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Power BI Tutorial

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- Day to Day Working of a Data Analyst

1. **Attending Daily Calls / Stand-ups**

Data analysts participate in daily meetings to discuss progress, challenges, priorities, and coordinate tasks with the team.

2. **Extracting, Cleaning, and Analyzing Data**

Raw data is collected from different sources, cleaned to remove errors or missing values, and analyzed to find useful insights.

3. **Preparing and Maintaining Documentation**

Proper documentation is created for datasets, processes, and reports so that work can be easily understood and reused.

4. **Interacting with Clients & Stakeholders**

Analysts communicate with clients to understand requirements, clarify problems, and present data-driven findings.

5. **Collaborating with Different Teams**

Data analysts work with engineering, product, and business teams to align data analysis with organizational goals.

6. **Preparing Ad Hoc Reports**

On-demand reports are prepared whenever management or clients request quick insights for specific business questions.

7. **Responding to Queries and Questions via Email**

Analysts answer data-related questions, explain reports, and provide clarifications through professional email communication.

8. **Incorporating Feedback**

Feedback from clients and team members is used to improve dashboards, reports, and analysis methods.

9. **Sharing and Maintaining Reports**

Reports are distributed to stakeholders and updated regularly to ensure accuracy and relevance.

10. **Preparing Reconciliation and Data Validation Reports**

Data is checked across systems to ensure consistency, accuracy, and correctness before final reporting.

- Basic Questions

1) What is Power BI?

Power BI is a Microsoft business intelligence tool used to *analyze data & create interactive* visual reports and dashboards that help organizations convert raw data into meaningful insights for better decision-making.

2) Why Do We Use Power BI?

- i. **Data Visualization** – Converts complex data into easy-to-understand charts, graphs, and dashboards.
- ii. **Data Integration** – Connects to multiple data sources like Excel, SQL, APIs, and cloud services.
- iii. **Real-Time Analysis** – Supports real-time dashboards for live monitoring.
- iv. **User-Friendly Interface** – Requires little coding and is easy for beginners.
- v. **Data Transformation** – Uses Power Query to clean and prepare data.
- vi. **Advanced Analytics** – Supports DAX for calculations and KPIs.
- vii. **Sharing and Collaboration** – Reports can be shared securely across teams.
- viii. **Better Decision Making** – Helps businesses make data-driven decisions quickly.

3) Power BI Components

a) Power BI Desktop

- Power BI Desktop is a Windows-based application.
- It is **used to** connect to data sources, transform data, build data models, & create interactive reports.
- It is mainly **used by** data analysts and developers to build reports before sharing them online.

b) Power BI Service

- Power BI Service is a **cloud-based platform (SaaS)**
- It is **used to** publish, share, collaborate, and manage Power BI reports and dashboards.
- It is **used by** organizations to distribute insights securely to users.

c) Power BI Mobile Applications

- It allows **users to** view and interact with dashboards and reports on smartphones and tablets.
- It is **used by** managers and executives to monitor business performance on the go.

4) Difference between Tableau and Power BI.

Power BI and Tableau are BI tools used for data visualization and analytics. Power BI is cost-effective, easy to use, and integrates well with Microsoft products, while Tableau provides advanced visualization flexibility but at a higher cost.

Feature	Power BI	Tableau
Developer	Microsoft	Salesforce
Ease of Use	Beginner-friendly, drag-and-drop	More flexible but steeper learning curve
Cost	Affordable, free version available	Expensive licensing
Data Integration	Best with Microsoft ecosystem (Excel, Azure, SQL Server)	Strong support for many data sources
Data Modeling	Strong with DAX calculations	Limited compared to Power BI
Visualization	Good interactive visuals	Highly powerful and customizable visuals
Performance	Uses VertiPaq in-memory engine	Fast with large datasets
Language Used	DAX	Calculated Fields

5) Difference between dataset, report and dashboard?

A **dataset** holds prepared data, a **dashboard** shows a one-page summary of key metrics, and a **report** provides detailed, multi-page interactive analysis.

Feature	Dataset	Dashboard	Report
Definition	A dataset is a collection of cleaned, modeled data used for analysis.	A dashboard is a single-page visual summary showing key metrics.	A report is a set of interactive pages created from a dataset.
Purpose	Stores and prepares data for visualization and analysis.	Provides a high-level overview of performance and KPIs.	Visualizes data in detail using charts, tables, and filters.
Data Source	Contains raw and transformed data.	Can use multiple datasets.	Uses one dataset.

6) General Workflow in Power BI

- i. **Data Gathering:** Data is collected from different sources such as Excel files, databases, APIs, cloud platforms, or web sources. This step ensures all required business data is available for analysis.
- ii. **Data Preparation:** The gathered data is cleaned and transformed using **Power Query**. This includes removing duplicates, handling missing values, changing data types, and shaping the data for reporting.
- iii. **Data Modeling:** In this step, relationships are created between tables and calculations are built using **DAX**. A proper data model improves performance and enables accurate analysis.
- iv. **Reporting:** Interactive reports are created using charts, tables, slicers, and KPIs to visualize insights and answer business questions.
- v. **Publishing the Report to Power BI Service:** The completed report is published from Power BI Desktop to the **Power BI Service** so it can be accessed online by users.
- vi. **Creating Dashboard:** Important visuals from reports are pinned to a **dashboard** to create a single-page summary view of key metrics.
- vii. **Sharing the Reports & Dashboards:** Reports & dashboards are shared with stakeholders using workspaces, apps, or links with proper access permissions.

- Download Power BI Desktop

Link: <https://www.microsoft.com/en-us/download/details.aspx?id=58494>

