



NEWSLETTER

Edition: September 2023



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About Shunya

Shunya is the inaugural newsletter of the Metrix Club, a dedicated body of enthusiastic students exploring the vast realm of Business Analytics. As an initiative under the Metrix Club, Shunya endeavors to be a platform where Budding Analysts, Data Enthusiasts, and Curious Minds converge to share knowledge, explore trends, and foster a culture of collective learning. Our newsletter is a collection of insightful articles written by our very own students, diving into a variety of domains in Business Analytics. We aim to create a community where innovation meets practicality, and theory meets application.

What's New?

In this maiden issue of Shunya, we're excited to share a plethora of thought-provoking articles penned by our students, each uniquely presenting their exploration in Business Analytics. We're also delighted to introduce our 'Speaker Spotlight' section, featuring insights from guest sessions hosted by Industry Veterans. Additionally, we offer a snapshot of technical workshops conducted by the Metrix Club, providing a hands-on approach to understanding and applying Analytics. These features are just the beginning; stay tuned for more innovative additions in our forthcoming issues.

Note from Team Shunya

Greetings from Team Shunya! As we launch our first newsletter, we extend our heartfelt gratitude to every member of the Metrix Club for their tireless efforts, diverse contributions, and unwavering support. This issue is not just a collection of articles—it's a testament to our shared passion for Business Analytics. As we delve into various domains, from Data Science to Machine Learning, from Statistical Analysis to Predictive Modeling, we hope to ignite a spark of curiosity and inspire a journey of discovery. We hope you find this issue enlightening and engaging, and we look forward to your feedback, suggestions, and contributions for our future issues.



Speaker Spotlight

"Expert insights on building a strong financial future"

By Shreyans Gala



What do you mean by Finance?

- It's all about managing cost, income and how you manage your profit, and portfolio.
- Investing, borrowing, lending, budgeting, saving, and forecasting.
- > In general, Finance is a broad term.

What do you mean by Analytics and a Career in Analytics?

- Analytics is a process or math to find meaningful patterns in data.
- To deliver deeper insights that can enable more effective Decision-Making.
- Making the product more effective is important.
- Need to know the manual process before codding interpretation is important.

How we get there (Process of Analytics)?

- ➤ Collecting raw data.
- Data Analytics and insight.
- Communicating insights and visualization.
- Data based action (what is missing in the data and experimentation).

Most Underrated and Overstated?

Focus on basics to lay a solid foundation.

What, When and Why (3W's)?

- Validation
- ➢ Feedback









"Exploring future of Insurance" By Vikas Sharma



The illiterate of the 21st century will not be those who cannot read and write but the one's who cannot learn unlearn and relearn things.

Process of Risk Management:

- Risk Avoidance
- Risk-Retention
- Risk Reduction and Control
- Risk Transfer

What is Insurance?

- Compensation of your earnings after your death.
- Insurance has two major types Pure Endowment (saving) and Term Insurance (after death).

Insurance history in India

- The first Oriental Insurance was in 1818.
- LIC 1956 (Life Insurance Company) IRDAI 1999



Future of Insurance

Insurance Penetration (Contribution to the GDP), which is around 3.2% from Life Insurance and 1% from Non-Life Insurance.



Mortality Protection Gap, Law Awareness, Complexity of insurance products, Inadequate trust in Insurance sector, LIC no.3 as the trusted brand

Scope of Insurance

2017 to 2022 ,11% and 17% CAGR expected to grow by 9% CAGR 2027 What is the raw material (population)?

What is the possible career option in Insurance and Analytics?

- Development Officer
- Insurance Advisor
- Risk Analyst
- Actuarial Analyst

Article 1

"Unleashing The Power Of Data: How Analytics Drives Success In Formula 1?"

