



SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN

(Autonomous, Affiliated to University of Madras & Re-Accredited with "A+" Grade by NAAC)

Chromepet, Chennai – 44.

STATISTICAL SPECTRUM

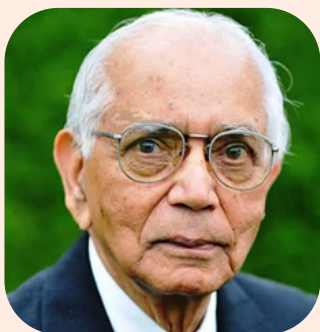
2022-2023

Editors : Sathvika Varsa H ., Raghavisri Srinivasan ., Deepika S., Shamili A., Deva Darshini S D.

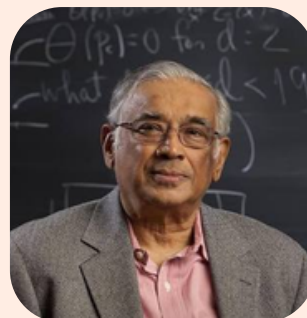


Department of Statistics has been offering B.Sc.(Statistics) programme from 1984 with affiliation from University of Madras. The Department was recognised as a Research department by the University of Madras from 2012 for offering M.Phil. & Ph.D. Programmes in Statistics. So far 23 M.Phil. scholars & 2 Ph.D. scholars have graduated from the department. Currently 3 full time & 4 part time Ph.D. scholars are pursuing their research in the broad areas of Multivariate analysis, Survival Analysis, generalised Linear Models & Fuzzy Data Analysis under faculty from the department.

EVENTS OF THE YEAR 2022-23



C.R.RAO



S.R. SRINIVASA VARADHAN

C.R. Rao is one of the reasons why the first part of the 20th century was the golden age of statistical theory in general. This great Indian-American Statistician has been awarded the 2023 International Prize in Statistics equivalent of the Nobel Prize, which is awarded once in every two years for achieving "for major achievements using statistics to advanced science, technology and human welfare". He has not just contributed to statistics but also to "Economics, Genetics, Anthropology, Geology, National planning, Demography, Biometry and Medicine". "Rao score test" gives us a novel generic approach for testing hypotheses. This award calls him a professor who works for 75 years and is still contributing a profound influence on science.

SR Srinivasa Varadhan is considered to be one of the most influential mathematicians in the world. He was widely known for his contribution in "Probability Theory". He has received high prestigious awards like Abel Prize, in 2007 for his contributions to probability theory and more specifically for creating a unified theory of large deviations. He is also a recipient of Padma Bushan in 2015 which is the third highest civilian honor. Padma Vibhusan was received by him on 26 January 2023 for "exceptional and distinguished service".

Welcome to

PRINCIPAL CORNER



My Experience

I had the privilege of interviewing Mrs. R Geetha, the Principal of our esteemed institution, who has a background in statistics. Mrs. Geetha's enthusiasm for the subject was evident throughout the interview as she passionately shared her insights and experiences.

When asked about her inspiration to pursue a career in statistics, Mrs. Geetha expressed that she had no regrets in choosing this wonderful subject. In fact, she excelled in her studies and even received a gold medal in her batch. She enjoyed teaching statistics immensely and never looked back since then.

According to Mrs. Geetha, there are several important statistical concepts and techniques that students should master before entering the workforce. These include data collection, presentation, analysis, and drawing conclusions. Additionally, she emphasized the significance of data visualization and the ability to tell a compelling data story.

Discussing the evolving field of statistics with the rise of big data and advancements in machine learning, Mrs. Geetha expressed her amazement at the performance of statisticians in various fields. She believes that statistics has already evolved to incorporate these new developments and that the curriculum now encompasses all the necessary skills.

To stay up-to-date with the latest statistical methods and developments, Mrs. Geetha mentioned that researchers engage in trial and error to build models. She encourages her students to collaborate with professionals from different disciplines to excel in statistical modeling.

She also highlighted the availability of various data sets for research purposes, which provide valuable resources for staying updated. Regarding her preference between frequentist and Bayesian approaches, Mrs. Geetha stated that modern statisticians tend to lean towards the Bayesian approach, often referred to as simulation.



In conclusion, the interview with Mrs. R Geetha, our principal and a statistics major, provided valuable insights into her passion for the subject. Her experience and enthusiasm demonstrated the importance of statistics in various fields and its continual evolution to meet the demands of the modern world.



