**POWER BI Documentation**

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**BRANCH : COMPUTER SCIENCE AND ENGINEERING(DATA SCIENCE)**

LAB-1:Prepare-data-with-power-query-in-power-bi-desktop

Log in

Create account

**You said:**

LAB-1:Prepare-data-with-power-query-in-power-bi-desktop with own words in few steps

**ChatGPT said:**

ChatGPT

Sure! Here’s a simplified process for preparing data with Power Query in Power BI Desktop:

**Steps to Prepare Data with Power Query**

1. **Load Data**: Open Power BI Desktop and click on "Get Data" to choose your data source (like Excel, CSV, SQL Server, etc.). Import the data you need.
2. **Open Power Query Editor**: Once the data is loaded, click on "Transform Data" to open the Power Query Editor.
3. **Clean Data**:
   * **Remove Unnecessary Columns**: Select columns you don't need and click "Remove Columns."
   * **Handle Missing Values**: Use options like "Replace Values" or "Remove Rows" to address any blanks or errors.
4. **Transform Data**:
   * **Change Data Types**: Ensure each column has the correct data type (e.g., text, number, date) by selecting the column and choosing the appropriate type from the ribbon.
   * **Add Calculated Columns**: Create new columns using "Add Column" for calculations or transformations based on existing data.
5. **Filter Data**: Apply filters to focus on relevant data by using the "Filter Rows" option.
6. **Merge or Append Queries**: If you have multiple tables, use "Merge Queries" to combine related tables or "Append Queries" to stack similar tables.
7. **Close and Apply**: Once you’re satisfied with the data preparation, click "Close & Apply" to load the cleaned and transformed data into Power BI for analysis.

**Summary**

By following these steps, you can effectively prepare your data in Power BI Desktop using Power Query for insightful analysis and visualization.

4o mini

**You said:**

LAB-2: Load Transformed Data in Power BI Desktop in own words with few steps

**ChatGPT said:**

ChatGPT

Sure! Here’s a simple process for loading transformed data in Power BI Desktop:

**Steps to Load Transformed Data in Power BI**

1. **Open Power BI Desktop**: Start by launching the Power BI Desktop application.
2. **Transform Data**: If you haven't already, go to "Home" and click "Transform Data" to access Power Query Editor and make any necessary transformations (cleaning, filtering, etc.).
3. **Finalize Changes**: After making your transformations, review your changes in the Power Query Editor to ensure everything looks good.
4. **Close & Apply**: Click on the “Close & Apply” button in the top-left corner of the Power Query Editor. This action saves your transformations and loads the data into Power BI.
5. **Check Data Model**: Once back in the main Power BI window, check the data model view to ensure your data is correctly loaded and structured.
6. **Start Building Visuals**: You can now begin creating reports and dashboards using the transformed data.

**Summary**

These steps allow you to efficiently load your cleaned and transformed data into Power BI, setting the stage for effective data analysis and visualization.

4o mini

**You said:**

LAB-3: Design a Data Model in Power BI with few steps

**ChatGPT said:**

ChatGPT

Certainly! Here’s a concise guide for designing a data model in Power BI:

**Steps to Design a Data Model in Power BI**

1. **Open Power BI Desktop**: Start by launching the application and ensure your data is already loaded.
2. **Navigate to Model View**: Click on the "Model" icon on the left sidebar to switch to the data model view.
3. **Review Tables**: Look at the tables you've loaded. Ensure all necessary tables are present and organized.
4. **Create Relationships**:
   * **Drag and Drop**: Click and drag fields from one table to the corresponding field in another to create relationships. For example, link a "Customer ID" in a sales table to the "Customer ID" in a customer table.
   * **Edit Relationships**: Double-click on the relationship line to configure settings, such as the relationship type (one-to-many or many-to-many).
5. **Define Measures and Calculated Columns**:
   * Use DAX (Data Analysis Expressions) to create measures (e.g., total sales) or calculated columns (e.g., profit margins) to enhance your model.
6. **Organize Model**: Arrange tables and relationships visually for clarity. Group related tables and label them appropriately.
7. **Validate the Model**: Ensure that all relationships are correct and that the data flows as expected by testing a few visuals.
8. **Save Your Work**: Save your Power BI file to preserve the data model.

**Summary**

By following these steps, you can create a well-structured data model in Power BI, allowing for efficient data analysis and visualization.

4o mini

**You said:**

LAB-4: Create DAX Calculations in Power BI Desktop with few steps

**ChatGPT said:**

ChatGPT

Sure! Here’s a straightforward guide for creating DAX calculations in Power BI Desktop:

**Steps to Create DAX Calculations in Power BI Desktop**

1. **Open Power BI Desktop**: Launch the application and ensure your data model is ready.
2. **Select the Data Table**: In the "Fields" pane, click on the table where you want to create the calculation.
3. **Create a New Measure or Column**:
   * **For a Measure**: Right-click on the table name and select "New Measure." A formula bar will appear at the top.
   * **For a Calculated Column**: Right-click on the table and select "New Column."
4. **Write DAX Formula**:
   * In the formula bar, type your DAX expression. For example, for total sales, you might write:

DAX

Copy code

Total Sales = SUM(Sales[SalesAmount])

* + For a calculated column, you could use:

DAX

Copy code

Profit = Sales[SalesAmount] - Sales[Cost]

1. **Press Enter**: After writing your DAX formula, press Enter to create the measure or calculated column.
2. **Check Results**: Look at the "Data" view to confirm that your new calculation appears correctly in the selected table.
3. **Use in Visuals**: You can now drag and drop your new measure or calculated column into visuals on your report.
4. **Save Your Work**: Don’t forget to save your Power BI file to keep your calculations.

