

SEP 2024 QUARTERLY ISSUE

Hello!

Welcome to the Q3 edition of the Business Analytics Interest Group (BAIG) newsletter! As we kick off the academic year 2024/25, we're excited to bring you a wealth of insights and updates from the world of data analytics.

In this issue, we delve into career guidance and advice for aspiring data analysts, explore the latest in Business Analytics TechTalk, and feature an exclusive interview with Wong Tze Xiang, the recipient of the 2024 SUSS Spirit Award.

Additionally, we look ahead to the future of business analytics with emerging trends and present a fun and engaging Mini Python Challenge to test your coding skills.

Stay tuned for all this and more as we navigate the dynamic landscape of business analytics together. Happy reading and have a great semester ahead!

Kickstarting Q3 2024 with

Career Guidance & Advice in the Field of Data Analytics

Business Analytics TechTalk

Interview with Wong Tze Xiang for 2024 SUSS Spirit Award

The Future of Business Analytics: Emerging Trends

Mini Python Challenge



Source: Flaticon

Considering a Career in Data Analytics? Here's what you need to know!



Image courtesy of Megan O'Neill, Codecademy

Understanding Data Analytics

Did you know that by 2025, it is estimated that 463 exabytes of data will be created daily globally? That is equivalent to almost 213 million DVDs per day (Desjardins, 2019)! With data continuously flooding every aspect of our lives and organisations increasing reliance on data to make informed decisions, the ability to analyse and interpret vast amounts of information into valuable insights has become one of the most highly sought-after skills in today's job market.

Whether you are looking into the industry of finance, healthcare or technology, data analytics has begun revolutionising business operations, creating a field rich with opportunities for individuals equipped with the required skills.

If you are considering a career in this fast-growing field, you may be wondering what preparations you need to set yourself towards the path of a successful career. This article aims to guide you through everything you need to know before embarking on your career in data analytics.

What Makes YOU Stand Out?

For one to excel in this competitive landscape, you will need to equip yourself with a solid foundation of essential skills and experiences that employers value. This includes:

1. Technical Skills

Mastering the technical skills required for a career in data analytics is definitely a key criterion most employers look out for. This includes:

- Spreadsheet Software (Microsoft Excel): A commonly used software that is fundamental for foundational analysis and allows analysts to analyse large amounts of data quickly and easily.
- Structured Query Language (SQL): A critical and highly-demanded skill across companies, which allows one to extract, filter and merge data from relational databases.
- Programming Languages (Python, C++ and JavaScript): Vital for more advanced tasks, such as statistical analysis, automation and data manipulation.

If you are able to master them, it will definitely boost your profile in the job market significantly, making you a competitive candidate that companies want.



Source: Freepik

2. Practical Experience and Portfolio Building

Aside from being proficient in technical skills, employers would also be interested in learning about the practical experiences you have had in applying the skills and knowledge you have gained. Internships provide invaluable opportunities to understand how data analytics works in a business context, and apply theories and concepts to real-world situations. Taking part in data challenges and competitions on platforms such as HackerRank or LeetCode, or even creating your own projects, can help showcase your skills to potential employers. These portray clear examples of your capabilities, demonstrating your abilities to work with large datasets, apply various analysis methods, and derive useful insights from data.



Source: Freepik

3. Networking

Lastly, cultivating a strong professional network is beneficial in attaining possible job referrals and gaining company or industrial insights. Networking can be done in any form, through physical interactions at conferences and local get-togethers or even online platforms like LinkedIn. The greater your network, the more opportunities you can get in discovering potential career paths you may not have considered. You could even find a mentor through your pool of networks, who can offer you advice and guidance in your career journey. Through continuous networking and mentorship, you will not only be able to expand your business acumen, but also insights in the field, making you a more outstanding candidate for future opportunities.

Potential Challenges & How to Overcome Them

A career in data analytics offers exciting opportunities. However, the path to success is not one without hurdles. Here, we will explore some common challenges and provide ways to overcome them.

