Project Scenario

Company A has faced declining sales for the past half year due to competition. Its Sales Managers have proposed to implement data science and modelling to look for opportunities to increase sales.

Company A also believes that the customer’s past purchases would affect his/her decision in purchasing their next product. They have requested to find a way to take into consideration what each customer has historically in any recommendation.

The data provided contains transactional information of policies purchased by customers for both others and themselves.

You are given 2 objectives for this project:

1. Identify customer segments from Company A’s existing customer pool. These segments will be used to optimize their targeted marketing efforts.

(Note: Use the most purchased basic “PRODUCT\_CODE” **only**)

1. Predict the next best product to recommend each existing customer.

(Note: predict on “PRODUCT\_CATEGORY” instead of actual product codes that buyers are going to buy)

These results will be used to improve Company A’s up-selling and cross-selling efforts. As a practical Data Scientist, write a short proposal on how Company A can utilise your model practically.

Required Deliverables

1. All your project codes

1. A presentation deck including the following points in detail:

* Problems/Issues faced

Describe and share on what are the problems, assumptions and reasons for your assumptions when working on each objective.

* Approach/Methodology

Explain and justify your approach, thought process, ideas and rationale of your solution for each objective.

* Model quality & results

Explain how you would evaluate model and interpret the results as well as possible improvements.

(Note: Focus on your process of evaluation)

1. Your short proposal, no more than 500 words, on how you can help Company A utilise your models, practically.
2. **[\*Optional]** Showcase your other skills by demonstrating of how the business users can utilized your results in practice. (examples: a mobile application, web application, an API service, dashboard, etc)

Other Useful Information

Each policy is made up of one basic product and possibly multiple Rider products.

Each policy has an ANP, Annualise New Premium and a pay method. If you would like to use this metric, you can calculate the ANP for Single Pay policies with the following table:

|  |  |
| --- | --- |
| **PAY\_METHOD** | **Formula** |
| Annual |  |
| Quarterly |  |
| Monthly |  |
| Semi-Annual |  |
| Single Pay |  |

\* The optional component is not mandatory for this exercise. If not submitted, you will not be penalized.