INTRODUCTION

Customer segmentation(Market basket analysis) is the process of dividing customers into groups based on common characteristics so companies can market to each group effectively-**encyclopedia**

Customer segmentation helps businesses to understand customers well and to serve them better. This analysis helps businesses to predict the purchasing behaviours of customers. This helps to;

1. Increase sales.
2. Initiate good marketing strategies such as promotions, discount, etc
3. Pricing strategies.
4. Product placement.

PROBLEM STATEMENT

The owner of a mall wants to understand the customers who can easily be converged (Target Customers) so that the information can be given to the marketing team to plan their strategy accordingly..

OBJECTIVE

Present an analytical solution to help the marketing department plan their marketing strategies accordingly by exploring the following characteristics.

1. Spending pattern of customers
2. Annual salaries
3. Age group

And by answering the following questions.

1. Which customers can easily be converged?
2. What marketing Strategy must be adopted?

SOLUTION METHODOLOGY

STEP1
Understanding the various Variables in the data that have a significant impact on the objective.

STEP2
- ❖ Exploring the various variables in the dataset.
- ❖ Visualization of output to derive insight and useful trends.
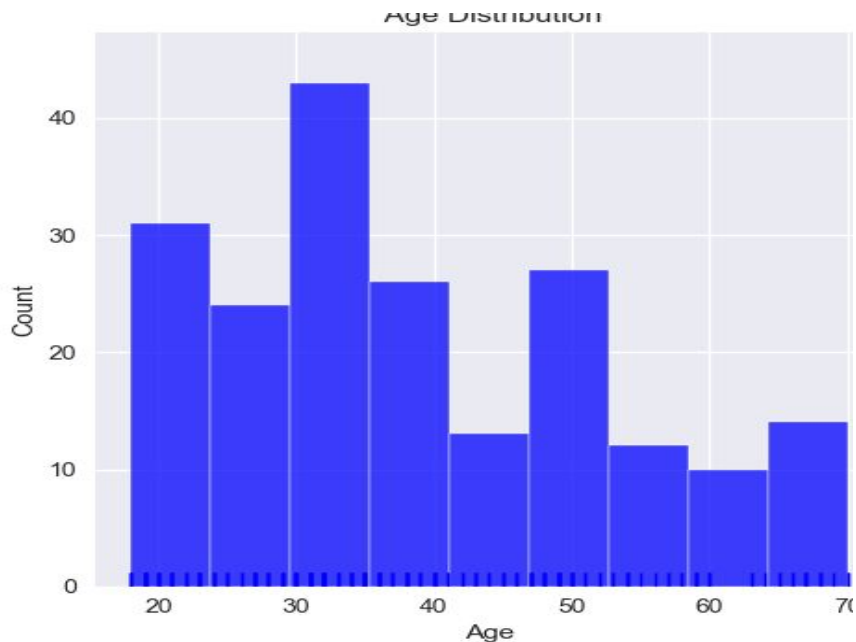
STEP3
Using unsupervised machine learning (KMeans Clustering to help detect customer behavioural patterns).

