**Power BI Assignment 1**

**1- What do you mean by BI? Explain.**

**Ans**-Business intelligence (BI) refers to the procedural and technical infrastructure that collects, stores, and analyses the data produced by a company’s activities.

BI is a broad term that encompasses data mining, process analysis, performance benchmarking, and descriptive analytics. BI parses all the data generated by a business and presents easy-to-digest reports, performance measures, and trends that inform management decisions.

BI attempts to solve this problem by analysing current data that is ideally presented on a dashboard of quick metrics designed to support better decisions.

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

**Ans**-Microsoft Power BI is used to find insights within an organization's data. Power BI can help connect disparate data sets, transform and clean the data into a data model and create charts or graphs to provide visuals of the data. All of this can be shared with other Power BI users within the organization.

One of the main strengths of Power BI is its intuitive user interface that allows both technical and non-technical analysts to build data visualizations and analyses efficiently. The user-friendly drag-and-drop interface makes it easy to answer complex data-related questions without the need for programming skills.

The Power BI data analyst delivers actionable insights by leveraging available data and applying domain expertise. The Power BI data analyst collaborates with key stakeholders across verticals to identify business requirements, cleans and transforms the data, and then designs and builds data models by using Power BI.

**3- Explain Descriptive analytics**?

**Ans**-Data analytics—the practice of examining data to answer questions, identify trends, and extract insights—can provide you with the information necessary to strategize and make impactful business decisions.

There are four key types of data analytics:

Descriptive, which answers the question, “What happened?”

Diagnostic, which answers the question, “Why did this happen?”

Prescriptive, which answers the question, “What should we do next?”

Predictive, which answers the question, “What might happen in the future?”

Descriptive analytics is the interpretation of historical data to better understand changes that have occurred in a business. Descriptive analytics describes the use of a range of historic data to draw comparisons. Most reported financial metrics are a product of descriptive analytics, for example, year-over-year pricing changes, month-over-month sales growth, the number of users, or the total revenue per subscriber. These measures all describe what has occurred in a business during a set period.

Descriptive analytics provides the "What happened?" information regarding a company's operations, whole diagnostic analytics provides the "Why did it happen?" information, and predictive analytics provides information as to "What could happen in the future?"

**4- Explain Predictive analytics?**

**Ans**-Predictive analytics is the use of data to predict future trends and events. It uses historical data to forecast potential scenarios that can help drive strategic decisions.

The predictions could be for the near future—for instance, predicting the malfunction of a piece of machinery later that day—or the more distant future, such as predicting your company’s cash flows for the upcoming year.

Predictive analysis can be conducted manually or using machine-learning algorithms. Either way, historical data is used to make assumptions about the future.

One predictive analytics tool is regression analysis, which can determine the relationship between two variables (single linear regression) or three or more variables (multiple regression). The relationships between variables are written as a mathematical equation that can help predict the outcome should one variable change.

**Example-**

**Finance: Forecasting Future Cash Flow**

Every business needs to keep periodic financial records, and predictive analytics can play a big role in forecasting your organization’s future health. Using historical data from previous financial statements, as well as data from the broader industry, you can project sales, revenue, and expenses to craft a picture of the future and make decisions.

“Managers need to be looking ahead in order to plan for the future health of their business,” Narayanan says. “No matter the field in which you work, there is always a great amount of uncertainty involved in this process.”

**5- Explain perspective analytics?**

**Ans**-Prescriptive analytics is a statistical method that focuses on finding the ideal way forward or action necessary for a particular scenario, based on data. Prescriptive analytics uses both descriptive and predictive analytics, but the focus here remains on actionable insights rather than data monitoring. The input of prescriptive analytics is the outcome of predictive analytics algorithms. You not only predict what the future holds, but you leverage that prediction to take the best course of action for the future. A more formal definition is that prescriptive analytics is a statistical approach utilized to generate recommendations and aid decision-making based on the computational outcomes of algorithmic models

Here are some common examples of prescriptive analytics and types of prescriptive insights provided by advanced data analytics tools.

Financial Services

Reduce risk by automatically analysing credit risk or loan default likelihood.

Healthcare

Provide better patient care based on patient admission and readmission forecasting.

**6- Write five real-life questions that Power Bi can solve.**

**Ans**-

**1. FINDING SPECIFIC DATA IN LARGE DATA VOLUMES WITH POWER BI**

Going through spreadsheets in search of specific datasets is cumbersome. Data is presented in a non-user-friendly way and finding specific data from a vast amount of data can be quite inefficient.

Here comes Power BI, providing the users with an easy search of datasets. Once you have imported a dataset in PBI Desktop, you can access that anytime, from anywhere, as many times as you want. For instance, in the Query Editor, you can go to “View” in the header and select the “Go to Column” to navigate to the column you want. And on the main report page and in the data section there is a search right at the top of Fields. With that, you can search and filter all your objects to only those that match. Data can also be shared and published for others to view, so they can also have access to it and take an equal part in the decision-making process.

**2.DATA QUALITY**

Everyone wants to use high-quality data for their analysis. Data quality is one of the most important aspects of a data analysis and is often overlooked or treated as an afterthought. Poor quality data can lead to inaccurate analytics and ill-conceived business strategies. If data is not accurate, complete, and clean, companies can make costly mistakes.

Power BI helps you quickly identify data quality issues and provides numerous ways to address them. Power Query provides you with exciting features to clean and prepare data for analysis. The data profiling tools can help you remove all the inconsistencies, null values, and data quality problems.

**3.ONLY TECH TEAMS CAN CREATE BUSINESS REPORTS**

Companies use many reporting tools to build their reports, but they are complicated. This is the reason that only tech teams can use them. Every time you want to open the report or perform a minor change in it, you must wait for your tech team to accomplish it. So, this means yet another delay.

On the other hand, Microsoft Power BI is a user-friendly and simple tool and can be used by anyone, even by non-experienced BI people. Usually, a skilled person is required to model the data, but no special skills are required in Power BI. So, it is quite easy to create and understand data through visualizations in Power BI.

**4.ONE-OFF REPORTING IS TIME CONSUMING**

Gathering a huge amount of data from different sources can be an uphill task. You must rely on different departments to get data, interpret it, and then produce actionable insights. These reports need to be replicated during set intervals. You must manually regenerate the report from the beginning. This is a challenge faced by many corporations. But as the business grows, waiting for data and then reworking on the reports to get the updated data is not a good approach as it affects your timeline and your productivity.

Power BI helps you to access your data instantly with less manual work. It can handle a huge amount of data making it easy to decipher using advanced visualizations. It allows you to get data from different data sources by automatically connecting with them, saving you time and effort. Once a report is created, you only must hit refresh or enable a schedule refresh to get real-time insights. This will prevent any human error and skewed results.

**5. UNABLE TO FORESEE FUTURE TRENDS**

Business Trends keep on changing according to the needs, wants, and tastes of the consumer. Prediction of future trends and opportunities is an essential task in business development. It is challenging for businesses to exist and stay relevant if they are not good at identifying and adapting to current trends. That is why spotting trends and showing how they change over time is essential and can help companies make suitable decisions. This gives them an edge and helps them stay ahead of their competition.

Power BI helps in monitoring the processes of the company. It can easily spot trends with the help of the data gathered during monitoring. Data Analysis Expressions (DAX) provides a wide range of functionalities for trends analysis. The trending AI Capabilities of Power BI help you visualize the future using predictive analytics and other such big data tools. This can help businesses foresee any need to recruit more employees, change a specific requirement, or further invest in technology.