1. Effective Communication of Insights

One of the critical challenges in data analytics is translating complex data findings into actionable insights for non-technical stakeholders. The true impact of an analyst's work is often limited if they cannot effectively communicate their findings. This is where data visualisation and effective communication play a key role.

Solution: Master powerful tools for data visualisation such as PowerBI or Tableau, to present your data findings in a clear and engaging manner. Additionally, refine your narrative skills to articulate your insights and recommendations effectively.

2. Keeping Up with Rapid Changes in Technology

In the rapidly shifting world of data analytics, keeping up with the latest tools and technology is essential. The rapid rate of innovation can make it challenging to keep your skills and knowledge current.

Solution: Invest in lifelong learning by taking advantage of webinars, certificates, and courses offered by sites like LinkedIn Learning. Networking through professional associations and industry conferences can also provide valuable insights into emerging trends and technologies.

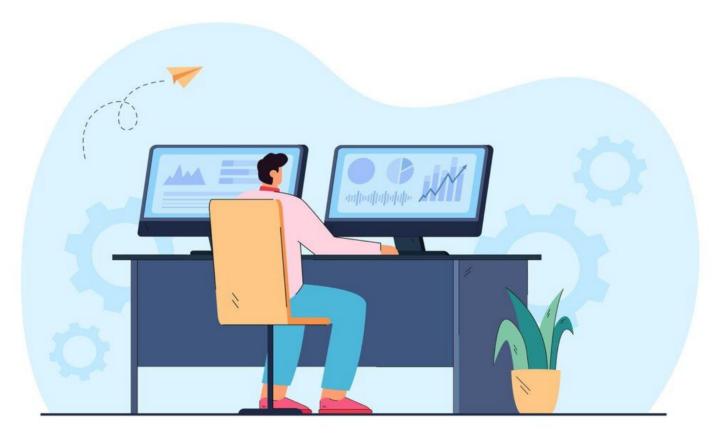


Source: Freepik

Conclusion

In today's data-driven environment, a career in data analytics offers a promising chance to impact decision-making. Understanding the field's fundamentals and its significance is the first step. In order to make an impression, concentrate on honing necessary abilities, accumulating real-world experience via internships, creating a compelling portfolio, and networking successfully. While there will inevitably be obstacles to overcome, such as data communication and technology changes, adopting proactive approaches and continuous learning will help you overcome them.

A job in data analytics can lead to several exciting career paths, from data scientist to specialised roles in numerous industries. Your path in this dynamic field can be both fulfilling and impactful.



Source: Freepik

Business Analytics TechTalk

On August 15, Business Analytics Interest Group (BAIG) held an Industry Talk with Ms Catherine Thia from Macnica Cytech and Mr Jonathan Oh from Gignite.AI





Founded in 2009, Macnica Cytech has become a leading distributor of electronic components across Asia. Headquartered in Hong Kong with over 25 regional offices, including Singapore, the company specialises in demand creation and supply chain management. With over 1,200 employees, Macnica Cytech offers a comprehensive portfolio of services, from technical support to logistics and buffer stock management. By partnering with international semiconductor businesses and staying abreast of industry trends, the company provides high-quality products and cutting-edge technology to their customers. Committed to providing end-to-end support, Macnica Cytech aims to become a total solutions business, combining hardware with software to meet the evolving needs of the semiconductor industry.

