**Project Design Phase-I**
**Proposed Solution Template**

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| Date | 19 September 2022 |
| Team ID | PNT2022TMID32847 |
| Project Name | Project – Statistical Machine Learning Approaches to Liver Disease Prediction |
| Maximum Marks | 2 Marks |

**Proposed Solution Template:**

Project team shall fill the following information in proposed solution template.

| S.No. | Parameter | Description |
|---|---|---|
| 1. | Problem Statement (Problem to be solved) | With a growing trend of sedentary and lack of physical activities, diseases related to liver have become a common encounter nowadays. In rural areas the intensity is still manageable, but in urban areas, and especially metropolitan areas the liver disease is a very common sighting nowadays. Liver diseases cause millions of deaths every year. Viral hepatitis alone causes 1.34 million deaths every year. Problems with liver patients are not easily discovered in an early stage as it will be functioning normally even when it is partially damaged. |
| 2. | Idea / Solution description | Healthcare system can benefit from various Machine Learning (ML) models to predict diseases in early stage. The aim of this study is to predict liver disease using different ML models applied on Indian Liver Patient Dataset (ILPD). The models used on this work are Support Vector Machine (SVM), K-Nearest Neighbour (KNN), Random Forest (RF), Artificial Neural Network (ANN) and various versions of Ensemble Learning (EL) to find the solution for this |
| 3. | Novelty / Uniqueness | In Human beings, Liver is the most primary part of the body that performs many functions including the production of Bile, excretion of bile and bilirubin, metabolism of proteins and carbohydrates, activation of Enzymes, Storing glycogen, vitamins, and minerals, plasma proteins synthesis and clotting factors. The liver easily gets affected due to intake of alcohol, pain killer tablets, food habits, and includes plenty of wired practices. Currently, the liver related diseases are identified ... |
| 4. | Social Impact / Customer Satisfaction | Morbidity and mortality of liver disease are increasing in frequency because alcoholism, adverse reactions from drug use and abuse, and viral hepatitis are more prevalent. As the nature of these factors suggests, the disadvantaged are particularly at risk. |
| 5. | Business Model (Revenue Model) | Optional |
| 6. | Scalability of the Solution | Early diagnosis and treating the patients are significant to reduce the risk. Healthcare system can benefit from various Machine Learning (ML) models to predict diseases in early stage. The aim of this study is to predict liver disease using different ML models applied on Indian Liver Patient Dataset (ILPD). |