Rajalakshmi Engineering College

Department of Artificial Intelligence & Machine Learning

III Year (2025 – 2026) - AI23521: Build and Deployment of ML appl.

Mini Project - Abstract

Title	Heart Disease Prediction using SVM and PCA and Deployment using RestAPI and Docker	
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Project ID		

Abstract:

This project focuses on developing a Heart Disease Prediction System that applies machine learning techniques to enable early identification of individuals at clinical risk. The system utilizes Principal Component Analysis (PCA) to reduce data dimensionality and improve computational efficiency, followed by a Support Vector Machine (SVM) classifier to predict the likelihood of heart disease based on key patient attributes such as age, cholesterol level, blood pressure, and other vital health parameters.

To make the model accessible and interactive, a Flask-based REST API is implemented, which allows real-time communication between the backend model and the user interface. Users can input patient data through a simple frontend, and the API processes this information to return instant prediction results. The application is fully containerized using Docker, ensuring that it runs consistently across various systems and can be easily deployed on cloud platforms or within hospital networks.

By integrating data-driven modeling, RESTful architecture, and containerized deployment, this project delivers a robust, portable, and efficient solution for healthcare environments. It assists medical professionals in early diagnosis and clinical decision-making, reduces reliance on costly or invasive tests, and enhances the scalability and maintainability of predictive healthcare systems.

SUPERVISOR **REVIEWER**