

Graduation Project Proposal Form

1. Project Information

- **Project Title:** [Cirrhosis Prognosis Pro: Advanced Prediction Models]
- **Course/Track:** Data Engineer/ AI & Data Science
- **Team Members:**
 - 1.Nayera Ammar Imam
 2. Farah Attallah
 - 3.Mohamed Mohsen

2. Project Overview

- **Objective:** To develop predictive models for assessing treatment responses and survival outcomes in patients with cirrhosis, enabling healthcare providers to make informed clinical decisions and improve patient management.
- **Scope of Work:**
 - Collect and preprocess patient data, including clinical features, laboratory results, and treatment history.
 - Develop and validate predictive models using machine learning techniques to categorize patient outcomes.
 - Analyze and interpret model results to provide actionable insights for healthcare professionals.
 - Create a user-friendly visualization dashboard to present predictions and assist in treatment planning.
- **Expected Outcomes:**
 - Accurate predictive models for identifying treatment responses and survival probabilities in cirrhosis patients.
 - Improved decision-making in clinical settings based on data-driven insights.
 - A comprehensive report detailing model performance, clinical implications, and future recommendations for patient care.

3. Problem Statement:

Patients with cirrhosis face varied outcomes based on their unique clinical profiles. Current methods for predicting treatment responses and survival are often inadequate, leading to suboptimal care. There is a need for robust predictive models that can effectively stratify patients based on their risk and inform management strategies.

4. Proposed Solution

• Technologies Used:

- Database Choice: Use a relational database like PostgreSQL or MySQL
- Programming Language: Python
- Data Manipulation and Analysis: Pandas, NumPy
- Machine Learning Libraries: Scikit-learn, XGBoost
- Data Visualization
- Web Framework
- Database
- Cloud Platform: Microsoft Azure for scalable deployment and resource management

• System Architecture:

1. Data Collection:
2. Data Preprocessing
3. Model Development:
4. Model Evaluation
5. Dashboard Development
6. Deployment

5. Resources Needed

- **Hardware:**

- A computer with a minimum of 8 GB RAM and a multi-core CPU for model training.
- Optional server for hosting the web dashboard.

- **Software:**

- Python 3.x with libraries like Pandas, NumPy, Scikit-learn, and more.
- An Integrated Development Environment (IDE) such as Jupyter Notebook, PyCharm, or VS Code.
- Database management system (SQLite or PostgreSQL) for data storage.
- Web framework (Flask or Dash) for dashboard creation.
- Version control system (Git) for effective collaboration and code management.

6. Approval

- **Instructor/Advisor: Moshira Ibrahim Ghaleb**

- **Signature:**

Moshira Ghaleb

5 sept 2024