**FRAMEWORK FOR DATA AND VISUAL ANALYTICS**

**MINI PROJECT**

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**DATASET USED- LUNG CANCER DATASET**

**PROCEDURE TO CREATE DASHBOARD FOR LUNG CANCER DATASET USING POWER BI:**

**Step 1: Open Power BI Desktop**

1. Launch Power BI Desktop.
2. Go to File → New to create a new report.

**Step 2: Import Your Dataset**

1. On the Home tab, click Get Data → Excel / CSV / Text
2. Browse and select your dataset
3. Click Load to bring the data into Power BI.

**Step 3: Verify Data Fields**

1. Go to the Data view (left sidebar, table icon).
2. Check that your columns (e.g., AGE, COUGHING, WHEEZING, SWALLOWING\_DIFFICULTY, YELLOW\_FINGERS, etc.) are correctly detected.
3. Ensure numeric fields are “Whole Number” or “Decimal Number” type.
   * To change type: Select the column → Column Tools → Data type → Whole number.

**Step 4: Create Visualizations**

Go to the Report view (canvas icon on the left).

**Visualization 1 — Bar Chart: Sum of COUGHING by AGE**

1. Click on the Clustered Bar Chart icon from Visualizations pane.
2. Drag AGE → *Axis*.
3. Drag COUGHING → *Values* → set to Sum.
4. Resize and position it on the canvas.
5. (Optional) Add Data labels under *Format → Data labels → On*.
6. Add a title: “Sum of COUGHING by AGE”.

**Visualization 2 — Bar Chart: Sum of WHEEZING by AGE**

1. Click the Bar Chart again.
2. Set AGE → Y-Axis, WHEEZING → X-Axis.
3. Change color (Format → Columns → Color → Dark Blue).
4. Title: “Sum of WHEEZING by AGE”.

**Visualization 3 — Area Chart: Sum of SWALLOWING\_DIFFICULTY by AGE**

1. Click Area Chart icon.
2. AGE → Axis, SWALLOWING\_DIFFICULTY → Values.
3. Turn on Data labels.
4. Title: “Sum of SWALLOWING\_DIFFICULTY by AGE”.

**Visualization 4 — Pie Chart: Sum of YELLOW\_FINGERS by AGE**

1. Click Pie Chart icon.
2. AGE → Legend.
3. YELLOW\_FINGERS → Values (Sum).
4. Title: “Sum of YELLOW\_FINGERS by AGE”.

**Step 5: Add Summary Cards**

1. Select Card visual.
2. Drag COUGHING → Values, rename title to “Sum of COUGHING”.
3. Repeat for:
   * WHEEZING
   * SWALLOWING\_DIFFICULTY
   * YELLOW\_FINGERS

You’ll get four small rectangular cards across the top, just like your screenshot.

**Step 6: Add Filters Panel**

1. Open Filters pane (on right side).
2. Drag required fields (e.g., AGE, COUGHING) into the Filters on this page section.
3. Allow slicers if you want users to filter visually:
   * Click Slicer visual → add AGE or GENDER → use as filter control.

**Step 7: Format the Dashboard**

1. Add a title using Text box → “Quick Summary: MINI PROJECT LUNG DATASET”.
2. Adjust alignment and background.
3. (Optional) Add summary text manually:
   * Use Text box to write notes like  
     “Sum of COUGHING was highest for age 64 at 33, followed by 56 and 62…”

**Step 8: Save and Publish**

1. Go to File → Save As → QuickSummary\_LungDataset.pbix.
2. To publish online:
   * Click Publish → My Workspace (Power BI Service).

**PROGRAM CODE:**

import pandas as pd

import matplotlib.pyplot as plt

import seaborn as sns

df = pd.read\_csv("/content/survey lung cancer.csv")

plt.figure(figsize=(8,5))

plt.hist(df["AGE"], bins=10, color='orange', edgecolor='black')

plt.title("Age Distribution of Participants")

plt.xlabel("Age")

plt.ylabel("Count")

plt.show()

plt.figure(figsize=(10,8))

sns.heatmap(df.corr(numeric\_only=True), annot=True, cmap='Blues')

plt.title('Correlation Heatmap')

plt.show()

plt.figure(figsize=(6,4))

sns.countplot(x='GENDER', hue='LUNG\_CANCER', data=df, palette='Set2')

plt.title('Lung Cancer Count by Gender')

plt.xlabel('Gender')

plt.ylabel('Count')

plt.show()

**OUTPUT:**







