D Y PATIL
INTERNATIONAL
UNIVERSITY
AKURDI PUNE

Project Synopsis

On

Disease Prediction System Using AI/ML

Submitted to D Y Patil International University, Akurdi, Pune in partial fulfilment of full-time degree

Master's of Computer Applications

Submitted By:

Name:Kunal Badave

PRN: 20240804056

Ms.Remya Pravin

(Project Guide)

Dr. Swapnil Waghmare
(Project Coordinator)

Dr. Maheshwari Biradar
(HOD, BCA & MCA)

School of Computer Science, Engineering and Applications

D Y Patil International University, Akurdi,Pune, INDIA, 411044

[Session 2024-2025]

TABLE OF CONTENTS

1. INTRODUCTION

1.1. Background

With the rapid growth of technology, Artificial Intelligence (AI) and Machine Learning (ML) have revolutionized various sectors, including healthcare. The healthcare sector has seen immense improvements in disease prediction and diagnosis, thanks to the integration of AI and ML. Traditionally, diagnosing diseases relied on human expertise and clinical testing, which can be time-consuming and sometimes inaccurate. This project leverages AI and ML algorithms to predict diseases based on user-reported symptoms, providing users with a more efficient, accessible way of diagnosing and managing their health.

1.2. Objectives

The primary objectives of the Disease Prediction System are:

- To develop an AI-powered system that predicts possible diseases based on symptoms reported by users.
- To provide a severity-based assessment of diseases (mild, medium, high) and recommend instant, home-based remedies that can provide immediate relief.
- To suggest nearby hospitals and doctors based on the predicted disease (e.g., neurologists, cardiologists, dermatologists).
- To ensure that the system is user-friendly and accessible to people from various backgrounds, providing solutions even in the absence of a healthcare professional.

1.3. Purpose

The purpose of this project is to create a machine learning-based disease prediction system that can analyze symptoms, assess their severity, provide temporary remedies, and suggest the nearest healthcare facilities. The system's main goal is to bridge the gap between patients and healthcare providers, offering quick, reliable, and accessible healthcare solutions.

2. GAP IDENTIFICATION

In traditional healthcare, patients often need to visit a doctor or medical facility for diagnosis, which can be time-consuming and may involve waiting. For individuals in rural areas or places with limited access to healthcare, this process can be even more difficult. The existing systems mainly rely on manual diagnosis, which may be inaccurate due to human error. The gap in current healthcare solutions is that they do not provide instant, accessible, and accurate prediction tools that can be used from home. This system aims to fill that gap by offering an AI-powered solution to predict diseases based on reported symptoms and severity.

3. METHODOLOGY

3.1. Methodology (Algorithms used)

The disease prediction system uses several machine learning algorithms to classify and predict diseases based on the input symptoms and severity:

- Logistic Regression: Used for binary classification tasks (e.g., predicting whether the user has a certain disease or not).
- Random Forest: Used for multi-class classification, where multiple disease categories need to be predicted.
- K-Nearest Neighbors (KNN): A non-parametric algorithm that helps in identifying patterns and predicting diseases based on symptom similarity.
- Decision Trees: Used for rule-based classification, giving clear reasoning for the prediction.

These algorithms are trained using historical healthcare data (symptoms, diseases, severity levels), which the system uses to predict possible diseases, assess their severity, and recommend remedies.

