**Lab Guide:**

**Lab Exercise 1: Data Analysis**

Objective: Use Copilot to generate insights across different types of analytics.

Step 1: Descriptive Analytics – Understanding the Data

Prompt:

* Upload the dataset and list all columns with their data types.
* Identify missing values in the dataset.
* Show summary statistics (mean, median, min, max) for numerical columns.
* Count the number of approved (Loan\_Status=Y) and rejected (Loan\_Status=N) loans.
* Create a bar chart for the distribution of Property\_Area (Urban, Rural, Semiurban).

Step 2: Diagnostic Analytics – Identifying Patterns & Relationships

Prompt:

**Loan Amount by Education**

*Why do graduates receive higher/lower loan amounts than non-graduates?*

* Compare Applicant Income, Coapplicant Income, and Credit\_History for both groups.
* Is income a bigger factor than education in determining loan amount?
* Do graduates apply for specific loan types (home loans vs. personal loans) that affect amounts?

**Loan Approval by Employment Type**

*Why are self-employed applicants approved less often than salaried ones?*

* Compare **credit history distribution** for both groups.
* Are self-employed applicants more likely to have a low Credit\_History score?
* Do self-employed applicants request **higher loan amounts** with lower declared incomes?

**Loan Approval Rate by Credit History**

*Why do applicants with a good credit history get approved more often?*

* Is there a strict **approval threshold** based on Credit\_History scores?
* Does income level compensate for poor credit history in approvals?
* Are there **exceptions** where people with poor credit history still get approved?

**Income vs. Loan Amount Analysis**

*Why do applicants with higher incomes not always get higher loan amounts?*

* Does the loan amount depend more on **property area** (urban vs. rural) rather than income?
* Are **loan term restrictions** (shorter terms for high-income applicants) affecting loan amounts?
* Do some high-income applicants have **co-applicants with low incomes**, reducing eligibility?

**Married vs. Unmarried Applicants' Approval Rates**

*Why do married applicants have higher approval rates than unmarried ones?*

* Do married applicants apply with a co-applicant, increasing approval chances?
* Are married applicants more likely to have stable income sources?
* Do banks prefer married applicants due to lower default risks?

**Step 3: Predictive Analytics – Forecasting Loan Approval**

Goal: Use historical data to predict outcomes.

Prompt Examples for Copilot:

* Predict loan approval (Loan\_Status) based on income, credit history, and dependents.
* What factors most influence loan approval?
* Train a logistic regression model to predict Loan\_Status and show accuracy.
* Create a decision tree to classify whether a loan will be approved or not.
* Find the probability of approval for an applicant with ₹50,000 income, 2 dependents, and a credit score of 1.

**Step 4: Prescriptive Analytics – Recommending Actions**

Goal: Suggest actionable strategies.

Prompt Examples for Copilot:

* Recommend strategies to increase loan approval rates.
* What steps can applicants take to improve their approval chances?
* Suggest an automated rule to approve loans based on income and credit history.
* Identify the optimal loan amount for different income groups to minimize defaults.
* What changes in lending policy could improve loan acceptance rates by 10%?

**Explore Further and Share your insights!!!**

**Lab Exercise 2: Excel Reports to PowerPoint Summaries**

**Objective**

Use Microsoft 365 Copilot Chat to automate the generation of PowerPoint summaries from structured Excel datasets, including:

* KPI identification
* Automated chart and slide content generation
* Insight extraction
* Structuring data-driven presentations for executives

**Step 1: Upload the Dataset**

* Upload the Excel file **Financial Sample.xlsx**

**Prompt:**

* Upload this Excel file and tell me how many rows and columns
* What do the rows and columns represent?
* Are there any missing records
* A sample of the first 10 rows
* Identify the data type of each column? (Qualitative or Quantitative?)

**Step 2: Identify Business Purpose for Each Column**

**Prompt:**

* Explain what each column in the dataset represents in a business context.
* What is the business relevance of the **Revenue** and **Profit** columns?

**Step 3: Extract KPIs from the Financial Data**

**Prompt:**

* Summarize key financial KPIs from the dataset.
* What is the total revenue, total profit, and average discount given?
* Calculate profit margin: **Profit Margin = (Profit / Revenue) × 100**
* Identify the top 3 most profitable products.

**Step 4: Analyze Year-over-Year Performance**

**Prompt:**

* Summarize revenue and profit trends by year.
* Which year had the highest revenue and lowest profit?
* Show revenue growth by year in a table:
  + **FY2013:**
  + **FY 2014**

**Step 5: Analyze Product Performance**

**Prompt:**

* Show the top-performing product categories based on revenue and profit.
* Which product category had the highest sales volume?
* Which product category had the least sales volume?
* Display product-wise revenue in a bar chart.

**Step 6: Analyze Regional Sales Trends**

**Prompt:**

* Summarize sales performance by region.
* Which region had the highest sales and profit margin?
* Create a table:
  + **Region A:** ₹X Revenue, ₹Y Profit, Z% Profit Margin
  + **Region B:** ₹A Revenue, ₹B Profit, C% Profit Margin

**Step 7: Recommend Visualizations**

**Prompt:**

* Suggest visualizations for each KPI.
* What chart should I use to visualize regional sales trends?
* Example: Use a **heatmap** to show sales performance by region.

**Step 8: Draft Slide Titles for PowerPoint**

**Prompt:**

* Suggest slide titles for this financial summary report.
* What would be a good title for a slide about regional sales?
* Example slides:
  + **Slide 1:** Executive Summary
  + **Slide 2:** Revenue and Profit Trends
  + **Slide 3:** Product Performance Insights

**Step 9: Generate Slide 1 – Executive Overview**

**Prompt:**

* Summarize key financial highlights in 4 bullet points.

**Step 10: Generate Slide 2 – Revenue and Profit Summary**

**Prompt:**

* Create a slide summarizing financial performance.
* Show a combo chart with **bars for revenue** and **a line for profit margin**.

**Step 11: Generate Slide 3 – Product Performance Overview**

**Prompt:**

* Summarize product-wise sales and profitability.
* Display **top 5 products by revenue** in a ranked list.

**Step 12: Generate Slide 4 – Regional Sales Performance**

**Prompt:**

* Create a slide showing sales performance across different regions.
* What’s the most profitable region?

**Step 13: Generate Slide 5 – Strategic Recommendations**

**Prompt:**

* Write **3 data-driven business recommendations**.
* Example: "Expand marketing in **Region B**, as it has **high demand but low conversion**."

**Step 14: Format Each Slide for Branding**

**Prompt:**

* Recommend slide formatting for a corporate theme.
* What color palette matches a finance-focused company?
* Example: Use **Indigo header (RGB #003366)**, white background, **Lato or Arial** font.

**Step 15: Export Charts for Slide Integration**

**Prompt:**

* Convert visuals to image format for PowerPoint.
* Export **profit margin trend chart as PNG**.

**Step 16: Validate Accuracy of Insights**

**Prompt:**

* Check if insights match raw data.
* Validate that total revenue shown in Slide 1 is accurate.

**HAPPY LEARNING!!!**