DEPARTMENT EVENTS 2022-23

INTERNATIONAL STATISTICS DAY

The Department of Statistics organized a seminar on 20th October 2022 in the remembrance of World Statistics Day. The speaker of the day Dr. K. Rajendran, Scientist, Professor and Head, Division of Epidemiology Statistics, NIRT-ICMR, Chennai. He briefed about Usage and advancement of statistics in the BioMedical Field. He also explained about the endemic disease based case studies. He explained how to handle the data and to interpret the result.



SDP-SQL FOR STATISTICAL LEARNING



The Department of Statistics in collaboration with UpSchool Project, conducted a workshop on “Introduction to SQL (Structured Language Query)”. It was a thirty-hour workshop starting from 02-01-2022 to 06-01-2022. The emphasis of this SDP was to give students hands-on experience building, querying and manipulating databases in MySQL. Students learnt about data, tables, databases, relational databases, relational database management systems and entity relational diagrams. Ample practice using SQL clauses, operators and functions were given as well.

MULTIVARIATE STATISTICAL ANALYSIS USING SPSS

The Department of Statistics organized a workshop on “Multivariate Statistical Analysis Using SPSS” on 15th March 2023. Dr.N.Vishvanadhan, Associate Professor, Presidency College, was the resource person for this workshop. He explored the knowledge of Multivariate Statistical Analysis and its interpretation using SPSS.



SDP - INQUIRY USING R PROGRAMMING

The Department of Statistics in collaboration with the Internal Quality Assurance cell, conducted a student development program on statistical inquiry using R on 25th March 2023. The program aimed to introduce the Students to the fundamentals of R and data analysis using R. The guest speaker of the program was Dr.R.Amala, Scientist- C, ICMR Vector Control Research centre, Puducherry. The program focused on applied principles of statistics, multivariate concepts and its applications, recent developments and case studies in medicine.

CHIEF PATRONS Mrs. MAMTA D. BHATT Chairman S.D.N.B Vaishnav College for Women Shri. CHANDRAKANT M.TOLIA Secretary S.D.N.B Vaishnav College for Women Shri NIMISH C. TOLIA Joint Secretary S.D.N.B Vaishnav College for Women PATRONS DR. R.GEETHA Principal S.D.N.B Vaishnav College for Women DR.M.S LEXHA Vice Principal S.D.N.B Vaishnav College for Women CONVENER Dr. D.JANAPPOORNI Associate Professor & Head UC Department of Statistics S.D.N.B Vaishnav College for Women	ORGANISING COMMITTEE Dr. G.VISAYSHREE Assistant Professor Mrs. V. RAMYA Assistant Professor Mrs. H. KAMINI Assistant Professor Mrs. S.MERLINEJESSY Assistant Professor Mrs. R. NANCY MARY Assistant Professor Mrs. A.POOMPAVAI Assistant Professor RESOURCE PERSONS  Dr. R. AMALA Scientist - C ICMR Vector Control Research Centre Puducherry.	 SHRI. CHANDRA KANT M. TOLIA VAISHNAV COLLEGE FOR WOMEN, CHROMEPET, CHENNAI - 68. INTERNAL QUALITY ASSURANCE CELL (IQAC) (Quality Development and Self-Improvement) DEPARTMENT OF STATISTICS Organizing STUDENT DEVELOPMENT PROGRAM ON STATISTICAL INQUIRY USING R 25th March 2023 
--	--	---

STATITUDE'23'

STATISTICS ASSOCIATION 2022-23

Association activities for the academic year 2022-2023 began with the interdepartmental activities "Statzzle" on 20/10/2022. The following are the winners of the events.

Event 1 – Track & Hack

1 st prize	Saranya.M	III	B.com General
	Priyanka.A		
2 nd prize	Bahula Sathya murthy	II	B.com General
	M.C. Yagalakshmi		
3 rd prize	Divya.M	II	B.Sc Chemistry
	V.A.Aarthi		

Event 2 – Quizpiccable Me

1 st prize	Supraja.G	III	B.com General
	Trishavani.S		
2 nd prize	Lekhasree.R.K	II	B.Sc Mathematics
	Srimathi.M		
3 rd prize	Shahnaz.T	III	B.Sc Chemistry
	Subashri.A		

