universities and Research Scientists at Space Agencies (like ISRO, NASA, etc) are some of the career opportunities if you are passionate about astronomy or statistics.

If you are intrigued by playing with numbers and gazing at the stars, then this field has an ample amount of opportunities to build your career in the same and let the Astrostatistician in you chase them.

BLOCKCHAIN TECHNOLOGY

Suhani Arora
1st Year

When you go to the elections and press the button for your preferred party on the EVM, have you ever wondered if there is any guarantee that your vote is being registered? We need to trust the Election Commission in their work for our votes to be counted properly. But what if we could've done it by ourselves without the involvement of any central agency or a third party? What if there were a second generation of the Internet that enabled the true, peer-to-peer exchange of value? We don't have that now. If I'm going to spend some money on somebody else, I have to go through an intermediary (a powerful bank, a credit card company) or I need a government to authenticate who I am and who you are. What if we could do that peer to peer? What if there was a protocol that enabled us to do transactions, does commerce, to exchange money, without a powerful third party?

Blockchain promises to solve this problem. The technology at the heart of bitcoin and other virtual currencies, blockchain is an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way.

What is Blockchain?

In short, Blockchain is a way to store information in a decentralized manner. Any transaction that occurs in the network is recorded, verified, and stored in a database. For example, when RBI prints the 500 rupee note, it guarantees us its value is Rs.500 only. In this case, RBI is the central authority that controls all the Indian rupee notes around the world. On the other hand, currencies like bitcoin are decentralized i.e.,

no central agency or authority controls them. This is possible because bitcoin is based on blockchain.

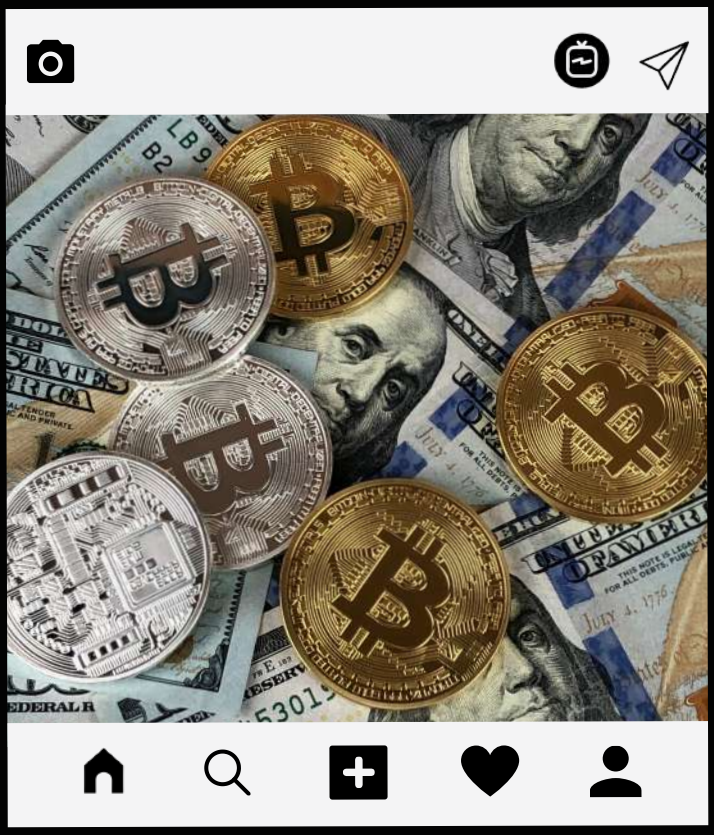
How does it work?

If I owe you Rs.100, we do the transaction. There's a huge community called miners, and they have a powerful computing resource. That platform solves this big problem called the double-payment problem. If I send you an MP3 file and I send it to somebody else, it's a problem for the record industry, but it's not a massive problem. If I send you Rs.100, and I send the same file to somebody else, that's a big problem. It's called fraud, and the economy stops if you have a monetary system based on that.

Each miner is motivated to be the first one to find the truth, and once they find the truth, it's evidence to everybody else. When they find the truth and solve a complex mathematical problem, they get paid some money, some Bitcoin. Also, to hack that and try and send the same money to somebody else, or to come in and try and take your Rs.100 worth of Bitcoins, is not practically possible because I'd have to hack that ten-minute block. That's why it's called blockchain, and that block is linked to the previous block, and the previous block—ergo, chain. This blockchain is running across countless numbers of computers. One would have to commit fraud in the light of the most powerful computing resource in the world, not just for that ten-minute block but for the entire history of commerce, on a distributed platform. This is not practically feasible.

What about privacy?

Blockchain systems use asymmetric cryptography to secure transactions between users. In these systems, each user has a public and private key. These keys are random strings of numbers and are cryptographically related. It is mathematically impossible for a user to guess another user's private key from their public key.



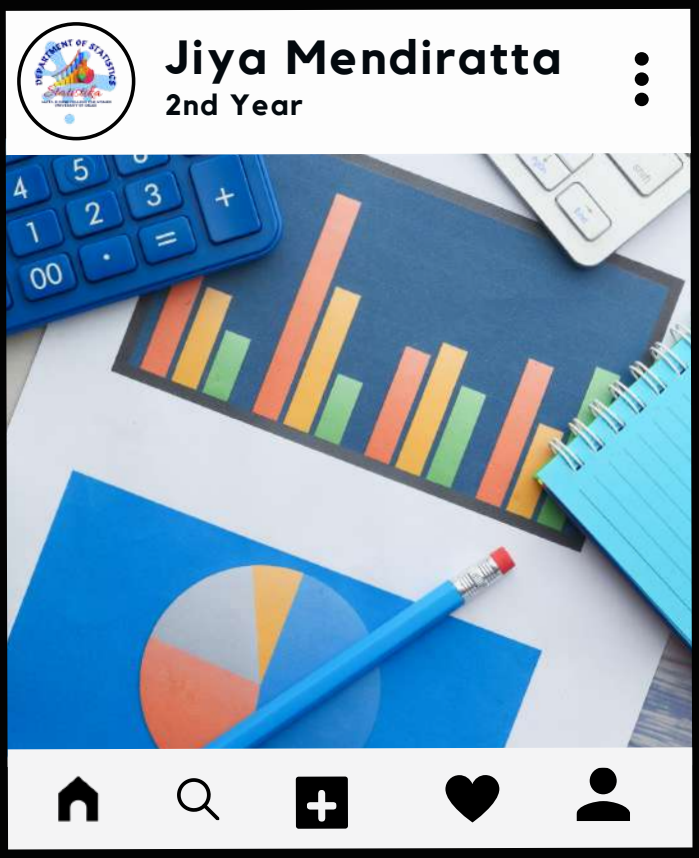
This provides increased security. Each user has an address that is derived from the public key using a hash function. These addresses are used to send and receive assets on the blockchain, such as cryptocurrency.

Real-Life Applications

Realizing the effectiveness of blockchain technology in cybersecurity, many industries and sectors have started utilizing this disruptive technology in their work. The government sector has been actively trying to tap into the full potential and power of blockchain technology. The largest record of each individual in the country is stored in a government database and is the perfect target for hackers. Mitigating these risks is crucial for any government. With the blockchain data structures deployed for secure storage of such data, governments can harden the network security and prevent any breach. It reduces the single-point-of-failure risk and ensures minimum cyber breach in the data.

Instagram

ECONOMETRICS

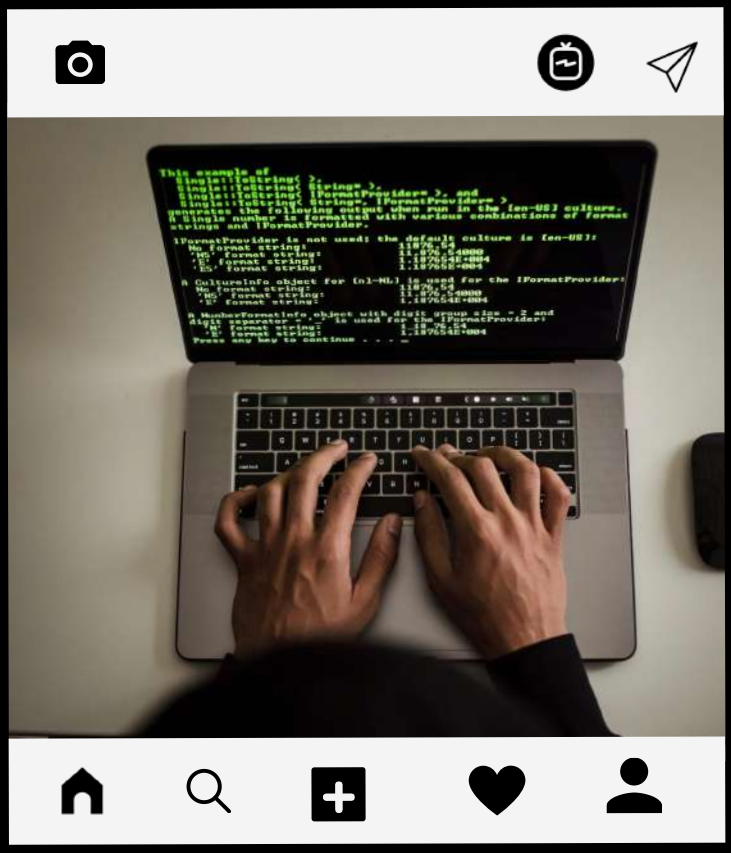


Econometrics is a term in economics used to describe using statistics, mathematics, and economic theory to quantify economic phenomena. It is performed by using data to develop economic theories. Similarly, it helps test them to establish relationships or trends between historical data. It is the quantitative application of statistical and mathematical models. It subjects real-world data to statistical trials and then compares and contrasts the results against the theory being tested. Depending on whether you are interested in testing an existing theory or in using existing data to develop a new hypothesis based on those observations, econometrics can be subdivided into two categories that are theoretical and applied. Those who routinely engage in this practice are commonly known as econometricians. The term econometrics comes from a Polish Economist Pawel Ciompa in 1910. However, it only became relevant in 1969 after the work of Ragnar Frisch and Jan Tinbergen. There are several tools within econometrics that economists can use. A fundamental tool for econometrics is the multiple linear regression model. Econometricians try to find estimators that have statistical properties including unbiasedness, efficiency, and consistency. Econometrics analyze data using statistical methods to test economic theory. These methods rely on statistical inferences to quantify and analyze economic theories by tools such as frequency and probability distributions, statistical inference, correlation, regression analysis, simultaneous equations models, time series methods, etc.

Econometrics is important in economics for various reasons. Most importantly, it helps economists test hypotheses or theories, whether existing or new. Moreover, they can convert data into a specific model to make

decisions that support empirical data. Econometrics allows economists to convert economic theories into quantifiable metrics. It is also crucial for establishing trends between datasets. Based on these, economists can forecast future financial or economic trends. It also helps them get a specific result from cluttered data. Econometrics is conducted using statistical analysis software packages such as STATA, SPSS, or R.

An example of the application of econometrics is to study the effect of income using observable data. An economist may hypothesize that as a person increases his income, his spending will also increase. If the data show that such an association is present, a regression analysis can then be conducted to understand the strength of the relationship between income and consumption and whether or not that relationship is statistically significant, i.e., it appears to be unlikely that it is due to chance alone. The limitation of econometrics is that it is sometimes criticized for relying too heavily on the interpretation of raw data without linking it to established economic theory or looking for causal mechanisms. The findings revealed in the data must be able to be adequately explained by a



theory, even if that means developing your theory of the underlying processes. It is concluded that economics includes theories or models, which are usually qualitative statements. By using econometrics, economists can convert qualitative statements into quantitative statements. Econometrics is of high importance as it uses mathematics, statistics, and economic theories to test economic phenomena.

Economic development is something much wider and deeper than economics, let alone econometrics. Its roots lie outside the economic sphere, in education, organisation, discipline and, beyond that, in political independence and a national consciousness of self-reliance. ~ anonymous

Instagram

INTERACTIVE MARKETING

Brands that prioritize consumers' demands and know how to persuade their choices outshine others whose primacy is solely generating profits. Customers strolling in the market are inclined to brands that focus on personalizing their services and the customers' needs. Representatives who have good communication skills and comprehend customers' pain points can sell their products, therefore developing an efficient brand image. Interactive marketing is all about holding the correct approach to convince the customers and devise strategies to expand the brand. It also involves creating an exclusive and trustworthy identity in the market. With the exponential rise in development across the globe, more and more brands are opting for unconventional marketing plans to achieve an irreplaceable position in the market. Common examples of interactive marketing strategies include the concept of giveaways and using social media tools like Instagram and Email to grow the reach. Conducting quizzes online, sending personalized notes to those who visited the brand, and hiring new-age influencers to promote the brand are eminent strategies to increase sales in the future.

