# Project Report

## 1. Introduction

### 1.1 Background

In recent years, the integration of machine learning into healthcare has opened new avenues for accessible and rapid disease detection. This project aims to leverage machine learning to create a symptom-based disease prediction tool. Designed to provide users with preliminary guidance on potential diseases based on their symptoms, the system empowers users to make informed health decisions even before visiting a healthcare provider.

### 1.2 Objective

The main objective of this project is to develop a machine learning-powered application capable of predicting diseases based on user-inputted symptoms. Additionally, it aims to:  
- Provide relevant disease information, including symptoms, precautions, and medications.  
- Offer dietary recommendations tailored to each predicted disease.  
- Design a user-friendly interface that makes health information easily accessible.

### 1.3 Significance

This project holds significant value for users seeking quick health insights, especially those without immediate access to healthcare. By enabling users to receive initial guidance based on symptoms, the system can support early detection and preventive measures, potentially reducing the burden on healthcare facilities and lowering patient anxiety by offering easily accessible health information.

### 1.4 Scope

The scope of this project includes:  
- Disease prediction using machine learning, based on symptoms provided by the user.  
- Display of comprehensive health information, including descriptions, precautions, medications, diets, and workouts.  
- A responsive web interface accessible on various devices.  
- Limitations: This application does not replace professional healthcare advice or provide real-time doctor consultations.

## 2. Basic Concepts

Machine Learning in Healthcare  
Machine learning plays a pivotal role in predictive healthcare, allowing for faster and often more accurate analysis of health-related data. For this project, a Decision Tree Classifier is used due to its interpretability and suitability for symptom-based predictions.

## 3. Requirement Specification

Functional and Non-Functional Requirements and software/hardware requirements as described.

## 4. Design

System Architecture and User Interface Design are outlined, including Database and Data Flow description.