3.2. Block Diagram

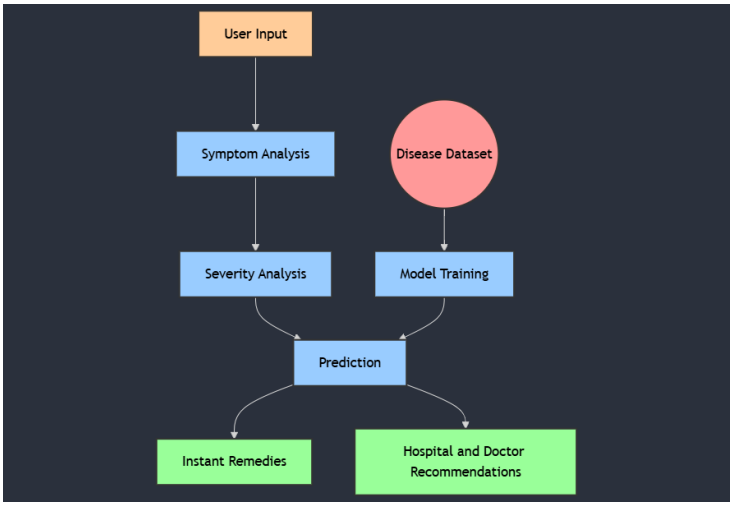

Figure 3.1: Block Diagram

4. PROJECT FLOW DIAGRAMS

4.1. Gantt Chart

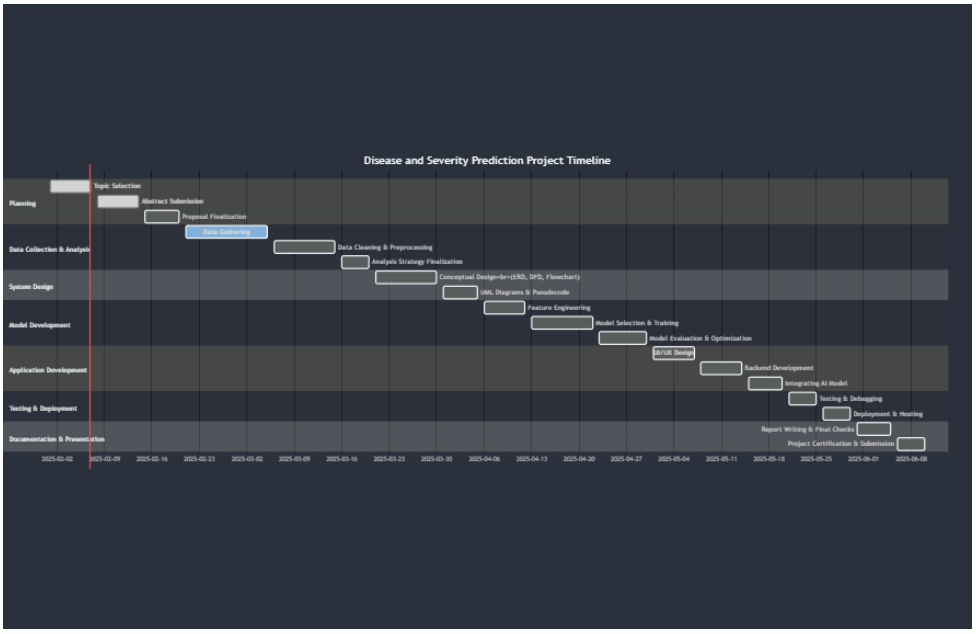

Figure 4.1: Gantt Chart (TimeLine)

4.2. Flowchart

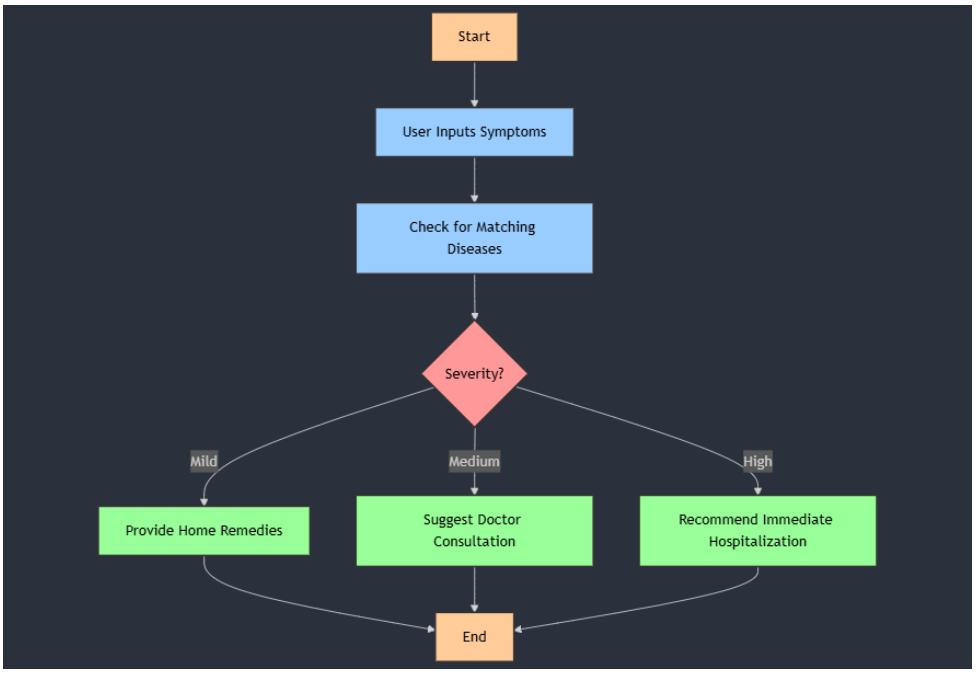

Figure 4.2: Flow Chart