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Lab Manual for Power BI

Inhaltsverzeichnis

1 Introduction to Power BI

This lab manual is designed to guide you through basic Power BI tasks, including data loading, data transformation, and working with slicers, and visualization to create dynamic dashboards.

2 Getting Started with Power BI

Power BI is a powerful tool for data analysis and visualization. This lab will cover essential skills for building effective dashboards.

3 Data Load

3.1 Step-by-Step Guide

a) Open Power BI Desktop.

b) Go to **Home** → **Get Data** and select the data source (e.g., Excel, Text_CSV).

c) Load the data by selecting the Impact of Remote Jobs on Mental Health.csv.

4 Data Transform

4.1 Using Power Query Editor

a) Select **Transform Data** to open the Power Query Editor.

b) We will adjust some data types to ensure numerical columns are whole numbers and text columns are strings.

c) You could use functions like **Remove Rows**, **Split Columns**, and **Merge Queries** to refine your dataset if needed.

d) Apply changes by clicking **Close & Apply**.

5 Building a Dashboard

5.1 Creating DAX Measures

We will create various DAX measures in Power BI to analyze employee data effectively.

5.1.1 Count of Employees

Calculate the number of employees based on categories like work location and mental health conditions.

a) Go to the **Modeling** tab in Power BI.

b) Select **New Table**.

c) Select **New measure**.

d) Enter the following formula to count employees by category:

```
Count of Employees = COUNT
(Impact_of_Remote_Work_on_Mental_Health[Employee_ID])
```

5.1.2 Satisfaction Percentage

Create a measure to calculate the percentage of employees satisfied with remote work.

a) In the **New table** tab, click **New Measure**.

b) Use the following DAX formula:

```
DIVIDE(
    CALCULATE(COUNT(Impact_of_Remote_Work_on_Mental_Health[Employee_ID]),
    Impact_of_Remote_Work_on_Mental_Health[Satisfaction_with_Remote_Work]
    = "Satisfied"),
    COUNT(Impact_of_Remote_Work_on_Mental_Health[Employee_ID]),
    0
)
```

c) Format the measure as a percentage.

5.1.3 Isolation Rating Average

Calculate the average Social Isolation Rating across different groups.

a) In the **Modeling** tab, select **New Measure**.

b) Enter the DAX formula:

```
Isolation Rating Average =
AVERAGE(Impact_of_Remote_Work_on_Mental_Health
[Social_Isolation_Rating])
```

c) This measure will reflect the average isolation rating, and you can filter it by group using slicers.

5.1.4 Average Stress Rate

Calculate the average Stress Rate across different groups.

a) In the **Modeling** tab, select **New Measure**.

b) Enter the DAX formula:

```
Stress_Rate =
 IF(Impact_of_Remote_Work_on_Mental_Health[Stress_Level] = "High", 5,
IF(Impact_of_Remote_Work_on_Mental_Health[Stress_Level] = "Medium", 3,
    IF(Impact_of_Remote_Work_on_Mental_Health[Stress_Level] = "Low", 1, BLANK())
)
)
```

5.2 Slicers

Slicers allow users to interact with the dashboard, enabling analysis based on specific filters.

5.2.1 Work Location Slicer

Filter by **Remote, Hybrid, and Onsite** work locations to analyze their impact on stress and satisfaction.

a) In the **Visualizations** pane, select the **Slicer** visual.

b) Drag the **Work Location** field into the slicer to create filter options.

c) From Slicer Settings, make it drop down.

5.2.2 Industry Slicer

Enable users to filter insights based on industry.

a) Select the **Slicer** visual.

b) Add the **Industry** field to the slicer, allowing users to compare insights across industries.

5.2.3 Age Range and Gender Slicer

Allow filtering by demographic breakdowns.

a) Use separate slicers for **Age Range** and **Gender**.

b) Drag the respective fields into the slicer visuals for user selection.

c) for the age columns, change slicer settings to in between

5.2.4 Job Role Slicer

Filter data by job role for trend analysis.

a) Add a **Slicer** for **Job Role**.

b) Filter by job role to analyze trends within specific roles.

5.2.5 Access to mental health resources Slicer.

a) Add a **Slicer** for **Access to mental health resources**.

b) Drag the respective fields into the slicer visuals

5.3 Visualization Plots

Use visualizations to present the insights.

