

# Project Report Format

## 1. INTRODUCTION

### 1.1 Project Overview

This project aims to build a machine learning-based web application that predicts the likelihood of a patient suffering from liver cirrhosis using clinical features such as blood values, alcohol consumption patterns, and more. It provides early-stage alerts for medical professionals and patients.

### 1.2 Purpose

## 2. IDEATION PHASE

### 2.1 Problem Statement

### 2.2 Empathy Map Canvas

### 2.3 Brainstorming

## 3. REQUIREMENT ANALYSIS

### 3.1 Customer Journey map

### 3.2 Solution Requirement

### 3.3 Data Flow Diagram

### 3.4 Technology Stack

## 4. PROJECT DESIGN

### 4.1 Problem Solution Fit

### 4.2 Proposed Solution

### 4.3 Solution Architecture

## 5. PROJECT PLANNING & SCHEDULING

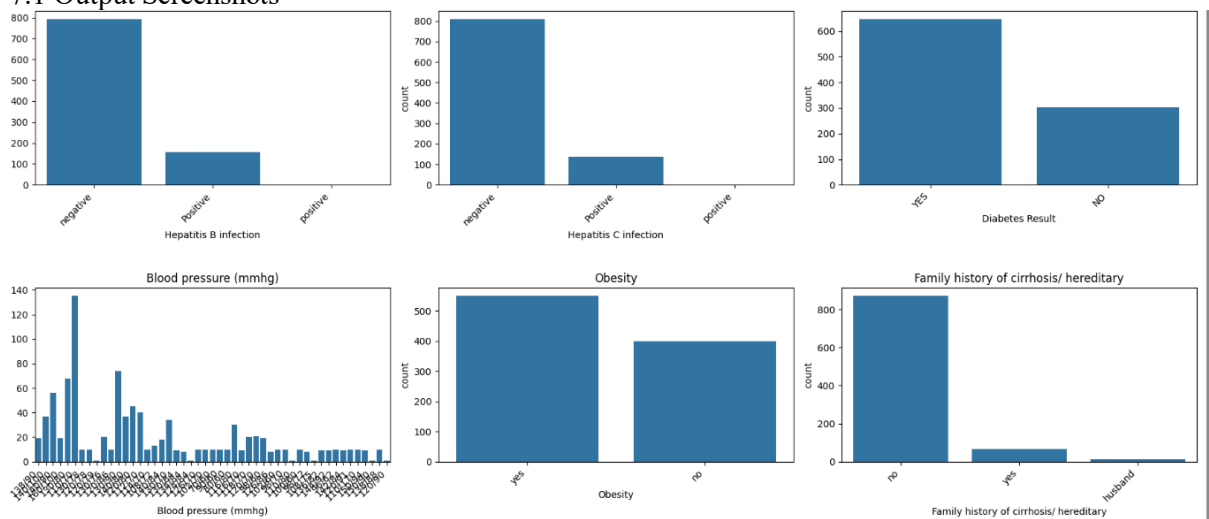
### 5.1 Project Planning

## 6. FUNCTIONAL AND PERFORMANCE TESTING

### 6.1 Performance Testing

## 7. RESULTS

### 7.1 Output Screenshots



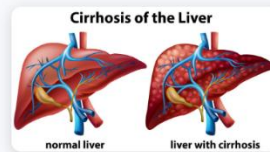
# Revolutionizing Liver Care

Your personal assistant for early detection and awareness of liver cirrhosis.

Predict Now

## About Liver Cirrhosis

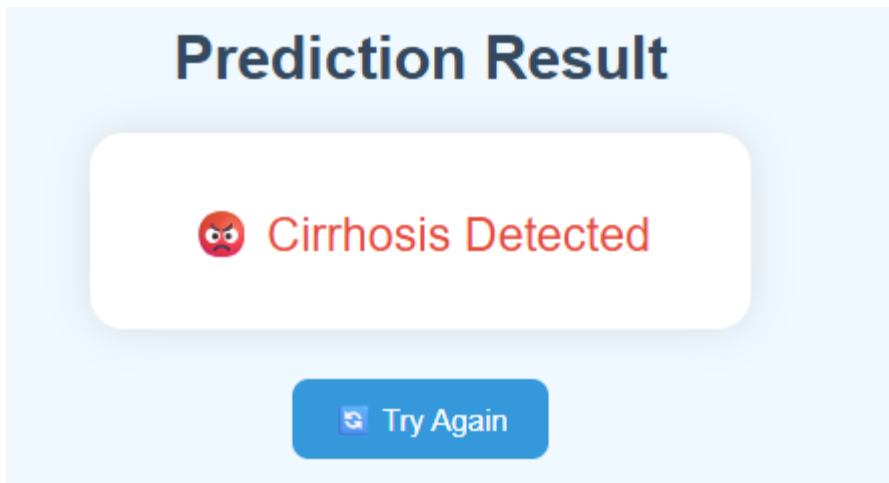
Liver cirrhosis is a chronic condition in which healthy liver tissue is gradually replaced by scar tissue, severely impacting the liver's ability to function properly. Common causes include chronic alcohol abuse, hepatitis B or C infections, and non-alcoholic fatty liver disease. If left undiagnosed, cirrhosis can lead to life-threatening complications such as liver failure, internal bleeding, and liver cancer.