Formula 1, the pinnacle of Motorsport, combines cutting-edge technology, highspeed racing, and strategic decision-making. In this data-driven era, Analytics has become an integral part of Formula 1, revolutionizing how teams approach race strategies, car performance, and driver development. With an immense volume of data generated during each race, teams leverage advanced analytics techniques to gain insights, optimize performance, and gain a competitive edge. This article explores the fascinating intersection of Formula 1 and Analytics, shedding light on how data-driven analysis is shaping the sport and propelling teams towards victory. According to an engineer from an F1 team, the data stream that flows from their cars provides invaluable information regarding temperature, pressure, speed, and torque.

-By Paresh Sawale

These parameters are meticulously monitored by individuals like themselves, who possess a deep passion for the technical intricacies of the sport. Situated back at the factory, they analyze and scrutinize every bit of data, ensuring no detail goes unnoticed. According to the engineer, the amount of data generated by an F1 car over a race weekend, including video footage and additional information, is estimated to be close to a terabyte or even more per car.

However, when considering the most crucial data—the live data generated by the car while it's running—the focus shifts to approximately 30 megabytes of data per lap. These real-time insights provide teams with valuable information for making instant decisions during the race.

This data provides valuable insights to the engineers, enabling them to compare the performance of the two cars and assess their relative strengths in different sections of the track.

Similarly, the throttle and brake data illustrate how each driver utilizes these inputs. The throttle data reveals the driver's modulation of the accelerator pedal, indicating their approach to managing traction and power delivery. Likewise, the brake data showcases the driver's braking technique, shedding light on their ability to balance deceleration and maintain control.

The lap times provide a summary of their performance, with Stroll completing the lap in 1:47.765 and Verstappen trailing by a mere 0.290 seconds.

This detailed analysis of the telemetry graph allows us to delve into the contrasting strategies, strengths and techniques employed by Lance Stroll and Max Verstappen during the specific race or qualifying session, offering fascinating insights into their performances on the track.

In Formula 1, the fusion of cutting-edge technology and Data Analytics has revolutionized the sport. Telemetry data provides teams with crucial insights into car performance, driver behavior, and race strategies. From braking points to throttle application, every detail is meticulously analyzed to gain a competitive advantage.

The telemetry graph, sourced from the official F1 TV website, exemplifies the contrasting styles of drivers like Lance Stroll and Max Verstappen. By leveraging Analytics, teams can optimize setups, refine strategies, and unlock untapped performance. The future holds even more exciting possibilities as technology continues to shape the sport, pushing the boundaries of speed and excellence on the world's grandest racing stage.





The vast volume of data generated demonstrates the immense significance of Analytics in Formula 1, enabling teams to extract meaningful insights and optimize performance on a lap-by-lap basis.

In the telemetry graph, two distinctive lines represent the performance of Lance Stroll (pink line) and Max Verstappen (blue line). The graph reveals intriguing insights into their driving styles and techniques during the specific race or qualifying session.

As we analyze the graph, several noteworthy observations emerge. Initially, Lance Stroll demonstrates the ability to achieve higher speeds leading up to turn 1. However, he chooses to brake earlier compared to Max Verstappen, sacrificing some speed in favor of earlier deceleration.

On the other hand, Max Verstappen exhibits a different approach, maintaining a slightly lower speed but opting for a later braking point, highlighting his confidence in late braking and precision. The first significant peak on the graph corresponds to turn 1, symbolizing a critical braking zone. It exemplifies the contrasting strategies employed by Stroll and Verstappen, where Stroll prioritizes early braking, while Verstappen focuses on carrying more speed into the turn.

Further along the telemetry graph, the second change in direction reveals Verstappen's ability to carry higher speeds through low-speed corners, demonstrating his proficiency in maintaining momentum and achieving better acceleration upon exiting the turns. However, it is noteworthy that Stroll manages to reach a slightly higher top speed, indicating the strengths of his car in straight-line performance.

The engine section of the graph indicates the RPM (Revolutions Per Minute) at which each car's engine operates at specific points during the lap.



