**Online Customer Segmentation Summary**

In this project, our task was to identify major customer segments on a transnational data set that contained one-year historical transactions for a UK-based online retail store. This would help the company segregate its customers based on transaction data and help them in marketing decisions and strategy. This project belongs to unsupervised machine learning and we will be implementing machine learning models like K means Cluster, DB Scan Cluster, and Hierarchical Cluster, etc.

**Steps I followed in making the project:**

* After loading data and important libraries
* I did some exploratory data analysis to find patterns or trends in customer purchase behavior.
* I did some feature engineering, making new features like hour, day, months, and time type, the total amount to classify the purchase behavior.
* The main part of the project is RFM analysis, which created the basis for model building.
* handling the skewness and transforming the distribution of the RFM feature for model implementation.
* Implemented unsupervised machine learning models like Quantile-based Clustering, Binning cluster, K-means Cluster, Hierarchical Cluster, and DB Scan cluster for Customer segmentation.
* Got a 3-D cluster view of each model along with important information like last visited, purchase frequency, and money spent.

**Result:**

* Using the Silhouette Score and Elbow curve I got the optimal number of clusters in K-means Clustering as 4.
* In hierarchical clustering I got the optimal number of clusters as 3.
* And in DB Scan clustering the optimal number of clusters is also 4.
* 3-D view of all clusters in all different models are shown.