

---

## 1. What is Power BI, and what are its three main components?

- **Power BI** is a Microsoft business intelligence (BI) tool for data visualization and reporting.
- **Three main components:**
  1. **Power BI Desktop** – A Windows application to design, model, and build reports.
  2. **Power BI Service** – Cloud-based platform to share, publish, and collaborate on reports.
  3. **Power BI Mobile** – Mobile app for viewing and interacting with dashboards anywhere.

---

## 2. Name two business use cases for Power BI dashboards.

1. **Sales performance tracking** – Monitor revenue, top products, and sales by region.
2. **Financial reporting** – Compare expenses vs. revenue, track KPIs like profit margins.

---

## 3. How do you download and install Power BI Desktop?

- Go to the [official Microsoft Power BI download page](https://powerbi.microsoft.com/en-us/download)
- Choose “Download Free” → Install via Microsoft Store or MSI installer.
- Run the setup and follow on-screen instructions.
- In order to install Power BI to Windows we can use this link:  
<https://apps.microsoft.com/detail/9ntxr16hnw1t?hl=en-US&gl=US>

---

## 4. What is the difference between Power BI Desktop and Power BI Service?

- **Desktop:** Local app for creating and modeling reports.
- **Service:** Cloud platform to publish, share, and collaborate on those reports.

---

## 5. What file extension does a Power BI project use?

- Power BI project files use **.pbix** extension.
-

## 6. Explain the role of Power Query in Power BI.

- **Power Query** is the ETL (Extract, Transform, Load) engine inside Power BI.
  - It helps **clean, shape, and prepare raw data** before visualization (e.g., removing nulls, merging tables, changing data types).
- 

## 7. Why would a business prefer Power BI over Excel for reporting?

- **Advantages:** Interactive dashboards, automated refresh, scalable cloud sharing, better data integration (SQL, Azure, APIs).
  - Excel is good for ad-hoc analysis, but Power BI is stronger for **enterprise reporting** and to help management to make business decisions
- 

## 8. Describe one limitation of the free version of Power BI.

- Free users **cannot share reports** with others in the Service (only view their own).
  - Sharing requires a **Pro license**.
- 

## 9. What is a "published report" in Power BI Service?

- A report created in **Power BI Desktop**, then **uploaded (published)** to the **Power BI Service**, making it available for cloud access and collaboration.
- 

## 10. How does Power BI Mobile enhance accessibility?

- Allows users to **view dashboards and reports on smartphones/tablets**.
  - Supports push notifications and real-time data updates.
- 

## 11. Compare Power BI with Tableau—pros and cons.

- **Power BI Pros:** Cheaper (especially for Microsoft users), seamless Office 365/Azure integration, user-friendly.
  - **Power BI Cons:** Slightly less flexible for complex visualizations.
  - **Tableau Pros:** More powerful visualization options, stronger customization.
  - **Tableau Cons:** Expensive licensing, steeper learning curve.
-

## 12. Explain how Power BI integrates with Azure services.

- Connects directly to **Azure SQL Database, Azure Data Lake, Azure Machine Learning**.
  - Enables **real-time streaming dashboards** from Azure IoT/Stream Analytics.
- 

## 13. What are "gateways" in Power BI, and when are they needed?

- A **gateway** connects on-premises data sources (SQL Server, Excel files, ERP systems) to Power BI Service.
  - Needed when reports in the Service require **live or scheduled refresh** from on-prem databases.
- 

## 14. How would you convince a company to adopt Power BI? (ROI argument)

- **Lower cost** than Tableau or Qlik.
  - **Improves decision-making** with real-time dashboards.
  - **Saves time** vs. manual Excel reports.
  - **Scalable** from small teams to enterprise.
  - ROI comes from **faster insights** → **better business actions** → **higher profits**.
- 

## 15. What security features does Power BI offer for sensitive data?

- **Row-Level Security (RLS)** – restricts what data users can see.
  - **Azure Active Directory (AAD) authentication**.
  - **Data encryption at rest and in transit**.
  - **Auditing and compliance certifications** (GDPR, HIPAA, etc.).
- 

**Practical Exercise with Sales\_Data.csv file – data file is loaded with Power Query**

