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

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| Date | 19 September 2022 |
| Team ID | PNT2022TMID48753 |
| Project Name | Project - DemandEst - AI powered Food Demand Forecaster |
| Maximum Marks | 2 Marks |

**Proposed Solution Template:**

| S.No. | Parameter | Description |
|---|---|---|
| 1. | Problem Statement (Problem to be solved) | Building an appropriate machine learning model to forecast the number of orders to gather raw materials for the next ten weeks. |
| 2. | Idea / Solution description | XGBoost works toward optimizing/minimizing the loss functions for the forecasts . The tree ensemble is formulated and the CART module is trained with the associated variables. The tree equation is developed and the CART weights are allotted to sub-trees. The forecast results are obtained by combining the finalized weights for every sub-tree and then verified with the help of K-additive functions. |
| 3. | Novelty / Uniqueness | We will be using XGBoost which is an efficient implementation of gradient boosting that can be used for regression predictive modeling. XGBoost, an implementation of gradient boosted decision trees, uses decision tree methods to supply high performance with very less computation time, leading to better performances. |
| 4. | Social Impact / Customer Satisfaction | - Reduces wastage of food and raw materials<br>- Improvement in sales of the business<br>- Analysing and understanding the demand forraw materials. |
| 5. | Business Model (Revenue Model) | - Data analytics<br>- Statistic<br>- Future prediction |
| 6. | Scalability of the Solution | The model is scalable from the architecture and dataset training perspective. We can train a huge amount of data consisting of demand in different countries and make predictions on demand for the raw materials. |