***Kinnaird College for Women Lahore***

***Assignment:***

*Project Proposal*

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*Course Name: Data Science with Python*

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Customer Segmentation using Machine Learning

PROBLEM STATEMENT:

Companies face issues regarding the sale of the products. Some products do not sale much and the company dug into loss for that specific product. So here comes the motivation for customer segmentation which means customers are divided into different groups based on their features and interests and in this way the company make products according to the different segments of the customers to achieve maximum throughput.

Companies aim to gain a deeper approach to the customer they are targeting. Therefore, their aim has to be specific and should be adapt to the requirements of every individual customer. Companies can gain a deeper understanding of customer preferences as well as the requirements for discovering valuable segments that would reap the maximum profit.

What is Customer Segmentation?

Customer Segmentation is the process of division of customer base into several groups of individuals that share a similarity in different ways that are relevant to marketing such as gender, age, interests, and miscellaneous spending habits.

WHY?

To fulfil the requirements of targeted customer

To increase the sale of the products

For the efficient use of resources of the company

For marketing purpose

Make products according to the targeted audience and according to their interests and budget

HOW?

First, we will be doing data exploration by importing the required packages that are necessary to implement this and through the input data, gain necessary insights about features will visualize results using different graphs. In addition to that we will be using Neural Network algorithm to train our model and to categorize/segmentize different groups of customers according to their interests and the specific category in which they fall. So that the company will further make products according to the segments of customers that is basically the targeted audience which makes the most out of their products and their sale increases and maximum revenue is generated. Apart from that we will be using other machine learning algorithms to train our model. We perform the all-basic steps that are required e.g., input data, split into train test that is 80/20 rule normally, train the model, record accuracy, apply variation of parameters to increase accuracy and show the best fitted model that predicts well.

Dataset Link:

Customer segmentation based on customer, gender, income, age, spending score and class. Divide the customer based on these attributes.

<https://www.kaggle.com/shwetabh123/mall-customers>

Related Work:

https://ieeexplore.ieee.org/document/8620892