STEP4
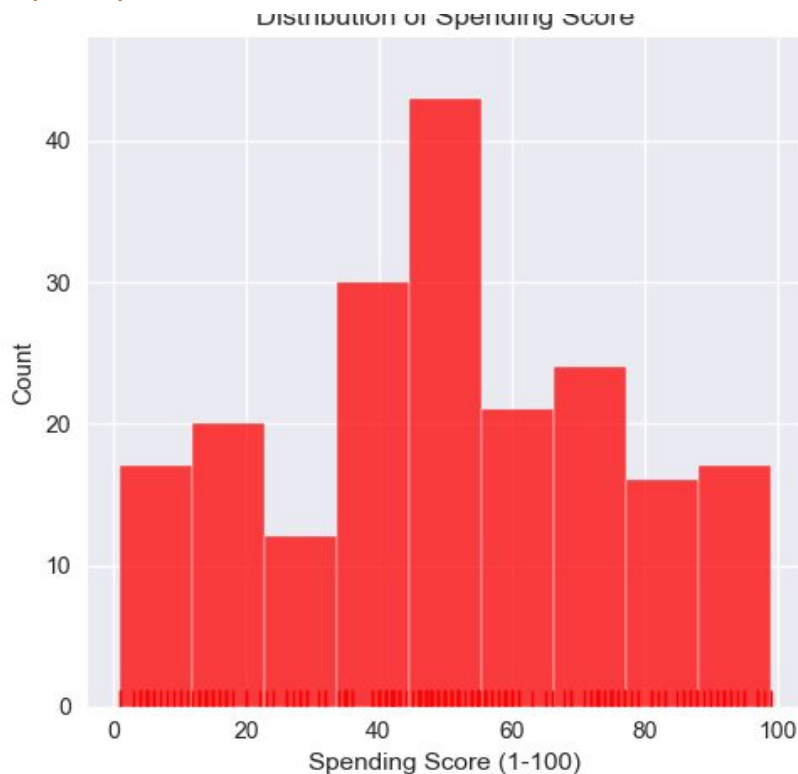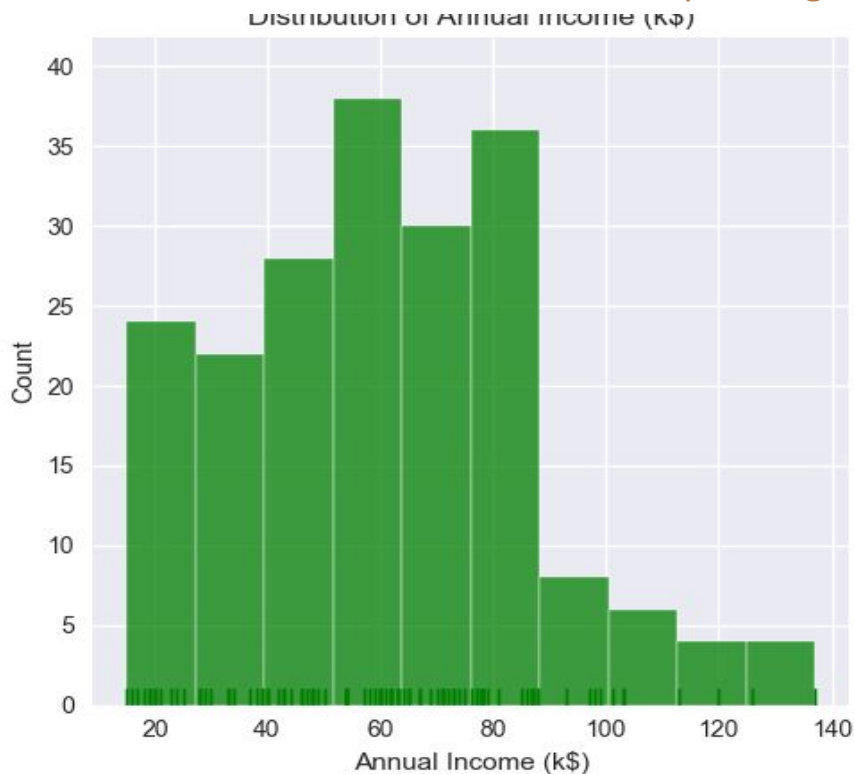Insights, Observations and Recommendations.