To improve the quality of products and make them more user-friendly, brands tend to collect data from the consumers to get an idea of their choices and opinions. Brands that are acquainted with consumer needs generate better outcomes. With the help of the customer details, they can regularly update them with the new products/services released in the market. The brands must pay special attention that their mail does not create unnecessary infuriation amongst the audience.

After collecting the data, brands analyze and interpret it and make necessary changes in

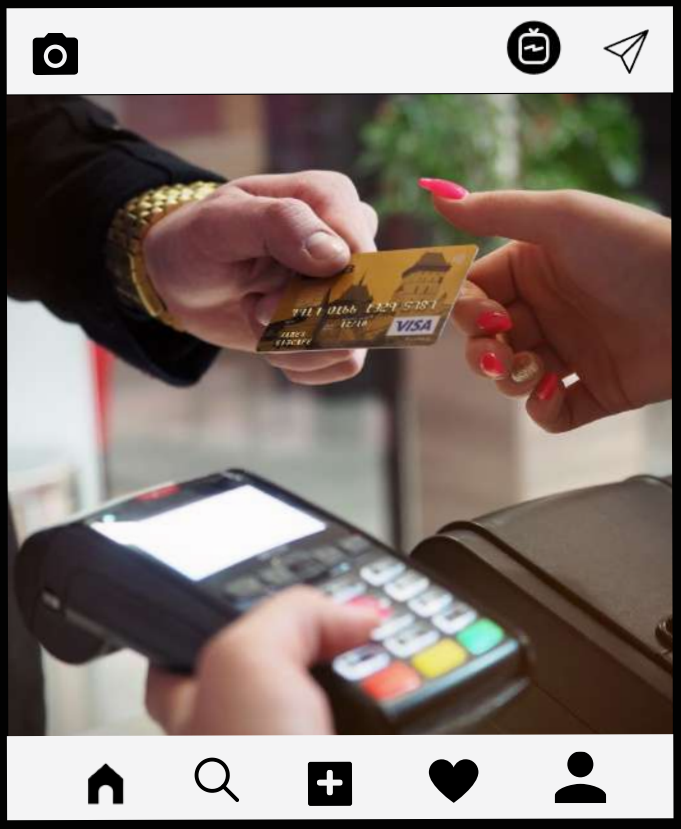
their services to make them more convenient and suitable to everyone.

They also use modern technological tools to remain connected with the consumers. Innumerable brands invest their energy to build a prominent social media presence to increase customer engagement.

Podcasts, websites, and blog pages are a few initiatives undertaken by many companies to increase the traffic to their products. These initiatives are utterly relatable and relevant enough to catch the attention of present-day educated viewers. Brands also open up columns for customer feedback and suggestions for future improvement in their services. Organizing virtual events and special sales on occasions can assist in raising consumer traffic. These events must be overflowing with information, value, entertainment, and product promotion to ensure maximum influx.

Brands must design these events creatively to ensure bilateral interaction with the audience. Any strategy can be opted based on the goals of the brand and the type of audience they are targeting.

Thus, to devise the sure-shot winning strategy, it is better to define the purpose and make a clear plan before heading to a plan of action.



But remember, “Interactive Marketing” should be a two-way pathway of effective response and communication between the audience and the brand. Any strategy which can attract the audience and build efficient communication is already winning the game of brand expansion and growth.

As Ginni Rometty, President and CEO of IBM said, "Big Data will spell the death of customer segmentation and force the marketer to understand each customer as an individual within 18 months or risk being left in the dust.”

"Mediocre marketers think in terms of campaigns. Great marketers think in terms of growth frameworks." ~anonymous

DATA SCIENCE vs BIG DATA vs DATA ANALYTICS

A simple word that has come so commonplace that we frequently stop and do not indeed suppose about its meaning. When you hear the word "data", the first thing that comes to your mind is likely to be a graph, schedule, spreadsheet, or commodity made up of figures and markers. So, the main question that arises is what's the data? There are now numerous delineations of data but the most common delineations are from the Merrian Webster wordbook. According to this vocabulary, data is data or information that is generally used to calculate, dissect, or plan a commodity. In other words, data is factual information that's used as the basis for consequences, conversations, or computations. The three subjects of comparison have data as common words in their names, so you need to know what the data is. You should understand the fundamentals of data science, big data, and data analytics.

What is Data Science?

Data science is an area of study that combines sphere moxie, programming chops, and fine and statistical knowledge to extract meaningful information from data. In other words, data science is a combination of statistics, mathematics, programming, problem working, collecting data in creative ways, the capability to see effects elsewhere, and the conditioning of organizing, preparing, and coordinating data.

What is Big Data?

Big data refers to a large and different set of information that grows at an ever-increasing rate.
Big data frequently comes from data

mining and comes in a variety of formats. In other words, big data refers to a significant quantum of data that cannot be efficiently reused by the operations being used at the moment.

What is Data Analysis?

Data analysis is the process of examining a data set to find trends and draw conclusions about the information it contains. More and more technical systems and software are being used to perform data analysis. To be precise, data analysis is the science of studying raw data to arrive at specific conclusions.

A crucial question that arises is what exactly do data scientists, big data scientists, and data judges do, and how do they differ from each other?

What do data scientists do?

Data scientists perform exploratory analysis to extract useful information from data. It also uses a variety of advanced machine learning algorithms to determine when certain events will occur in the future. This includes the discovery of retired patterns, unknown correlations, request trends, and other useful business information.

What do big data professionals do?

The job of big data experts is to reuse massive quantities of miscellaneous data from a variety of sources at high speed. Big data experts explain the structure and geste of big data results and how to deliver them using big data technologies.

Big data experts explain the structure and geste of big data results and how to deliver them using big data technologies similar to Hadoop, Spark, Kafka, etc. depending on your conditions.

What does a data analyst do?

Data critics translate figures into plain English. Every business collects data similar to data on deals, request exploration, logistics, or transportation costs. A data critic's job is to bring that data into account and help businesses make better business opinions.

Skill-Set Required to Become Data Scientist, Big Data Professional, & Data Analyst

DATA SCIENTIST	BIG DATA PROFESSIONAL	DATA ANALYST
Statistical & Analytical Expertise	Automations like Hadoop, Spark, Hive, etc.	Data Storing
Data Extraction Activities	Working with unregulated data	Hadoop Based Analytics
Interconnection	General Purpose Programming	Adobe & Google Analytics
Machine Learning	SQL/Database coding	Programming skills
Deep Learning principles	MATLAB Scripting	Scripting & Statistical skills
Deep Programming Knowledge	Innovational	Reporting with data visualization program
SQL/Database coding	Business skills	SQL/Database ciphering

Instagram

IS STATISTICS THE NEW TRENDIEST OCCUPATION?

The world will stop working without statistics. This is a very strong statement, but what if I tell you that this is true. Statistics have taken over every sector of the world. Whether it is the corporate sector, health sector, creative sector, advertising sector, or the information sector, every industry is directly dependent on statistics for most of its work. With everyday development in the world, the search for employees working in the statistics department is also increasing. Statistics directly affect almost every educational field from psychology to engineering or medicine.

Statistics is the branch that concerns the collection, organization, analysis, interpretation, and presentation of data. The data that might look small comes with huge digits that are scanned and organized by statisticians. From researchers to market analyzers every company needs statistics to make their work easy. Occupations like data analysts, research assistants, statisticians, consultants, content analysts, biostatisticians, and many more are gaining popularity because of their increased demands.

The first use of statistics in India was done under Kautilya's Arthashastra (321-296 BC), since then the use of statistics has been growing as fast as the growing debt in the college canteen. The first use of modern statistics was done in the late 19th and early 20th centuries. Since then, there has been a rapid growth in the use of statistics all over the globe. Whether it be Galton's concepts like standard deviation, correlation, regression analysis, or Pearson's product-moment the

correlation coefficient, the use of statistics has been tremendous in every field.

Some sectors that majorly use statistics are business, banking, gaming, biology, and philosophy. The graphs and tables formed by statistics help the banks to get a better estimate of the exact condition of the market inclination.

This further gives a better idea to the stockbrokers and purchasers that in turn helps in deciding what offers and discounts will rule the market next. The sales, wages, employees, and margins are all kept organized with statistical tools.

The banking sector is the backbone of any society and it is safe to say that statistics are the backbone of the banking sector. The regular maintenance of accounts is done with the help of statistical tools like Microsoft Excel, SPSS, etc. The analysis of a bank's performance and the trends are kept in check through statistics.

From keeping a track of transactions, rate interests and employee benefits the banking sector is all clouded by statistics.

Data science is utilized for building models, analyzing optimization points, making predictions, and empowering machine learning algorithms. Biostatistics is a huge branch of statistics that covers the use of statistics in medicine, public health, and biology. Keeping a track of the data and reports of people all over the globe can be made easy with the help of statistics. Statistics also is a huge aid for psychologists.

The visual charts, frequency distributions, and scatter diagrams help in summarizing facts and giving a better perspective point. If you see something with the use of numbers and percentage you will automatically get attracted to reading it more. Statistics combine this data and help in giving the right information. So, now you know how statistics is the trendiest occupation in the world!

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." *~H.G.Wells*

Instagram

THE MONTY HALL PROBLEM IN CHARLES WHEELAN'S NAKED STATISTICS

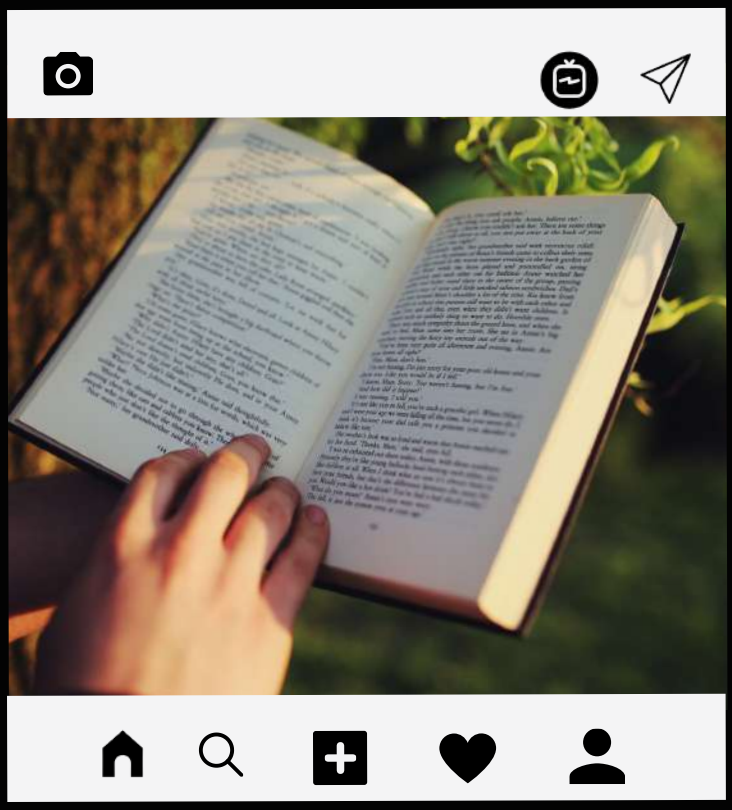
We have all dug deeper and deeper into the web of a million concepts of statistics, we went on to solve a thousand theoretical and numerical problems in our final semester of college. These problems are given in our coursebook. But have we looked into the broader aspect of it? Like how to win a gambling game, to avoid purchasing that extended warranty, or explain how the overconfident mathematician, a geek almost destroyed the global financial system? Well,

Charles Wheelan is here to help us. A lot of us have a reader inside our statistical beings. And for people like us, Charles Wheelan has written an amazing, interesting, and very knowledgeable book, "Naked Statistics." This book covers every statistical topic imaginable, from descriptive statistics to regression and program evaluation, explaining everything in very comfortable language and with daily real-life examples. One of the most fun and relatable examples is the Monty Hall Problem. It explains the concept of basic probability.

A game show, Let's Make a Deal, was being aired in the United States in 1963. It picked up "The Monty Hall Problem," a famous probability-related conundrum, as per the game, one contestant stood before three doors with Monty Hall, and one of the three doors had an exciting prize: the other two had goats. The probability of winning the exciting prize is 1 out of 3. The contestant is given two chances to choose a door. Once he selects a door, Monty opens one of the other two doors that always had a goat behind them, and he asks the contestant if he wants to switch his choice to the other closed door. The point to remember is that the two doors are still shut,

and the only new information we have is that a goat appeared behind the door that Monty opened So, should the contestant switch his choice? The answer is "yes!" If he sticks to his initial choice, he has a 1/3 chance of winning, but if he switches, he'd have a 2/3 chance of winning. How? Let's see. At first, we all think that the probability of winning is 1/3 no matter if he switches or not. But that's not so. The fact is that Monty knows which door has the prize. For instance, if a contestant picks door 1, and the prize is behind that door, then Monty can open any of the other doors.

