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

   Power BI is a collection of software services, apps, and connectors from Microsoft that work together to transform unrelated data sources into coherent, visually immersive, and interactive insights for business intelligence and decision-making

   The three main components of Power BI are:
   Power BI Desktop*: A Windows desktop application for creating reports and data models.*
   Power BI Service*: An online (cloud-based) service for sharing, collaborating, and managing reports and dashboards.*
   Power BI Mobile Apps*: Applications for Windows, iOS, and Android devices that allow users to access and interact with reports and dashboards on mobile device*

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

   Two common business use cases for Power BI dashboards are:

   Executive Performance Dashboards: *These dashboards consolidate key metrics from finance, operations, and customer service, providing leadership with a real-time overview of company performance to support faster decision-making and strategic planning.*

   Sales and Revenue Analytics: *Power BI dashboards enable sales teams to monitor sales performance, customer behavior, and conversion rates in real time, helping them adjust strategies and improve revenue outcomes*

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

   Go to the official Power BI Desktop download page or the Microsoft Download Center.

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

   Use Power BI Desktop for building and designing reports locally.

   Use Power BI Service for sharing, distributing, and collaborating on reports in the cloud.
   They are designed to work together, with Desktop focused on report creation and Service focused on sharing and collaboration.

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

A Power BI project uses the .pbip file extension. The .pbip format is designed for collaborative development, breaking the project into separate folders for the report and semantic model, making it easier to use with version control systems like Git and facilitating team-based workflows

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

Power Query plays a foundational role in Power BI as the primary engine for data extraction, transformation, and loading. Its main function is to connect to a wide range of data sources, clean and reshape raw data, and prepare it for analysis and visualization within Power BI

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

Businesses choose Power BI over Excel when they need scalable, automated, interactive, and secure reporting solutions that support advanced analytics and collaboration across the organization.

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

One major limitation of the free version of Power BI is that users cannot share their reports or dashboards with others, nor can they view content shared by other users. The only sharing option available is Publish to Web, which makes the report publicly accessible and is not secure for confidential business data.

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

A "published report" in Power BI Service is a report that has been created in Power BI Desktop and then uploaded to the Power BI Service, which is Microsoft's cloud-based platform for sharing and collaborating on reports and dashboards. When you publish a report, both the report and its underlying data model are transferred to your selected workspace in the Power BI Service, making them accessible for online viewing, interaction, and sharing with others in your organization.

10.How does Power BI Mobile enhance accessibility?

Power BI Mobile enhances accessibility by providing a range of features designed to make data and insights available to all users, regardless of their location or physical abilities.

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

Power BI Pros:
- *Cost-effective and offers a free version.*
- *Seamless integration with Microsoft ecosystem.*
- *User-friendly for beginners and business users.*
- *Strong built-in data modeling and automation features.*

Power BI Cons:
- *Limited to Windows for desktop authoring.*
- *Can struggle with extremely large or complex datasets.*
- *Less flexible for advanced custom visualizations.*

Tableau Pros:
- *Superior, highly customizable visualizations.*
- *Handles large and complex datasets efficiently.*
- *Cross-platform (Windows and macOS) support.*
- *Flexible data blending and broad third-party integration.*

Tableau Cons:
- *Higher cost, especially at scale.*
- *Steeper learning curve for new users.*
- *Less seamless with Microsoft products*

12. Explain how Power BI integrates with Azure services.

Power BI integrates closely with Azure services to provide powerful, real-time analytics and business intelligence solutions. This integration allows organizations to connect to a wide variety of Azure data sources, transform and model data, and create interactive visualizations and reports directly within Power BI

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

Gateways in Power BI are software tools that act as secure bridges between cloud-based Power BI services and on-premises data sources such as SQL Server databases, Excel files, or other local systems. They enable Power BI to access, refresh, and interact with data that is stored within an organization's private network without requiring the data to be moved to the cloud

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

   Power BI enables companies to cut costs, save time, improve data-driven decision-making, and drive revenue growth. The platform's automation, real-time insights, and collaborative features translate directly into higher margins, faster responses to market shifts, and a substantial, proven ROI within the first few years of implementation.

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

   - **Sensitivity Labels:** *Power BI integrates with Microsoft Purview Information Protection, allowing organizations to classify and label sensitive data using the same sensitivity labels as in Office products. These labels persist even when Power BI content is exported, ensuring continued protection outside the platform.*
   - **Data Encryption:** *Power BI encrypts data both at rest and in transit. Data stored in Power BI uses Azure Storage Encryption with strong encryption algorithms (such as AES-256), while data in transit is protected using Transport Layer Security (TLS). This ensures confidentiality and integrity whether data is being stored or transmitted.*
   - **Row-Level Security (RLS):** *RLS allows administrators to restrict data access at the row level, so users only see the data relevant to their role or department. This is configured within the Power BI model and enforced both in Power BI Desktop and the Service.*
   - **Role-Based Access Control (RBAC) and Workspaces:** *Power BI uses Azure Active Directory for identity management and supports RBAC, enabling granular permissions for different users and roles within workspaces.*
   - **Multi-Factor Authentication (MFA):** *MFA requires users to verify their identity through a second method, significantly reducing the risk of unauthorized access.*
   - **Data Loss Prevention (DLP) Policies:** *Power BI supports DLP policies, allowing organizations to detect and prevent the sharing of sensitive information, and to trigger alerts or remediation actions if risky behavior is detected.*
   - **Audit Logs and Monitoring:** *Power BI provides detailed audit logs and user activity monitoring, enabling organizations to track report access, login attempts, data exports, and changes for compliance and governance.*
   - **Compliance and Regulatory Support:** *Power BI supports compliance with major regulations such as GDPR, HIPAA, and SOX by providing features like audit trails, version control, and workflow approvals to ensure secure and compliant data handling.*

- **Secure Data Gateways:** *When accessing on-premises data sources, Power BI uses secure data gateways to ensure encrypted and authenticated data transfers between local sources and the Power BI cloud service.*