"Data is just a body, Interpretation is its soul"

-By Pooja Sharma

Data is usually referred to as the new oil in today's world. Data powers the motors of contemporary enterprises, much as oil fuels the engines of our economy. Data has proliferated thanks to the development of digital technology and the internet, and its value has increased dramatically. As important as data is, its true worth is found not in its unprocessed state but rather in how it is interpreted and analyzed.

Data can be thought of as the body, and interpretation as the soul. Data is useless without interpretation, just as a body is lifeless without a soul. Data cannot be turned into useful insights that can guide business choices, spur innovation, or ultimately bring value to an organization without interpretation. For data to be used successfully, interpretation is essential. It entails deciphering and analyzing the data, spotting trends, patterns, and anomalies, and turning the conclusions into useful recommendations. Data is nothing more than a collection of meaningless numbers and statistics without any interpretation.

Think about a company that gathers information on its sales from the previous year as an example. The information might indicate a 10% rise in sales for the company. Nevertheless, the business will not benefit much from this information on its own. Without interpretation, the company is unable to ascertain the causes of the increase in sales, including whether it was brought on by modifications in consumer behavior, new marketing initiatives, or other elements. To figure out the causes of the sales growth and whether it is sustainable or not, interpretation is required.

Like this, data interpretation is crucial in a wide range of other fields, such as healthcare, finance, and education. In the field of finance, data interpretation can be used to spot trends in the stock market, forecast changes in interest rates, and assess the risk involved in various investment strategies. Interpretation can be used in healthcare to spot illness trends, anticipate epidemics, and guide treatment choices. Data interpretation in education can be used to pinpoint the variables influencing student performance, evaluate the efficiency of teaching methods, and guide curriculum creation.

To ensure that data is used ethically and responsibly, interpretation is also essential. There is a chance that the growing amount of data being gathered will be utilized to prejudice groups, breach their privacy, or reinforce existing biases. These problems can be found through interpretation, which can also guarantee that information is used fairly and responsibly.

In conclusion, data is an important resource, but its real worth is in how it is used?. Giving meaning to data and turning it into insights that can boost innovation and guide decision-making is the process of interpretation. Without interpretation, data is just a body that has no life or significance. Businesses, organizations, and individuals must therefore acknowledge the significance of interpretation and make the necessary investments in knowledge and equipment to understand data. Then they will be able to fully utilize data and use it to further their objectives.





"The Winning Formula: How Business Analytics is Revolutionizing the Football Industry?"

-By Mihir Sardesai

he football industry has embraced Business Analytics, revolutionizing decisionmaking processes on and off the field. As someone who has worked in the industry, I have witnessed firsthand the transformative power of Analytics in football. The integration of data-driven decision-making has revolutionized the way clubs operate, from player recruitment to fan engagement and financial management. Many people know about the popular film Moneyball, where a bunch of underdog teams went on to win the series for their team after the team recruited them based on Data Analysis. In real life, the most popular sports team that uses heavy data is from the English Premier League named Brentford having had a meteoric rise from the Lower leagues to the lucrative Premier League since taking up the infamous Moneyball data-driven model.

In this article, I will focus mostly on the performance analysis point of sports analytics, and how it helps the clubs in recruitment policies. Performance Analysis in football plays a crucial role in helping clubs make better decisions when it comes to player transfers. By leveraging datadriven insights, clubs can evaluate the performance of potential transfer targets more objectively and accurately. Performance Analysis allows clubs to assess not only the statistical output of players but also their underlying performance metrics. It provides a comprehensive understanding of a player's strengths, weaknesses, playing style, and tactical suitability for the team. Metrics such as Expected Data xG, xA, xGi (Expected Goals, expected assists, Expected Goal Involvements) are the key metrics that are considered first before going into more granular details.

An example of this Performance Analysis method by Premier League clubs is Brentford. Brentford has gained a reputation for being at the forefront of football analytics, using data extensively in their player recruitment process. One notable example is the signing of Ollie Watkins. Prior to joining Brentford, Watkins played for Exeter City in League Two, a lower division of English football.