The other two doors reveal a goat. But if the prize was behind door 2, he'd open door 3, and if the prize was behind door 3, he'd open door 2 to reveal a goat. By switching his choice, the contestant can choose two doors instead of one. This can be explained in three ways by Charles Wheelan. The first explanation is that Charles asked his kids to play the game, and the outcome came. The kid who switched every time out of the 100 times played, won 72 times out of the 100, whereas the kid who always stuck to his initial choice won only 33 times out of the 100. The data from the original show also suggests the same, that the ones who changed their minds. They won twice over those who didn't switch their choice. The second explanation is that, let's suppose that the game's rules are changed, so you get a chance to choose one of the three doors. Then, instead of opening the other door, Monty asks if you want to give up your choice and choose both of the other doors. You would choose the other two doors as it increases your probability of winning from one-third to two-thirds of the way. The fun fact is that Monty is doing the same thing by opening. In the real game, one of the other doors is for you.



In such a case, you have the same probability of winning in both scenarios, be it the real game or the case of choosing both doors. The third explanation says that, hypothetically, instead of 3 doors, you are given a choice of 100 doors, with one door having the prize and the other 99 having goats. After you pick a door, Monty Hall opens 98 other doors and asks you if you want to switch your choice to the other unopened door. Should you switch? Of course, because there is a 99% chance that the door you didn't choose has the prize behind it. And there's only a 1 in 100 chance that the first option was correct, and the second option is 99 percent likely to be incorrect. Interesting, isn't it? Whatever the game, or in big business, the game of probability is more important than anything else. It never gives 100% correct answers, but it still helps and guides us to a better path. Being a statistics student myself, I'll rate this book 5 out of 5 because of its interesting vocabulary and fascinating examples and scenarios. Go ahead and give this book a shot.

THE WONDERS OF STATISTICS IN ML, RPA AND AI AND IT'S BENEFITS IN THE MODERN WORLD

As we all know, statistics has been a big part of our life and will continue to be in the future in more ways than one. From weather predictions to looking up anything and everything on google, even the simplest things use statistics. An umbrella term under which statistics has done wonders for humankind is artificial intelligence. Artificial intelligence refers to the ability of a computer or human-made machine to replicate or copy the intelligence of humans and carry out any labor-intensive tasks with relative ease. It enables machines to develop a process similar to “thinking” in humans to carry out tasks more efficiently and in a more streamlined way. All while achieving the same goal with lesser effort. Artificial Intelligence focuses on getting machines to think humanly as well as rationally.

Under the umbrella of artificial intelligence comes phenomena like machine learning and robotic process automation.

Machine learning refers to a human-made machine or software that utilizes statistics of past use to examine trends, and patterns and make predictions on a wide range of topics. The purpose of ML is to cut down the time taken to complete labor-intensive tasks. Simply put, machine learning allows the user to create a computer algorithm and feed it any amount of data that they find suitable and have it make recommendations and decisions based on it.

Here, it is key to understand that statistics is an essential prerequisite to machine learning because it involves the user creating an algorithm and feeding data into it rather than

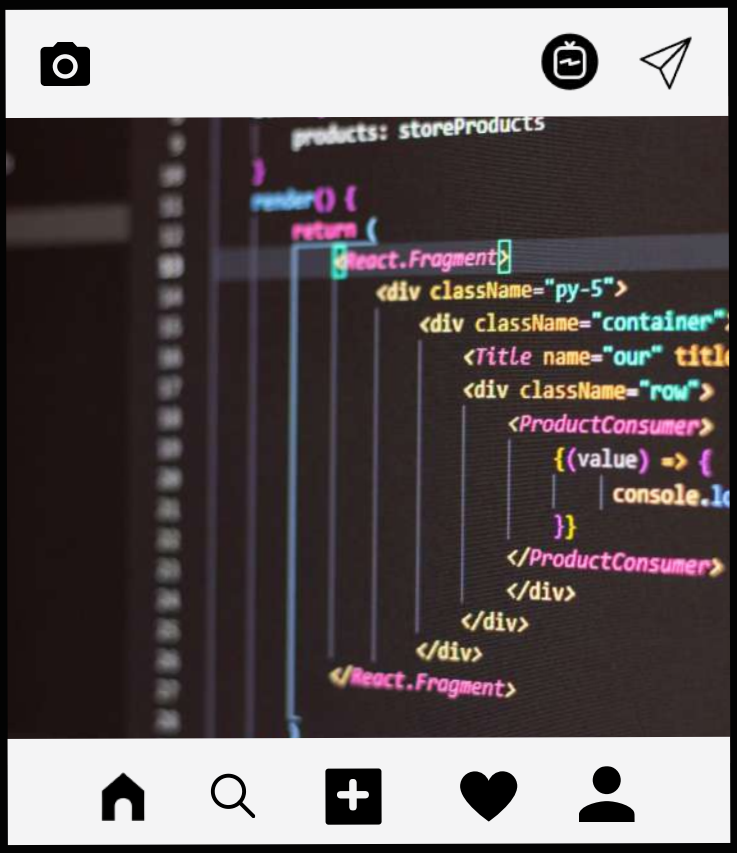
relying on rule-based programming. ML produces results using exploratory data analysis, summarization, visualization, etc. RPA refers to robotic process automation. Basically, Software or technology that enables machines and programs to replicate human actions and interact with digital systems is known as RPA.

RPA is used to automate tedious supply chain processes like data entry which involve a very high volume of data as well as repetition of tasks. Also used by many organizations to cut costs and prevent human error. It also effectively streamlines the completion of rote tasks. Unlike machine learning, RPA does not require the user to create an algorithm. It analyses the task at hand and uses suitable statistics to write an algorithm of its own.

RPA is considered futuristic technology because it can access statistics from almost an endless amount of fields and make data-driven decisions according to the algorithm it finds suitable without human intervention.

The field of AI is a source of infinite possibilities for development. It will also serve as an aid to job creation in the future. This development would make the knowledge and application of statistics a valuable asset in the foreseeable future.

Even in the unprecedented times of the COVID-19 pandemic, from contactless payments to delivery drones, we have seen how greatly AI has helped us. It has reduced contact points and helped curb the spread of the virus.



With all this in mind, it is very natural to think that advancement in AI would eliminate job positions earlier taken up by humans. However, this is only partially true as AI will help create many more jobs in the long run, making it very beneficial. Ultimately it will result in job creation due to a larger and wealthier economy, thanks to new technology. Advancement in this field will also change the nature of jobs, making them of higher value and involving interpersonal skills. Thus, making them more creative as well as strategic.

Advancement in AI would also require people to upskill themselves. Thus, creating a much better workforce. Capable of handling much more complex tasks than before, this development would help us to reach new heights of success as an economy. It would also make our workers and their skills much more valuable globally.

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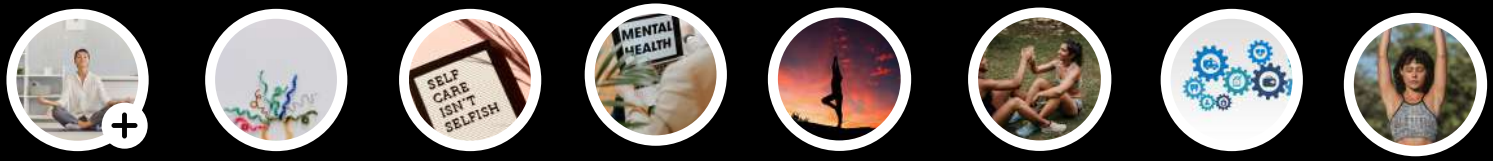
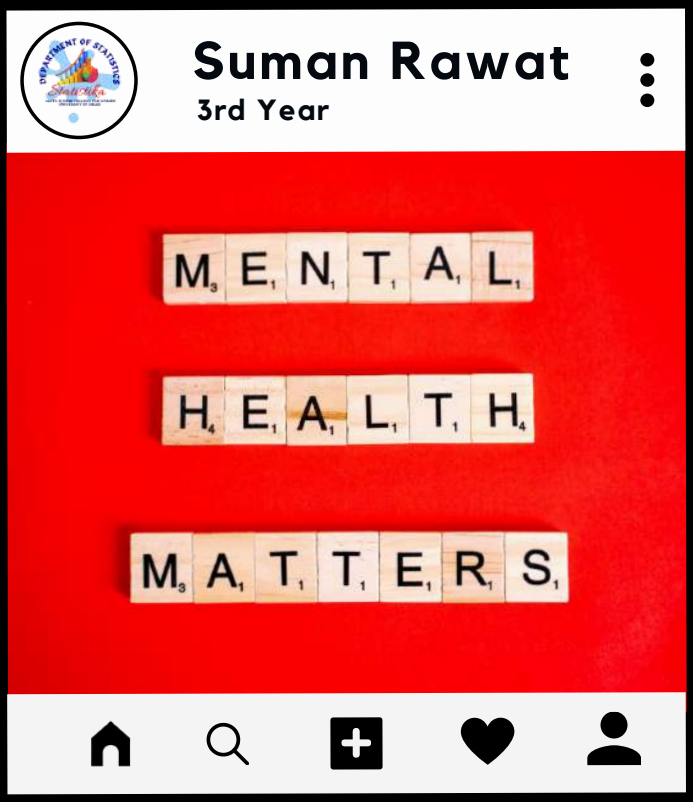


MENTAL HEALTH IN PANDEMIC ERA



Life has been drastically changed ever since the day in December 2019 when the first case of Coronavirus got registered in Wuhan, China. This has affected every age group, every section of society in every country, and the virus is still mutating to different forms, being a constant threat affecting the lifestyle of people worldwide. That has compelled the entire globe to shut down the schools and colleges, leaving us with no other option than online education. Online education has entirely changed the way of learning. The start of this change felt rather very enticing for the students with not having to rush and get ready to reach the institutions and being in the comfort of their homes. However, this peace didn't last too long. Two years of attending online classes from home have led to a string of mental and physical health issues for both students and teachers.

All the dreams and expectations that a student has while stepping into the most crucial stage of their life where they grow, learn, explore and make great bonds for life, now sounds absurd. Being a student in times of pandemic is like waking up to classes daily and then spending the rest struggling with assignments, deadlines, and submissions. After almost seven hours of attending online classes, they had to sit for another two to three hours for daily assignments. The whole process is so exhausting that at the end of the day, they don't have time for themselves and their families.

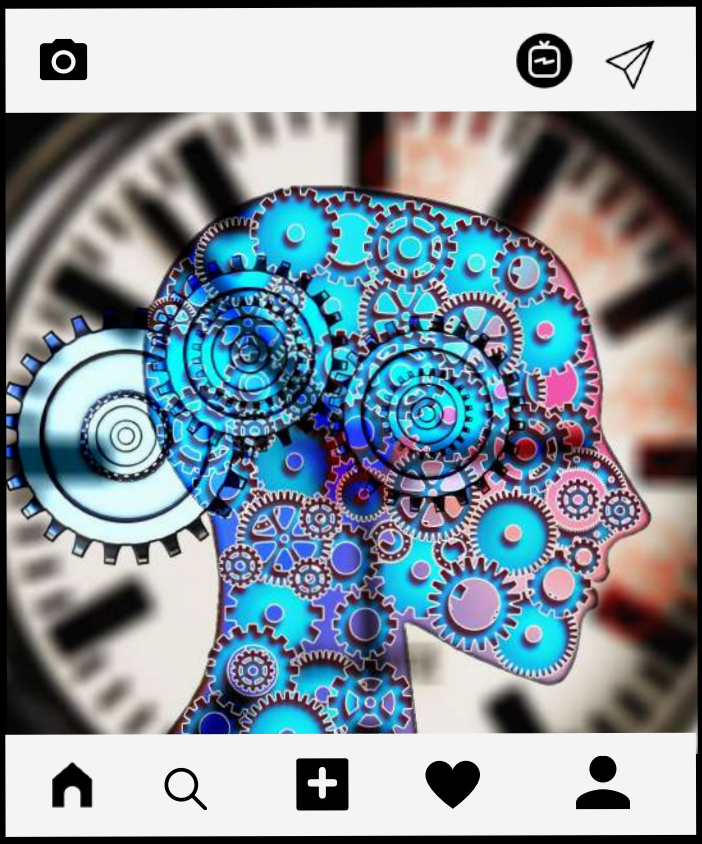
The increasing pressure is benumbing and

the mental health takes a toll, triggering new changes in mental health and mood.
Physical and mental health are fundamentally linked. Deteriorated physical health leads to stress and anxiety.

