Problem Statements 2022

Problem Statement: Develop an intelligent and efficient model to recommend customized discounts for customers based on their business significance and performance

Case study: It is estimated that the CPG and retail industry accounts for more than half of the world's GDP. Discounts , promotions and pricing strategies drive a major portion of the revenue to the Companies. Hence, it becomes very important for these companies to provide discounts by looking at the ROI of the complete discount profile of the customer. Running a promotion or giving a discount can, when done properly, deliver incremental sale or help gaining access to new customers. Discounts can be of various types: Discount generated per purchase, discounts based on agreements,

Discounts in the form of commercial Investments on our customers to match the market incentives, trade promotions offered to consumers to increase market share.

We need you to develop a solution, identify distribution patterns and optimize different types of discounts given to customers to maximize profit.

1. **Problem Statement:**

a. How it impacts/affects/sustains/helps business and why are we solving it?

Discounts are one the primary ways to incentivise the customers and boost the market share. The discounts that we provide to the customers should be optimised in such a way that it should maximise the ROI.

Currently, there is very less visibility on the overall discount-investment profile of the customer and hence there is a need to have an intelligent discount recommender in place to increase revenue by providing optimised discounts.

b. The Problem Statement itself: what the student has to achieve, all the complications/details which will act as parameters of evaluation.

Problem Statement

Develop an intelligent and efficient model to recommend customized discounts for customers based on their business significance and performance

Parameters of Evaluation

- Benchmarking the ideal discount range of the customers based on Sales performance ,growth potential and strategical relevance

- Key insights from the Exploratory Data analysis

- Data pre-processing done (if any) and justification

- Feature engineering done (if any) and justification

- Build models for discount recommendations, Justification for selection of training and testing data

- Model evaluation based on at least 2 metrics for any type of algorithm implemented

- Final output should be built keeping business consumption in mind

- Scalability of Solution

c. Guidelines for Submission:

    1. Round 1 (Idea Submission Round): Format(1/2 pages slides), what should be mentioned in the approach to solving, basically how would you like the solution from students to look like.

- Understanding the problem statement , the objective to be achieved and the end outcome

- A well explained approach for solving the problem

- Problem space and the algorithm identification.

- Data Understanding and Pre-processing

- Exploratory Data Analysis, relevant insights and feature engineering with an explanation why they think this feature is relevant.

- Next steps: Algorithms they think should be used on this data based on EDA with relevant explanation.

 2. Round 2 (Functional Prototype Round- can send later as well): Technical Description, criteria for fulfilment, parameters for judgement/deciding, language/tools requirements.

- Details about the various algorithms starting with the base recommendation algorithm till the final champion algorithm selected based on the evaluation metric which you think fits for the case. Evaluation metrics used for evaluating various algorithm needs to be specified and further justified.
- Proper folder structure needs to be followed(Input,Codes,Intermediates,Output)
- Codes need to be submitted which should be reproducible(preferably a jupyter notebook), well commented it should have the instructions file on how to run the code and create the development environment.
- The output file with recommendations, in a format that it is user friendly and consumable.
- A final explanation with examples/instances how your model has helped in achieving the objective.
- Scalability of solution