

The Algorithm

SWIMMING IN A DATA LAKE

From the Editors:

Dear Readers,
This issue delves into the dynamic world of data science, a field that continues to reshape industries, drive innovation, and influence our daily lives in profound ways. As we explore the fascinating landscape of data science, we're reminded of the profound impact it has on the digital age and how it intersects various domains, including business, healthcare, research, and more.

With this, we present to you "Swimming in a Data Lake" the newest edition of The Algorithm. Through the next few pages, we aim to inspire young minds to delve into the world of AI and gather crucial insights into about its advancements.

**Shreshtha Modi (S/2463) &
Jia Jindal (K/2721)**

“DATA IS A PRECIOUS
THING AND WILL LAST
LONGER THAN THE
SYSTEMS THEMSELVES.”

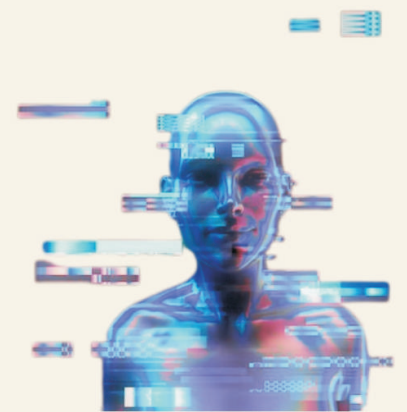
TIM BERNERS-LEE

From the Illustrators:

With each opportunity, comes obstacles. In crafting this year's Prize Giving Edition, we embarked on an exhilarating journey. Overcoming the creative hurdles gave us countless chances to delve deeper into the world of data science and design.

Every design is a testament to resilience and adaptability—much like debugging a tricky piece of code. We hope our visuals reflect the joy of navigating through a data lake!

**Kashish Agarwal (S/2546)
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Prepare to dive into the depths of the oceans like never before as the Titanic Explorer submarine takes a giant leap forward in underwater exploration with a surprising twist! It has been revealed that this cutting-edge submersible is now being controlled by a PlayStation 5 controller. Yes, you read that right – gaming technology has submerged itself into the world of marine research!

The brainchild of a collaboration between marine scientists and gaming enthusiasts, the Titan One, project has revolutionised underwater exploration. The sleek and ergonomic PS5 controller, originally designed for gaming thrills, has now become the key to unlocking the mysteries hidden beneath the waves.

Imagine the scene: expert researchers, equipped with gaming prowess and a profound passion for the oceans, skillfully manoeuvre the Titanic Explorer with the PS5 controller. The familiar joysticks and buttons have been ingeniously mapped to control the submarine's movements, allowing more intuitive and responsive navigation through the uncharted depths.



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IS

DROWNING
JUST A GAME
TO YOU?!

Titan had no GPS. It instead relied on text messages from the surface for navigation. However, previous journeys have noted that the craft can often lose contact with the surface. It seems the GPS tracking isn't the only place where Titan cuts corners, as it is controlled by a rather unreliable video game controller.

The decision to integrate gaming technology into underwater exploration was not merely a stunt for attention. Sure, skeptics may worry about safety and reliability, but let's be real – who doesn't want a potential "Game Over" moment while exploring the crushing depths of the ocean? It's all part of the fun!

FROM SMALL DATA TO BIG DATA

In the fast moving world, we have less time. Small data makes accessibility and analysis easier and simpler for human comprehension. Long data are big chunks of data which may be organised or unorganised and require more processing time.

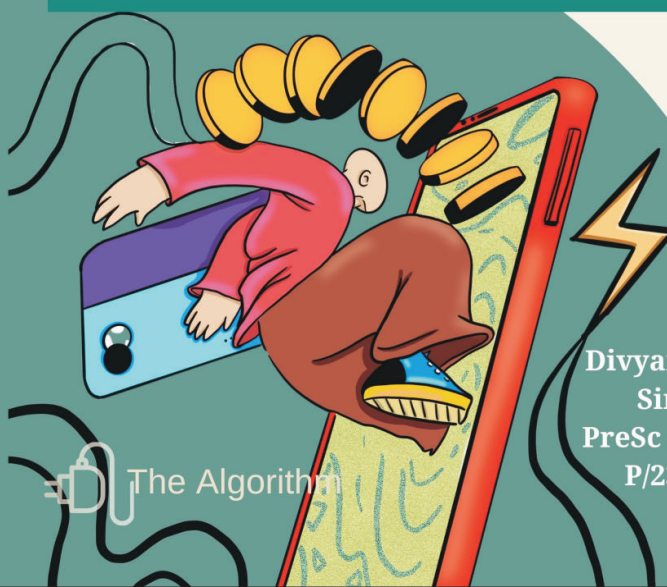
As the complexity and size of data increase the need for effective data visualisation becomes more critical. Tools like Tableau, Power BI, or D3.js can help make sense of the data and communicate insights to stakeholders. Shifting to big data requires a team with expertise in distributed systems, data engineering, and machine learning. Hiring or training skilled professionals becomes essential. Big data infrastructure and cloud-based services can be costly. Careful planning and optimization are required to ensure cost-effectiveness. With the increase in data volume, data security and privacy become even more critical. Robust security should be complemented measures to safeguard sensitive information and comply with relevant regulations.

