ARCHITECTURE DESIGN DOCUMENT FOR HEART DISEASE DIAGNOSTIC ANALYSIS

DOCUMENT VERSION CONTROL

Date Issue	Version	Description	Author
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CONTENT

- DATA STORAGE
- DATA VALIDATION
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- DATA PROCESSING AND PREDICTION
- EXPORT PREDICTION TO CSV

ABSTRACT

Heart disease is the most major health issue that is suffered by many people all over the globe, some of the causes of heart diseases due to hypertension, diabetes, overweight, and an unhealthy lifestyle. This project of Healthcare Analysis on Heart Disease Data is aimed to explore the Heart Disease dataset .The objective is to analyze the various features and their relationship with each other and find out their contribution towards getting a heart disease. Various features such as Age, Sex, Chest pain type, Blood pressure, Cholesterol,Fasting Blood sugar, Rest ECG, Thalach, Exercise enduced Angina,Major vessels,oldpeak,slope,thal are present in the dataset.The goal of the project is to find all types of relationships between the features and come out with significant contributors to a heart disease.

INTRODUCTION

WHY THIS ARCHITECTURE DESIGN DOCUMENT ?

Any software needs the architectural design to represent the design of the software. IEEE defines architectural design as “the process of defining a collection of hardware and software components and their interfaces to establish the framework for the development of a computer system.” The software that is built for computer-based systems can exhibit one of these many architectures.

Each style will describe a system category that consists of:

- A set of components (eg: a database, computational modules) that will perform a function required by the system.
- The set of connectors will help in coordination, communication, and cooperation between the components.
- Conditions that how components can be integrated to form the system.
- Semantic models help the designer to understand the overall properties of the system

SCOPE

Architecture Design Document (ADD) is an architectural design process that follows a step-by-step refinement process. The process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the design principles may be defined during requirement analysis and then refined during architectural design work.

ARCHITECTURE

Heart disease is a major health concern globally, and understanding the factors that contribute to this condition is critical for developing effective prevention and treatment strategies. In this project, we aim to analyze the relationships between different features and identify the significant contributors to heart disease. Our end goal is to create a dashboard that can be used by healthcare professionals to gain insights into the factors that impact heart disease risk.

To achieve this goal, we will begin by collecting and pre-processing the dataset that will be used in our analysis. We will use Python data manipulation libraries like Pandas to clean and optimize the data. We will also perform table calculations and data filtering to obtain more granular results.

Next, we will import the cleaned dataset into a Business Intelligence (BI) tool such as Tableau. Using this tool, we will create visualizations and dashboards that will help us to explore the relationships between different attributes and identify key findings. We will also use filters to speed up the process of finding insights and create more granular reports.

In addition to creating visualizations and dashboards, we will also perform feature engineering to extract more useful information from the dataset. This can help us to identify the most important predictors of heart disease and improve the accuracy of our analysis. We will also build predictive models and validate them to ensure that they are accurate and reliable.

Finally, we will create a detailed project report that includes all the visual plots and key findings from the analysis. We will also host the dashboard on a cloud platform like Tableau Public, making it easily accessible to healthcare professionals around the world.

By following this comprehensive approach, we can gain valuable insights into the factors that contribute to heart disease and develop effective prevention and treatment strategies. We hope that our analysis will help healthcare professionals to identify patients who are at risk for heart disease and provide them with the care they need to stay healthy.