

Module 1: Introduction to Power BI and SQL

- **Overview of Power BI:**
 - Introduction to Power BI and its importance in business intelligence.
 - Components of Power BI: Desktop, Service, and Mobile.
 - Navigating the Power BI interface and understanding the workspace.
- **Introduction to SQL:**
 - Basics of SQL and its role in data analysis.
 - Overview of relational databases and data models.
 - Key SQL commands and syntax.
- **Setup and Installation:**
 - Installing Power BI Desktop.
 - Setting up a SQL database (e.g., SQL Server, MySQL).
 - Connecting Power BI to SQL databases and other data sources.

Module 2: Data Connectivity and Transformation

- **Connecting to Data Sources:**
 - Importing data from SQL databases into Power BI.
 - Connecting to various data sources such as Excel, CSV, and web data.
 - Understanding and using DirectQuery vs. Import mode.
- **Basic SQL for Data Retrieval:**
 - Using SELECT statements to retrieve data.
 - Filtering data with WHERE clauses.
 - Sorting data with ORDER BY.
- **Data Transformation in Power BI:**
 - Introduction to Power Query Editor.
 - Basic transformations: renaming columns, filtering rows, removing duplicates.
 - Advanced transformations: splitting columns, merging tables, pivoting data.

- **Combining and Shaping Data:**
 - Merging and appending queries.
 - Handling missing data and inconsistencies.
 - Creating custom columns and using conditional logic.

Module 3: Data Modeling and Relationships

- **Creating Data Models:**
 - Understanding data models and relationships in Power BI.
 - Creating and managing relationships between tables.
 - Handling many-to-one and many-to-many relationships.
- **Advanced SQL Queries:**
 - Using JOIN operations to combine data from multiple tables.
 - Grouping and aggregating data with GROUP BY.
 - Writing subqueries and nested queries for complex data extraction.
- **Calculated Columns and Measures:**
 - Creating calculated columns and custom measures in Power BI.
 - Introduction to DAX (Data Analysis Expressions).
 - Using common DAX functions for dynamic calculations and aggregations.
- **Optimizing Data Models:**
 - Best practices for data modeling in Power BI.
 - Using relationships and hierarchies for better data organization.
 - Optimizing data models for performance and scalability.

Module 4: Data Visualization and Reporting

- **Building Basic Visualizations:**
 - Creating and customizing charts such as bar, line, and pie charts.
 - Using tables and matrices for detailed data representation.
 - Implementing filters and slicers for data exploration.
- **Advanced Visualizations:**

- Creating maps and geospatial visualizations in Power BI.
- Using custom visuals from the Power BI marketplace.
- Enhancing reports with interactive elements such as drill-throughs and tooltips.

- **Designing Effective Reports:**
 - Best practices for creating visually appealing and informative reports.
 - Applying themes and formatting for consistent report design.
 - Using bookmarks and buttons to enhance report navigation and user experience.

- **Advanced Reporting Features:**
 - Creating dynamic and interactive dashboards.
 - Using measures and calculated columns for advanced reporting scenarios.
 - Implementing row-level security to control data access.

Module 5: Advanced SQL and Power BI Integration

- **Advanced SQL Techniques:**
 - Writing complex SQL queries including JOINS and UNIONS.
 - Using window functions for advanced data analysis.
 - Creating and managing stored procedures and views for reusable queries.

- **SQL in Power BI:**
 - Writing custom SQL queries for data retrieval in Power BI.
 - Using SQL views to create efficient data models.
 - Integrating stored procedures for dynamic data access.

- **Performance Optimization:**
 - Best practices for optimizing SQL queries for performance.
 - Handling and managing large datasets in Power BI.
 - Using indexing and query optimization techniques for faster data processing.

- **SQL and DAX Integration:**
 - Combining SQL and DAX for comprehensive data analysis.
 - Writing DAX queries to enhance SQL-based data models.
 - Using SQL and DAX together for complex calculations and aggregations.

Module 6: Power BI Service and Collaboration

- **Publishing and Sharing Reports:**
 - Publishing reports and dashboards to Power BI Service.
 - Creating and managing workspaces for collaboration.
 - Sharing reports and dashboards with team members and stakeholders.
- **Collaborative Features:**
 - Using Power BI apps and content packs for organizational use.
 - Implementing row-level security to manage data access.
 - Scheduling data refresh and managing data gateways for up-to-date information.
- **Power BI Mobile:**
 - Overview of the Power BI Mobile app.
 - Accessing and interacting with reports on mobile devices.
 - Best practices for designing mobile-friendly reports and dashboards.