**Project Proposal**

**Customer Segmentation Using machine learning.**

**Problem Statement:**

Segment customers into distinct groups based on their purchasing habits and past interactions with marketing campaigns, to enable more targeted and effective marketing strategies. This project will involve data analysis, feature engineering, and the application of classification and clustering techniques to achieve these goals, using a dataset that includes demographic details, purchasing history, and marketing campaign responses of customers.

**Research Paper Relevance:**

Three research papers are attached to the email. These research papers also worked on customer segmentation using machine learning with very basic dataset here is the link:

<https://www.kaggle.com/datasets/carrie1/ecommerce-data>

**Our Motivation:**

Today many of the businesses are going online and, in this case, online marketing is becoming essential to hold customers, but during this, considering all customers as same and targeting all of them with similar marketing strategy is not very efficient way rather it's also annoys the customers by neglecting his or her individuality, so customer segmentation is becoming very popular and also became the efficient solution for this existing problem. Customer segmentation is defined as dividing a company’s customers based on demographic (age, gender, marital status) and behavioral (types of products ordered, annual income) aspects. Since demographic characteristics does not emphasize on individuality of customer because same age groups may have different interests so behavioral aspects is a better approach for customer segmentation as its focus on individuality and we can do proper segmentation with the help of it.

We have found a more complex data set with approx. 2000 rows and 29 different numbers of attributes through which we can classify customers more precisely.

Attributes are related to:

Education

Marital Status

Age

Income

Purchased item details.

number of website visits

complaints

survey results

**Objective:**

**Personalized Marketing**: By understanding the distinct needs and characteristics of each segment, businesses can tailor their marketing strategies and communication to suit the preferences of each group. This leads to more effective and targeted marketing campaigns.

**Improved Customer Service**: Segmentation allows companies to provide services and products that are more aligned with the specific needs and expectations of different customer groups, enhancing overall customer satisfaction and loyalty.

**Better Product Development**: Insights from customer segmentation can guide the development of new products or the improvement of existing ones to better meet the needs of targeted customer groups.

**Increased Efficiency in Advertising Spend**: Companies can allocate their advertising budgets more efficiently by focusing on the segments most likely to respond to certain types of advertising, reducing waste in marketing spend.

**Understanding Customer Behavior**: Machine learning algorithms can uncover hidden patterns in customer data that might not be apparent through traditional analysis, leading to a deeper understanding of customer behaviors and preferences.

**Predictive Analysis**: Advanced machine learning models can predict future buying patterns and trends within each segment, enabling companies to proactively adjust their strategies.

**Group Members:**

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