**Project title**: Customer segmentation using Machine Learnings

**Introduction**: To identify the unsatisfied customer’s needs, customer segmentation can be a very effective way. Companies can use this technique to outperform the competition by developing uniquely appealing products and services.

Customer Segmentation is the subdivision of a market into discrete customer groups that share similar characteristics. To identify the unsatisfied customer needs customer segmentation is very powerful approach. Using the above data companies can then outperform the competition by developing uniquely appealing products and services.

The most common ways in which businesses segment their customer base are:

1. **Demographic information**, such as gender, age, familial and marital status, income, education, and occupation.
2. **Geographical information**, which differs depending on the scope of the company. For localized businesses, this info might pertain to specific towns or counties. For larger companies, it might mean a customer’s city, state, or even country of residence.
3. **Psychographics**, such as social class, lifestyle, and personality traits.
4. **Behavioural data**, such as spending and consumption habits, product/service usage, and desired benefits.

**Project Objectives:**

1. Determine appropriate product pricing.
2. Develop customized marketing campaigns.
3. Design an optimal distribution strategy.
4. Choose specific product features for deployment.
5. Prioritize new product development efforts.

**Role of Machine Learning:** Customer Segmentation is one the most important applications of unsupervised learning. Using clustering techniques, companies can identify the several segments of customers allowing them to target the potential user base. Machine learning has a vast scope in segmentation of the customer using Machine learning clustering algorithm, we will use K Means clustering Algorithm detail as mention below:

**K Means Clustering Algorithm**

1. Specify number of clusters K.
2. Initialize centroids by first shuffling the dataset and then randomly selecting K data points for the centroids without replacement.
3. Keep iterating until there is no change to the centroids. i.e assignment of data points to clusters isn’t changing.