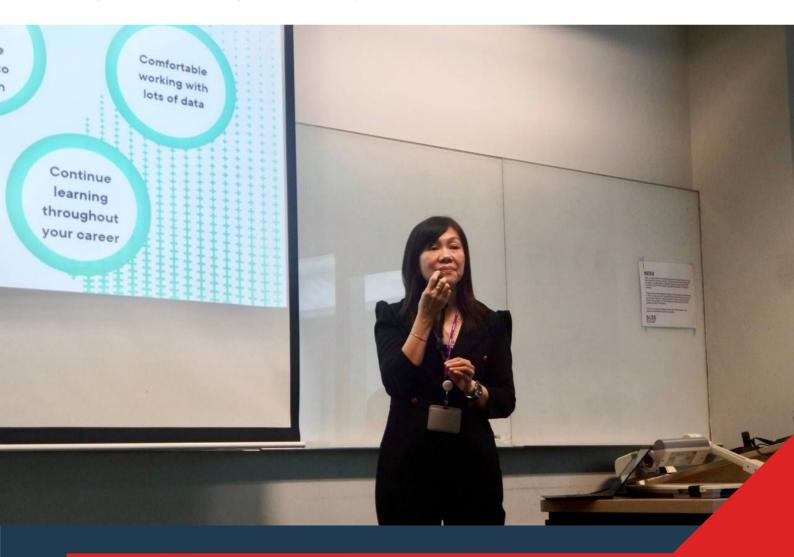


Source: Macnica Cytech

Macnica Cytech: Human Resources (HR) Analytics

During the talk, Catherine Thia, the HR APAC Director of Macnica Cytech, highlighted the transformative power of HR analytics in enhancing organisational operations. By leveraging data-driven insights, the company has optimised talent acquisition, employee engagement and manpower planning. In recruitment, digital systems and algorithms streamline candidate filtering and information processing, while demographic analysis helps address biases related to diversity and inclusion. To improve employee satisfaction, Macnica Cytech analyses employee data to identify areas of improvement and implement targeted strategies. Additionally, manpower planning is data-driven, with predictive models anticipating future needs and ensuring organisational agility.

HR analytics has not only introduced new metrics but also accelerated HR processes, empowering the company to make informed decisions and maintain a competitive edge. By leveraging HR analytics, Macnica Cytech has positioned itself at the forefront of modern HR practices, demonstrating how data-driven decision-making can significantly boost talent management and organisational performance.





Source: Gignite.Al

Introduction to Gignite.Al

Gignite.Al, a Singaporean startup founded in 2023, is transforming the software development landscape with its Al-powered platform. Its user-friendly tool empowers anyone, non-programmers, to build and deploy custom software prototypes in as little as 15 minutes. Business users simply describe their ideas through prompts and the platform generates interactive prototypes and even front-end codes. This significantly reduces development time and cost, making software creation more accessible, especially for businesses with limited technical resources. Gignite.Al's innovative approach has potential to democratise development, allowing professionals to bridge the gap between business needs and technical solutions.



Gignite.AI: Sales and Product Analytics

"Grow at all costs, but never run out of money," said Jonathan Oh, the co-founder and CEO of Gignite.Al, when discussing the priorities of a start-up. For a young company like Gignite.Al, user growth is critical. This necessitates not only expanding its user base but also continuously enhancing user engagement. Business analytics plays a crucial role in both the sales and product development aspects of Gignite.Al. On the sales side, the collection and analysis of data ensure consistent growth and allow rapid interventions to any negative trends. In product development, analysing user and product data helps refine the product and elevate the user experience.



Source: Freepik

Product Analytics Case Study Example

Jonathan Oh shared a case study where analysis revealed a significant issue: users were abandoning their projects midway due to being unsure of what prototype they wanted to build. In response, Gignite.AI simplified the prototyping process by offering predefined feature choices instead of requiring users to input features manually which increased the completion rate by 70%. However, the team soon discovered that even though more projects were being completed, feedback showed that users were often dissatisfied with the final results, as the predefined features did not fully align with their unique needs. To address this, Gignite.AI introduced an assisted feature input process, which resulted in significant improvements: higher completion rates, increased project revisitation, and more time spent on each project.

This case highlights how Gignite.AI uses data analytics to not only solve immediate problems but also to iterate and refine its product continually, ensuring it meets the evolving needs of its users. At Gignite.AI, data analytics isn't just a tool; it's a cornerstone of innovation. If you are interested in being part of this dynamic start-up, visit here to apply for an internship.

