

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

Power BI is a business intelligence (BI) and data visualization tool by Microsoft that transforms raw data into interactive reports and dashboards.

Three main components:

- **Power BI Desktop** – Used to build reports and data models on a local computer.
 - **Power BI Service (Cloud)** – Used to publish, share, and collaborate on reports online.
 - **Power BI Mobile** – Used to access dashboards and reports via mobile devices.
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2. Name two business use cases for Power BI dashboards.

1. **Sales Performance Analysis** – Tracking revenue, profit margins, and top-performing products.
 2. **Financial Reporting** – Monitoring budgets, expenses, and cash flow in real time.
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3. How do you download and install Power BI Desktop?

- Go to the **official Microsoft Power BI website** or the **Microsoft Store**.
 - Download **Power BI Desktop (Free)**.
 - Run the installer and follow on-screen instructions.
 - Once installed, open it and sign in with your Microsoft account.
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4. What is the difference between Power BI Desktop and Power BI Service?

Feature	Power BI Desktop	Power BI Service
Use	Build and design reports	Publish, share, and view reports online
Storage	Local computer	Cloud (Microsoft)
Collaboration	Limited	Full collaboration & sharing
Cost	Free	Requires Pro or Premium license for sharing

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

- **.pbix** — Power BI Desktop project file.
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6. Explain the role of Power Query in Power BI.

Power Query is the data preparation and transformation engine in Power BI.

It allows users to **connect to data sources**, **clean**, **filter**, **reshape**, and **merge** data before loading it into the model — all without writing complex code.

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

- **Interactive dashboards** instead of static charts.
 - **Automated data refresh** and cloud sharing.
 - **Better data visualization tools.**
 - **Centralized access** for teams and departments.
 - **Scalable** for large data sources and live connections.
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8. Describe one limitation of the free version of Power BI.

- **No sharing or collaboration** in the Power BI Service (Pro or Premium license is required).
 - Only local file saving is allowed.
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9. What is a "published report" in Power BI Service?

A **published report** is a report created in Power BI Desktop and **uploaded to the Power BI Service**.

It allows users to **interact, share, and schedule refreshes** through the cloud environment.

10. How does Power BI Mobile enhance accessibility?

- Provides access to dashboards and reports **anytime, anywhere**.
 - Supports **real-time updates** and alerts.
 - Allows **touch-based interactions** and data exploration on phones or tablets.
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11. Compare Power BI with Tableau—pros and cons.

Aspect	Power BI	Tableau
Ease of Use	Easier for beginners (Microsoft ecosystem)	Steeper learning curve
Cost	More affordable	More expensive
Visualization Power	Strong but limited customization	Highly customizable visuals
Integration	Excellent with Microsoft tools (Excel, Azure)	Strong with diverse data sources
Performance	Great for medium datasets	Better for very large datasets

12. Explain how Power BI integrates with Azure services.

- Connects to **Azure SQL Database, Azure Synapse Analytics, Azure Data Lake, and Azure Machine Learning.**
 - Enables **real-time data streaming** and **AI-driven insights** using Azure cognitive services.
 - Supports **data pipelines and automation** through **Azure Data Factory.**
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13. What are "gateways" in Power BI, and when are they needed?

A **Power BI Gateway** acts as a **bridge between on-premises data and the Power BI cloud service.**

It's needed when:

- Data is stored **locally (SQL Server, Excel, etc.).**
 - You want **scheduled refreshes** of on-premises data in cloud dashboards.
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14. How would you convince a company to adopt Power BI? (ROI argument)

- **Low cost + high impact:** Free desktop tool, affordable Pro license.
 - **Saves time:** Automates data collection and reporting.
 - **Better decisions:** Real-time insights and visual storytelling.
 - **Collaboration boost:** Shared dashboards unify departments.
 - **Scalable:** Fits small teams or enterprise-level analytics.
→ **Faster insights = smarter decisions = higher ROI.**
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15. What security features does Power BI offer for sensitive data?

- **Row-Level Security (RLS)** – restricts data view per user.
- **Data Encryption** – both in transit and at rest.
- **Microsoft Entra ID (Azure AD)** – for authentication and access control.
- **Data loss prevention (DLP)** policies.
- **Audit logs & compliance** (GDPR, ISO, etc.).