Project Description

This project analyzes patient health records to identify factors associated with cardiovascular disease.
The dataset includes demographic, lifestyle, and clinical information such as id, age, gender ,heigh ,weigh, smoking habits, physical activity, cholesterol levels, and blood pressure.
After cleaning and preparing the data, new variables like Body Mass Index (BMI) and Blood Pressure Classification were created to enhance the analysis.
The goal is to explore relationships between these variables and cardiovascular disease to understand which factors have the strongest impact on heart health.

Group Members & Roles

- Mohanned Reda Mansour (Team Leader) → Insights & Table Extraction
- Amina Mohamed Mohamed Elkholy → Project Supervisor & Data Collection
- Ahmed Abdelaziz Abdelhamid Kroush → Data Cleaning & Modeling
- Sarah Hosny Mahmoud Qabel → Predictive Analysis
- Yasmine osama kodwa → Data Visualization & Reporting
- Bassant Khaled Mohamed Salmoon → Data Visualization & Reporting

Objective

HealthTrack Analytics is observing inconsistencies in cardiovascular health patterns among individuals with varying demographic, lifestyle, and clinical profiles. Despite increased awareness about healthy living, cardiovascular risk remains prevalent. The goal of this analysis is to identify key factors influencing cardiovascular health, including blood pressure, glucose, cholesterol, and lifestyle habits such as physical activity, smoking, and alcohol use. This will help uncover correlations between these variables and cardiovascular outcomes, supporting data-driven strategies to promote preventive health and reduce disease risk.

Key Points

Variation in Cardiovascular Health: Notable differences exist in cardiovascular outcomes among individuals with similar demographic and lifestyle characteristics.

Influence of Lifestyle Factors: Physical activity, smoking habits, and alcohol consumption may significantly affect cardiovascular health outcomes.

Clinical Indicators: Blood pressure, glucose, and cholesterol levels are critical clinical parameters that may correlate with cardiovascular risk.

Demographic Impact: Age, gender, height, and weight could play an essential role in determining susceptibility to cardiovascular conditions.

Need for Predictive Insights: Identifying the most influential risk factors can support early intervention and data-driven health promotion strategies.

Goals:

Improve Cardiovascular Risk Understanding

Goal: Identify key demographic, lifestyle, and clinical factors influencing cardiovascular disease occurrence.

Insight: Highlight which variables (e.g., blood pressure, glucose, activity level) have the strongest correlation with cardiovascular outcomes to support preventive health strategies.

Tools & Technologies

Python (Pandas) → For Cleaning Data & Modeling

SQL → For Table Extraction

Python (scikit-learn , Seaborn & Matplotlib) → For Predictive Analysis

Tableau → For Data Visualization & Reporting

Milestones & Deadlines:

- Data Collection → Completed
- Data Cleaning & Modeling → Completed
- Table Extraction & Insights → 25/10/2025
- Predictive Analysis → 5/11/2025
- Data Visualization & Reporting → 20/11/2025