Key Takeaways

1. Similar skill expectations of business analytics students from both companies

Catherine Thia and Jonathan Oh both shared the important key skill sets for business analytics interns. They emphasised that proficiency in data visualisation and analytical tools is essential, particularly the ability to work with and handle large datasets—a skill highly valued by employers. Therefore, business analytics students should focus on mastering tools like Tableau and PowerBI, as well as programming languages such as Python and SQL, which are common job requirements from hiring managers.

Beyond technical skills, they also highlighted the significance of soft skills like critical thinking and problem-solving. After all, the role of a business analyst doesn't stop at data analysis; it extends to generating actionable insights and suggesting improvements based on the data. Therefore, it's vital to hone these skills alongside technical expertise, preparing to contribute meaningfully in any business environment.



2. Work culture difference: Multinational Corporation (MNC) vs Start-up

The work culture in a start-up is fast-paced, demanding adaptability and a readiness for constant change. Due to the lack of rigid structures, a start-up offers a high degree of creativity and autonomy where employees can contribute directly to shaping the company's future. There is often room to take initiative and lead projects, which can be incredibly rewarding for those who thrive in dynamic and entrepreneurial environments. However, the unstructured nature of a start-up can be challenging for those who need more guidance. Additionally, because start-ups are in a growth phase, there is often a sense of urgency and pressure to achieve rapid results which can be stressful to some.

In contrast, MNC offers a more structured environment, with long-established Standard Operating Procedures (SOPs) that employees can easily adhere to. The presence of larger teams in an MNC means that employees can easily seek guidance and collaborate with others, creating a supportive environment that is conducive to learning and professional development. Additionally, MNC often has extensive resources at their disposal, allowing employees to access advanced tools, training programmes, and global networks. However, the size and complexity of an MNC can also mean that individual contributions may take longer to be recognised, and the impact of one's work might be less immediately visible.

Conclusion

Many companies are adopting the use of analytical tools to improve their processes. As business analytics students, mastering the blend of technical and soft skills in business analytics is kev to making impactful contributions, regardless of the work environment or structure. Moreover, **MNCs** offer distinct start-ups and challenges opportunities and recognising these differences can help you make informed career decisions.





Source: Freepik

2024 SUSS Spirit Award

We are honoured to have the opportunity to interview the Winner of the 2024 SUSS Spirit Award, Wong Tze Xiang, who shared his experience and journey of winning the award

Samual: Can you tell me about your journey at SUSS and the key milestones that led to winning this award?

Tze Xiang: My journey in SUSS started when I joined the school in 2021. When I first received the news that I was accepted, I immediately started looking at the student life clubs to see what sports I wanted to do during my uni life. I found out that Outdoor Adventure (ODA) IG was recently formed and that one of my former camp mates from the army was one of the founding excos, so I contacted him to ask how I could join.

Starting in 2022, my first key milestone was joining ODA IG exco which allowed me to continue my passion for making outdoor activities more accessible for the school's general population. From here, I did not expect to do much social work related projects apart from the compulsory CE which I cleared with project concerto for a non-profit called Once Upon a Monday, where we brought underprivileged kids to learn parkour.

In 2023, another key milestone for me was rerunning as ODA IG's vice chairperson which led me to receive more opportunities to increase our school's outreach by being given the chance to run the 2nd edition of our IG's collaboration with the Children's Cancer Foundation (CCF), as well as a chance to work with staff from Valour Primary School to run their outdoor based parent student bonding day.

For now, in 2024, I have since left ODA IG but I have stayed on with the ODA x CCF collaboration as a facilitator and an advisor to this year's leaders.

2024 SUSS Spirit Award

Samual: What challenges did you face, and how did you overcome them?

Tze Xiang: I think the biggest challenge I faced was juggling studies, a personal life and outside- of-school work.

I overcame this by managing my time well and making sure that I do all my work early so I have time to spare for myself and my family outside of school.

Samual: What were the most significant contributions that led to you receiving the SUSS Spirit Award?

Tze Xiang: I think my most significant contributions were the successful collaborations I had with community partners like CCF, Valour Primary School and Once Upon a Monday. The people I worked with contributed to my nomination for this award.

