



ASSIGNMENT TITLE

POWER BI Basics

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Assignment Description:

This assignment is based on the fundamentals of **Power BI**, a business intelligence tool used for data analysis and visualization. The objective of this assignment is to understand the basic concepts of Power BI, its components, workflow, and the process of transforming raw data into meaningful insights.

The assignment explains key concepts such as Power BI Desktop, Power BI Service, data loading, data cleaning using Power Query, and different views in Power BI. It also focuses on practical aspects like handling datasets and preparing data for analysis.

Overall, this assignment helps in developing a clear foundation of Power BI and highlights its importance in supporting data-driven decision making in modern organizations.

Question 1: What is Power BI and why is it used in businesses?

Answer:

Power BI is a **business intelligence and data visualization tool developed by Microsoft**. It helps organizations collect data from different sources, analyze it, and convert it into interactive reports and dashboards.

Power BI is used in businesses because it:

- Converts raw data into meaningful insights
- Helps management monitor KPIs and performance
- Supports data-driven decision making
- Provides real-time dashboards
- Reduces dependency on manual reporting

By using Power BI, organizations can understand trends, identify problems, and take faster and more accurate business decisions.

Question 2: Name and explain the three main components of Power BI.

Answer:

The three main components of Power BI are:

1. Power BI Desktop

Power BI Desktop is a Windows-based application used to:

- Load data from different sources
- Clean and transform data using Power Query
- Create data models and relationships
- Design reports and visualizations

It is mainly used by data analysts and report developers.

2. Power BI Service

Power BI Service is a cloud-based platform used to:

- Publish reports created in Power BI Desktop
- Share dashboards with users
- Schedule data refresh
- Collaborate with teams

It allows decision-makers to access reports online.

3. Power BI Mobile

Power BI Mobile is a mobile application that allows users to:

- View dashboards on smartphones and tablets
- Access real-time insights anywhere
- Receive alerts on important KPIs

It helps managers stay updated even when they are not in the office.

Question 3: Explain the Power BI workflow.

Answer:

The Power BI workflow describes the steps followed to create reports and dashboards:

1. **Data Collection** – Data is imported from sources like Excel, databases, or online services.
2. **Data Transformation** – Data is cleaned and transformed using Power Query.
3. **Data Modeling** – Relationships are created between tables and calculations are defined.
4. **Report Creation** – Visualizations such as charts, tables, and slicers are created.
5. **Publishing** – Reports are published to Power BI Service.
6. **Sharing & Refreshing** – Dashboards are shared and data is refreshed regularly.

This workflow ensures accurate and interactive reporting.

Question 4: List any four data cleaning tasks that can be performed in Power Query.

Answer:

Power Query provides various data cleaning features. Four common tasks are:

1. **Removing duplicate rows**
2. **Handling missing or null values**
3. **Changing data types (text to number, date, etc.)**
4. **Renaming columns for better clarity**

These tasks improve data quality before analysis.

Question 5: Write step-by-step instructions to load the Real_Estate dataset in Power BI.

Answer:

Steps to load the dataset in Power BI:

1. Open **Power BI Desktop**
2. Click on **Get Data**
3. Select the data source (Excel / CSV)
4. Browse and select the Real_Estate dataset
5. Click **Open**
6. Use **Power Query Editor** to clean data if required
7. Click **Close & Apply**
8. Data is now loaded into Power BI for analysis

This process ensures the dataset is ready for reporting.

Question 6: Define Data View, Report View, and Model View. Explain the purpose of each view.

Answer:

1. Data View

Data View displays data in table format.

Purpose:

- Check loaded data
- Verify column values
- Perform basic calculations

2. Report View

Report View is used to design reports.

Purpose:

- Create charts, graphs, and tables
- Apply filters and slicers

- Build interactive dashboards

3. Model View

Model View shows relationships between tables.

Purpose:

- Define table relationships
- Manage data model structure
- Ensure correct data connections

Each view plays a crucial role in report development.

Question 7: Discuss the different data sources that Power BI supports.

Answer:

Power BI supports a wide range of data sources, including:

- **Files:** Excel, CSV, XML, JSON
- **Databases:** SQL Server, MySQL, PostgreSQL, Oracle
- **Cloud Services:** Azure SQL Database, Google Analytics
- **Online Services:** SharePoint, Salesforce
- **Other Sources:** Web data, APIs

This flexibility allows Power BI to connect with almost any data source.

Question 8: Split Owner Name to create two new columns as First Name and Last Name (Real_Estate Dataset).

Answer:

Steps in Power Query:

1. Open **Power Query Editor**
2. Select the **Owner Name** column
3. Click on **Split Column**
4. Choose **By Delimiter**
5. Select space (" ") as delimiter
6. Split into two columns
7. Rename columns as **First Name** and **Last Name**

Result:

The Owner Name column is successfully divided into two separate columns, making data easier to analyze.

Conclusion:

Power BI is a powerful business intelligence tool that helps organizations transform raw data into meaningful insights. This assignment explains the fundamentals of Power BI, including its components, workflow, data cleaning capabilities, and supported data sources. By understanding views such as Data View, Report View, and Model View, users can efficiently build accurate and interactive dashboards. Overall, Power BI enables better data analysis, improved reporting, and informed business decision-making.