Event 3 – Monogram

1 st prize	Sahaya Anushya	II	B.Sc Mathematics
	Harini.S	III	B.Sc Mathematics(SFS)
2 nd prize	Janani.A	II	BA Economics (A)
	Arifa.R	II	B.Sc Comp. Science
3 rd prize	Sangeetha Kala.K	III	B.Sc Mathematics
	Aishwarya Lakshmi	III	BA Economics



Statitude'23'



Inter collegiate event – Statitude'23

Special Address was by Dr.G.Gopal Professor and Head (Retd), Department of Statistics, University of Madras, and visiting Professor Madras School of Economics, Chennai. He elucidated B.Sc Statistics and M.Sc Biostatistics students who were the audience for the event about probability, random variables, hypothesis, inferences, the importance of statistics, books and more.

STUDENTS ACHIEVEMENTS

CROWNING GLORY

PAPER PRESENTATION



IOSR Journal of Computer Engineering (IOSR-JCE)
e-ISSN: 2278-0661, p-ISSN: 2278-8727 PP 44-52
www.iosrjournals.org

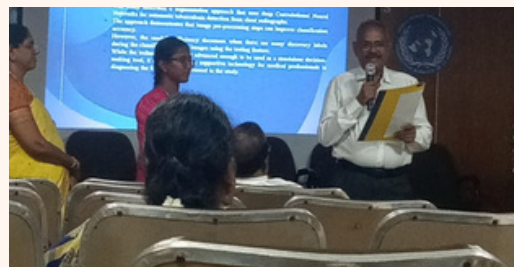
A Comprehensive Study on OTT Platforms

Nandhana. A¹, Kavya. S², G. Bala Subhadra³, Deva Darshini. S.D⁴
Department of Statistics, S.D.N.B Vaishnav College for Women

ABSTRACT

The acronym OTT stands for Over-the-Top. This convenient little term explains the new delivery method of TV content over the internet whenever we want, across many different devices, without the need for traditional broadcast. With the growth of technology and the rise of the digital age - OTT platforms - video streaming and viewing applications began as content streaming channels. The immediate objective of this study was to know the motive for viewers shifting from traditional television to OTT platforms. The analysis indicates that the popularity of OTT platforms over traditional television can be attributed to factors such as ability to revisit content at any time, access to ad-free content, and exclusive pre-release of certain shows. Accordingly, one of the biggest boosts that the OTT platforms achieved was during the pandemic period COVID-19, where this industry flourished many folds and Disney+Hotstar stands to be the most used OTT platform. With Abundant Indian and International content OTT plays an essential role in the information revolution and development. In the future OTT platforms with new updates are fulfilling viewers demand and will increase

The final year students Sathvika Varsa H, Deepika S and Shamili A SDNB Vaishnav College Chennai presented a paper titled "A study on impact of various factors on Academic Performance of Students: A Structural Equation Modeling Approach", in "2nd National Conference of Tamil Nadu Statistical Association" held on 17-18th March. The paper was announced as best among the papers presented in Technical Session VI.



YOUNG RESEARCH PROJECT

NAME : S.D. DEVA DARSHINI
M. LAKSHMI
B. PRAGATHEE
AMOUNT RECEIVED : RS. 10000
TOPIC : A STUDY ON WOMEN'S ROLE IN FINANCIAL DECISIONS
GUIDE : DR.D.ANNAPOORNI



NPTEL MEDALS

S.No	ROLL NO	NAME	TOPIC	MEDAL
1.	20ST001	Abinaya R	Business statistics	Elite
2.	20ST002	S Akshaya Priyadarshini	Business statistics	Elite
3.	20ST007	Deepika Selvam	Business statistics	Elite
			Foundations of R Software	Gold
			Programming, Data Structures and Algorithm using Python	Elite
4.	20ST010	Divya.C	Business statistics	Elite
5.	20ST014	Harini B	Business Statistics	Elite
6.	20ST015	Harini R	Business Statistics	Elite
7.	20ST020	Keerthana.S	Business statistics	Elite
8.	20ST034	Preetha Sree M	Business Statistics	Elite
9.	20ST042	Shamili A	Foundations of R Software	Silver
10.	20ST045	Swetha.H	Business statistics	Elite
11.	20ST048	vaishnavi M	Business statistics	Elite
12.	20ST052	Charumathi R	Business Statistics	Silver
13.	20ST055	Lakshmi.M	Python for Data Science	Elite
14.	20ST056	Aishwarya Lakshmi S	Business Statistics	Silver
15.	20ST057	Deva Darshini S D	Business Statistics	Silver
16.	20ST064	H Sathvika Varsa	Business statistics	Silver, Top Topper
17.	20ST064	H Sathvika Varsa	Introduction to Psychology	Elite
18.	21ST053	Jayashree.N	Descriptive statistics with R software	Silver