5.3.1 Matrix

The matrix visualization allows us to observe multiple categories in a table format, showing values for different combinations.

a) Select **Matrix** from the Visualizations pane.

b) Add fields like **Satisfaction with Remote Work** in rows and **Work Location** in columns.

c) Populate the matrix values with measures such as **Average Isolation Rating** to compare these across categories.

d) Adjust formatting to make the table visually clear and intuitive for comparison.

5.4 Card Visuals

The card visuals summarize key metrics for quick insights.

a) Select **Card** from the Visualizations pane.

b) Add measures such as **Satisfaction Percentage**, **Total Number of Employees**, and **Average Isolation Rating**.

c) Position the cards prominently for easy reference.

5.5 Donut Chart - Total of Employees by Work Location

Display the distribution of employees across work locations.

a) Choose **Donut Chart** from the Visualizations pane.

b) Add **Work Location** as the legend and **Count of Employee ID** as the values.

c) Customize colors to clearly distinguish each category.

5.6 Stacked Bar Chart - Total Count of Employees by Gender and Mental Health Condition

This chart helps analyze employee counts across gender and mental health conditions.

a) Select **Stacked Bar Chart**.

b) Set **Gender** on the Y-axis and **Mental Health Condition** as the legend.

c) Use **Count of Employee ID** for X-axis.

5.7 Line Chart - Count of Employees by Sleep Quality and Stress Level

Analyze the count of employees based on sleep quality and stress level.

a) Choose **Line Chart**.

b) Set **Sleep Quality** on the X-axis and **Stress Level** as the legend.

c) Use **Count of Employee ID** for Y-axis.

5.8 Line Chart - Count of Employees by Statistician with remote work and Productivity change

Analyze the count of employees based on Statistician with remote work and Productivity change.

a) Choose **Line Chart**.

b) Set **Satisfaction_with_Remote_Work** on the X-axis and **Productivity change** as the legend.

c) Use **Count of Employee ID** for Y-axis.

5.9 Clustered Column Chart - Total Employees by Industry and Work-Life Balance Rating

This chart displays the total number of employees by industry, categorized by work-life balance rating.

a) Select **Clustered Column Chart**.

b) Set **Industry** on the X-axis and **Work-Life Balance Rating** as the legend.

c) Use **Total Employees** as the Y-axis.

5.10 Stacked Bar Chart - Count of Stress Level by Industry and Stress Level

Analyze stress levels across industries.

a) Choose **Stacked Bar Chart**.

b) Add **Industry** to the Y-axis and **Stress Level** to the legend.

c) Use **Count of Employees** as the X-axis.

5.11 Tree Map - Total of Employees by Industry and Mental Health Condition

The treemap allows a breakdown by industry and mental health condition.

a) Select **Tree Map** from the Visualizations pane.

b) Add **Industry** as categories, and **Mental Health Condition** as details.

c) Use **Total of Employees** for values.

5.12 Waterfall Chart - Average Stress Rate by Region

Compare the average stress rate across different regions.

a) Choose **Waterfall Chart** .

b) Set **Region** on the Category and use **Average Stress Rate** as Y-axis.

c) Customize colors for a visual distinction among regions.

5.13 Scatter Plot - Total Number of Virtual Meetings by Physical Activity and Years of Experience

Examine the relationship between virtual meetings, physical activity, and years of experience.

a) Select **Scatter Plot** from the Visualizations pane.

b) Set **Years of Experience** on the X-axis and **Total Number of Virtual Meetings** on the Y-axis.

c) Use **Physical Activity** as the legend.

6 Creating a Custom Theme for Power BI

a) Go to [Coolors.co](https://coolors.co/) to generate a color palette for your dashboard.

b) Once you are satisfied with the palette, copy the URL of the colors generated.

c) Go to the [Power BI Theme Generator](https://powerbithemegenerator.bibb.pro/).

d) Paste the Coolors URL into the Theme Generator, then customize any additional settings as needed.

e) Download the theme file (.json format) generated by the Theme Generator.

6.1 Applying the Theme in Power BI

a) In Power BI, go to the **View** tab.

b) In the **Themes** section, click on the drop-down arrow next to the current theme.

c) Select **Browse for themes...** and locate the theme (.json file) you created.

d) Click **Open** to apply the custom theme to your report.

7 Our Final Dashboard