Name: Musadig Aliyev

Title: Implementations of Product Bundling and Pricing Strategies using Machine Learning Techniques in the Banking Industry

The banking industry is constantly evolving due to technological advancements, changing customer demands and trends. Banks need to offer innovative products and services to their customers to stay competitive and attractive. One of such innovative strategy is product bundling and pricing, which involves combining multiple products into a single package or bundle based on optimal price. With the help of this strategy, banks can offer ease, customization, and an enhanced customer experience.

Currently, product bundling is done manually or through expert-based decision-making processes. Bank employees or managers assess customer needs and preferences based on their experience and knowledge of the available products. Then, they manually create product bundles by combining different merchant categories and pricing them accordingly. This process does not often involve data driven decisions. So, this manual approach has several limitations as subjectivity and bias, inefficiency and time-consuming, limited scalability, lack of optimization.

I am going to integrate machine learning and statistical techniques to current product bundling strategy to overcome mentioned limitations. Research will consist of two main parts: exploring and implementing bundling techniques and pricing techniques. Firstly, I will explore techniques such as market basket analysis, collaborative filtering, association rule mining and clustering for bundling. Then, I will research and apply several techniques for optimal pricing for products in bundle.

This data-driven approach will enable bank to create optimized and customized bundles which lead to increased customer satisfaction and customer loyalty. On other hand, bank will maximize its revenue and market share by applying and following optimal bundling strategies.

Main risk of this project is getting approval of usage of bank data in research. Due to data security, I won't be able to upload real data to GitHub or somewhere. I could upload hashed version of data for simulation.

In the middle of the project, I will be able to demonstrate different bundling techniques and their results. Then, I will start development of pricing models for bundles. At the end of the project, I will demonstrate machine learning-based framework for product bundling and pricing approach in banking.

During the project, the following steps will be undertaken to complete the implementation:

1. I will conduct an extensive review of existing literature on product bundling.
2. I will identify the available customer data, including transaction records, customer preferences, and demographic information in bank for this project.
3. Based on the literature review and data analysis, I will design appropriate bundling strategies by considering several factors such as product compatibility, customer preferences, and market trends.
4. I will select and test several statistical and machine learning techniques for bundling combinations. Then, I will develop machine learning models for pricing products in bundles.
5. I will use historical data to simulate different bundling scenarios and evaluate the effectiveness of the approach in increasing turnover and revenue.