The increased screen time has a lot of negative effects on students, including a low level of concentration, weakening of eyesight, zoom fatigue means fatigueness caused due to spending more time online, health problems like hypertension, obesity, and different kinds of stress and anxieties, etc.

Virtual classes do impose a challenge to our physical and mental health but we can try to overcome all these by managing certain things. We must try to limit the screen time apart from classes.

It is necessary to have a healthy diet and sound sleep. Healthy food, sound sleep, and regular exercise will help us keep an optimistic attitude and lower stress levels. We should indulge in positive and hopeful conversations with our family members and friends to set a positive atmosphere that makes a huge impact on our mental well-being.



We should dedicate time from our schedule to pursue our hobbies, it can be reading a book, doodling or dancing, or any other activity, which makes us happy.

Thus, when our minds are stable, it enhances the whole functioning of our bodies. Being both physically and emotionally fit is the key to success in all aspects of life.

I am not what happened to me. I am what I choose to become." – *Carl Jung*
Carl Jung is saying we do not have to let our circumstances change or define us. We can still rise above our circumstances and make something of ourselves.

THE GREAT RESIGNATION & IT'S FINANCIAL IMPLICATIONS

The Great Resignation refers to mass level resignation of employees from corporate jobs and conventional career paths owing to Covid-19. It is an ongoing economic trend in which employees have voluntarily resigned from their operations beginning in early 2021. The epicenter of the Great Resignation was the United States where many employees claimed excessive burnout at work and low wages. The Great resignation also includes the proportion of workers who were sacked from their duties owing to unpredicted lockdowns and international border restrictions. The Covid-19 period had witnessed extreme levels of unemployment in both formal and informal work environments. Thus Great Resignation is an umbrella term for mass unemployment under the atmosphere of uncertainty, inadequacy, and doubt.

The sudden surge in the abdication of the workforce from traditional passage has various reasons. The planet was astonished at the onset of the pandemic. Prominent leaders took various hasty decisions. Many countries were ill-equipped to tackle the health emergency. Inadequate resources and incompetent governance were crucial reasons leading to administration breakdown. Many countries faced exorbitant shortages of basic amenities, supplies, medical instruments, healthcare staff, and other commons. Due to the closure or fragmentary operations of businesses, many companies saw a gross dip in the revenue incurred. As a result, they depleted the workforce and gave menial wages to functioning staff. Many companies raised the workload on the employees and

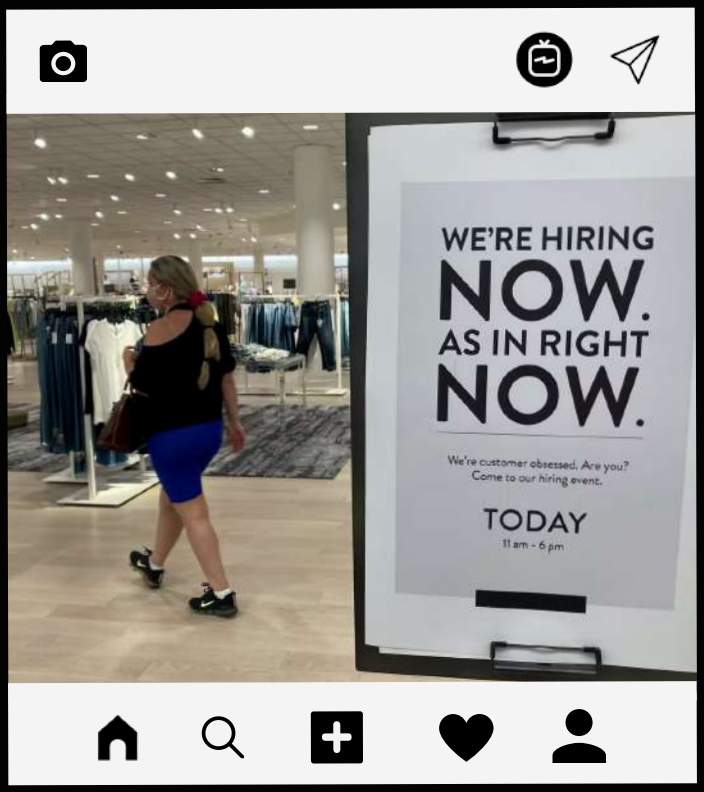
further took away other benefits provided earlier to them. Unsafe working conditions and no medical benefits were prime reasons behind mass resentment amongst workers. Developed and underdeveloped nations faced a similar situation. Countries without consideration of the resources possessed or fuelled with the latest technology were incapable of providing aid to their citizens. Many professionals experienced anxiety due to excessive work pressure. Thus they failed to maintain a proper balance between professional and personal life. Many employees who were down with Covid or were in direct contact with Covid patients were inefficient to balance their professional life. As a result, their productivity and net performance were knocked. Thus, they bid ciao to their professional career. Also, many professionals resigned from jobs that demanded long travels or were not aligning with their ethics and morals. Companies that no longer value their employees are not preferred anymore. Appreciating and valuing employees holds more priority than salaries for almost all professionals. Companies that valued their employees saw remarkable progress. Even in times of hardship, companies with fierce work commitment, respect for fellow workers, and team spirit accomplished a significant part of their goals.

The sudden upsurge in resignation had a significant effect on the economy of the World. As massive unemployment prevailed, the working people percentage immediately went down. They transformed into a liability for the government. Due to unemployment and inflation, the standard of living plunged.

Due to a shortage of goods, people failed to satisfy their wants. Buying luxury goods or traveling to opulent destinations became a fantasy for many. Besides, mass resignation has an epic toll on savings and investments. People were ineffectual in investing capital as they strive to meet their ends. As a result, the real estate and stock market saw an all-time low during this period. The GDP of various countries is facing a colossal slowdown. Many economists are working to devise policies that bring the growth back to the GDP.

Hospitality firms, fast food chains, airlines, and tourism industries were the worst hit during the period. Export industries, wholesale businesses, and other allied networks saw unbearable losses. Small retailers with menial savings were the worst hit during these times. Many successful chains had to shut down due to an uncertain environment. Educational institutions were closed likewise. Entire operations whirled into an online state. Due to excessive expenses for online education, many students discontinued their operations.

Banks and allied institutions garnered low revenue from the general public. As a consequence, they reduced the interest rates to some extent. Retired professionals were adversely affected during the pandemic as their savings were ending impulsively. These malignant measures turned a progressive society into an unqualified and relinquished unemployed one. On the other hand, many functioning sectors were not performing to the fullest owing to ill or unavailable staff. The medical industry and other essential governmental sectors faced a severe shortage of labor. An unemployed population can be very detrimental to society in the long run. Unsatisfied citizens opt for the wrong path consisting of malpractices, corruption, and fraud. Unconventional career opportunities and social media digitalization called a halt to people longing for conventional jobs. Creative and skilled brains utilized the lockdown period and devised extraordinary ways of earning online. Modern-day netizens introspected the possibility of building a career in digital marketing, freelancing, social media marketing, and startup opportunities. Many people are raising successful careers in these fields. Thus, they are helping revive the economy from a severe downturn.



Covid19 has a profound effect on the accustomed routine escorted by the public. In times of hardship, exceptional plans need to be outranged to keep things going. During occasions of extreme retaliation amongst everyone, purposive strategies and composed decisions are the pressing priority to manage the inconstant financial conditions. One must keep the finances in order during harsh times. Work burnout is real, but one must have a clear strategy to finance a new business. One must avoid relying on personal loans and emphasize developing something exciting and way out in the market. Initially, adjusting to contemporary situations can be overwhelming, but one must continue exploring different niches and sectors. Opting for unconventional paths can also pave the way to success. One must be ready to learn, mentor, and hire new talent. Also, one must be ready to fail, as success comes after repetitive failures.

At some point, most of us reach a place where we are afraid to fail, where we instinctively avoid failure and stick only to what is placed in front of us or only what we are already good at. This confines us and stifles us. We can be truly successful only at something we are willing to fail at. If we are unwilling to fail, then we are unwilling to succeed. The Great Resignation allowed individuals to discover their hidden interests and creative abilities.

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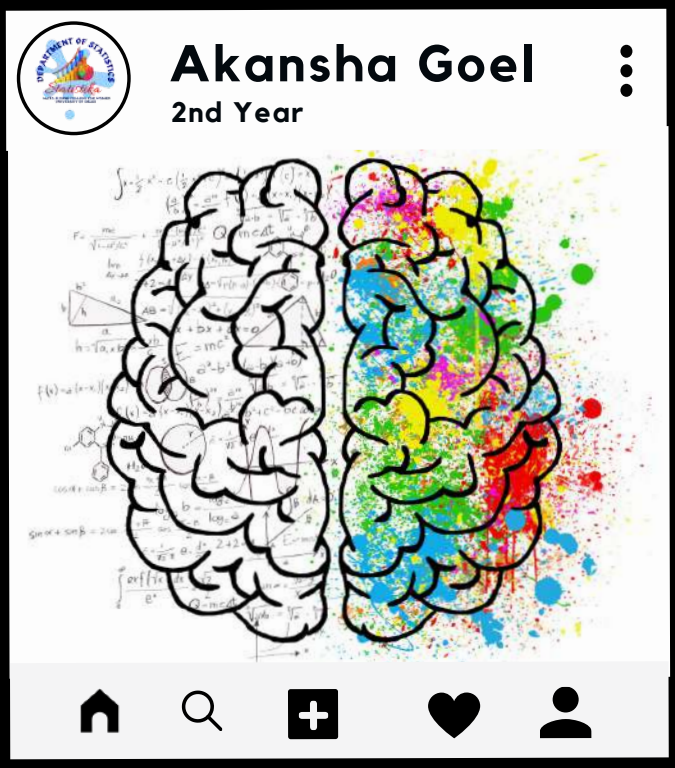
STATISTICS IN PSYCHOLOGY



Psychologists use statistics to analyze data, and also to give more precise measurements to describe whether something is statistically significant. Visual displays such as graphs, pie charts, frequency distributions, and scatterplots help researchers to get a better overview of data and look for patterns they might otherwise miss. Descriptive statistics provides a way to summarize facts, such as how many men and women are present, how many children are present, or how many people are currently employed.

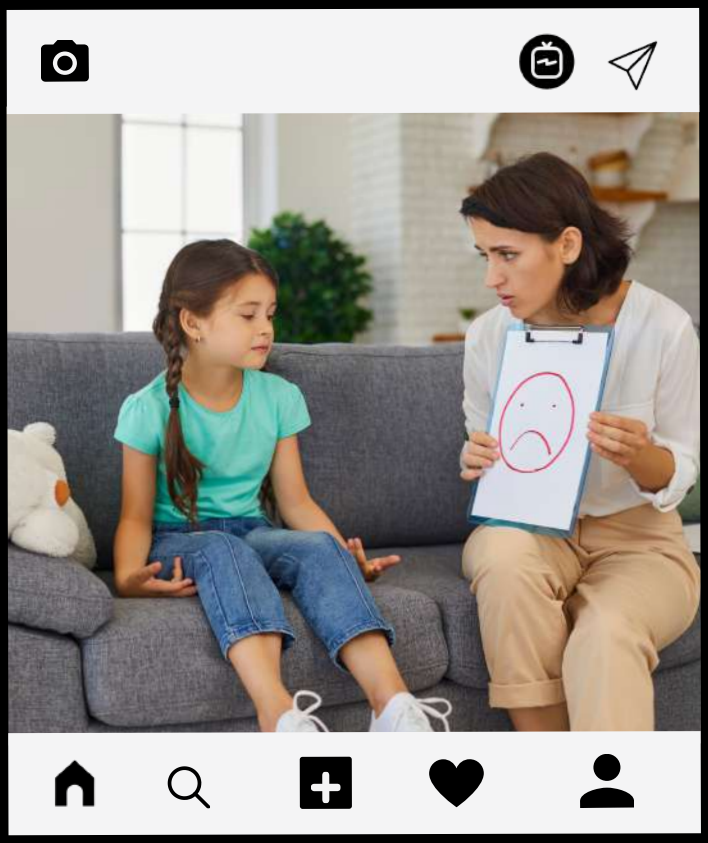
By using what's known as inferential statistics, researchers can infer things about a given sample or population. Psychologists use the data they have collected to test a hypothesis. Using statistical analysis, researchers can determine the likelihood that the hypothesis will be accepted or rejected.