SPORTS



SREE VIDHYA S

Sports	Date	Venue	Medals
Inter-zone Handball match	21/1/23	Nazareth College	Winner
A-zone Handball match	4/1/2023	Chellammal College	Participated



KAVIYA K



Sports Meet	Date	Venue	Sports	Medals
7 th Chev.Dr.N.R.Dhaanapalan Inter Collegiate Athletic Meet	10-02-2023	Nehru stadium	100mts	Bronze
			Long Jump	Gold
			4x100mts Relay	Silver
AL Athletics Meet	19/12/22 to 22/12/22,	Nehru Stadium	4x100mts Relay	Bronze
			Long Jump	Gold
C.M. Trophy District Athletic meet	17/2/23,	Melmaruvathur Adhiparasakthi College	100mts	Bronze
65 th Inter Tamilnadu State Athletic meet	15/10/22 to 20/10/22	Thiruvanamalai	Long Jump	Participated

DUAL DEGREE



The following report presents an update on the progress of students who are pursuing B.Sc. Data Science in Indian Institute of Technology, Madras. The institution is pleased to report that currently 6 students are pursuing B.Sc. Data Science in Indian Institute of Technology, Madras and are making good progress towards their degree.

Kavya.S.A (21f1003837), Harini Kumar (21f2000680), Harshini Natraj (21f1005191) H Sathvika Varsha (21f3001472) have completed their foundation course in the bachelor degree. Harshini Natraj has completed two diploma projects, and nine diploma courses. Kavya.S.A has also completed one diploma project, along with four diploma courses.

Pragathee (22f1000508) has completed 4 courses at foundation level. Keerthana (22f3000199) has completed one course in the foundation level.

Raghavisri Srinivasan (38858) is currently pursuing actuarial science under the Indian Actuarial Institute. She has passed 2 papers, namely, Economics (CB2) and Statistics (CS1) courses offered by the institute.



INTERNSHIP

The institution is pleased to report the ongoing internship programs of the students from Deloitte and Virginia Tech. These internship programs provide students with the opportunity to gain practical work experience, learn new skills and enhance their career prospects.

At Deloitte, Suruthilaya and Swarnaa Lakshimi are working as Junior Ad Trafficker and Junior Paginator, respectively. They have been working for 6 months and are still continuing their internships. The students are gaining hands-on experience in their respective roles and learning how a large corporation operates. These internships are providing the students with an opportunity to learn how to effectively communicate with clients and colleagues.

At Virginia Tech, eight students, namely Charumathi, Abinaya.R, Lakshmi.M, Priyadharshini.G, Kavya.S, Kavya.S.A, Sathya.A, and Pavithra, are currently working as Data Research Interns. The internship program is of 6 months and the students are gaining practical experience in Data Mining & Research. These internships are providing students with an opportunity to learn how to analyze and interpret data, as well as to develop skills in teamwork, communication, and problem-solving.

Also, Sharmila K, a second-year student, is currently working as a Designer for a duration of one year in Team Everest Office. Sharmila is gaining valuable work experience and practical skills in her role as a designer.



Because there's always room for dessert.

EXTRACURRICULAR ACTIVITIES

2022 - 2023				
CATEGORY	1 st Place	2 nd Place	3 rd Place	Total
Inter department	26	15	5	46
Inter collegiate	14	27	13	54
sports(in our college)	1	1	0	2
sports in other college	2	2	2	6
Total	43	45	20	108