However, as the project grows, the volume of data being generated and collected might exceed the capacity of traditional data processing approaches. Big data technologies facilitate real-time data processing, enabling organisations to respond quickly to changing market conditions, customer behaviour, and operational issues. Real-time analytics empower businesses to make agile decisions and capitalise on opportunities promptly. Establishing mechanisms to collect, ingest, and store large volumes of data efficiently is the need of the hour. Big data analytics plays a crucial role in detecting and preventing fraud. Analyzing this data allows businesses to make data-driven decisions, identify patterns, and gain valuable insights that can lead to improved strategic planning and better decision-making processes. This is where the need for big data solutions arises.

Overall, the transition from small data to big data is a substantial undertaking that involves rethinking the entire data management and analysis ecosystem. It is essential to carefully assess the specific needs of the organisation and select appropriate technologies and strategies for handling the challenges of big data effectively.

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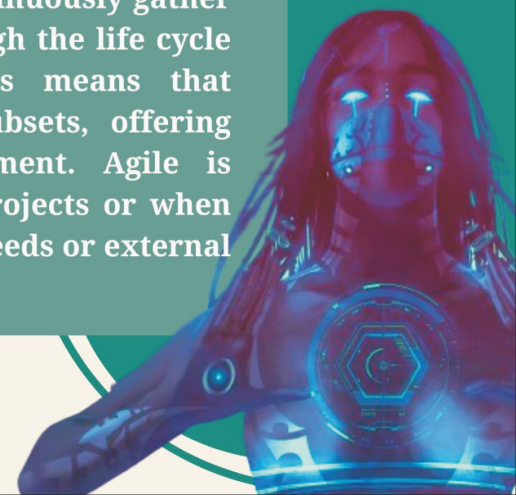
AGILE VS. WATERFALL

FINDING THE BEST DATA MANAGEMENT APPROACH

In the world of software development and project management, two prominent methodologies have dominated the landscape for years: Agile and Waterfall. Both approaches have their merits and are widely used in various industries. However, when it comes to handling data, their differences become even more apparent, affecting the efficacy and success of data-centric projects.

The Waterfall methodology is a classic, linear project management approach. It involves sequential phases, wherein each phase must be completed before the next one begins. In the context of data management, this means that all data requirements and specifications must be gathered and defined upfront, leaving little room for flexibility during the execution of the project. Waterfall works well for projects with stable requirements and well-defined data structures, but it can be cumbersome when dealing with dynamic and constantly evolving data needs.

On the other hand, Agile is an iterative and incremental methodology that promotes flexibility and adaptability. Agile projects are divided into short development cycles, called sprints, allowing teams to continuously gather feedback and adapt to changing data requirements through the life cycle of the project. In data management scenarios, this means that stakeholders can have early access to usable data subsets, offering valuable insights and guiding further data development. Agile is particularly advantageous when dealing with big data projects or when data requirements are subject to change due to business needs or external factors.



Coming to data quality and accuracy, Agile has a distinct advantage. Since Agile projects emphasize collaboration and regular feedback, data issues can be identified and addressed early in the development process. In contrast, Waterfall projects may not detect data-related problems until the later stages, leading to costly rework and delays. However, the Waterfall approach does have its strengths in certain situations. Waterfall's meticulous planning and documentation can provide a strong foundation for compliance and validation.

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AGILE WATERFALL



In terms of project visibility and communication, Agile shines. Its emphasis on regular meetings and constant interaction between team members fosters transparency and facilitates quick decision-making. Stakeholders are more involved throughout the development process, ensuring that data insights and progress are shared effectively. In contrast, Waterfall projects may have less frequent updates, which can make it challenging for stakeholders to stay informed and provide timely feedback.

In conclusion, choosing between Agile and Waterfall for data management depends on the specific requirements and dynamics of the project. Ultimately, successful data management relies on selecting the right approach and tailoring it to the unique characteristics of the project. By understanding the strengths and weaknesses of Agile and Waterfall, teams can make informed decisions that drive efficient and effective outcomes.



PLAY STATION 5

The PlayStation 5, Sony's latest entry into the world of gaming consoles, has taken the gaming industry by storm since its release. Launched in late 2020, the PS5 marks a significant leap forward in gaming technology, ushering in the next generation of immersive gaming experiences.