For example, in the course of therapy, if a psychologist has to take into account the various aspects of emotional behavior shown by a patient, they store it in an excel sheet using statistical procedures and then analyze it by setting up a hypothesis. The psychologist can set up a null hypothesis that the patient shows a positive response towards the therapy and an alternate hypothesis as no response or negative response. Now the question comes, how can it be analyzed? It can be analyzed by subjecting the data to various sample tests like t-test and f-test based on the attributes. Hence, statistical knowledge is needed to examine and accept or reject the null hypothesis. The analysis is also possible using various graphs in SPSS, Excel, and Tableau, which all require the knowledge of statistics for the proper study.

Take another example showing the importance of statistics in psychology. Psychologists take care of the past treatment of a person by making graphs and determining what can influence the patient's attitude and prescribing medicines accordingly.

SPSS is a tool used to analyze data to form and interpret graphs effectively so that the treatment is sufficient to help a person come out of the psychological issue.

Psychologists make use of all types of statistical tools that help them to study the way a person's mind reacts to make a hypothesis, which is then solved, that is accepted and rejected based on tests that have their roots in stats and tools such as SPSS, R, Excel, and Tableau.



Statistics also allows psychologists to present complex data in a way that is easily comprehended. Also, it enables them to establish relationships between different variables, identify correlations between various concepts and draw respective conclusions. It is due to this, that no matter what type of class you are taking, whether it is social psychology or human sexuality, you will be spending a great deal of time learning about research and statistics.

The basic foundation of statistical knowledge enables psychologists to make better sense of the research conducted and draw more accurate to-the-point conclusions.

As Steven Pinker says, "Psychology tells us that the unaided human mind is vulnerable to many fallacies and illusions because of it relies on memory for vivid anecdotes rather than systematic statistics."

"I'm not interested in doing research and I never have been. I'm interested in understanding which is quite a different thing." - *David Blackwell (1919-2010) first black member of the National Academy of Sciences.*

STATISTICS IN BANKING

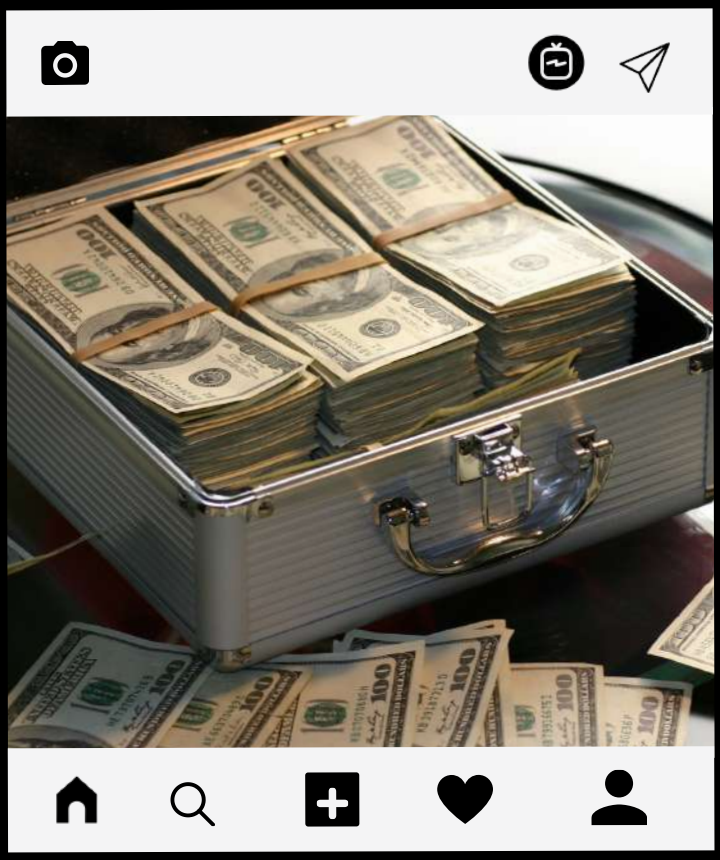
"Without data analytics, banks are blind and deaf, wandering out onto the web like deer on a freeway." Wherever there is a financial activity, statistics come into application. Whether it's economics, business management, or banking.

We are well acquainted with the fact that the banking sector is heavily reliant on statistics. It forms the backbone of the economy since the customers of any bank have an enormous amount of data linked with their bank accounts. Statistical applications like Microsoft Excel, SPSS, etc. are used for regular upkeep. Statistics aid banks in managing the excess deposits and analyzing the money deposited and withdrawn. This analysis actively helps the RBI to peruse the working of banks and their trends. Accordingly, the inflation rate and policies to be laid down by the government to counter inflation and manage government excess ratios are determined.

Private banks, like any big financial business, cannot function without the use of statistics. It helps them in analyzing consumer interests, keeping records, and determining the amount of money that can be loaned, how much of it can be kept as excess reserve keeping in mind the interests of banks as well as the country as a whole.

The concept of probability is utilized for calculating banking risk and its management. Capital modeling of a bank uses asset correlations. For product management, banks use distributions to predict the likelihood of customers availing products, closing accounts, and customers taking up cross-sold items. The credit score assigned to each client is the outcome of a statistical model that predicts the probability of being a good-paying client.

For example, a banker new to the banking system asked to maintain records on excel will require statistical knowledge of the involved procedures and functions. They will have to analyze all the collected data using tableau/SPSS/R/C to suggest new policy changes.



Also, they will have to work with the daily transactions data to calculate the money that came in and the money withdrawn to give an exact value held by the bank.

Especially in the case of RBI, drawing up the graphs of the progressing/declining economy of the country requires statistical knowledge and the associated implementation techniques.

Banks are obliged to collect, analyze and store massive amounts of data but rather than viewing this as just a compliance exercise, machine learning, and statistical tools can transform this into a possibility to learn more about their clients to drive new revenue opportunities.

Nowadays, as digital banking has become highly popular and widely used, it creates terabytes of customer data. After being armed with this information about customer behavior and preferences, banks can unlock new revenue opportunities by processing only this most relevant client information to improve decision-making.

Statistics helps maintain the records of the employees and their salaries, its usage is also primarily responsible for the maintenance of the entire system since it looks into the bank's day-to-day transactions, making the interconnection of statistics essential to keep the banking system functional.

"Banking has to work when and where you need it. The best advice and the best service in financial services happens in real time and is based on customer behavior, using principles of Big Data, mobility, and gamification." - *Brett King*

RESEARCH SECTION

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Air pollutants in India's mega cities from 2010 to 2020: A review

Summary

There have been significant adverse effects on human health and the environment as a result of air pollution. This review examines data relevant to ambient air quality in four major Indian megacities from 2010 to 2020 and compares them to WHO guidelines and Indian National Ambient Air Quality Standards. On Earth, the air is necessary for survival, but contamination has put human life in jeopardy. Because of anthropogenic activities such as burning fossil fuels like coal, industrial operations, and motor vehicles, air pollution has become a severe concern. Consistent population increase has put an unjustifiable demand on energy usage, impacting the environment and air quality of megacities. Several reasons contribute to air pollution, which can be divided into two categories: natural and anthropogenic (man-made) sources. Poor air quality and high pollution levels put people's health at risk. PM, O_3 , SOx, and NOx emissions have the potential to harm people's cardiovascular and pulmonary system. Ecologically, air pollution can cause severe environmental destruction, degradation of biodiversity and materials.

Research introduction

This work would be helpful to policymakers in making decisions. The goal of this study is to get a review about the air pollutants, their effects on human health, plants, biodiversity and materials in India's megacities from 2010 to 2020. We have also discussed the sources of air pollution and provided a detailed table for the effects of different air pollutants and their source of emissions. We have considered 4 megacities namely- Delhi, Mumbai, Bangalore and Chennai. The line graphs are also provided for each air pollutant for better understanding of their concentration in the respective cities.

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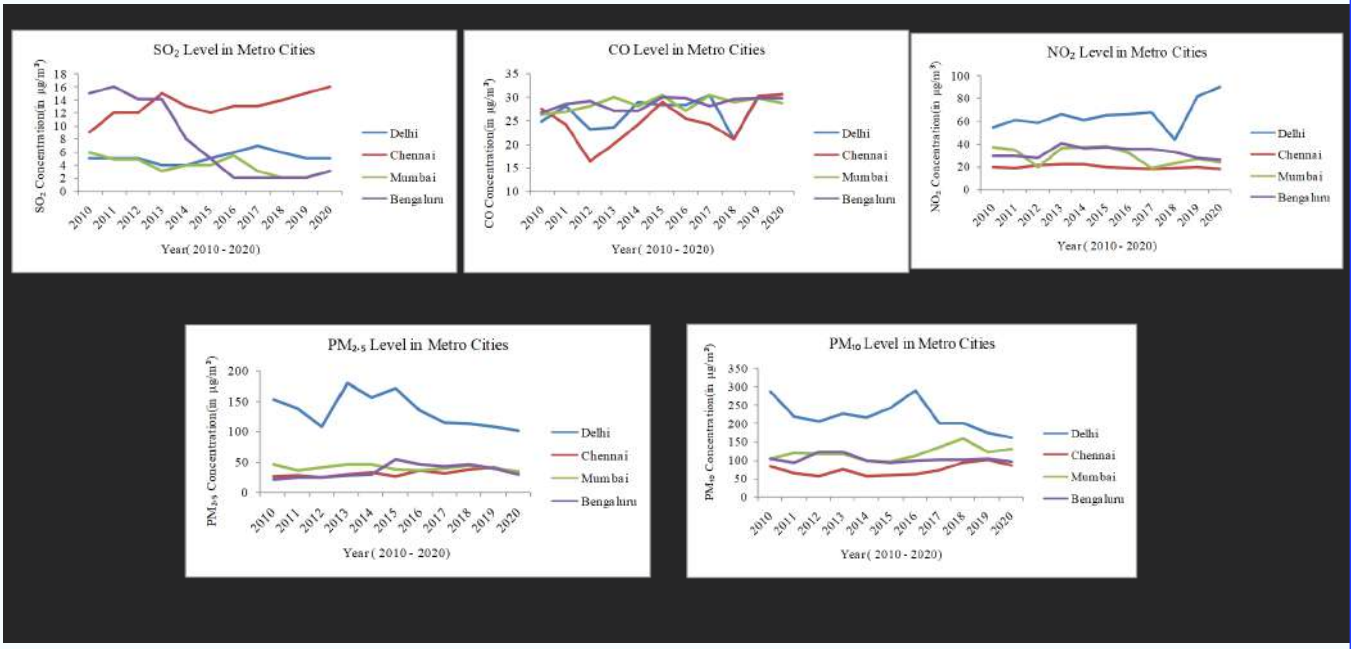
Research methodology

This study provides all information about all the air pollutants, their effects and the government initiatives to control the air pollution. Ten of the twenty most populous cities in the world are located in India, according to WHO estimates from 2016. Twenty-one of the top thirty most polluted cities are located in India, according to WHO (2019).
A megacity under the UN definition is an urban area which has a population of 10 million people.

On this criteria, present study was made for four major megacities of India namely-
(i) **New Delhi** –with a population of 26.5 million people
(ii) **Mumbai** - India's financial hub has a population of 21.4 million people
(iii) **Bengaluru**- The 'Silicon Valley of India; 10.5 million people call it home.
(iv) **Chennai**- Home of the Indian motor industry, as well as 10.2 million people.

The study reveals about these 4 populous cities of India based on toxic emissions of particulate matter (PM), nitrogen oxides (NOx), Sulphur Dioxide (SO2), Carbon Monoxide (CO), Ozone (O3), Ammonia (NH3), and Lead (Pb) from urban commuting practices.
We collected the data of each air pollutant from the CPCB website. Then all the graphs are plotted for better understanding of the reader.



Research result

Delhi, one of the most populous cities, ranks the worst in terms of overall air pollutants. Owing to the population boom, Chennai and Bengaluru are experiencing a lesser number of vehicles than Delhi. It means, as population increases in these cities and they sprawl further, air pollution, carbon emissions, and energy consumption will get far worse, leaving behind Delhi. Mumbai is the second-best performer, with its urban mobility contributing much less GHG emission as compared to three other megacities. These cities are mentioned as non-attainment cities as they did not meet the national ambient air quality standards for the period of 2011-15 under the National Air Quality Monitoring Programme (NAMP).People must be encouraged to opt for an efficient public transport system instead of relying on private vehicles. The use of alternative fuels, as well as e-cars and e-bikes, should be pushed by the government.