EXPLORATORY DATA ANALYSIS
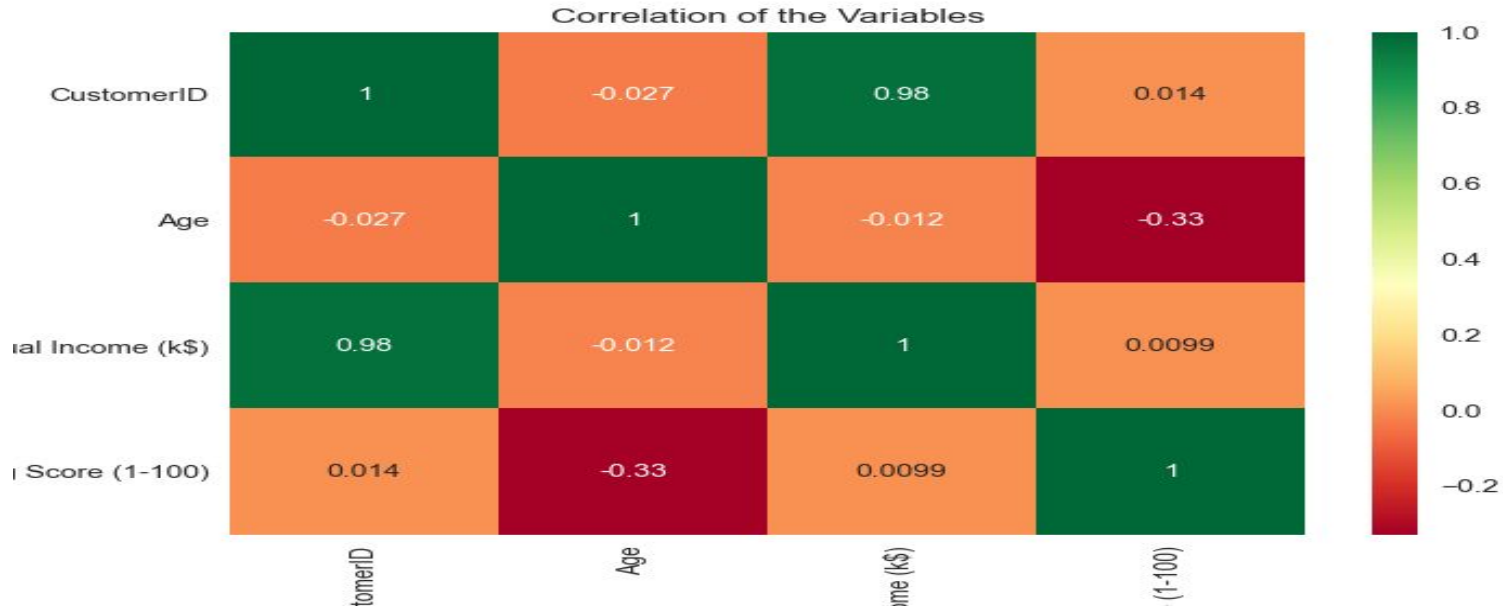
Distribution of Age & Gender (VIZ1)

EXPLORATORY DATA ANALYSIS

Distribution of Annual Income & Spending Score (VIZ2)

