



FINAL YEAR PROJECT REPORT

HEART DISEASE PREDICTION & AI CHATBOT

**In fulfillment of the requirement
For degree of
BS (COMPUTER SCIENCES)**

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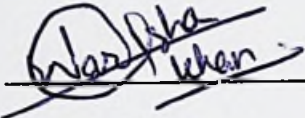
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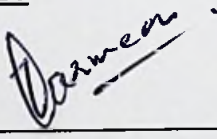
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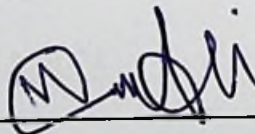
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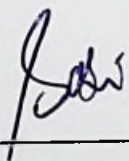
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Specially dedicated to
my beloved grandmother, mother and father

Warisha Khan

my beloved grandmother, mother and father

Zarmeen Sohail

my beloved grandmother, mother and father

Muzamil Ali

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We would like to thank everyone who had contributed to the successful completion of this project. We would like to express my gratitude to my research supervisor, Sir Saghir Ahmed for her invaluable advice, guidance and his enormous patience throughout the development of the research.

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HEART DISEASE PREDICTION & AI CHATBOT

ABSTRACT

The prevalence of heart diseases is increasing at an alarming rate, underscoring the critical need for accurate and timely diagnosis. Predicting the likelihood of heart disease is a challenging task that demands precision and efficiency. This study focuses on identifying patients at higher risk of developing heart diseases based on various medical attributes. To address this, we developed a Heart Disease Prediction System capable of determining whether a patient is likely to be diagnosed with heart disease by analyzing their medical history. The system leverages multiple machine learning algorithms, including Convolutional Neural Networks (CNN) and XGBoost to predict and classify heart disease cases. The proposed model emphasizes the accurate prediction of four major types of heart diseases: Coronary Heart Disease, Heart Failure, Peripheral Artery Disease, and Heart Attack. CNN was employed for ECG signal processing, and XGBoost for achieving notable accuracy, powered an AI Chatbot designed to assist users with queries related to heart health. The performance of the model demonstrated promising results, successfully identifying the likelihood of heart disease with high accuracy and reliability. By reducing the complexities associated with diagnosis, this system significantly alleviates the burden on healthcare providers, enhances medical care quality, and minimizes associated costs. This project has provided valuable insights into the application of advanced technologies for predicting heart disease and improving patient outcomes.

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