**Summary**

These steps will help you effectively create DAX calculations in Power BI, enhancing your data analysis capabilities with powerful custom metrics.

4o mini

**You said:**

LAB-5: Create Advanced DAX Calculations in Power BI Desktop with small steps

**ChatGPT said:**

ChatGPT

Sure! Here’s a brief guide for creating advanced DAX calculations in Power BI Desktop:

**Steps to Create Advanced DAX Calculations**

1. **Open Power BI Desktop**: Launch the application and ensure your data model is loaded.
2. **Select the Table**: In the "Fields" pane, choose the table where you want to create the calculation.
3. **Create a New Measure**:
   * Right-click on the table and select "New Measure" to open the formula bar.
4. **Write Advanced DAX Formula**:
   * Use functions like CALCULATE, FILTER, or SUMX for complex calculations. For example:

DAX

Copy code

Sales Growth = CALCULATE(SUM(Sales[SalesAmount]), YEAR(Sales[Date]) = YEAR(TODAY()) - 1)

* + This calculates total sales for the previous year.

1. **Combine Functions**:
   * You can nest functions for more complexity. For example:

DAX

Copy code

Average Sales = AVERAGEX(FILTER(Sales, Sales[SalesAmount] > 0), Sales[SalesAmount])

* + This computes the average sales for positive amounts.

1. **Use Time Intelligence**:
   * Leverage built-in time functions. For instance:

DAX

Copy code

Year-to-Date Sales = TOTALYTD(SUM(Sales[SalesAmount]), Sales[Date])

* + This calculates year-to-date sales.

1. **Press Enter**: After writing your DAX formula, press Enter to create the measure.
2. **Test in Visuals**: Drag the new measure into a visual to verify its accuracy.
3. **Save Your Work**: Don’t forget to save your Power BI file.

**Summary**

By following these steps, you can create advanced DAX calculations in Power BI, allowing for sophisticated data analysis and insights.

4o mini

**You said:**

LAB-6: Design a Report in Power BI Desktop with small steps

**ChatGPT said:**

ChatGPT

Certainly! Here’s a simple guide for designing a report in Power BI Desktop:

**Steps to Design a Report in Power BI Desktop**

1. **Open Power BI Desktop**: Launch the application and make sure your data model is loaded.
2. **Create a New Report Page**: Click on the "+" icon at the bottom to add a new report page.
3. **Select Visualizations**: In the "Visualizations" pane, choose the type of visual you want to add (e.g., bar chart, line chart, table).
4. **Drag Fields to Visuals**:
   * From the "Fields" pane, drag and drop the desired fields into the visual. For example, drag "Sales Amount" to the values area and "Month" to the axis.
5. **Format the Visual**:
   * Click on the visual to select it, then use the "Format" pane to customize colors, labels, titles, and other settings.
6. **Add More Visuals**: Repeat steps 3-5 to add additional visuals to the report, such as pie charts, maps, or cards.
7. **Arrange Layout**: Drag and resize the visuals on the canvas to create a clear and organized layout.
8. **Add Filters and Slicers**:
   * Use slicers from the "Visualizations" pane to allow users to filter data interactively. Drag a field (e.g., "Region") into the slicer visual.
9. **Save Your Report**: Click on "File" > "Save" to preserve your report.
10. **Publish (Optional)**: If you want to share your report, click on "Publish" to upload it to the Power BI service.

**Summary**

These steps will help you design an informative and visually appealing report in Power BI Desktop, ready for analysis and presentation.

4o mini

**You said:**

LAB-7: Enhance a Report in Power BI Desktop with easy and less steps

**ChatGPT said:**

ChatGPT

Certainly! Here’s a concise guide to enhancing a report in Power BI Desktop:

**Steps to Enhance a Report in Power BI Desktop**

1. **Open Existing Report**: Launch Power BI Desktop and open your existing report.
2. **Add Tooltips**:
   * Select a visual, go to the "Visualizations" pane, and drag relevant fields to the "Tooltips" area for additional context when hovering.
3. **Use Conditional Formatting**:
   * Click on a visual, go to the "Format" pane, and enable conditional formatting for data colors to highlight important values.
4. **Add Data Labels**:
   * Select a visual and toggle on data labels in the "Format" pane for clearer data representation.
5. **Incorporate Bookmarks**:
   * Create bookmarks for specific views or filters by selecting "View" > "Bookmarks" and adding new ones. This allows easy navigation.
6. **Insert Shapes and Images**:
   * Use the "Insert" menu to add shapes or images for branding or to enhance the visual appeal of the report.
7. **Create a Summary Card**:
   * Add a card visual to display key metrics (like total sales) for quick insights.
8. **Save and Review**: Save your report and review the enhancements to ensure they improve clarity and usability.