Samual: How have the values of SUSS shaped your approach to challenges and opportunities?

Tze Xiang: The fact that SUSS always aims to provide students with the opportunity to improve themselves and give back to society helped me connect with all the beneficiaries and gave me the opportunity to collaborate with them on behalf of the school.

2024 SUSS Spirit Award

Samual: What advice would you give to other students who aspire to make a difference like you have?

Tze Xiang: My advice would be to be comfortable stepping out of your comfort zone to do things that seem fun or hold value close to your heart. Don't be afraid to try new things because chances are that the experience/project/collaboration will be a totally new experience for most of the team you will be working with during the project anyway so you won't be alone. Also, don't be afraid to ask people for help, especially your mentor or seniors/peers.

Samual: Is there anything else you want to share about your journey or the award?

Tze Xiang: I just want to extend a heartfelt thanks to all the friends, family, community partners and staff who have been a great help and source of support for me during this journey. I also want to thank those who took their time to nominate me for this award.

Samual: What message would you like to leave for those who look up to you as an inspiration?

Tze Xiang: At the end of the day, if you let the chance to lead a project/collaboration slip away, you probably would not have the same chance come your way twice. If it feels right, just send it and sign up.

The Future of Business Analytics: Emerging Trends



Image from: https://eaglytics-co.com/the-future-of-analytics/

Business analytics has transformed from a supportive role to an important driver in strategic decision making across industries. As the current world market is increasingly competitive, having the ability to harness and analyse data effectively has become essential to gain a competitive advantage. The future of business analytics is focused on reshaping and evolving how companies operate. Companies will be required to innovate and evolve with better integration of technology, adapting to new business paradigms.

The current state of business analytics

In today's data driven world, business analytics plays a vital role in shaping strategies for businesses. The use of business analytics is further enhanced by AI and machine learning.

Businesses rely on extensive real-time and streaming analytics to conduct data-driven analyses and make quick decisions. With readily available and user-friendly tools such as Tableau, QlikView and SAS, it can empower non-technical users to collect and analyse data, fostering a data-centric culture within the company. However, even with these analytics software, skilled professionals are still required to curb challenges such as data quality and integration issues. Additionally, having robust data governance and ethical framework is crucial to maintaining credibility and for analytics to play a central role in businesses.

1. Al and Machine Learning Integration

Advanced predictive analytics

Machine Learning models are predictive analytics by enabling businesses to be prepared for trends, customers' behaviors and the market's dynamics. They can be used to analyse huge datasets, identify patterns and learn from existing data in real-time. This would lead to more reliable and accurate forecasts that will aid the business. Moreover, following the increase in collection of data, the models will continuously improve, allowing for more precise predictions that will provide the business with a competitive advantage.

<u>Automated analytics</u>

Al-driven tools can process large datasets, identify patterns and generate insights without extensive manual input from the user. With this automation process, it helps to speed up the decision-making process, helping businesses gain insights quickly and accurately. Henceforth, this would empower non-technical users to collect and analyse data, fostering a data-centric culture within the company.

2. Real-time Analytics

<u>Immediate response to market changes</u>

Real-time analytics enable businesses to respond immediately to changes that are happening in the market. This process has the ability to act on real-time data instead of historical data and reports. This would help businesses stay ahead of their competitors by making timely decisions, which would significantly impact the overall outcome of the business.

Edge computing

As the number of Internet of Things (IoT) increases, so does the need for real-time processing data. Edge computing brings computation and data storage closer to the place where data is generated. Examples such as smart devices in homes. This reduces latency and bandwidth usage, enabling faster decision-making processes and more efficient operations, as the data can be processed and acted upon almost instantaneously. This is essential for environments that require immediate responses.



Image from: https://www.vizrt.com

3. Data Democratisation

Natural Language Processing (NLP)

NLP plays a vital role in furthering data democratisation. It allows users to interact with business analytics tools using everyday language, making data querying and report generation more user-friendly. The system understands the query, processes the relevant data and generates a response via a report or visualization. Hence, NLP helps to break down barriers to usage of data, enabling more users to benefit from data analytics, regardless of their technical background.