At the heart of the PS5 is its powerful custom-designed processor, leveraging AMD's Zen 2 and RDNA 2 architectures. This potent combination delivers stunning graphics, seamless gameplay, and fast loading times that were once unimaginable. With support for 4K and even 8K resolution, players can now enjoy breathtakingly detailed visuals and lifelike environments that blur the line between virtual and reality.

One of the most notable features of the PS5 is its innovative DualSense controller. This gamepad introduces haptic feedback and adaptive triggers, offering an unprecedented level of immersion. Players can feel the impact of in-game actions, making every move and sensation more engaging than ever before.

With a focus on social interaction, the PS5 allows players to connect seamlessly with friends and the gaming community. The 'Share' button on the DualSense controller enables effortless sharing of gameplay moments on popular social media platforms, fostering a sense of unity among players.

In addition to traditional gaming, the PS5 has also its entertainment capabilities. Users can enjoy streaming services like Netflix, YouTube, and more, making it an all-in-one entertainment hub for the family. In conclusion, the PlayStation 5 stands at the pinnacle of gaming technology, redefining the gaming experience for enthusiasts worldwide. With its exceptional hardware, immersive controller, and expansive gaming library, the PS5 has cemented its place as a must-have console for both casual gamers and dedicated enthusiasts alike. As developers continue to push the boundaries of interactive entertainment, the PS5 promises an exciting future for the world of gaming.

8TH NOVEMBER, 2023



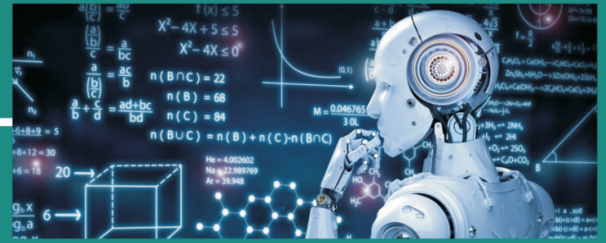
DATA SCIENTIST



FINANCE QUANT



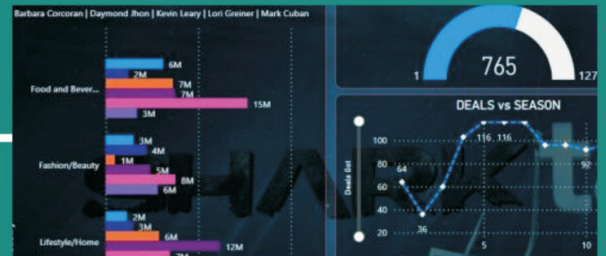
BIG DATA DEVELOPER



MACHINE LEARNING ENGINEER



DATA ENGINEER



BUSINESS INTELLIGENCE(BI) ANALYST



Careers in

Data Science



Tiny Treasures of Data Knowledge



If you burned all the data created in 1 day into DVDs, you could stack them on top of each other to reach the moon twice.

There are nearly as many pieces of digital information as there are stars in the universe.



Every 2 days we create as much information as we did from the beginning of time to 2003.



Ing-E-nious ART

Here's a sneak peak of a realm of digital ingenuity as our students unleash their design talents. Vibrant, informative, and cutting-edge, these digital artworks pair technology and visual art. These masterpieces showcase the extraordinary talent flourishing within our students.



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8TH NOVEMBER, 2023

IT EVENTS

update

IPSC IT FEST

IPSC IT Fest'23 was hosted by Mayo College Girls' School, Ajmer from the 20th to the 22nd July, 2023. The events were divided into 7 categories including Website Designing, Multimedia Presentation, Online Computer Quiz, Computer Wiz Kid, Digital Poster Making, Fastest Line Follower and Sound Editing.



Shreshtha Modi and Kashish Agarwal bagged the second position in Digital Poster Making . Pahel Agarwal and Yuthika Dewan won the second position in Website Designing while Jashvi Beriwal and Yuthika Dewan topped the leaderboard in the Sound Editing competition.

8TH NOVEMBER, 2023

SILVER JUBILEE

Mayo College Girls' School hosted the 12th edition of the Silver Jubilee

Commemorative Young Thinkers' Conclave from 7th to 9th August.

In the Multimedia Movie Making event, Shreshtha Modi & Srivani Agarwal secured the third position.



IT WEEK

Mayo College Girls' School hosted an IT Week from the 14th to the 18th August, 2023. The Inter-House events were divided into 6 categories including Multimedia Presentation, Digital Poster Making, E-Cartooning, Newsletter Designing, Brochure Making and Multimedia Movie Making.





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Printed and Published by
Mayo College Girls' School

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