TITLE	COLLEGE	PRIZE	YEAR
1. ADZAP 2. Face painting	AMET Business School	II (Cash Award Rs.1000) I (Cash Award Rs.1000)	2023-March
1. ADZAP 2. Rangoli	Hindustan College of Arts and Science	II (Cash Award Rs. 2500) II(Cash Award Rs. 2500)	2023-March
ADAP Tune	JABAS College	II	2023-Feb
1. Treasure hunt (deepwoods) 2. Collage Making (Deepwoods) 3. Indian dance (Deepwoods) 4. QUIZ (Statistica)	MCC	III III II III	2023-Feb 2023-Feb 2023-Feb 2023-Mar
Corporate walk	Mohamed Sathak College of Arts and Science	III	2023-Mar
Photography and poetry	MOP Vaishnava	I	2023-Mar
ADZONE	Presidency College	I	2023-Feb
1. Poster Making 2. Rangoli	SSS Jain	I II	2023-Feb
1. Thirukural Vinadi-vina 2. Singing	Loyola College	III II	2023-Jan
1. Poster Making 2. ADZAP 3. Channel Surfing 4. Stat Game 5. Stat Quiz	DG Vaishnava	I II II I I	2023-Apr
SERVITIUM 1. Rangoli	MCC	II	2023-Apr



OVER ALL RUNNER TROPHY IN INTERCOLLEGIATE CULTURAL FEST "DIVA -2022 - 2023"



OVER ALL TROPHY



Students from our department participated in various events organized by the Statistics Department of **Dwaraka Doss Goverdhan Doss Vaishnav College**. Harshini Natraj and Raghavisri S won first place in Stat Game and Surprise Event, while Akshaya K won first place in Poster making. In Adzap, the team consisting of Akshaya K, Akshaya Lakshmi, Sneha H, Shrinidhi J, and Shineega T secured second prize, and in Channel Surfing, the team consisting of Akshaya K, Shrinidhi J, Pooja S, Fifitha K. M, and Shineegha T secured second prize. Furthermore, the institution is delighted to report that the students' collective efforts led them to win the Overall Trophy in the Statistics Department event.



STUDENTS CORNER

CHARTING A CAREER IN STATISTICS

Raghavisri Srinivasan
III B.Sc. Statistics, 2023



In today's world, the demand for statisticians and data analysts is rapidly increasing as companies and organizations rely more and more on data to drive decision-making. Statisticians possess the knowledge and expertise to understand the underlying assumptions and credibility of the results obtained from various statistical tests, which is not possible with generic software tools. They can identify patterns and relationships in complex data sets that may be missed by those without specialized training, and provide valuable insights into the limitations and biases of statistical models.

After completing their statistical education, students can begin their careers in various fields such as healthcare, finance, sports, or academia. Statisticians can work in a variety of industries, including government, academia, and consulting. They can also work as independent consultants or entrepreneurs, using their statistical expertise to help businesses and organizations solve complex problems and make data-driven decisions.

Dr. P.T Subha, Deputy Director General of NSO in Chennai, stressed the importance and wide scope of opportunities in statistics and suggested that statistics students should consider applying for vacant government posts that require qualified statisticians. In addition to a strong foundation in statistics, statisticians can develop strong computer programming skills and effective communication skills to make their profiles more attractive to employers.

To be successful in today's job market, statisticians should also focus on developing additional skills and staying up-to-date with the latest advancements in their field. By doing so, they can position themselves for success and have a long and rewarding career in the exciting and constantly evolving world of statistics.



CAN YOU PREDICT WHO WILL WIN AN ELECTION USING STATISTICS? YES!!!

Harshini Natraj
III yr, BSc. Statistics, 2023

It is truly fascinating how the use of statistical analysis and surveys can provide insights into voter behavior and accurately predict election outcomes. While the process of collecting and analyzing this data can be tiring and time-consuming, it is worth the effort in order to gain a better understanding of the electorate. Through the collection and analysis of data from various sources, including exit polls, pre-election polls, historical voting patterns, and real-time vote counts, analysts can develop models to predict election results with a high degree of accuracy.

So, how does this happen? The process of conducting an exit poll typically involves the following steps:

Sampling: The polling agency selects a representative sample of polling stations, which are typically chosen to represent a variety of different demographic groups and geographic regions.

Survey Design: The polling agency designs a questionnaire that asks voters about their demographics, voting behavior, and opinions on key issues. The questionnaire is typically designed to be completed quickly, as voters are often in a hurry to leave the polling station.

Data Collection: Interviewers stationed near the polling stations approach voters as they exit and ask them to participate in the exit poll. The interviewers then ask the voters the questions on the questionnaire and record their responses.

Data Analysis: The polling agency then analyzes the data collected from the survey to identify voting patterns and trends. This analysis may be done using statistical models, such as regression analysis, to identify correlations between different demographic groups, voting behavior, and issues.