4. Data Privacy and Ethics

Emphasis on data privacy, security and ethical use

As businesses are required to collect more data from consumers, employees and other sources of information, concerns about data privacy, security and ethical use have become increasingly pressing. Businesses are aware of the risk associated with mishandling sensitive data. Greater emphasis is placed on ensuring data is collected, stored and used in ways that respect individual privacy rights and adherence to ethical standards.

5. Integration of Unstructured Data

Comprehensive data integration

Businesses are now recognising the value of unstructured data. Unstructured data helps to provide a comprehensive view of customers and business operations. With the integration of both structured and unstructured data, it helps businesses to discover deeper insights, leading to more targeted marketing strategies.

Sentiment analysis

Sentiment analysis is used to detect users' emotions, attitudes and opinions using NLP. By analysing these data, businesses are able to determine a gauge of the public perception of the products or brand in real-time. This will offer businesses deeper insights into customer behaviour and the market trend.



Image from: https://www.enzuzo.com

6. Augmented Analysis

Al-driven information

Augmented analysis makes use of AI and machine learning to automate numerous stages in the data analytics process. It automates processes by reducing the manual efforts during the stages, which enables a faster, more efficient and accurate data analysis. This would help the analytics team to quickly identify successful strategies and solutions without having the need to manually sift through the data.

Al-assisted decision-making

Businesses are now more inclined to adopt AI-assisted decision-making processes. Al can process huge amounts of data iwith greater speed and accuracy than humans.. For optimisation, it would be in the best interest of the business to combine AI-generated insights with human judgment and expertise to improve its accuracy and effectiveness, reaping its benefits to gain a stronger competitive advantage.

7. Hyper-Personalisation

Businesses will increasingly leverage analytics to deliver hyper-personalised experiences to their customers, using detailed data and sophisticated segmentation techniques. By analysing vast amounts of customer data, including purchase history, browsing behaviour, social media activity, and even real-time interactions, companies can gain deep insights into individual preferences and needs. This allows them to create highly tailored marketing campaigns, product recommendations, and personalised services that resonate with each customer on a personal level.

<u>Customer-centric analytics</u>

Customer-centric analytics will play a pivotal role in this transformation. Enhanced customer journey analytics will enable businesses to track and analyse every touchpoint a customer has with the brand, from initial awareness to post-purchase interactions. By understanding the unique journey of each customer, companies can optimise their marketing, sales, and service strategies to meet individual expectations.



Image from: https://miro.medium.com

8. Collaboration and Visualisation

Collaborative analytics platforms

Collaborative analytics platforms will revolutionise the way teams work together on data analysis. By enabling real-time collaboration, these integrated platforms allow teams across different departments to share insights, discuss findings, and make data-driven decisions more efficiently. This seamless exchange of information fosters a more unified approach to problem-solving and ensures that everyone in the organisation has access to the latest data insights, enhancing overall productivity and decision-making.

Advanced data visualisation

As data becomes more complex and voluminous, advanced data visualisation tools will become indispensable. These tools will simplify the interpretation of intricate datasets, allowing businesses to quickly identify trends, patterns, and anomalies. By translating raw data into clear, actionable insights through intuitive visuals, companies can make more informed decisions, communicate findings effectively across teams, and ultimately drive better outcomes.

9. Cloud-Based Analytics

Scalable solutions

Scalable solutions powered by cloud computing will become essential for businesses managing large volumes of data. By leveraging the cloud, companies can scale their analytics capabilities without the need for extensive on-premise infrastructure. This flexibility allows businesses to handle growing data demands efficiently, whether it's processing real-time analytics, running complex machine learning models, or storing vast amounts of information. The cloud's scalability also enables companies to adjust their resources as needed, ensuring they can adapt to fluctuating workloads and only pay for what they use, making data analytics more cost-effective and accessible.



