

Power BI Assignment 1

1. What do you mean by BI? Explain.

Ans. Business Intelligence (BI) refers to the use of technology and tools to analyse data and gain insights that can inform business decisions. This can include a wide range of activities, such as data mining, reporting, and visualization, as well as more advanced techniques like predictive analytics and machine learning. The goal of BI is to help organizations make data-driven decisions that can improve performance, increase efficiency, and drive growth. Examples of BI applications include identifying key market trends, forecasting future sales, and detecting potential fraud.

2. How Power-BI helps in BI, and how does it help Analysts? Explain.

Ans. Power BI is a suite of business intelligence tools developed by Microsoft that allows users to connect to, visualize, and analyse data. The platform includes a variety of features and capabilities that can help analysts in their BI efforts, including:

- **Data Connectivity:** Power BI allows users to connect to a wide range of data sources, including files (e.g., Excel, CSV), databases (e.g., SQL Server, Oracle), and online services (e.g., Salesforce, Google Analytics). This allows analysts to easily access and combine data from different systems in order to gain a more complete understanding of their organization's performance.
- **Data Visualization:** Power BI provides a variety of visualization options, including charts, tables, and maps, that can be used to represent data in a clear and meaningful way. This can help analysts identify patterns, trends, and outliers in the data that might not be apparent from raw numbers alone.
- **Data Analysis:** Power BI includes a range of data analysis tools, including the ability to create calculated columns and tables, apply filters and slicers, and create relationships between tables. These capabilities allow analysts to manipulate and analyze data in order to gain
- **Dashboards and Reports:** Power BI allows users to create interactive dashboards and reports that can be shared with others in their organization. This can help analysts communicate their findings and recommendations to decision-makers in a clear and compelling way.
- **Collaboration:** Power BI has built-in collaboration features, like comments, and share the report to specific people, that allow analysts to work with others on the same data and insights.

Overall, Power BI can help analysts too quickly and easily access, visualize, and analyze data, and then share their insights with others in their organization. This can help organizations to make better-informed decisions, improve performance, and drive growth.

3. Explain Descriptive analytics?

Ans. Descriptive analytics is a type of business intelligence (BI) that involves using data, statistical algorithms, and visualization techniques to understand and describe historical data. The goal of descriptive analytics is to summarize and make sense of past data in order to understand what has happened, identify patterns and trends, and gain insights that can inform business decisions.

Descriptive analytics is often considered the foundation of business intelligence, as it helps organizations to understand what has happened in the past, so they can make better-informed decisions about the future. It is a retrospective analysis of the historical data, it can provide a clear picture of what has happened, but it cannot predict what will happen in the future.

Some of the common techniques used in descriptive analytics include:

- Data aggregation: Summarizing data by grouping it into categories or segments, such as by product, region, or time period.
- Data mining: Using techniques such as clustering and association rules to discover patterns and relationships in data.
- Data visualization: Using charts, graphs, and other visual representations of data to help make sense of it and communicate insights.

4. Explain Predictive analytics?

Ans. Predictive analytics is a type of advanced analytics that uses statistical models, machine learning algorithms, and data mining techniques to analyse historical data and make predictions about future events or behaviours. The goal of predictive analytics is to identify patterns and trends in data that can be used to make predictions about future outcomes.

Predictive analytics can be used in a variety of industries, such as finance, healthcare, retail, and manufacturing, to improve decision-making, optimize processes, and increase efficiency. However, it's important to remember that predictive analytics is not always accurate and it's based on the historical data provided and the assumptions made about the future, so it's not always 100% correct.

Some of the common techniques used in predictive analytics include:

- Regression analysis: Identifying the relationship between one or more independent variables and a dependent variable, such as how changes in marketing spend will affect sales.
- Decision trees and random forests: Using a series of decisions or splits based on the input variables to predict the outcome.
- Neural networks: Building complex models that can learn and improve over time as they are exposed to new data.
- Clustering: Grouping similar items or customers together based on their characteristics or behaviors.

5. Explain perspective analytics?

Ans. Prescriptive analytics is a type of advanced analytics that uses optimization and simulation algorithms, as well as other mathematical techniques, to provide recommendations or "prescriptions"

for actions or decisions. The goal of prescriptive analytics is to go beyond simply predicting future outcomes, and instead provide guidance on how to achieve desired results.

Examples of prescriptive analytics include:

- Optimizing supply chain logistics to minimize costs and improve delivery times.
- Identifying the best pricing strategy for a product or service.
- Scheduling maintenance for equipment to minimize downtime and costs.
- Identifying the most effective marketing campaign to reach specific customers.

Prescriptive analytics can be used in a wide range of industries and applications, from manufacturing and logistics to healthcare and finance, and it can be used for both strategic and operational decision making. It can help organizations to identify the best course of action to achieve desired results. However, it's important to remember that the results of prescriptive analytics are based on the assumptions and constraints provided, so it's not always 100% accurate.

6. Write five real-life questions that PowerBI can solve.

Ans. Below are five real-life questions that PowerBI can solve:

1. How have our sales been performing over the last quarter compared to previous quarters? PowerBI can be used to connect to sales data and create visualizations such as line charts to show sales trends over time, allowing us to identify patterns and changes in our sales performance.
2. What are the top-selling products in our online store? PowerBI can be used to connect to e-commerce data and create visualizations such as bar charts to show the most popular products by quantity sold;
3. How does our website traffic vary by day of the week and time of day? PowerBI can be used to connect to website analytics data and create heat maps or line charts to visualize the patterns of traffic over time, which can help us to understand when the website is busiest and make adjustments accordingly.
4. How are customer satisfaction scores trending over time? PowerBI can be used to connect to customer satisfaction survey data and create line charts or scatter plots to visualize changes in scores over time, which can help us identify trends and areas for improvement.
5. What are the most common customer complaints or service requests? PowerBI can be used to connect to customer service data and create word clouds or pie charts to show the most frequent complaints or requests, which can help us to identify and address the most pressing issues.