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

Power BI is a business analytics tool developed by Microsoft that allows users to visualize data, share insights, and make data-driven decisions.
Three main components:

- **Power BI Desktop**: A Windows application for creating reports and data models.
- **Power BI Service**: An online SaaS (Software-as-a-Service) platform for publishing and sharing reports.
- **Power BI Mobile**: Apps for Android and iOS for accessing reports on the go.

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

- **Sales Performance Tracking**: Monitor KPIs like revenue, sales growth, and conversion rates across regions and teams.
- **Customer Support Analysis**: Track ticket volume, resolution time, customer satisfaction, and agent performance.

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

- Visit the official Power BI Download Page
- Click "Download free"
- Choose Microsoft Store or direct download (EXE)
- Install like any standard Windows application

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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	Report creation & modeling	Report sharing & collaboration
Platform	Windows-only app	Web-based (browser)
Data Refresh	Manual or scheduled (via gateway)	Scheduled refresh available
Collaboration	Limited (export, publish)	Full collaboration (sharing, apps)

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

- **.pbix** – Used for Power BI Desktop project files.

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

Power Query is a data connection and transformation tool. It allows users to:

- Connect to various data sources (SQL, Excel, APIs, etc.)
- Clean, filter, transform, and shape data before loading it into the data model
- Perform ETL (Extract, Transform, Load) operations visually without code

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

- **Interactive Dashboards**: Real-time filtering and visuals

- **Automated Data Refresh**: No manual data updates
- **Advanced Data Modeling**: Using DAX and relationships
- **Collaboration & Sharing**: Seamless publishing to the cloud
- **Data Governance**: Centralized control, role-based access

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8. Describe one limitation of the free version of Power BI.
- **No Sharing Capability**: You cannot share reports with others unless you have a **Power BI Pro** license.

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

A **published report** is a Power BI report (created in Desktop) that has been uploaded to the Power BI Service, enabling:
- Web-based access
- Sharing and collaboration
- Scheduled data refreshes
- Embedding into other apps or services

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10. How does Power BI Mobile enhance accessibility?
- Allows users to view dashboards and reports on smartphones or tablets
- Enables push notifications for data alerts
- Offers interactive visuals optimized for touch and mobile screens
- Offline access for previously loaded reports

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

Feature	Power BI	Tableau
Cost	More affordable, especially for Microsoft users	Generally higher pricing
Integration	Deep integration with Microsoft tools (Excel, Azure, Teams)	Broad data source compatibility
Ease of Use	More intuitive for Excel users	Steeper learning curve, but highly customizable
Visuals	Strong, but slightly less advanced visuals	Superior visualization capabilities
Community	Growing rapidly	Large, established user base

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12. Explain how Power BI integrates with Azure services.

Power BI integrates with Azure in various ways:
- **Azure SQL Database / Data Lake**: Direct data sources for reports
- **Azure Synapse Analytics**: Large-scale data modeling and analytics
- **Azure Machine Learning**: Embedding predictive analytics models
- **Azure Active Directory**: For identity management and security

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

A **Power BI Gateway** is a bridge between on-premises data and the Power BI Service.

Use case: Needed when your data resides on-premises (e.g., SQL Server) but you want to refresh or access it in the cloud service.

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

- **Lower Costs**: Competitive pricing vs other BI tools
- **Faster Insights**: Reduces time spent on manual reporting
- **Data-Driven Culture**: Empowers teams to make informed decisions
- **Scalability**: Grows with your data and user needs
- **Productivity Boost**: Automation of repetitive reporting tasks
- **ROI Example**: A company may reduce 60% of manual reporting time, saving 100+ man-hours/month

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

- **Row-Level Security (RLS)**: Restrict data access by user role
- **Azure Active Directory Integration**: Secure identity management
- **End-to-End Encryption**: Data encryption in transit and at rest
- **Data Loss Prevention (DLP)**: Policies for managing sensitive data
- **Audit Logs & Compliance**: Full tracking for enterprise governance