EXPLORATORY DATA ANALYSIS

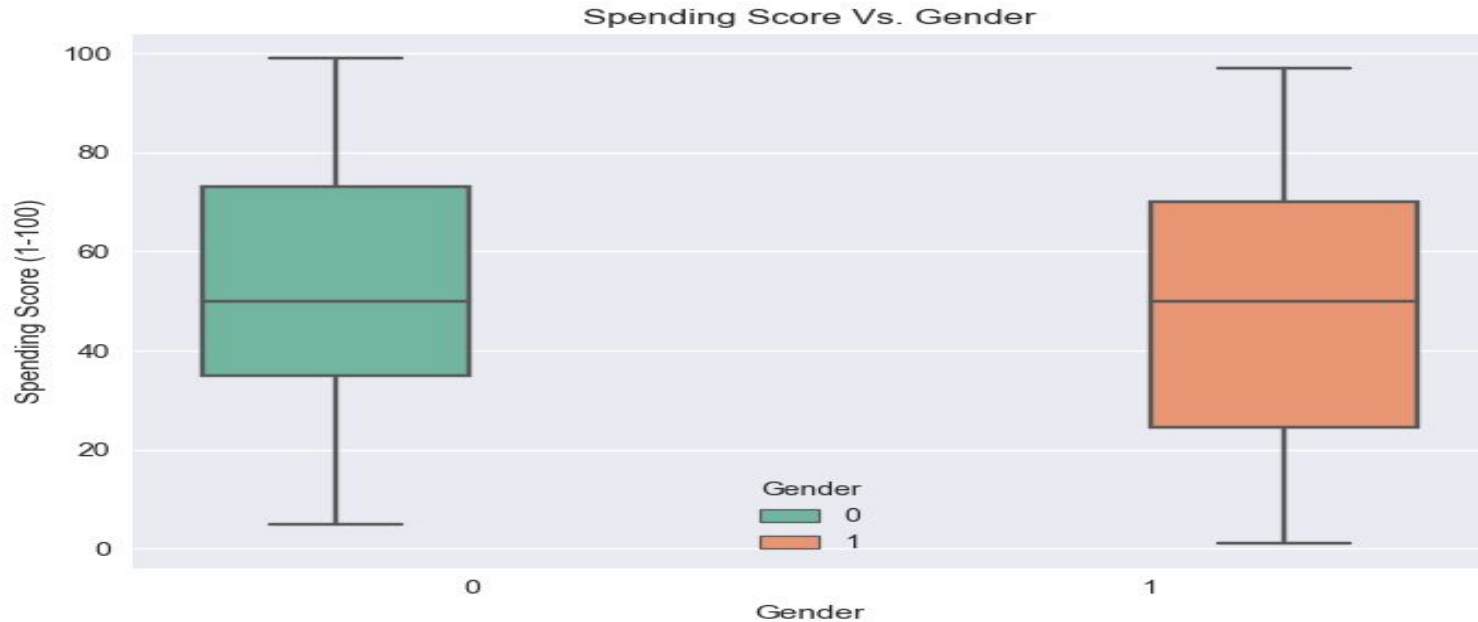A HeatMap show the various relationship of the variables (VIZ3)

EXPLORATORY DATA ANALYSIS

Distribution of Annual income and Age based on Gender(VIZ4)
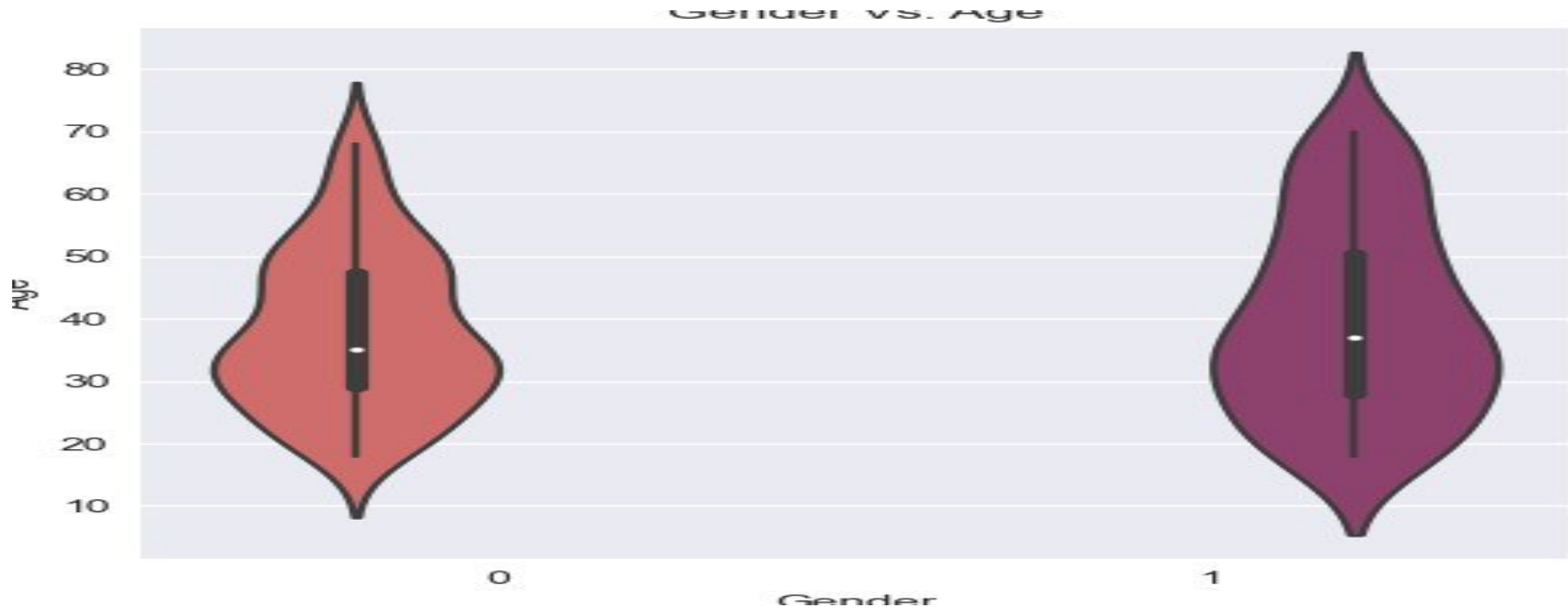
EXPLORATORY DATA ANALYSIS