However, Brentford's Performance Analysts recognized his potential through Data Analysis and Expected data. They analyzed various performance metrics, such as goalscoring efficiency, shot accuracy, dribbling success rate, and movement patterns, Brentford's data-driven approach identified Watkins as an undervalued talent with promising attributes. The club believed that he possessed the qualities and potential to thrive at a higher level. Even after the signing, the club continued to work with him alongside the help of data to help him improve his weakness and improve his strengths and to become one of the best in them. He flourished at Brentford, consistently delivering outstanding performances on the field. His goal-scoring prowess and overall contribution were instrumental in the team's strong performances and successful campaigns.

Brentford bought for a meagre 1.8 million from Exeter City valuing him as one of the undervalued gems in the football community. After joining Brentford, Watkins had a highly successful tenure at the club, impressing with his performances and goalscoring ability. Three years after joining Brentford Watkins was sold to Aston Villa in the Premier League for £28 million. This is one of the many examples that how data and performance analysis can help you to find out hidden gems to make the club a potential profit or to help them in achieving their goals and have a successful journey towards the top.



Opportunities of Business Analysts in Sports:

Everyone loves to combine their hobbies with professions, and as students of Business Analytics, we can do that. It is crucial to develop an understanding of sports performance metrics by studying the key indicators and statistical measures commonly used in sports analysis such as Expected Data Metrics. Visualizations such as scatter plots, heatmaps and multidimensional scaling should be mastered as they can be helped to identify trends and underappreciated players, an example of the above is given below.



"Unravelling the Secrets of Exceptional Leaders: The Psychology Behind Corporate Triumph"

-By Kartik Dange

Leadership is like the magic spark that makes companies great, and there's something special behind the success of outstanding corporate leaders. These amazing individuals have a secret power to inspire, motivate, and guide their teams to achieve incredible things. In this article, we'll explore the psychology of these top leaders in corporate settings, uncovering the special traits and strategies that make them so successful. We'll take a close look at some inspiring examples to reveal the hidden gems behind their exceptional leadership.

Emotional Intelligence: The Key to Success

At the heart of exceptional leadership is something called Emotional Intelligence (EI). The corporate leaders really best understand their own feelings and the feelings of others. This helps them deal with complicated relationships between people with skill. One great example is Satya Nadella, the CEO of Microsoft. People say he is good at understanding and caring about his employees. He listens to them and responds in a genuine way, making the company a place where everyone trusts and works together happily.

Visionary Leadership: Inspiring a Team Mission

The most successful corporate leaders have big dreams that inspire their teams. They share their exciting vision with lots of passion and communicate it effectively to everyone. Take Elon Musk, the CEO of Tesla and SpaceX, for instance. He dreams big about sustainable energy and space exploration, and his dreams do not just inspire his employees but also the whole industry. Thanks to him, electric cars and space travel are becoming super cool and popular!

Transformational Leadership: Empowering Others to Succeed

Outstanding leaders don't just boss people around; they empower their teams to be the best they can be. They inspire and motivate through their own awesome personalities, making people feel super motivated. Indra Nooyi, the former CEO of PepsiCo, is a perfect example. She's fantastic at supporting and guiding her team members, and that's why both individuals and the company do really well.

Being Genuine and Trustworthy: Building Strong Bonds

The best corporate leaders build trust by being honest and true. They do the right thing and set a great example for everyone. A real-life hero in this regard is Alan Mulally, the former CEO of Ford Motor Company. He faced challenges head-on, talked openly with everyone, and valued the ideas of all his team members. That is how he earned trust and successfully guided the company through tough times.

Adapting to Change: Superheroes in a Fast-Changing World

In today's super-fast and uncertain business world, exceptional leaders can handle anything! They can face any challenge that comes their way. Sheryl Sandberg, the COO of Facebook, is a fantastic example of this. She is strong and can handle tough situations, which has helped her company to keep growing and succeeding, no matter what obstacles they face.

