**Power BI Assignment 1**

1. What do you mean by BI? Explain.

Business Intelligence (BI) is software that ingests business data and presents it in user-friendly views such as reports, dashboards, charts and graphs. BI tools enable business users to access different types of data – historical and current, third-party and in-house, as well as semi-structured data and unstructured data like social media. Users can analyze this information to gain insights into how the business is performing.

According to CIO magazine: “Although business intelligence does not tell business users what to do or what will happen if they take a certain course, neither is BI only about generating reports. Rather, BI offers a way for people to exame data to understand trends and derive insights.”

Organizations can use the insights gained from business intelligence and data analysis to improve business decisions, identify problems or issues, spot market trends, and find new revenue or business opportunities.

**Business Intelligence work**

BI platforms traditionally rely on data warehouses for their baseline information. A data warehouse aggregates data from multiple data sources into one central system to support business analytics and reporting. Business intelligence software queries the warehouse and presents the results to the user in the form of reports, charts and maps.

Data warehouses can include an online analytical processing (OLAP) engine to support multidimensional queries. For example: What are sales for our eastern region versus our western region this year, compared to last year?

“OLAP provides powerful technology for data discovery, facilitating business intelligence, complex analytic calculations and predictive analytics,” says IBM offering manager Doug Dailey in his data warehousing blog. “One of the main benefits of OLAP is the consistency of information and calculations it uses to drive data to improve product quality, customer interactions and process improvements.”

Some newer business intelligence solutions can extract and ingest raw data directly using technology such as Hadoop, but [data warehouses](https://www.ibm.com/data-warehouse) are still the data source of choice in many cases.

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

Power BI is a technology driven business intelligence tool provided by Microsoft for analyzing and visualizing raw data to present actionable information. It combines business analytics, data visualization, and best practices that help an organization to make data-driven decisions. In February 2019, Gartner confirmed Micorosoft as Leader in the “2019 Gartner Magic Quadrant for Analytics and Business Intelligence Platform” as a result of the capabilities of the Power BI platform.

Power BI allows you to analyze and share massive volumes of data. It takes time to get data insights and increase collaboration between data analysts, data engineers and data scientists.

1. Explain Descriptive analytics?

Descriptive analytics is the process of using current and historical data to identify trends and relationships. It’s something called the simplest form of data analysis because it describes trends and relationships but doesn’t dig deeper.

Descriptive analytics is relatively accessible and likely something your organization uses daily. Basic statistical software, such as Microsoft Excel or data visualization tools, such as Google Charts and Tableau, can help parse data, identify trends and relationships between variables, and visually display information.

Descriptive analytics is especially useful for communicating change over time and uses trends as a springboard for further analysis to drive decision making.

1. Explain Predictive analytics?

The term predictive analytics refers to the use of [statistics](https://www.investopedia.com/terms/s/statistics.asp) and modeling techniques to make predictions about future outcomes and performance. Predictive analytics looks at current and historical data patterns to determine if those patterns [are likely to emerge again](https://www.investopedia.com/risks-of-pareidolia-in-the-stock-market-7369635). This allows businesses and investors to adjust where they use their resources to take advantage of possible future events. Predictive analysis can also be used to improve [operational efficiencies](https://www.investopedia.com/terms/o/operationalefficiency.asp) and reduce [risk](https://www.investopedia.com/terms/r/risk.asp).

Predictive analytics is a form of technology that makes predictions about certain unknowns in the future. It draws on a series of techniques to make these determinations, including [artificial intelligence](https://www.investopedia.com/alternative-investments-4427781) (AI), [data mining](https://www.investopedia.com/terms/d/datamining.asp), machine learning, modeling, and statistics.1 For instance, data mining involves the analysis of large sets of data to detect patterns from it. Text analysis does the same, except for large blocks of text.

[Predictive models](https://www.investopedia.com/terms/p/predictive-modeling.asp) are used for all kinds of applications, including weather forecasts, creating video games, translating voice to text, customer service, and investment portfolio strategies. All of these applications use descriptive statistical models of existing data to make predictions about future data.

Predictive analytics is also useful for businesses to help them manage inventory, develop [marketing strategies](https://www.investopedia.com/terms/m/marketing-strategy.asp), and forecast [sales](https://www.investopedia.com/terms/s/sale.asp).2 It also helps businesses survive, especially those in highly competitive [industries](https://www.investopedia.com/terms/i/industry.asp) such as health care and retail.3 Investors and financial professionals can draw on this technology to help craft investment [portfolios](https://www.investopedia.com/terms/p/portfolio.asp) and reduce the potential for risk.

1. Explain perspective analytics?

Prescriptive analytics is a type of [data analytics](https://www.investopedia.com/terms/d/data-analytics.asp) that attempts to answer the question "What do we need to do to achieve this?" It involves the use of technology to help businesses make better decisions through the analysis of raw data. Prescriptive analytics specifically factors information about possible situations or scenarios, available resources, past performance, and current performance, and suggests a course of action or strategy. It can be used to make decisions on any [time horizon](https://www.investopedia.com/terms/t/timehorizon.asp), from immediate to long-term. It is the opposite of descriptive analytics, which examines decisions and outcomes after the fact.

Prescriptive analytics tries to answer the question "How do we get to this point?" It relies on [artificial intelligence](https://www.investopedia.com/terms/a/artificial-intelligence-ai.asp) (AI) techniques, such as machine learning (the ability of a computer program without additional human input), to understand and advance from the data it acquires, adapting all the while.

Machine learning makes it possible to process a tremendous amount of data available today. As new or additional data becomes available, computer programs adjust automatically to make use of it, in a process that is much faster and more comprehensive than human capabilities could manage.

Prescriptive analytics works with another type of data analytics, predictive analytics, which involves the use of [statistics](https://www.investopedia.com/terms/s/statistics.asp) and modeling to determine future performance, based on current and historical data. However, it goes further: Using the predictive analytics' estimation of what is likely to happen, it recommends what future course to take.

1. Write five real-life questions that PowerBi can solve.

We can use the Power Bi to solve the below mentioned real life problems

i] Sales Analysis Reports

ii] Website Analytics Reports

iii] Customer Profitability Reports

iv] Digital Marketing Reports

v] HR Analytics Reports