Power BI Assignment 1

1)

Business intelligence (BI) is the use of software, tools, and applications to analyze an organization's raw data with the goal of optimizing decisions, improving collaboration, and increasing overall performance. This involves extracting data from data sources, transforming the data to a more useful format, loading the data into a more suitable repository and then analyzing and mining the transformed data. BI helps find patterns in large volumes of information and turn those observations into useful insights. As a result, successes become more apparent, and weak areas can be better addressed. Business intelligence lies at the intersection of data collection, data analysis, reporting, and decision-making.

- Collecting data: Data can be collected from multiple sources such as websites, social media, sales and marketing campaigns, finance department, etc. Since the data comes from varied sources, it is in different formats such as Excel, JSON, CSV, etc. Moreover, they contain duplicates. So, the data is not fit for analysis yet and needs to be transformed.
- Preparing and transforming data: Once the data is collected from various sources, it is brought together in one place and organized. This is done through ETL (extract, transform and load). It is the process of extracting data from multiple sources, removing errors from it, converting to a desired format, and uploading it to a data warehouse.
- Analyzing data: Once the data is integrated, it is analyzed. The goal of this analysis is to understand how the company was doing in the past as well as how it's performing now. This includes answering questions related to business performance such as – Did we meet the sales target?
- Visualizing data: After the analysis, the findings can be turned into digestible visuals such as charts and graphs. This is done through BI tools such as Power BI.
- Communicating with stakeholders: Now that we have investigated the data and come up with insights, it is time to present. The insights are communicated in an easy-to-understand format to the stakeholders. This is generally done through reports or dashboards. These dashboards can give you insights such as website traffic, revenue generated, conversion rate, etc.
- Making strategic decisions: Based on the reports, the business leaders understand how the business has performed and set targets.
- Monitoring performance: Once the decisions have been communicated to the management, the team starts working on the goals and monitors their performance through self-service BI.

2)

Power-BI helps in BI, and helps analyst in following ways:

The BI tool by Microsoft is user-friendly and one of the most affordable options in the market. It can be used to prepare, analyze, visualize, and share data. In addition to sharing data with our team, we can also embed it into our website. Power BI lets users tackle data of all shapes and sizes right from an Excel sheet to a huge database. For companies that already use Microsoft products such as Office 365, the data can be easily connected to Power BI.

Power BI makes it incredibly simple to consolidate your data into a single location for improved accessibility, organization, and visibility in your reporting efforts. It supports up to 70+ connectors, allowing businesses to load data from a wide range of popular cloud-based sources, including Azure (Azure Data Warehouse), Drobox, Google Analytics, OneDrive, and Salesforce, as well as Excel spreadsheets, CSV files, and data stored on-premises, such as SQL Database. While Excel begins to slow down when dealing with huge models, Power BI is designed to handle tables with more than 100 million records without breaking a sweat. Power BI also uses automatic, incremental refreshments to ensure data is constantly up to date, which is a great benefit that further simplifies visual reporting for end users.

Data cleaning and transformations can be performed using Power BI which includes changing data formats, adding and deleting rows and columns, transposing, pivoting and unpivoting tables, creating calculated measures, columns and tables. Creating relationships between multiple tables especially when the data warehouse uses star or snowflake schema. New datasets can be added into the data model without the need for restructuring the entire data model.

3)

Descriptive analytics:

Descriptive analytics is what businesses commonly use as they assess historical data and try to extract the most important trends, occurrences, and areas for improvement. Doing so allows companies to uncover not only what happened, but also what factor(s) may have influenced it to happen, and how it may then impact another metric down the road.

Example: A toy store uses descriptive analytics at the end of each quarter to review its sales and performance. This quarter, the descriptive analytics shows that toy sales have steadily risen each month leading into the winter holiday season. They can see which weeks, days and hours are the busiest for buying toys, understand which toys sell best and review the locations in the store where most customers spend time.

4)

Predictive analytics:

Where descriptive analytics look backward, predictive analytics work to look ahead. Statistical models and forecasts are used to answer the question of what could happen. Models are built on patterns that were found within descriptive analytics. The goal is to proactively find the needs of the organization. Predictive analysis is important for understanding what may happen in the future. Predictive analytics often rely on data from the past and information about what might happen in the future to forecast potential figures.

Example: An ice cream truck uses predictive analytics to understand which months of the year are most likely to produce higher profits. Because the ice cream operation exists in a temperate climate, the predictive analysis shows that the ice cream truck is more likely to have great sales during the summer months. Predictive analysis also forecasts how much profit the truck can earn depending on the day and outside temperature.

5)

Perspective analytics:

Once the future is predicted, the next question is what we can do about it. Prescriptive analytics provides recommendations on what to do based on predictions and what has occurred in the past. When performing prescriptive analysis, the company or organization may use transactional, historical and active data with complex business algorithms.

Example: A furniture maker may use prescriptive analytics to manage their inventory. The prescriptive analytics can determine, based on the number of orders and current inventory level, when more supplies may be necessary. Depending on the system, it may automatically order the materials to ensure they arrive on time. Some systems may create a prompt or notification that inventory is getting low and the manager may need to order more of each material soon to avoid order delays.

6)

Following are the five real-life questions that PowerBi can solve:

a. Using Data From Old Reports: It’s not uncommon for documents shared in a cloud to be mislabeled, altered, and even deleted by accident. Even if stored in the correct location, finding reports this way can be incredibly time-consuming. All of these factors can lead to

unnecessary mistakes and delays. Using Power BI reduces the possibility of error by allowing reports to be run in seconds using only the most current data. This ensures that reports can't be altered or deleted and eliminates the time spent sifting through files to find the correct data.

b. Excessive Time Spent Preparing for Presentations: Power BI can quickly and easily create visual representations of your data and provide stunning and accurate presentations for your meetings. Using Power BI's automated reporting tools can save hours of preparation.

c. Being Unable to Find Specific Data Sets: Power BI allows IT members to publish data catalogs for others to view. This makes it easier for you to find the data sets needed to perform an analysis. Additionally, using natural language technology and its Question & Answer feature provides a more natural experience to locate and better understand your BI.

d. Visualize Details Easily: Power BI helps businesses to check any kind of details to ensure that the business is running smoothly. While some enterprises track a small amount of inventory, some businesses track sales calls (made by the sales team members). These data sets are designed with Power BI algorithm and delivered in a readable and easily understandable format.

e. Data quality: 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.