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Introduction

Trends of Data Analytics in Different Sectors

Description

Generally, a data trend is a pattern observed in time series datasets that shows whether the data is trending upward or downward or maintaining the same for some parts or all of the time series.

As we are delving deeper into year 2022, here are top 10 analytics and business intelligence trends which includes Artificial Intelligence (AI), Data Security, Data Discovery/Visualization, Data Quality Management, Predictive and Prescriptive Analytics Tools, Real-time Data and Analytics, Collaborative Business Intelligence and Data Literacy.

As a result of COVID-19's impact, the AI technologies in data industries should be smarter, more responsible and scalable. Secondly, composable data and analytics encourage collaboration while also increasing the organization's analytic capabilities by connecting data insights to business actions and offer a flexible, user-friendly, and usable experience.

Furthermore, making the data fabric as a base will enable composable data and analytics as data grows more complex. Fourthly, the technology should be able to convert from big to small and wide data. Small data models can provide useful insights with fewer data. Meanwhile, wide data allows for the analysis and synergy of a wide range of small and varied (wide), unstructured and structured data sources. This will assist enterprises in dealing with increasingly complex AI queries and information scarcity, as well as improving contextual awareness and decision-making.

Reflection

Joining other countries in transforming to Industrial Revolution 4.0 (IR 4.0), executing, and familiarising with big data is vital for the country. This is because big data is one of IR 4.0 technologies. When adapting to big data, one will automatically be familiar with big data analytics. This is because, big data analytics is the process that helps to uncover information from big data. Therefore, it is important for us to know that discovering about big data analytics is as essential as big data.

There are a lot of benefits that one can have when learn about big data analytics. One of the benefits are big data analytics can be used to help companies make a smarter and faster business decision and access customer trends and experience. This information can lead companies to have a new and improved products and services. Other that that, big data analytics can help companies to significantly lower cost by identifying more efficient ways of doing business and incorporating it into their company strategy. Furthermore, with big data analytics, all potential risk can be discovered and identified way earlier, this will help user or companies to increase their protection and strengthen their strategies. With this, safety measurements for companies will be increased and secured.

With all these benefits, companies or sectors that started to adapt big data analytics among their workers, will be more distinct that others, and it will help to create a better image for that certain sectors and companies.

Industrial Talk 7: Introduction to Data Visualization (iCEP)

Description

In this talk, speaker Mr Isma Redha first introduced what is data visualization. In my understanding, data visualization is the process of translating large data sets and metrics into charts, graphs and other visuals. After that, Mr Isma showed us 4 types of data that can be visualized and their relationship to each other, which include Quantitative, Discrete, Continuous and Categorical. Mr Isma also introduced 6 chart types to present our data. For example, Bar Chart, Pie Chart, Line Chart, Scartterplot Chart, Bubble Chart and Heat Map Variations. Finally, he introduced us to a data visualization software, Microsoft Power BI, and showed us some simple operations.

What, when and where to use it

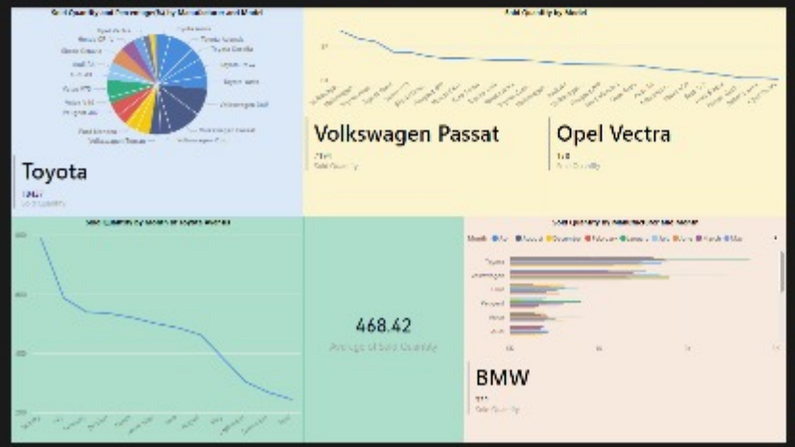
Power BI is a collection of software services, apps, and connectors that work together to turn our unrelated sources of data into coherent, visually immersive, and interactive insights. The data may be an Excel spreadsheet, or a collection of cloud-based and on-premises hybrid data warehouses. Power BI lets us easily connect to our data sources, visualize and discover what's important, and share that with anyone or everyone we want.
So, when should we use it? It depends on our individual needs such as analytics, collaboration, data sources, data size and visualization. Excel is suitable for simpler requirements than Power BI, but once things get more complex and need professionalize, Power BI is the better choice. Lastly, Power BI service is a secure Microsoft hosted cloud service that lets users view dashboards, reports, and Power BI apps — a type of content that combines related dashboards and reports — using a web browser or via mobile apps for Windows, iOS, and Android.