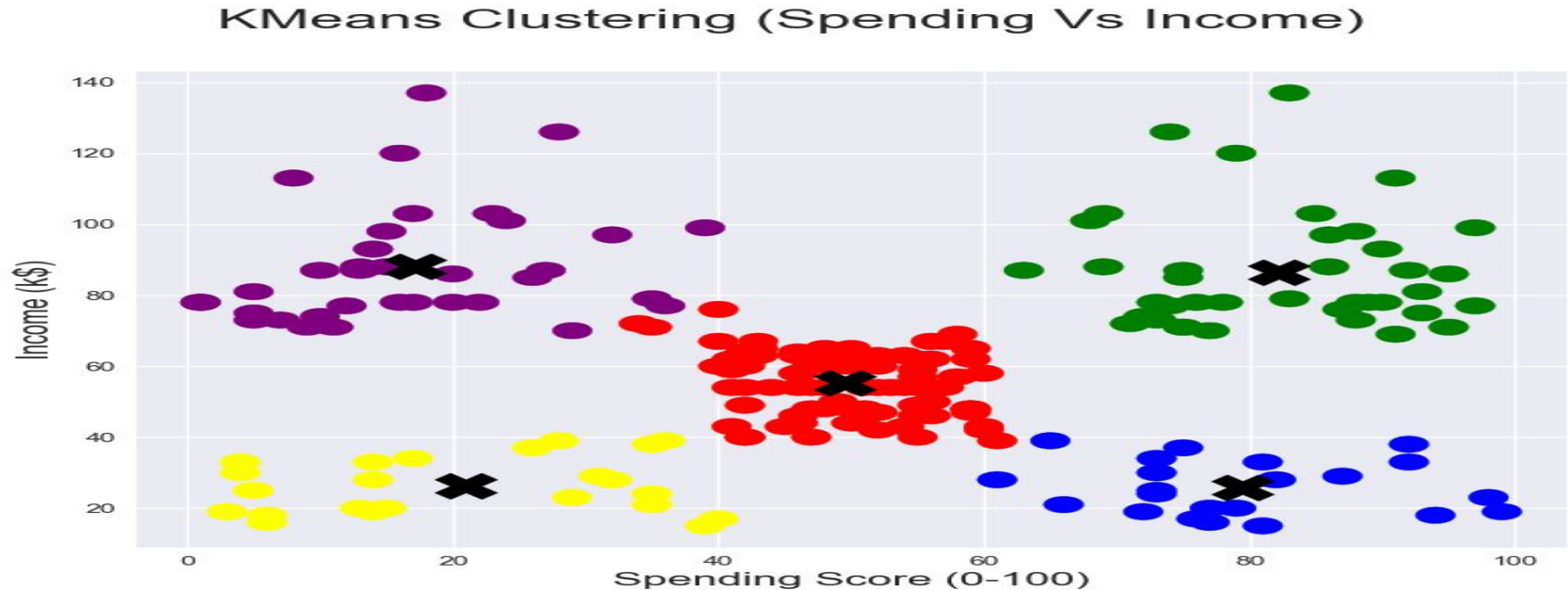Gender & Spending Score Male=1, Female=0 (VIZ5)