Through these examples, we can understand the importance of psychological power to become a great leader.





"Unravelling the Synergy of Data Science and Mathematics: Empowering Insights and Predictions"

-By Amit Kumar

Mathematics is an integral part of Data Science. Someone working as a Data Scientist or planning to pursue a career in the field must have a solid foundation in several quantitative disciplines.

Mathematical knowledge is necessary for Data Science careers because Machine Learning Algorithms, Data Analysis, and insight discovery all depend on it. Although there are other requirements for studies and employment opportunities in Data Science, mathematics is frequently one of the most crucial. One of the most crucial elements in a Data Scientist's workflow is locating and comprehending business difficulties before transforming them into quantitative ones.

To give you a better sense of what you truly need to know about mathematics and your job in Data Science, let's first look at the many forms of math employed in this field. The most common mathematical concepts that you will utilize in the field of Data Science are listed below –

- Statistics
- Probability
- Calculus
- Linear Algebra

Statistics

When using classifications like logistic regression, discrimination analysis, hypothesis testing, and distributions, machine learning relies heavily on this.

Probability

This is essential for testing hypothesis and distributions like probability density function and Gaussian distribution.

Calculus

The training of algorithms and gradient descent both employ multivariate calculus. One needs to have an idea about quadratic approximation, divergence, convergence, and derivatives.

Linear Algebra

The development of ML algorithms depends critically on understanding how to construct linear equations. Understanding the concepts and applications of loss functions, regularization, covariance matrices and SVM (Support Sector Machine) classification are the elements of the linear algebra of ML.

Businesses across all industries need Data Scientists to help them function and be successful daily. Understanding the use of mathematics in practical scenarios can help us understand why businesses need Data Scientist and how mathematics come into play. Let us focus on the applications of mathematics in the field of Data Science

Computer Vision

Linear algebra is used for image representation and image processing. Companies like Tesla come to mind for their self-driving cars. Computer vision is also used in the fields of healthcare and agriculture.

Marketing and Sales

When evaluating the success of marketing campaigns, such as when testing a hypothesis, statistics are helpful. It is also utilized in approaches like causal impact analysis or survey design, as well as personalization recommendations through predictive modelling or clustering, to analyze customer behavior, such as why consumers are buying from a particular brand?.

Natural Language Processing (NLP)

Linear Algebra is used for unsupervised learning techniques like topic modelling and predictive analytics and for word embeddings. Examples of uses of NLP include chatbot, speech recognition and sentiment analysis.

Thus, math is a fundamental education pillar for Data Scientists, regardless of your intended business career path. It guarantees one can efficiently use complicated data to address business difficulties. improve model performance and assist a company in problem-solving and innovation more quickly





Objective: The primary objective of the technical workshops was to equip students with essential technical skills and knowledge, enabling them to excel in their academic pursuits and future career prospects. The specific goals of the workshops were as follows:

- > To enhance students' technical proficiency.
- > To assist students in clearing technical interview rounds with confidence.
- > To provide exam-relevant content for better preparation during trimester exams.

Topics Covered: The workshops covered followings:

SQL Workshop: The first workshop focused on SQL, commencing with the basics and gradually progressing to more advanced concepts. Om and Paresh led the session, facilitating concept learning among the students.

Python Workshop: The subsequent workshops continued the momentum, introducing students to the Python programming language. The sessions aimed to develop a strong foundation in Python, emphasizing understanding functions, and also catered to the exam syllabus requirements.

Student Participation: The workshops garnered considerable interest among the students, resulting in active participation. The engaged and enthusiastic student response indicated their eagerness to learn and acquire new technical skills.

Workshop Approach: The workshop approach was designed to balance concept learning and practical applications. Emphasizing the basics allowed students to grasp essential principles while incorporating exam-relevant content ensuring they were well-prepared for their academic evaluations.