Reflection

From this talk, I realised that Microsoft Power BI is a business intelligence technology that offers tools for gathering, analysing, displaying, and sharing data to nontechnical business users. For users who are familiar with Excel, Power BI's user interface is relatively straightforward, and its strong connectivity with other Microsoft products makes it an extremely adaptable self-service tool with little upfront training. Because Power BI is more difficult to learn, providing some training or a proof-of-concept dashboard can be handy. Power BI has a variety of interesting visualisations, including Ribbon charts, Waterfall charts, Scatter charts, Pie charts, Donut charts, and Tree map charts. Users can also choose from a variety of data sources in Power BI, including Excel, Power BI datasets, SQL Server, MySQL databases, and Analysis Services. A Power BI report displays a complete and structured presentation of data given in a variety of ways, giving key insights from the data. Power BI users may simply share reports they've prepared with others.

Data analytics interpretation for the chosen data

In this part, we are going to use Microsoft Power BI to explore the dataset. The dataset we get is a new car sale in Norway in the year of 2007. We visualize the data with the sold quantity of each manufacturer, sold quantity of all car models, sold quantity of selected car model and sold quantity of each manufacturer by year.



Result and Discussion

Which manufacturer has the highest sold quantity ?

Based on the pie chart, we can see that Toyota has the highest sold quantity with an amount of 18437 across all other manufacturers in the year of 2007.
The reason is because that Toyota is very popular around the world. It manufactures every type of car that fits into all of its consumers' age groups. For example, people with families tend to buy a car that is bigger so that they can bring their family to go around with the car.

Which model has the highest and lowest sold quantity ?

According to the line chart sold quantity by model, Volkswagen Passat has the highest sold quantity and Opel Vectra has the lowest sold quantity among all the car models in the year 2007 that was used in this dataset.
In our opinion, the reason that Volkswagen Passat has the highest sold quantity is because it is a good middle-size car that comes with fuel efficiency technology, a comfortable interior and a high-class design style. It is suitable for a family with 5 or fewer people which is a normal number of people of a family in 2007.
On the other hand, Opel Vectra has the lowest sold quantity in the year of 2007. According to our research, the reason why Opel Vectra has the lowest sold quantity is because the car model is very old. The car model was in production from the year of 1988 until 2008. It is possible that the design and performance of the car does not meet the requirement of the consumers in 2007. Therefore, it has the lowest sold quantity in 2007.

Which model has the highest sold quantity from Toyota ?

Toyota Avensis has the highest sold quantity from its manufacturer, Toyota.
An average of 469 cars were sold in each month of 2007. It has the highest sold quantity as the car model is a comfort-oriented car and has a reasonable price. So, this car model is popular among the consumers during 2007.

Which manufacturer has the lowest sold quantity in 2007 ?

BMW has the least sold quantity by manufacturers among all the manufacturers in this dataset. In the year 2007, only 332 cars were sold out by the manufacturers. Our opinion is that although BMW car quality is very high, but the price is also very expensive. People tend to buy a car that is more cost-effective. Therefore, this car model has the lowest sold quantity as it does not fits the consumers' requirement

Conclusion

In conclusion, each manufacturer has different sold quantity. The manufacturer who sells car model that are more expensive has lower sold quantity since not everybody manage to afford it. Consumer tends to buy something that have lower price and meets their requirement. Therefore, each manufacturer has different amount of sold quantity throughout the year.