Prediction: Based on the data analysis, the polling agency may make a prediction about the outcome of the election. This prediction may be adjusted as more data becomes available from other sources, such as pre-election polls or real-time vote counts.

What kind of sampling is used for exit polls? The polling agencies typically stratify the population based on geographical regions, which allows for a more representative sample. Within each region, polling stations are selected randomly to ensure that the sample is representative of the population. This approach helps to ensure that the sample is as diverse as possible and can provide an accurate representation of the overall population.

While probability sampling is the most common approach used in exit polls, some polling agencies may also use non-probability sampling methods, such as quota sampling or convenience sampling, due to practical or logistical constraints. However, these methods may be more prone to bias and may produce less accurate results compared to probability sampling methods.

While exit polls have been shown to be accurate in many cases, they are not infallible. Factors such as non-response bias and selection bias can affect the results, and there is always a margin of error associated with any poll. Despite these limitations, exit polls remain an important tool for understanding voter behavior and preferences, and can provide valuable insights for political campaigns, policymakers, and the media. With the continued advancements in technology and statistical analysis, exit polls are likely to remain a key feature of the electoral landscape for many years to come.

WOMEN IN STEM FIELDS

Lakshmi M
III yr, BSc. Statistics, 2023



Women are better at statistics than they think

Published: July 28, 2022

Authors : Jonathan B. Santo, Professor of Psychology, University of Nebraska Omaha

Kelly Rhea MacArthur, Associate Professor of Sociology, University of Nebraska Omaha

After reading this article, I got to relate the thing mentioned in that article “women had significantly worse attitudes about their mathematical abilities; women were more likely to rate their mathematical abilities as lower.” Yeah, I too underestimate myself, I thought this is because I lack self-confidence but no, many women feel the same. This results in a low women ratio in STEM fields.

First, what is STEM? STEM stands for Science, Technology, Engineering and Math, so STEM careers are those that require science, technology, engineering, and math knowledge. So we have got to know what is stem now let's talk about women in STEM fields.

As per the annual, All India Survey on Higher Education (AISHE) report “The number of women in India who have opted for Science, Technology, Engineering and Mathematics (STEM) as a field of study has increased by 53,388 in the last three years — from 10,02,707 in 2017-18 to 10,56,095 in 2019-20.” One more thing we have to accept is that our country is better on this note. There are more Indian female graduates (43%) in STEM at the tertiary level than in developed nations like the US (34%), UK (38%), Germany (27%) and France (32%).

But the thing is, Do all women pursue their career in this STEM field?

The answer is No. Recently, Swedish Science Counsellor Fanny von Heland said “About 43 percent of STEM graduates in India may be women, which is the highest in the world, but their share in STEM jobs in India is a mere 14 percent.” So why is this happening? Women in STEM are facing many challenges due to which they can't continue their career in this field.

From various studies I got to know that there still exists Gender bias in this 21st century. “Based on a report from 2020, women report a lower sense of belonging as compared to their male counterparts, they are given less respect and authority and need to work harder to achieve the same success levels.”



STUDENTS CORNER

Kelly Global Workforce insights say that “nearly 81% of Indian women in STEM faced gender bias in performance evaluations and a large proportion felt that their companies would not offer them top positions”. Women earn 15-30% less than their male counterparts.

Here comes the next issue: why are there very few women CEOs in this field? A study says that “Even at the C-suite level, only 3% of women hold the post of CEOs in the STEM industry.”

Deepa Ganapathy, Vice President, Quesst IT Staffing, said “The major challenges that have held women back are patriarchal history, issues in returning to work, and fewer role models. Also, the relocation owing to marriage, maternity break, and lack of family support have led many talented as well as capable women making a choice to opt out of their career.” The Indian government has taken many measures in this regard, to improve the proportion of women in STEM fields.

From this we have got to know that, Women! we have got brains in this field, so follow your passion; Don't underestimate yourselves. We can overcome these hurdles and shine in the fields we want, this is just a starting point we can do more.



DATA IN SPORTS

Pragathee B
III yr, BSc. Statistics, 2023

Role of data analyst in cricket

Data science and analytics are a relatively recent subject of study. Even while there is a great opportunity, not many people are aware of it, especially when it comes to sports data analytics.

A cricket team has batsmen, bowlers, coaches. But not all the cricket fans are aware of the “Performance Analyst”, “Cricket Analyst” position.