## Liver Cirrhosis Prediction

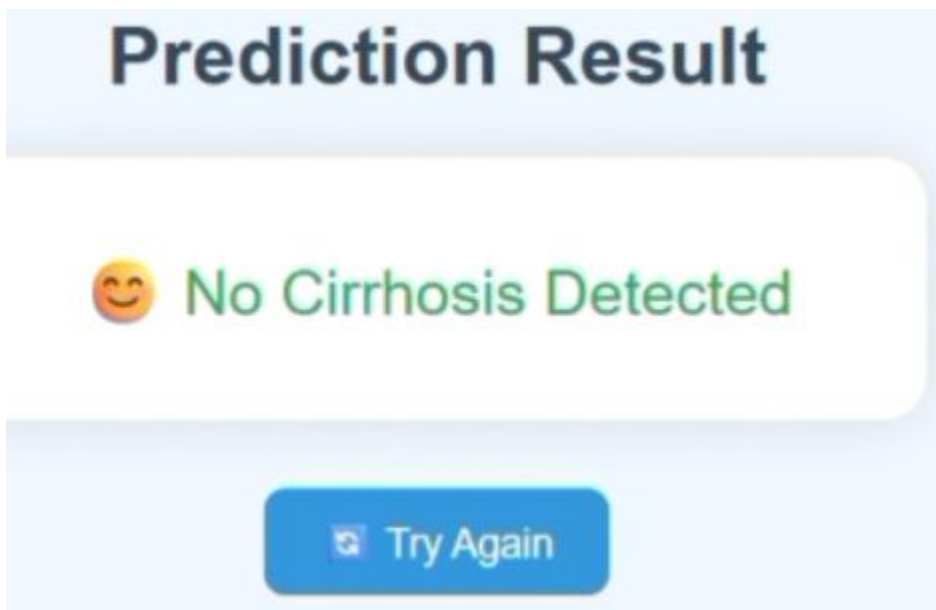
AGE <input type="text" value="52"/>	Gender <input type="text" value="Male"/>	Place(location where the patient lives) <input type="text" value="Rural"/>	Duration of alcohol consumption(years) <input type="text" value="13"/>
Quantity of alcohol consumption (quarters/day) <input type="text" value="2"/>	Type of alcohol consumed <input type="text" value="Country Liquor"/>	Blood pressure (mmhg) <input type="text" value="32"/>	Obesity <input type="text" value="Yes"/>
Family history of cirrhosis/hereditary <input type="text" value="Yes"/>	Hemoglobin (g/dl) <input type="text" value="2"/>	PCV (%) <input type="text" value="1"/>	RBC (million cells/microliter) <input type="text" value="2"/>
MCV (femtoliters/cell) <input type="text" value="1"/>	MCH (picograms/cell) <input type="text" value="5"/>	MCHC (grams/deciliter) <input type="text" value="3"/>	Total Count <input type="text" value="12000"/>
Polymorphs (%) <input type="text" value="6"/>	Lymphocytes (%) <input type="text" value="4"/>	Monocytes (%) <input type="text" value="2"/>	Eosinophils (%) <input type="text" value="23"/>
Basophils (%) <input type="text" value="6"/>	Platelet Count (lakhs/mm) <input type="text" value="6"/>	Direct (mg/dl) <input type="text" value="32"/>	Indirect (mg/dl) <input type="text" value="2"/>
Total Protein (g/dl) <input type="text" value="6"/>	Albumin (g/dl) <input type="text" value="8"/>	Globulin (g/dl) <input type="text" value="7"/>	ALPhosphatase (U/L) <input type="text" value="2"/>
SGOT/AST (U/L) <input type="text" value="6"/>	USG Abdomen (diffuse liver or not) <input type="text" value="3"/>	Lymphocytes (%) <input type="text" value="5"/>	Hemoglobin (g/dl) <input type="text" value="8"/>

 Predict



Output 2:

With Different values



## 8. ADVANTAGES & DISADVANTAGES

### Advantages:

- Early detection of liver cirrhosis
- Non-invasive and cost-effective
- Supports faster clinical decisions
- Scalable and user-friendly
- Useful for data-driven insights

### Disadvantages:

- Accuracy depends on data quality
- May not generalize to all populations

- Requires strong data privacy measures
- Some models lack interpretability

## 9. CONCLUSION

- ML helps in early, efficient liver cirrhosis prediction
- Reduces diagnostic time and cost
- Improves patient care and supports doctors
- Shows promise for AI in healthcare

## 10. FUTURE SCOPE

- Connect with hospital databases (EHR)
- Real-time mobile prediction app
- Extend to other liver diseases
- Add explainability to model results
- Deploy on cloud with multilingual support

## 11. APPENDIX

Dataset Link : <https://www.kaggle.com/datasets/bhavanipriya222/liver-cirrhosis-prediction>

GitHub & Project Demo Link:

<https://github.com/Pnvsai888/Revolutionizing-Liver-Care-Predicting-Liver-Cirrhosis-using-Advanced-Machine-Learning-Techniques>