STORY 1 – Business Insights & Analysis

Case Study Title:

Heart Health Analytics – Patient Demographics & Risk Factors

Objective:

To analyze key medical and demographic factors that influence heart disease, identify high-risk patient segments, and help healthcare professionals make data-driven decisions.

Key KPIs:

• Average Patient Age

• Average Cholesterol Level

• Total Patients & Heart Disease Cases

Insights:

1. More than half of the patients have heart disease.

2. Heart disease is highest between ages 40–69.

3. Lower Max Heart Rate (Thalach <120) shows higher disease risk.

4. High Cholesterol (≥240) is strongly linked to heart disease.

5. Asymptomatic chest pain has the highest heart disease count.

6. Males have slightly higher heart disease cases.

Business Value:

• Helps identify high-risk patient groups.

• Supports preventive healthcare planning.

STORY 2 – Technical Implementation Using Power BI

Power BI Desktop-Data Import:

• Imported heart disease dataset via CSV.

Power Query Transformations:

• Corrected data types

• Removed duplicates

• Cleaned missing/invalid values

• Created calculated columns:

- Age Group

- Cholesterol Category

- Thalach Group

Power Pivot:

• Single table model (Sheet1)

• Added sort columns for category ordering

Visuals Used:

• Cards – KPIs

• Line Chart – Thalach Trend

• Donut Chart – Healthy vs Heart Disease

• Column Chart – Age Groups

• 100% Column Chart – Cholesterol Category

• Bar Chart – Chest Pain Types

• Column Chart – Gender

DAX Columns:

Age Group:

SWITCH(TRUE(), Sheet1[age] < 30, "20–29", Sheet1[age] < 40, "30–39",

Sheet1[age] < 50, "40–49", Sheet1[age] < 60, "50–59",

Sheet1[age] < 70, "60–69", Sheet1[age] < 80, "70–79", "80+")

Cholesterol Category:

SWITCH(TRUE(), Sheet1[chol] < 200, "Normal (<200)",

Sheet1[chol] < 240, "Borderline (200–239)", "High Risk (≥240)")

Thalach Group:

SWITCH(TRUE(), Sheet1[thalach] < 120, "Low (<120)",

Sheet1[thalach] < 150, "Normal (120–149)",

Sheet1[thalach] < 170, "High (150–169)", "Very High (170+)")

Final Output:

A single-page interactive Power BI dashboard showing:

- KPIs
- Thalach trend
- Heart disease distribution
- Age group risk
- Cholesterol risk categories
- Gender comparison
- Chest pain type analysis
- Filters (Sex, Age, CP, Target)