

Project Initialization and Planning Phase

Date	10 july 2024
Team ID	740097
Project Title	Predicting baseline histological stage in HCV patients using ML
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

HCV Prediction Framework in Egypt:

- **Problem Statement:** In Egypt, where HCV is prevalent, healthcare workers need accurate tools to predict HCV infection early.
- **Approach:**
 - **Dataset:** Real-world data from the National Liver Institute in Egypt (859 patients, 12 features).
 - **Methodology:**
 - Two scenarios: one without feature selection and one after feature selection using sequential forward selection (SFS).

- Algorithms: Naïve Bayes, random forest (RF), K-nearest neighbor, and logistic regression.
- Hyperparameter tuning for RF.
- **Results:**
 - RF achieved 94.06% accuracy (0.54 s elapsed time).
 - [After hyperparameter tuning, accuracy improved to 94.88% using only four features](#)