**Power BI Assignment 1**

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

**Business Intelligence (BI)** refers to the process of collecting, analyzing, and presenting business data to help organizations make informed decisions. BI involves using tools, technologies, and strategies to convert raw data into meaningful insights, enabling businesses to optimize operations, improve efficiency, and gain a competitive edge.

BI typically includes **data mining, reporting, performance analysis, and dashboards** that provide real-time insights. Popular BI tools include **Power BI, Tableau, and QlikView**.

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

Power BI is a **business intelligence tool** developed by Microsoft that helps in **data visualization, reporting, and decision-making**. It plays a crucial role in BI by allowing users to:

* **Connect to multiple data sources** (Excel, SQL, cloud platforms, etc.).
* **Transform raw data into interactive dashboards** and reports.
* **Perform data analysis** using AI-driven insights.
* **Share reports in real-time** with teams and stakeholders.

For Analysts, Power BI helps in:  
✅ **Data Cleaning & Transformation:** Easily prepares large datasets for analysis.  
✅ **Data Visualization:** Creates interactive charts, graphs, and dashboards.  
✅ **Predictive Analytics:** Uses AI-powered insights for future trends.  
✅ **Real-Time Reporting:** Helps in tracking KPIs dynamically.

**3. Explain Descriptive Analytics.**

**Descriptive Analytics** focuses on analyzing past data to understand **what happened** in a business. It summarizes historical trends using **charts, graphs, and reports**.

🔹 Example: A company analyzes last year’s sales trends to identify the most profitable products.

🔹 **Tools Used:** Power BI, Excel, Tableau, SQL.

🔹 **Use Case:** Retail businesses use descriptive analytics to monitor past sales performance.

**4. Explain Predictive Analytics.**

**Predictive Analytics** uses statistical models and machine learning to forecast **what is likely to happen** in the future based on historical data.

🔹 Example: An e-commerce company predicts future sales trends based on customer buying patterns.

🔹 **Techniques Used:** Regression analysis, AI models, forecasting techniques.

🔹 **Use Case:** Healthcare companies use predictive analytics to forecast disease outbreaks.

**5. Explain Prescriptive Analytics.**

**Prescriptive Analytics** goes beyond predicting outcomes and provides actionable **recommendations** on **what should be done** to improve results.

🔹 Example: A logistics company determines the best delivery routes to minimize fuel costs.

🔹 **Techniques Used:** Machine Learning, Optimization Algorithms, AI-based decision-making.

🔹 **Use Case:** Financial institutions use prescriptive analytics to suggest personalized investment strategies.

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

1️⃣ **Which products contribute the most revenue in a company?**  
2️⃣ **What are the monthly customer retention rates, and how can they be improved?**  
3️⃣ **Which marketing campaigns lead to the highest customer engagement?**  
4️⃣ **How can a hospital predict patient admission rates based on past data?**  
5️⃣ **Which supply chain factors are causing delays in delivery?**