Problem–Solution

Problem statement

Heart disease is one of the leading causes of death globally. Increasing lifestyle-related risk factors such as smoking, obesity, poor diet, physical inactivity, and alcohol consumption have significantly contributed to its rapid growth. Healthcare organizations collect large amounts of patient data including age, gender, BMI, cholesterol levels, diabetes status, stroke history, and lifestyle habits.

However, analyzing this large and complex dataset using traditional tools like spreadsheets and static reports is difficult and time-consuming. These methods lack interactivity, make pattern identification challenging, and do not provide clear insights for decision-making. Doctors, policymakers, and individuals need a simple and interactive system that can highlight key risk factors, compare patient groups, and support preventive healthcare strategies.

Solution

To address this problem, the project proposes a Heart Disease Data Analysis and Visualization System using MySQL, Tableau, and Flask integration.

The dataset is stored in a MySQL database and processed using SQL operations to ensure structured and accurate data preparation. Tableau is then connected to the database to create 8–10 interactive visualizations such as Age vs Heart Disease, Smoking Impact, Diabetes vs Stroke, and Physical Activity Analysis. A responsive dashboard and storyboard are developed to present insights clearly.

Finally, the Tableau dashboards are embedded into a Flask web application, allowing users to access interactive visualizations through a web browser.

This solution enables:

- Identification of high-risk groups
- Data-driven decision-making
- Easy understanding of complex health data
- Improved preventive healthcare awareness

Overall, the system transforms raw heart disease data into meaningful insights and supports better healthcare planning and individual risk monitoring.