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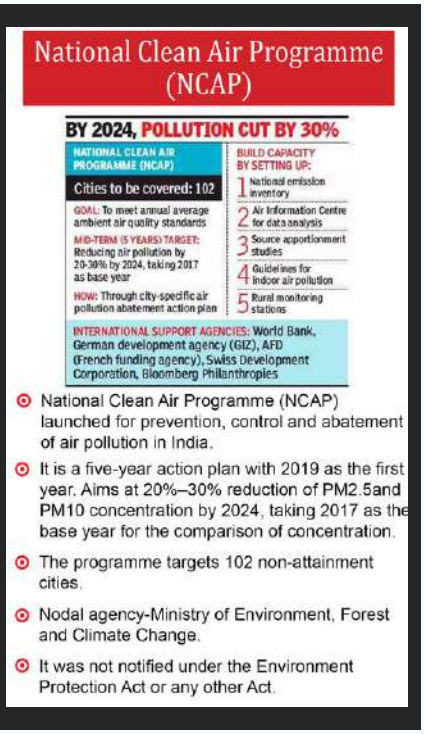
- **Dr Harpreet Kaur** (Principal)
- **Kavita Singh** Assistant Professor (communicating author)
- **Archana Jain** Student
- **Varsha Srivastava** Student

Research discussion

National Air Quality Monitoring Programme (NAMP) based dashboard, built on data from the CPCB's National Ambient Air Quality Monitoring SO2, NO2, SPM, RSPM are the four pollutants covered by the NAMP (CPCB, India). Each station records roughly 104 observations each year (RSPM).

The control plan adopted to tackle air pollution must be sustainable in nature. India's National Action Plan (NAP) appears to be an important intervention. Using 2017 as the baseline, it aims to reduce particulate matter (PM) concentrations by 2024 by 20-30%.



Research references and conclusion

[1].Annapurna V., 2020 World Sustainable Development Summit (WSDS) 2020 Towards 2030 Goals Making the Decade count, India Habitat Centre, TERI, New Delhi, India.

[2].Camargo J.A. and Alonso A. 2006 Ecological and toxicological effects of inorganic nitrogen pollution in aquatic ecosystems: A global assessment. Environ Int.;32:831–49.

[3]. Upadhyay, A., S. Dey, S. Chowdhury, and P. Goyal. 2018. Expected health benefits from mitigation of emissions from major anthropogenic PM2.5 sources in India: statistics at state level. Environmental Pollution 242: 1817–26.

Some initiatives done by the Indian government to reduce air pollution in Indian cities are SAFAR, AQI. Here is a demand for policy which envisages a healthy energy transition and healthy urban planning transition. As part of the Sustainable Development Goals (SDGs) which are all related to public health and reducing the negative environmental impact of cities, state and regional policies, must be developed.

CASHLESS ECONOMY: A Paradigm Shift

RESEARCH PUBLICATION

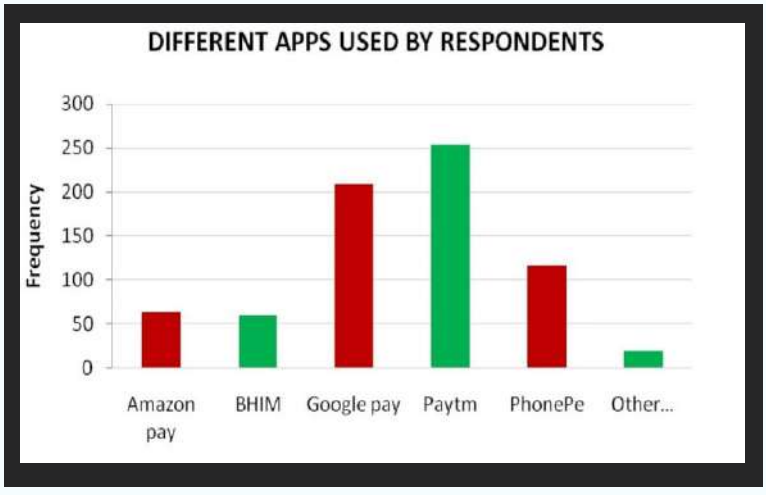
CREATOR

- **Dr. Meenu Goel** Faculty
- **Himanshi Garg** Student

A cashless society is an economic state where transactions are made through the source of digital technologies/applications. There is no involvement of physical money to make payments. There are many benefits of a cashless economy yet the Indian economy is still cash-based, with less than 5% of payments made electronically. Making transactions through digital apps not only eases one's life but also documents and validates the transactions that are made. The Government of India has launched Digital India Program to promote electronic payments instead of the usage of cash. Modern and efficient payments are a key factor for growth and development.

This research study aimed to know people's perspectives on a completely cashless economy. We wanted to find out what are the main reasons why respondents hesitate while going for cashless transactions, to find out how safe the respondent feels, what applications are preferred by the respondents, the main benefits respondents think are beneficial for the cashless transaction, if they are willing to shift from traditional to a cashless system, etc. The information for the study was gathered from 413 respondents through Google forms. The respondents observed in the study were aged between 15- and 60 years. Other than the survey, the data was obtained from various sources like Articles, Websites, etc.

The collected data was then cleaned and used for concluding. Softwares used in data analysis are SPSS and Excel. Other than the Wilcoxon Sign test, we used Chi-Square Test to obtain the results. We recorded that 85.2% of the respondents are positive about shifting towards a cashless economy. The applications, most used for online transactions were Paytm and Google Pay followed by PhonePe, Amazon Pay, and BHIM. For the study through our primary analysis, we asked respondents 'How safe do you feel while paying through cash and paying online' on a scale of 1-5 (where 1 is considered the least and 5 is considered the maximum) the maximum number of respondents responded with 'moderately safe'. Reduction in cash-related robbery and reduction in cash-related corruption are the most common reasons to shift to a Cashless Economy whereas, Hacker's activities and the security of the apps are the most common concerns of the respondents.



The study shows Indians are aware of the usage of non-cash transactions. Further studies can be done on encouraging policies Indian Government should take steps to make the dream of Digital India a reality. A cashless economy has the potential to curb the problem of black money, corruption, and cash-borne terrorism. Shifting to Cashless Economy is a slow and steady process, hence people ought to be patient and supportive of the process while Government works to improve the infrastructure.

WIKIPEDIA
The Free Encyclopedia

CHAPTER PUBLICATION

CREATORS

- **Dr. Meenu Goel**
  Faculty
- **Hrishita Suresh**
  Student
- **Himanshi Garg**
  Student

Wearable Diagnostics

Wearable technology, commonly referred to as wearable is a class of electronic devices that are used as accessories, clothing, implanted in the body or tattooed on the skin. Wearable diagnostics (WD), however, are highly specified devices that are only worn/used when the person using them is suffering from an ailment. These devices have been in use since the late 13th century and have a wide range of applications depending on their use. WD's personalized and provides independence to individuals. The term wearable diagnostics refers to small devices that work as gadgets and can be worn on the human body. They are convenient, seamless, portable and hands-free. It was foreseen by the ICT industry that 70% of early adopters were interested in correlating their lives with wearables.

Figure 1: Types of Wearable technology

This article discusses its history, types and uses in the health industry, how it has been helpful in giving life back to people as well as how it has integrated and woven itself into the present health care system. Wearable Health Devices (WHD) are technologies that enable continuous monitoring of human vital signs during daily life. And, their sole purpose is to place importance on the person in the centre of healthcare, managing their own health and interacting with caretakers. Further, wearable diagnostics are divided into two categories: Precautionary and Rectifying. Precautionary wearable diagnostics are devices that are used as prevention measures. The most common example of this is a smartwatch. Rectifying wearable diagnostics of course are devices that are used after a patient has been diagnosed with an ailment. These include a wide variety of devices based on their use and functionality. A Hearing Aid is one such device created to improve hearing by making sound audible if a person suffers from hearing loss.

This paper included not only the types of wearable diagnostics but also their uses in the medical field and helped in the advancement of preventative care. Further, there are two case studies based on precautionary and rectifying wearables. The two case studies show the significance of wearables in two different fields. Firstly, it explicates the usefulness of prostheses in sports. The article explains how Carbon fibre prosthesis has expanded the horizon for the differently-able runners in Paralympics. Oscar Pistorius and Keita Sato are examples of runners who excel in the field wearing such prostheses. Amy Purdy is an American Paralympic Snowboarder who won a silver medal in Paralympics 2018 with her self-made prosthetics. On the other hand, the article presents a case study which explains how biosensors have been proved valuable to military defences. The US navy has been successful in developing a device called the Wireless Vital Signs Monitor (WVSM) that keeps checks of the patient's vital signs no matter the circumstances.

Figure 2: Oscar Pistorius (Michael Steele or Getty images)

Poems

Fantasy
Imaginative fiction

Fiction
Portrays imagination

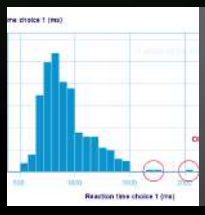
Dramatic
Relies on drama

Hello everyone!

Biostatistics

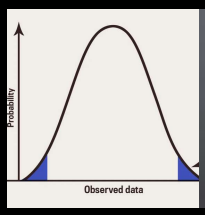
हक

Yesterday



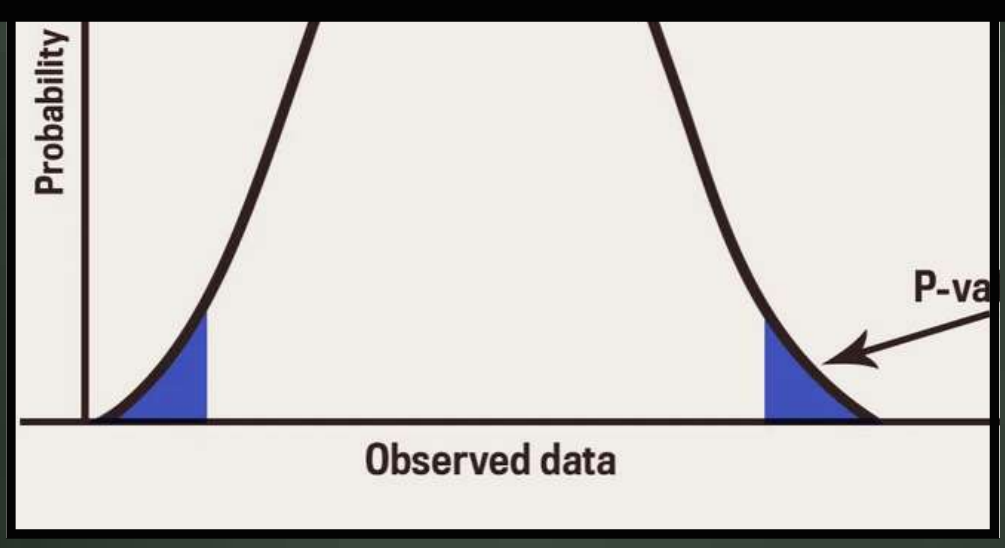
The Outlier

Welcome to Virtual DU



The p-value song

Recently played



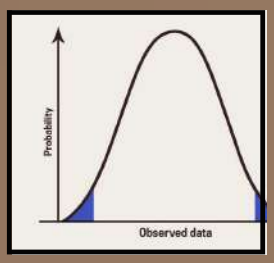
The p-Value Song

Michael Greenacre
(Contributed By Dr. Komaldeep Kaur)

0:10 4:02

Statistics, logistics, cladistics seem to me
To have a common theme scientifically
Economists, biologists with Ph.D. degrees
They all need some proof of their theories
A letter is a key, you'll see clearly
Not b nor g nor v
But it's the p!

There are no values like p values
Like no values I know



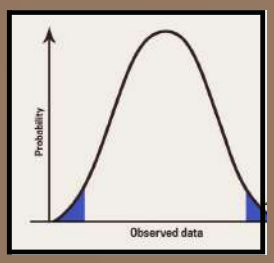
The p-Value Song
Michael Greenacre
(Contributed By Dr. Komaldeep Kaur)

Think of something that is not worth proving
A hypothesis that everyone calls Null
If your p is too large to reject it
Then your experiment is rather dull.

There are no values like p values
Especially when they're low
Don't be sad if your p's over .05
Just try again with samples twice the size
Everything is possible, just trust in me
Put your faith in the p.

The F test, the z test, the Chi-square and the t
And other cryptic terminology
ANOVA, regression, tests distribution-free
They all need some sort of guarantee
So if you find a tiny effect size.

1:30 4:02



The p-Value Song
Michael Greenacre
(Contributed By Dr. Komaldeep Kaur)

The p-value will be a good disguise
There are no values like p values
The frequentist's hero
When you get that data modeling feeling
But the results you have are not a lot
You will need some stats that are appealing
To show the journal your work is hot.

There are no values like p values
Especially when they are low
Don't be sad when your p's over .05
Just try again with samples twice the size
Everything is possible, just trust in me
Put your faith in the p.