Future Goals: The success of the workshops has encouraged us to set ambitious future goals, including:

- Conducting Interview-Oriented Workshops: To further assist students in their job placements, we plan to organize workshops that focus on preparing for technical interviews, emphasizing problem-solving skills and real-world applications.
- Exploring New Programming Languages and Visualization Techniques: Expanding the workshop topics to include emerging programming languages and data visualization techniques will keep the students up to date with current industry trends and demands.





Conclusion: The technical workshops conducted by Om and Aashi proved to be instrumental in empowering students with valuable technical skills. The workshops emphasis on concept learning and exam preparation contributed to the students overall academic growth and confidence. We extend our heartfelt gratitude to all the participants for their enthusiastic engagement and look forward to continuing our journey of technical learning together.



Welcome to the "Media Corner," your gateway to a world of captivating content! In this section, we handpick the finest YouTube channels, Podcasts, and Books that promise to broaden your perspectives and ignite your curiosity.

🕨 YouTube

Alex the Analyst

Alex covers a wide range of topics, from the basics of Data Analysis to more advanced techniques. He offers practical advice and tips for those who are just starting their career in Data Analytics and those looking to enhance their skills.

Nicholas Renotte

The YouTube channel features a variety of content, including tutorials on TensorFlow object detection, Exploratory Data Analysis with Python, and Reinforcement Learning. He also shares insights from his own experiences, providing practical advice for those interested in pursuing a career in Data Science.

Code with Harry

"Code with Harry" is a popular YouTube channel dedicated to teaching Coding and Programming concepts concisely and easy to understand. The channel is run by Harry, who shares the knowledge and techniques he learned over a long period, aiming to help others learn these skills quickly.



Kaggle

Kaggle competitions can be a great way for new Data Scientists to gain experience and learn from other experienced community members. These competitions involve a wide range of problems from different industries, and the winning solutions are often made public for the benefit of all users.

GitHub

GitHub is a hub for open-source development. Open-source projects are those where the source code is available for anyone to view, modify, and distribute. GitHub provides tools that make it easy for people to contribute to these projects. For example, someone can "fork" a project (create their own copy), make changes, and then propose those changes back to the original project with a "pull request". The project maintainers can then review and potentially merge these changes.

Analytics Vidhya

Analytics Vidhya offers a variety of resources to help individuals at all levels of expertise in their Data Science journey. These resources include informative articles, tutorials, and datasets for practice, as well as job postings in the field of Data Science. One of the features is its competitions, which allow users to apply and improve their skills in a practical, real-world context. These competitions often involve complex, large-scale datasets and require participants to develop Predictive Models or Algorithms.



Even you can Learn Statistics: This book is designed to be an easy-to-understand guide to Statistics and Analytics. It uses Jargon-free language and avoids mathematical equations, making it accessible to those who may have been intimidated by Statistics in the past. The book covers how to apply statistical techniques to analyse large datasets and transform them into valuable knowledge. It also provides guidance on creating tabular and visual summaries and avoiding common charting errors..

Business Analytics by James Evans: This book provides a comprehensive and balanced approach to Business Analytics, examining it from both descriptive and predictive perspectives. It teaches the fundamental concepts of the emerging field of Business Analytics and provides vital tools in understanding how Data Analysis can drive decision-making in various business contexts. The book also guides readers on how to apply basic principles, communicate with analytics professionals, and effectively use and interpret analytic models to make better business decisions.

IBM SPSS Statistics Step by Step by Darren George and Paul Mallery:

This book serves as a simple guide and reference for using IBM SPSS Statistics. It covers the basics of Statistical Analysis and addresses more advanced topics such as Multidimensional Scaling, Factor Analysis, Discriminant Analysis, Measures of internal consistency, MANOVA (between- and within-subjects), Cluster Analysis, Log-linear Models, and Logistic Regression. The book is designed to be a step-by-step guide, making it a practical resource for both beginners and more advanced users of SPSS.



Machine Learning Guide! on Spotify

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Creative Team



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Sayandeo Kulkarni





- A Newsletter by Business Analytics Forum



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