**Steps to Enforce Row-Level Security in Power BI**

**1. Open Your Report**

* *Launch Power BI Desktop and open the report you want to apply RLS to*.

**2. Manage Roles**

* *Go to the “Model” view by clicking on the Model icon in the left sidebar.*
* *In the “Manage Roles” section, click on “Manage Roles” in the ribbon*.

**3. Create a New Role**

* *Click “Create” to define a new role.*
* *Name the role (e.g., "Sales Region").*

**4. Define DAX Filters**

* *Select the table you want to filter and enter a DAX expression to define the filter. For example:*

DAX

Copy code

[Region] = USERNAME()

* This filter ensures users only see data for their specific region.

**5. Validate Role**

* Click on “View as Roles” in the ribbon to test the role and see what data users will access.

**6. Publish the Report**

* After configuring RLS, publish your report to the Power BI service.

**7. Assign Users to Roles**

* In the Power BI service, go to your dataset settings.
* Under “Security,” assign users or groups to the roles you created.

**Summary**

These steps will help you effectively enforce Row-Level Security in Power BI, ensuring users only access data relevant to them.

4o mini

* **You said:**

Prepare-data-with-power-query-in-power-bi-desktop in simple words

**ChatGPT said:**

ChatGPT

Sure! Here’s a simple explanation of preparing data with Power Query in Power BI Desktop:

**Preparing Data with Power Query**

LAB-2: **Load Transformed Data in Power BI Desktop**

1. Apply Various Transformations
   1. **Renaming Queries and Column**
   2. **Filtering Data**
   3. **Removing Unnecessary Columns**
   4. **Merging Columns**
   5. **Expanding Columns**
   6. **Creating Custom Columns**
   7. **Changing Data Types**

**2** Loading Queries to the Data Model

1. **Saving Transformed Data**
2. **Table Creation**
3. **Data Model Optimization**
4. **Data Visualization**

**LAB-3: Design a Data Model in Power BI**

1. **Create Model Relationships**

**Purpose**: Establish connections between tables so that data can interact meaningfully. This allows for filtering and aggregating data across different tables.

1. **Configure Table and Column Properties**

**Purpose**: Enhance the usability and clarity of the data model by organizing fields and adding helpful metadata.

1. **Create Hierarchies**

**Purpose**: Structure data in levels for better analysis, allowing users to drill down into data easily.

LAB-4: **Create DAX Calculations in Power BI Desktop**

1. **Calculated Tables** are used to create new tables based on existing data, enhancing relationships and analysis capabilities.
2. **Calculated Columns** are new columns added to a table to derive additional insights or dimensions from existing data
3. **Measures** are dynamic calculations used in reports to aggregate data, providing insights based on user interactions.

LAB-5: **Create Advanced DAX Calculations in Power BI Desktop**

1. **CALCULATE()**: This function is essential for changing filter contexts in DAX calculations, allowing for dynamic and context-sensitive analysis.

CALCULATE(<expression>, <filter1>, <filter2>, ...)

1. **Time Intelligence Functions**: These specialized functions enable time-based calculations, making it easier to analyze trends and performance over various periods.

LAB-6: **Design a Report in Power BI Desktop**

1. **Design a Report**
2. **Understanding the Layout**
3. **Creating a New Report**
4. **Choosing Visuals**
5. **Adding Data to Visuals**
6. **Configure Visual Fields and Format Properties**
7. **Configuring Visual Fields**
8. **Drilling Down and Hierarchies**
9. **Formatting Visuals**
10. **Arranging and Aligning Visuals**
11. **Themes and Overall Formatting**

**LAB-7: Enhance a Report in Power BI Desktop**

1. **Sync Slicers**

**Purpose:** Maintain consistent filters across multiple report pages**.**

1. **Create a Drill Through Page**

**Purpose:** Allow detailed exploration of specific data points.

1. **Apply Conditional Formatting**

**Purpose**: Highlight data trends based on value thresholds.

1. **Create and Use Bookmarks & Buttons**

**Purpose**: Enable navigation between different report views.

**LAB-8:** **Perform Data Analysis in Power BI**

1. **Create Animated Scatter Charts**

**Purpose:** Visualize relationships between variables over time**.**

1. **Use a Visual to Forecast Values**

**Purpose**: Predict future trends based on historical data.

**LAB-9:** **Create a Power BI Dashboard**

1. **Pin Visuals to a Dashboard**

**Purpose:** Highlight key insights from your report on the dashboard.

1. **Use Q&A to Create Dashboard Tiles**

**Purpose**: Generate insights using natural language queries.

LAB-10: Enforce Row-Level Security

1. **Enforce Row-Level Security**

**Purpose**: Limit data visibility to ensure users only see data relevant to their role.

1. **Choose Between Dynamic and Static Methods**
2. **Dynamic RLS**: Filters data based on user identity, automatically applying rules based on the logged-in user. **Static RLS**:
3. **Static RLS**: Predefined roles with fixed data access, not based on user identity.