What is Cricket Analysis?

A performance analyst's main responsibility is to evaluate a team and provide his findings to the team management. The analyst compiles information from a game and analyses the important areas that need improvement and how the team may address them.

To know any analysts?

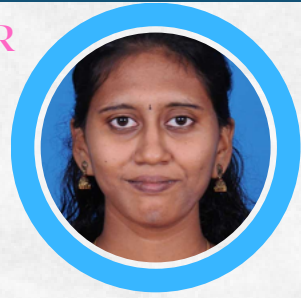
- AARTHI NAGLE, Cricket field has less female analyst as compared to male analyst. In the male dominated field the first women analyst is “AARTI NAGLE”, current video analyst in women's Indian cricket team.
- PRASANA AGORAM, a performance analyst who has worked with South Africa cricket team. And also been a part of various IPL teams like Royal Challengers Bangalore, Delhi Capitals.
- DEVRAJ RAUT, analyst of IPL franchise Mumbai Indians and Indian Cricket Team. He is currently with the U-19 and Indian cricket A team with 12 of experiences as cricket analyst.



STUDENTS CORNER

DATA SCIENCE AND STATISTICS: BRIDGING THE GAP FOR DATA-DRIVEN DECISION MAKING

H Sathvika Varsa
III yr, BSc. Statistics, 2023



In recent years, data science and statistics have emerged as two fields of immense significance in the realm of data-driven decision-making across various industries. These fields, though closely related, possess distinct differences in terms of their scope, focus, techniques, and application areas, which are essential for organizations and professionals working with data.

Data science, an interdisciplinary field that blends expertise from diverse domains such as statistics, computer science, and domain-specific knowledge, is at the forefront of extracting insights from data in various forms. With the help of tools like Python, R, SAS, and Tableau, data scientists analyze ample amounts of data, including unstructured data such as images, text, audio, and social media posts. Data science encompasses tasks like data cleaning, integration, visualization, and statistical analysis to provide insights and develop predictive and prescriptive models using machine learning algorithms and optimization techniques. On the other hand, statistics, a branch of mathematics, focuses on the collection, analysis, and interpretation of numerical data. Statisticians employ scientific methods and mathematical models to analyze data and make predictions about future events or trends. Statistics often emphasizes inferential statistics, where conclusions are drawn about a population based on a sample, and encompasses hypothesis testing, confidence intervals, and regression analysis. A significant disparity between data science and statistics lies in the type of data they work with. Data scientists predominantly deal with unstructured data, which encompasses diverse forms of data, while statisticians primarily work with categorical and numerical data that conform to a traditional database structure.

Another distinction is in the respective focuses of the two fields. Data science centers on prediction and action, with a focus on real-time data and the development of models and algorithms that can accurately predict outcomes based on new data inputs. In contrast, statistics centers on inference and description, often utilized for hypothesis testing, determining significant differences between data groups, and making predictions based on current trends. The tools and techniques employed in data science and statistics also differ. Popular tools used in data science include Python, R, SAS, Tableau, and TensorFlow, while statisticians commonly use SPSS, Microsoft Excel, and MATLAB. Data science encompasses a broader range of techniques beyond traditional statistical methods, such as machine learning, natural language processing, and data visualization, which are widely used for tasks like image recognition, recommendation systems, fraud detection, and sentiment analysis.

Furthermore, data science finds wide-ranging applications in diverse industries such as finance, healthcare, marketing, e-commerce, social media, sports, and transportation due to its interdisciplinary nature and ability to process and analyze large volumes of data from various sources. Data science plays a vital role in facilitating data-driven decision-making in these domains. Conversely, statistics is often applied in fields such as economics, psychology, social sciences, and market research, where the focus is on inferential statistics and hypothesis testing. As the demand for data-driven decision-making continues to increase, understanding the similarities and differences between data science and statistics is crucial for organizations and professionals dealing with data. Both fields possess unique strengths and applications, and utilizing their capabilities can result in more accurate and informed decision-making in today's data-centric world.

In conclusion, data science and statistics are two closely related yet distinct fields that play critical roles in the era of data-driven decision-making. Understanding their scope, focus, techniques, and application areas is vital for organizations and professionals to make use of their potential effectively and make informed decisions based on data insights. With the right implementation and utilization of data science and statistical methods, organizations can unlock the true potential of data and derive meaningful outcomes in today's data-rich landscape.