Behavioral Market Segmentation

A Machine learning based Behavioral

Market Segmentation Project

PROJECT BY:

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ABOUT PROJECT

WHAT IS Behavioral Market Segmentation?

Behavioral Market Segmentation

In marketing, market segmentation is the process of dividing a broad consumer or business market, normally consisting of existing and potential customers, into sub-groups of consumers based on some type of shared characteristics.

OBJECTIVE

A case requires to develop a customer segmentation to give recommendations like saving plans, loans, wealth management, etc. on target customers groups.

OBJECTIVE

- Are they price sensitive?
- Are they more or less likely to be risk-averse?
- How confident are they about financial matters?
- What qualities do they value?

- Do members of their household have an existing relationship with your institution or with other institutions?

- Did they recently graduate from school?
- Did they recently get married?
- Do they have any children, or do they intend to have any in the near future?
- Did they recently become a homeowner?

- Do they prefer to handle things on their own or do they appreciate a helping hand?
- How frequently do they visit branches?
- Which products do they currently have?

- How do they prefer to conduct transactions and interact with customer service?
- Are they an early adopter of new technology?
- Do they use social media?

AGE

GENDER

INCOME

HOUSEHOLD RELATIONSHIPS

GEOLOGICAL LOCATION

TECHNOLOGICAL PREFERENCES

CREDIT RATING

PERSONAL PREFERENCES

MILESTONES

CONCENTRATION OF ACCOUNTS AT OTHER INSTITUTIONS

ATTITUDES

ABOUT DATASET

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Dataset

The sample Dataset summarizes the usage behavior of about 9000 active credit card holders during the last 6 months. The file is at a customer level with 18 behavioral variables.

Variables of Dataset

- ☐ Balance
- ☐ Balance Frequency
- ☐ Purchases
- ☐ One-off Purchases
- ☐ Installment Purchases
- ☐ Cash Advance
- ☐ Purchases Frequency
- ☐ One-off Purchases Frequency
- ☐ Purchases Installments Frequency

- ☐ Cash Advance Frequency
- ☐ Cash Advance TRX
- ☐ Purchases TRX
- ☐ Credit Limit
- ☐ Payments
- ☐ Minimum Payments
- ☐ PRC Full payment
- ☐ Tenure
- ☐ Cluster

TOOLKIT AND ALGORITHMS

TECH TOOLKITS USED

Python

Python is the programming language which is used to code the project. Various algorithms used are coded in Python
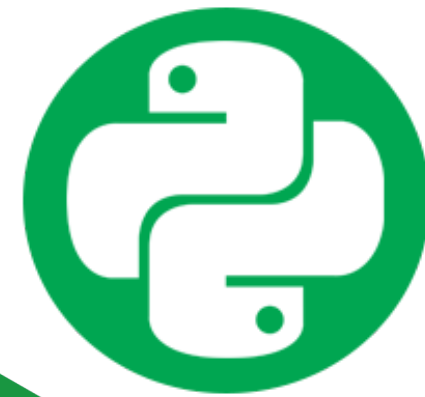
Streamlit

Streamlit is an open source framework for Machine learning and Data Science. It is used for prototype and deployment purpose of the models.

Jupyter Notebook

Jupyter notebook is the effective IDE used for coding in Python. It is very easy to use and widely used over the industry.

Algorithms used in the project

K-means clustering

Spectral Clustering

Gaussian Mixture Model based clustering

DBSCAN Clustering

Agglomerative Clustering

STEPS AND PROCESS

PROJECT PROCESS

1 Research and business understanding
The first thing you have to do before you solve a problem is to define exactly what it is. You need to be able to translate data questions into something actionable.

2 Data pre-processing
Data preprocessing can refer to manipulation or dropping of data before it is used in order to ensure or enhance performance, and is an important step in the data mining process.

3 Exploratory Data analysis
Exploratory data analysis is an approach of analyzing data sets to summarize their main characteristics, often using statistical graphics and other data visualization methods.

4 Model Building
Model building process where different machine learning algorithms are used to make different machine learning models for various applications.

5 Model Deployment
Model Deployment is the process where various ML algorithms are deployed on various platforms like flask, streamlit, various open source platforms, etc. Here we have used Streamlit to deploy our ML project.

MARKET SEGMENTATION

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