2:15 4:02

Biostatistics

Monika Dutt
(Contributed by Dr. Komal Goel)

0:30 4:02

Welcome to the survivors of biostats one
First-term ended, a new one began.
Revitalized and refreshed, our hearts aglow
But wait weren't we just in these seats four days ago?

We must now put the horrors of last terms final behind us
With only the shreds of broken egos to remind us
Of our futile efforts and increasing frustration
As we struggled to describe that mysterious population.

Biostatistics

Monika Dutt
(Contributed by Dr. Komal Goel)

New numbers and letters, concepts and terms,

New formulas and diagrams will they ever get learned?

Through the confusion, the overheads will fly by

And we won't know whether to laugh or cry.

Dr. Komal will look up with her pleading gaze

Trying to jolt us out of our haze

We get the feeling she's wondering if we're really that slow

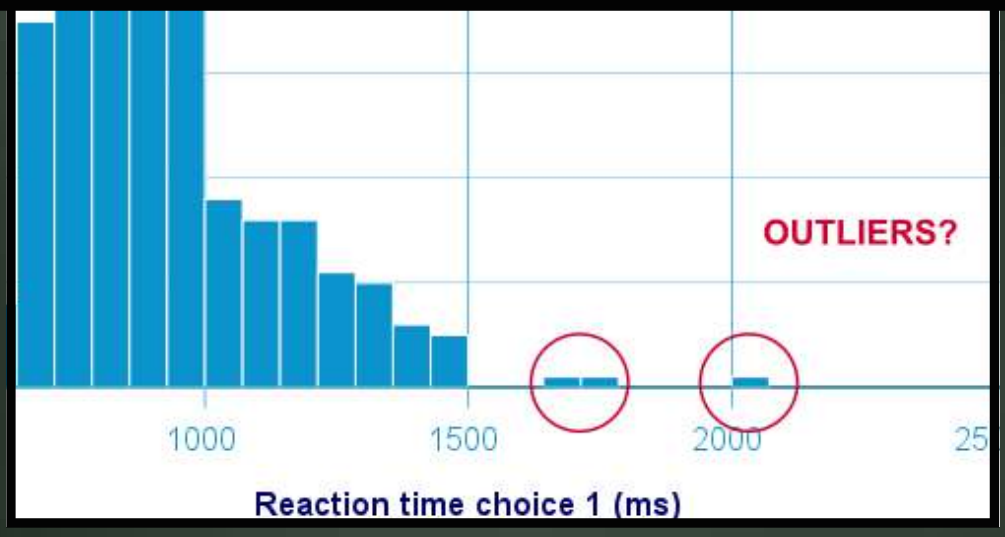
As she nods and she smiles and pretends that we know.

Here we are again did we get a break?

The days blur together; it's too much to take.

The equations mount, the work it grows

Two months down only four to go.



The Outlier

Dona Windish
(Contributed by Dr. Komal Goel)

0:30 4:02

Outlier, Outlier
What do you say?
I m part of the data,
Don’t throw me away!

I'm kept out by fences,
And left in the trenches.
It doesn't seem fair
That I m surrounded by air!

The Outlier
Dona Windish
(Contributed by Dr. Komal Goel)

Oh
Young Analyzer,
Please listen to me,
I have great power you see.

I can affect the mean
Without making a scene.
I can dance with the stars,
But I m not from Mars!

Those boxes and whiskers
Have forgotten their sisters.
Despite what they say,
I m really ok.

Though now I must rest,
I hope for the best.
You have heard my plea,
So don’t forget about me!

So, dear statisticians don’t ignore outliers in the study. They can affect your analysis a lot. Treat them as equal to other important variables.

0:30 4:02

तुझे उड़ना है

Mitali Bhatt (1st Year)

0:30 4:02

सपनो का आसमान आज खुल कर बोलेगा ।
तु डर मत तु चल ।
ये चीख कर बोलेगा ।
ये जहान जो आज तुमको रोकेगा ।
तुझे लड़ कर जीत कर फिर चलना है।
जीत कर, सबको हराना है।
क्योंकि तुझे उड़ना है।
आसमान तक पहुँचना है।

ये सब को बताना है
के तुझे भी हक है
आगे बढ़ने का ।
क्योंकि तेरा भी मन है
कुछ करने का ।

Yesterday

Poorvi Kapoor (2nd Year)

0:30 4:02

Yesterday, I went through my messages
Navigating my way out I found truth away from the truth,
I found happiness away from the happiness,
I found pretending closer to sadness,
I found news dying every day

Yesterday
Poorvi Kapoor (2nd Year)

And I found rumours spreading every day
Navigating my way out I found how the world hears what it wants,
How the public curse the corrupted
And end up forwarding the corruption,
How the jokes make one laugh
But end up making the other regret,
How the news take birth from the phone
But end up making to the headlines,
How the star's dog get highlighted
But the poor old man dies alone,
Navigating my way out I stepped on the mountain of fake news,
I stepped on the world of fake gestures,
I stepped on the world of fake friends
And on the world with fake foes.
Navigating my way out I found that news is always not true,
I found how the media highlights what people want
And how the people spread what they want!

Welcome to Virtual DU

Nandini Karmarker (2nd Year)

0:30 4:02

To all those who get admission this year,

Welcome to DU

Ab PDF hi tumhari zindagi hai

Aur assignment ki due date tumhari manzil

Practicals ke pahad jhelne ke liye tyaar ho jao

9 to 4 ek hi jagah par baithe rehne ki aadat banao

Online friends se milne ke sapne dekho

Apni college life ko waste hota dekh,

Bas rote raho

Welcome to Virtual DU
Nandini Karmarker

Societies mein enter hone ki raah dekho,

Kabhi reject ho jao to dil na dukhao

Teachers ke questions pochne par

Humesha do unka jawab

Kya pata IA mein zyada marks aa jaye,

Aur impression bhi bane acha.

Seniors ke saath bhi interact karna mat bhulna

Free ke advice and solutions, denge wo pakka

Kabhi dost se ho jaye jhagra

Toh rithna aur manana

Dekhte hi dekhte kab beet jayenge 3 saal,

Yeh nahi chalega pata.

0:30 4:02

हक

Saloni Jain (2nd Year)

0:30 4:02

जो औरत तुझे खिलाती है, जो औरत तुझे सहलाती है
जो औरत तुझे सजाती है, जो औरत तेरे लिए हँसती है
जो औरत तेरे लिए रोती है, तुझ ही को चाहती है
तुझ से ही आस लगाती है, हक उसे इतना भी नहीं
कि वो अपना हक माँगे, हक उसे इतना भी नहीं
सवाल उठाए वो, हक उसे इतना भी नहीं
आस वो तुझसे लगाए।

हक उसे है कहाँ, प्यार का
हक उसे है ही कहाँ, इज़्ज़त का हक होता क्या है?
सुना है उसने? दिया है तूने?
औक़ात औरत की साथ नहीं
सवाल करना तो बर्दाश्त नहीं ।

ART SECTION

Department of Statistics

28.0	10	67-73
Artworks	Student Participation	Page Nos.

Swipe to learn more

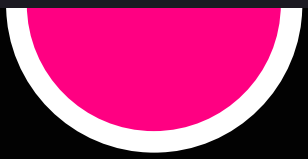
About this section:

Drawings | Painting | Creativity | Engagement

Create

Anshul Sharma

Suhani Arora



Suman Rawat

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Anshul Sharma

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Mehak Preet Kaur

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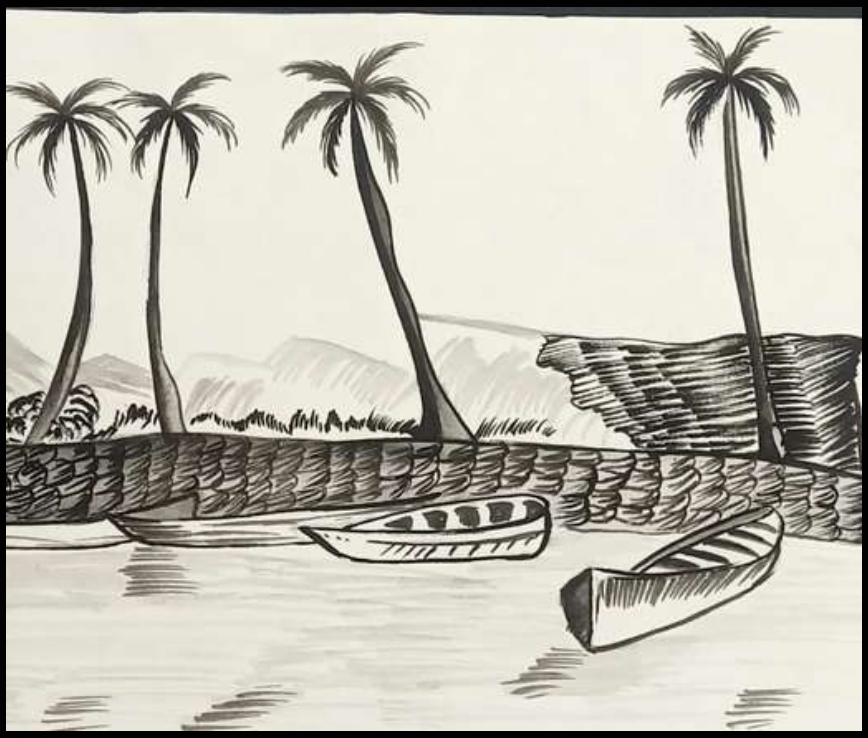
Suhani Arora

1.1k

Suman Rawat

1.1k

Shruti Rawat



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Mehak Preet Kaur

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Preet Shukla

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Suhani Arora

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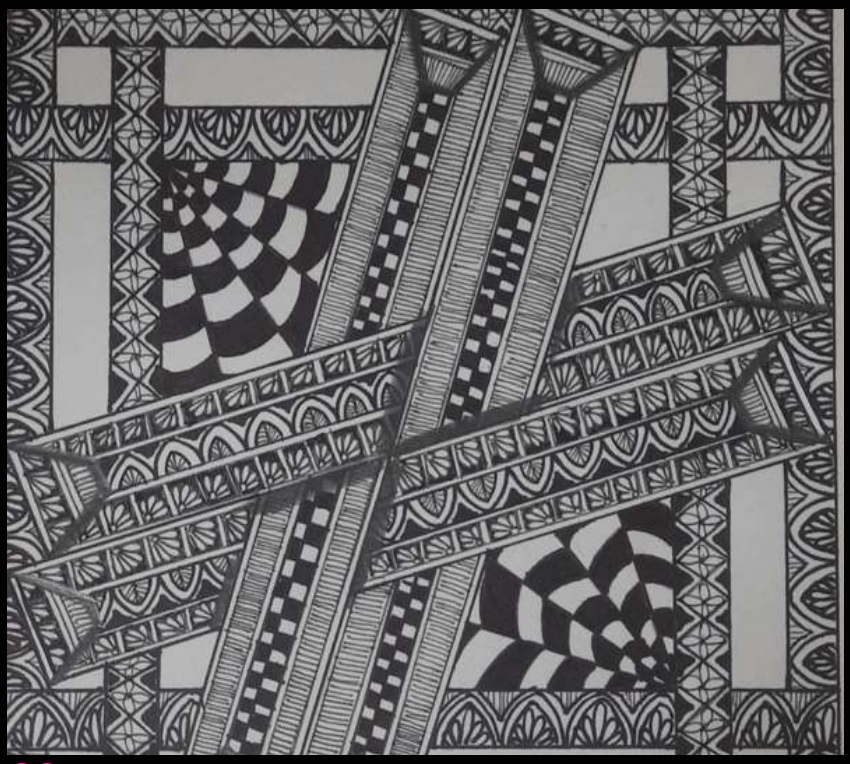
Mehak Preet Kaur



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Varsha

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Ayesha Rahil Ahmed

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Niharika Garg

Browse Watch

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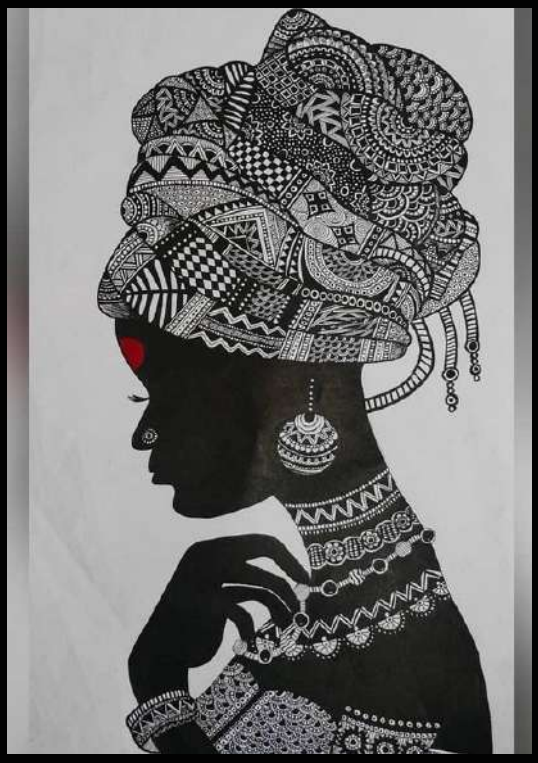
-Preet Shukla

Browse Watch



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-Anshul Sharma


Everyone has their own filter!
Year of us!!

