

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

**Power BI** is a business analytics tool developed by Microsoft that enables users to visualize data, share insights, and make informed decisions based on interactive reports and dashboards.

**Three main components:**

- **Power BI Desktop** (data transformation and report design)
  - **Power BI Service** (cloud-based report sharing and collaboration)
  - **Power BI Mobile** (on-the-go access to dashboards and reports)
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## 2. Name two business use cases for Power BI dashboards.

- **Sales Performance Monitoring:** Visualizing revenue trends by product, region, or time to support strategic decisions.
  - **Customer Behavior Analysis:** Understanding purchasing patterns to optimize marketing and improve customer experience.
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## 3. How do you download and install Power BI Desktop?

1. Visit <https://powerbi.microsoft.com/desktop/>
  2. Click **Download Free** or get it from the **Microsoft Store**.
  3. Run the installer and follow the on-screen instructions.
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## 4. What is the difference between Power BI Desktop and Power BI Service?

Feature	Power BI Desktop	Power BI Service
Platform	Windows app	Cloud-based
Purpose	Data modeling & report creation	Sharing, collaboration, and publishing
Users	Developers & analysts	End-users & stakeholders

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

.pbix — Power BI project files created in Power BI Desktop.

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

**Power Query** is the ETL (Extract, Transform, Load) tool within Power BI used to:

- Connect to various data sources
  - Clean and reshape data
  - Merge or filter datasets before analysis
- It simplifies data preparation without needing to write complex code.

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

- **Interactive dashboards** instead of static sheets
- **Real-time data refresh** from multiple sources
- **Stronger visual storytelling tools**
- **Scalability and collaboration** through cloud-based service

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

With the **free version**, users **cannot share reports** with others in the Power BI Service — sharing requires a **Pro license**.

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

A **published report** is a .pbix file uploaded from Power BI Desktop to the **Power BI Service**, making it accessible online for authorized users to view and interact with.

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

- Provides **on-the-go access** to dashboards and reports
  - Offers **interactive filtering and alerts**
  - Allows **offline viewing** and secure access to data
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### 11. Compare Power BI with Tableau—pros and cons.

Aspect	Power BI	Tableau
Ease of Use	More intuitive for Excel users	Requires more training
Cost	More affordable, especially for Microsoft ecosystem	More expensive
Integration	Strong with Microsoft products	Broad range of integrations
Visuals	Good, but sometimes limited	Highly customizable visuals
Community	Large user base	Also strong community

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

- **Azure SQL Database:** Direct data connections
  - **Azure Synapse:** Big data analytics
  - **Azure Active Directory:** Role-based access
  - **Azure Machine Learning:** Predictive analytics in Power BI reports
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### 13. What are "gateways" in Power BI, and when are they needed?

**Gateways** connect Power BI Service with **on-premises data sources** (like SQL Server or local Excel files).

Used when:

- Data is stored **locally** or in a **private network**
  - You need **scheduled refreshes** for reports using on-premises data
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### 14. How would you convince a company to adopt Power BI? (ROI argument)

Power BI offers:

- **Faster decision-making** through real-time dashboards
- **Reduced reporting costs** (automation replaces manual reporting)
- **Improved data accuracy** and **insights**

- **Low entry cost** compared to enterprise BI tools  
ROI comes from **saved hours, better decisions, and increased agility**
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**15. What security features does Power BI offer for sensitive data?**

- **Role-Level Security (RLS):** Controls data access per user
- **Microsoft Information Protection:** Labels and encryption
- **Data Loss Prevention (DLP)** policies
- **Azure Active Directory integration** for authentication