Project Design Phase-I - Solution Fit

Project Title: Early Detection Of Chronic Kidney Disease Using Machine Learning

Team ID: PNT2022TMID02292

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) — CS

- Doctors
- Lab technicians who are involved in diagnosis of chronic kidney disease
- Hospitals

6. CUSTOMER CONSTRAINTS — CC

- Network Connection
- Inadequate software knowledge
- Time connsuming

5. AVAILABLE SOLUTIONS — AS

The existing solutions uses basic machine learning models and datasets with unnecessary large number of features which is time consuming

Explore AS, differentiate

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS — J&P

- Chronic Kidney Disease is a major concern for the global health care system.
- Usually kidney disease takes long time to be diagnosed which may lead to serious health problems and even death in some cases.so we aim to use better machine learning models to detect kidney disease earlier.

9. PROBLEM ROOT CAUSE — RC

Because of not-well-choosen machine learning models the accuracy of detection is less and because of large number of unnecessary features in the dataset,it takes long time for diagnosis

7. BEHAVIOUR — BE

- Check twice before providing the diagnosis results
- Correctly provide the feature values in order to avoid true negatives and false positives

Focus on J&P, tap into BE, understand RC

Identify strong TR & EM

3. TRIGGERS — TR

- Increasing need for detecting kidney disease earlier
- Increasing death rates for kidney disease

4. EMOTIONS: BEFORE / AFTER — EM

- Before : Takes more time for detection of kidney disease and has unwanted features and disease can be detected only at later stages
- After : takes less time for detection and has only necessary features and disease can be detected at earlier stages to avoid deaths

10. YOUR SOLUTION — SL

- Only certain attributes are selected using feature analysis and the proposed solution uses ensemble methods for analysis.
- Down staging (increasing the proportion of CKD detected at an early stage) is achieved.

8. CHANNELS of BEHAVIOUR — CH

1. **ONLINE**
   - Entering the right values for the attributes and applying it to the model to get right results
2. **OFFLINE**
   - Manual checking
   - Checking diagnosis results and choosing treatment methods

Extract Online and Offline CH of BE