BATCH 2019-22

AAYUSHI

The right time has come, wake up hustle and keep going.

PAYAL BHATIA

You are the greatest project you will ever work upon.

JASLEEN KAUR NARULA

Happiness is a by -product of an effort to make someone else happy.

SHREYA WAHI

If you won't cry with your whole heart, How would you laugh with your whole heart?

SAMPADA AHUJA

Nothing in life is impossible as long as you take that first step

MANVI CHAWLA

Different is Beautiful.

HRISHITA SURESH

"Dwell in possibility" - Emily Dickinson

VARSHA SRIVASTAVA

Even the greatest were beginners. Don't be afraid to take that first step.

SWATHY S SANJEEV

Because of your smile, you make your life more beautiful.

BATCH 2019-22

VANSHIKA BANSAL

If you are not willing to risk the unusual, you will have to settle for the ordinary

KHYATI MITTAL

If you want to fly, give up everything that weighs you down

ARCHANA JAIN

Life is a one time offer. Use it well.

RIDHI TANEJA

All the storms do not come to bother your life, some come also to clean the path of your destiny

SHIKSHA

Treat yourself like someone you love.

BHAVYA WALECHA

Be new you everyday !

ADITI CHITRANSHI

"Our stories and struggles are different but we all deserve to bloom .

BHAWNA SHARMA

Start where you are ; Use what you have ; Do what you can and let go of things not in your control.

JESSICA KAUR SIDHU

Don't be pushed around by the fears in your mind. Be led by the dreams in your heart.

BATCH 2019-22

PRAKRITI BHATT

A little self belief can change a lot things for the better

ANJALI UPADHYAY

Just be honest with yourself. That opens the door.

TANYA BAHL

If better is possible, good is not good enough.

SIMRAN KAUR

Life is much better when you are living in present moments

SIDHIKA JAIN

You were given this life because you are strong enough to live it.

GOURISHA NARANG

May the good times never be forgotten, and may good times continue to roll.

HIMANSHI GARG

Cherish every moment as tomorrow they'll be memories.

JASPREET KAUR KHOKHAR

Don't downgrade your dreams to match your reality. Upgrade your belief to match your vision.

GURLEEN KAUR

Today is the opportunity to build the tomorrow you want

BATCH 2019-22

MEHAK PREET KAUR

Self trust is the first secret to success.

SUMAN RAWAT

I strongly believe that, "Doing your best is more important than being the best".

DEEPIKA BISHT

Life is all about choices.

BATCH 2020-23

RITIKA SUNDRANI

NAVDEEP KAUR

GUNJAN GROVER

SIDAK KAUR

KUMUD SHARMA

NANDINI KARMAKAR

YASHIKA JAIN

RASHMI OJHA

POORVI KAPOOR

VANSHIKA MISHRA

SALONI JAIN

CHESHTA GARG

MANSI MOHINDRU

ISHITA SINDHWANI

PARUL GARG

SHRUTI SHARMA

BATCH 2020-23

ANANYA K

DRISHTI ARORA

JIYA MEHNDIRATTA

JANVI AGGARWAL

MUSKAN HASHIM

JAGRITI SUNEJA

AKANKSHA GOEL

TANVI ANAND

HARSHA GUPTA

SHREYA JAIN

KHYATI SUCHCHAL

AISHWARYA GABA

ANKITA BHANDARI

ARUSHI SHARMA

ANSHUL SHARMA

PALAK

BATCH 2020-23

HARNEET KAUR

CHHAVI KAINTH

GAGANDEEP KAUR

KAWAL KAUR

HEMA

HARSHITA

JASLEEN

DAVLEEN

AYESHA

HARLEEN

SUNITI

VRINDA

MRIGAKSHI

SANJANA

BATCH 2021-24

RIYA BATRA

SURAMYA DINKAR

REVANSHI VOHRA

KHUSHI PANDEY

GURLEEN KAUR

LAVANYA CHAUHAN

YAKSHI GOEL

ITI GUPTA

VANISHA MATHUR

SUHANI ARORA

AMANJOT KAUR

ANANYA PURI

DIVJOT KAUR

VANSHIKA GARG

MAULI SAXENA

ADITI GUPTA

BATCH 2021-24

HIMANSHI

HARSHITA DUDEJA

BISMANJYOT KAUR

DIYA GANDHI

MEHAK SINGHAL

SHIVANI AGRAWAL

SMRIDHI DUTT

SAKSHI GARG

PREET SHUKLA

MAHI SHARMA

KAJAL

JASDEEP KAUR

LAKSHIKA GROVER

DEEKSHA GUPTA

NAVYA ARORA

SHRUTI RAWAT

BATCH 2021-24

GURLEEN KAUR

SANSKRITI KANDPAL

VAISHNAVI DHINGRA

MITALI BHATT

VAISHALI JOSHI

JIGYASA KHURANA

SIMRANDEEP KAUR

MANMEET KAUR

PARAKH

TINA GUPTA

MEGHNA KHANI

KANISHKA AGGARWAL

VANSHIKA GOYAL

AANCHAL GANDHI

GARIMA CHOUDHARY

SIMRAN SHARMA

BATCH 2021-24

PRIYADEEP KAUR

MEHAK GUPTA

POOJA NEGI

TANYA NAILWAL

NIHARIKA GARG

KRITIKA SHARMA

PAVANI VERMA

JANNAT KAUR VIJ

VRITI ANEJA

SUHANI KALRA

ADITI BISHT

ANUSHKA DWIVEDI

AYUSHI

KETKI AGGARWAL

KHUSHI

SIMARJEET KAUR

GURLEEN KAUR

BATCH 2019-22

BATCH 2020-23

BATCH 2021-24

Alumni Section

ALISHA MANKU

STUDENT COUNCIL PRESIDENT (2020-21)

My college journey started in the year 2018. On the very first day, I got elected as the CR from where I then played various roles in the department. The Statistics department is one of the most well-ordered departments in the college. All three years were full of experience, learning and challenges. We always made sure to do our best for the department. Being the second batch of Statistics department, it was quite fresh and I also knew there are a lot of things we need to start in the department. All the initiatives we planned were heartily appreciated and supported by the faculty. It feels proud to start sweet little things in the department and I hope it is continued in the future.

In my final year, I decided to be a part of the student council and after becoming the college president it was a matter of pride to be the first college president from the Statistics department. Giving statistics department a recognition. My experience in the department helped me in my president's journey. This journey was full of adventure and excitement. Grateful to receive such exposure and grabbing once in lifetime opportunities. It's a moment of joy to see the next president is also from Statistics. Setting a new benchmark was always in my college plan and seeing students getting inspired by it and even setting new higher standards feels like my work is done there.

I wish you all the very best. Let's set new benchmarks for the Statistics department and inspire the upcoming batches.

SAMPADA KAPUR

STUDENT OF THE YEAR (2020-21)

College has been full of memories, from the moment I stepped in the building, I've been fortunate enough to be surrounded by peers who brought their own set of experiences, and I was able to learn from each of them.

I was a part of the Statistics society where I worked closely with the faculty who was more than eager to listen to our ideas and guided us towards wonderfully executing them. During my second year, we worked with other Science courses to conduct the annual fest, and had an absolute blast while doing so!

By the time I was in the final year, we had an independent Statistics department, and I was honored to be the first president of it.

Though the experiences shifted online, the wheel of memories continued to churn. Before graduating, I was given the Student of the Year Award by the college which was awarded owing to my contribution to the department and the college.

It is surreal writing in this alumni column as it feels like yesterday, I was writing in the first edition of this magazine as the head editor. Memories were made, the friendships were built, and not forgetting the alma mater that ensured students get all round support, and had a memorable journey. I would also like to thank the teachers for having faith in me and believing me with the duties of the department. Lastly, as people say, college is a place where your life changes and I can proudly say it did.

UMANG SINGHAL

ALL ROUNDER STUDENT (2020-21)

For me, the three-year ride was an up-and-down roller coaster that abruptly ended due to Covid, but these years at Mata Sundri College provided me with numerous possibilities, life lessons, confidence, and endless experiences. I didn't limit myself from the start and kept trying new things. It doesn't matter if it's in your institution or another one.

That would be the most crucial thing I did, or the motto I went by. Because it is during these years that you may try to experiment and explore new possibilities, encouraging you to become the best possible version of yourself. I am convinced that I received this award because of my all-rounder student profile. Mata Sundri College introduced me to some of the most stunning people I've ever met, making these three years even more unforgettable. Professors were always really pleasant and encouraging, but I'd want to highlight something very unique that occurred to me: the concern and care exhibited by teachers through my most difficult times was a key reason I didn't give up and continued to improve. And I am confident that anytime I want their assistance, they will be there for me.

Finally, thank you for all of the memories, wonderful friends, and chances I had at Mata Sundri College. It will always be a memorable trip for me.

NEHAL DIXIT

DEPARTMENT TOPPER (2020-21)

The best thing about taking the route less traveled is that you never know where it will take you. As a result of my desire to explore a new field, I became interested in Statistics. I was both afraid and exhilarated about the brand new beginnings. I owe a great deal of appreciation to my professors for converting me from a passing interest in this subject to a love for it. Mata Sundri College is a spot that holds a special place in my heart. The move from school to college was challenging for me, as it was for every other student. Every time I think back on my time at Mata Sundri College, I feel a rush of chills as I remember how it framed me as an individual and as an intellectual. It would not have been possible for me to embark on this trip without the assistance of my professors and friends. They are the ones who have been a part of my college experience for many years. It has been a wonderful experience, and I am thankful that I was able to attend college in person. Thanks to all the effort and time my teachers put into me, I was able to get into Hindu for masters, which was a dream come true for me.
Statistics, a new department at Mata Sundri College, has exhibited magnificent growth, which is a source of pride. The department is growing, and I would want to be a part of it and assist in any way I can.
Thank you very much, Mata Sundri College!

ACHIEVEMENTS

Some accolades of our peers
Congratulations! We're incredibly proud of you!

- **SAMPADA KAPUR**- named as the *student of the year* for the year 2020-21.

- **UMANG SINGHAL**- named as the *all-rounder student* for the year 2020-21.

- **ALISHA MANKU**-named as the *president of the College Student Council* for the year 2020-21.

- **ANJALI GUPTA**-
  - took part in the *National Conference on Advancement of Interdisciplinary Research (NCAIR-2021)* giving her presentation on "Statistical Analysis of Violence and Safety of women in NCR".
  - *secured 1st position* in the *Online National Level PPT competition 2021* organized by Mathematics Association, Dyal Singh (PG) College, Karnal.

- **VARNIKA VASHISTH**- took part in the *National Conference on Advancement of Interdisciplinary Research (NCAIR-2021)* giving her presentation on *"Statistical Analysis of Violence and Safety of women in NCR".*

- **TARUSHI AGGARWAL**- *secured 3rd position in the National Level PPT competition 2021 organized by Department of Mathematics, Arya PG College, Panipat.*

- **SUHANI VADERA**- *got herself a fantastic placement at Planet Spark.*

- **SHREYA WAHI & ANJALI UPADHYAY**- *Under the guidance of Dr Meenu Goel presented their research paper at the 4th International Conference on Mathematical Modelling, Applied Analysis and Computation-2021 (ICMMAAC-21).*

- **HIMANSHI GARG**- took part in the *National Conference on Advancement of Interdisciplinary Research (NCAIR-2021)* giving her presentation on *"Shift to Cashless Economy: An analysis of People's Choice.*

- **HRISHITA SURESH & HIMANSHI GARG**- Under the guidance of Dr Meenu Goel successfully completed their chapter on *"Wearable Diagnostics" in the book "Digital Health in India: Evolution in Health Informatics"*

- **VANSHIKA BANSAL, MANVI CHAWLA and SHIKSHA SINGH -** All bagged incredible placements at *Deloitte.*

sankhyiki

Mata Sundri College for Women

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Compiled by Department of Statistics