Image from: https://www.cdotrends.com



Image from: https://blockzeit.com

Integration with cloud ecosystems

The integration of business analytics with cloud ecosystems will further enhance the efficiency and effectiveness of data-driven decision-making. As analytics platforms increasingly integrate with other cloud-based tools, such as customer relationship management (CRM) systems, enterprise resource planning (ERP) software, and marketing automation platforms, businesses can achieve seamless data flow and analysis across various functions. This integration not only streamlines operations but also provides a more comprehensive view of the business, allowing for more accurate insights and faster decision-making. By leveraging a connected cloud ecosystem, companies can break down data silos, ensure consistency, and maximize the value of their data.

10. Blockchain for Data Integrity

Blockchain technology offers a robust solution for ensuring data integrity and transparency in business analytics. By creating a decentralised, tamper-proof ledger, blockchain can provide a secure audit trail for data used in decision-making processes. This technology ensures that data remains authentic and unaltered, enhancing trust in the accuracy of analytics. Additionally, blockchain's transparency allows stakeholders to verify the provenance and history of the data, making it particularly valuable in industries where data integrity is critical, such as finance, healthcare, and supply chain management.



Image from: https://www.clicdata.com

Key takeaways:

As the future of business analytics unfolds, technical skills like AI, machine learning, data visualisation, and real-time analytics will become increasingly essential. However, soft skills like problem-solving, critical thinking, and effective communication are equally important. The ability to interpret complex data and turn it into actionable business strategies will set professionals apart.

To stay competitive, businesses should invest in workforce training and partner with educational institutions to develop specialised programmes. Fostering a data-driven culture, where analytics guide decision-making, will also be crucial. While adapting to these changes may be challenging, those who do will be better prepared for the future business landscape.

Conclusion:

In conclusion, the future of business data analytics is filled with exciting possibilities. We can expect to see significant developments in areas such as real-time analytics, privacy and security, Al and machine learning. As businesses increasingly rely on data-driven strategies, we can foresee substantial improvements in efficiency, profitability, and overall success. The continued investment in data analytics will not only drive innovation but also enable companies to stay competitive in an ever-evolving market. These emerging trends and predictions underscore the critical role data analytics will play in shaping the future of business.

Mini Python Challenge

You are given a list of students with their grades for three subjects. Write a Python program that processes the data and performs the following tasks:

Calculate the Average Grade: For each student, compute the average grade across the three subjects.

Determine the Highest Average: Identify the student with the highest average grade.

Generate a Summary Report: Print out a summary report that includes:

- 1. The average grade for each student.
- 2. The name of the student with the highest average grade and their average grade.

	English	Math	Science
Bremen	80	60	67
Charles	65	79	70
Celeste	76	67	79
Kelvin	66	75	84
Samual	55	90	80

Solution to Mini Python Challenge (June 2024 Issue)

```
def costs():
  items = [
     ("Sprite 500ml Bottle", 1.80),
     ("GoodDay Chocolate Bar", 3.50),
     ("Nescafe GOLD Coffee Powder", 13.59),
     ("Milo Chocolate Malt Milk UHT Packet Drink", 1.50),
     ("Sweet Potato by Bagman Cook", 3.00),
     ("Frozen Beef Wellington", 15.00),
     ("Kyoto-Imported Eggs", 4.50)
  # Initialize receipt and total price variables
  receipt = []
  original price = 0
  discount rate = 0.20
  # Loop through each item and check if it contains the letter
"G"/"q"
  for item, price in items:
     if "G" or "g" in item:
       receipt.append(item)
       original price += price
  # Calculate discount and final price
  discount = original price * discount rate
  final price = original price - discount
  # Printing Items bought and details
  print("Items Bought:\n")
  for item in receipt:
     print(item)
  print(f"\nOriginal Price: ${original price:.2f}")
  print(f"Discount (20%): ${discount:.2f}")
  print(f"Final Price: ${final price:.2f}")
costs()
```