EXPLORATORY DATA ANALYSIS
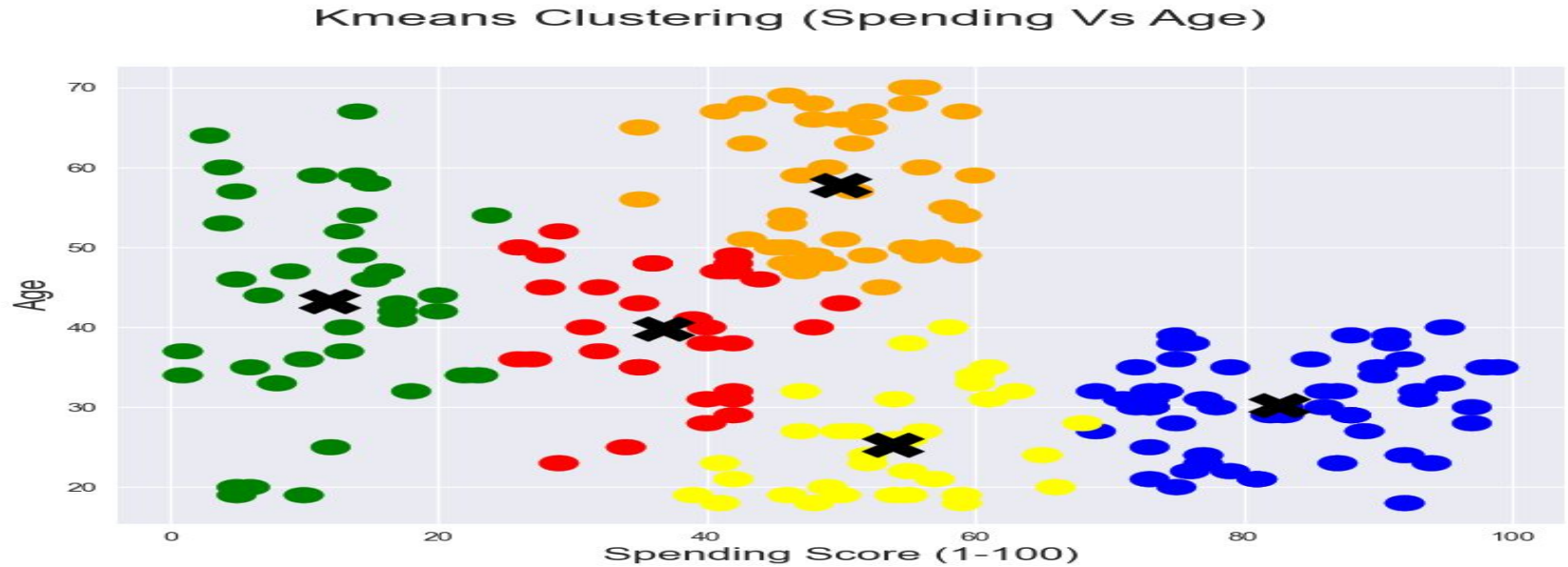
Gender & Age male=1 female=0 (VIZ6)

Unsupervised ML (KMeans Clustering)

KMeans Clustering of Spending Score Vs Annual Income (VIZ9)

Unsupervised ML (KMeans Clustering)

Age Vs Spending Score (1-100)

INSIGHTS AND RECOMMENDATIONS

Customers of the mall consist of 56% females and 44% males. Amongst these percentages, the age group of the regular customers are; 35, 20, and 50. With females being the highest with 35, males 50 and 20 for others.

Annual Income of customers ranges from 20(k$) to 130(k$) the average Annual income of the customers is (60k$) with an average spending score of 50.

A heatmap plotted showed a positive correlation of 0.99 between Annual income and Spending score. Per this relationship, we can establish that, all things being equal, the higher the Annual income of customers, the higher their purchasing power leading to high Spending score. However, this is not enough to draw conclusions this is because even though male customers earn high annual income above average, their spending score is 75% lower than female customers and vice versa. (VIZ5 & VIZ4). Majority of female customers are in their mid 30s whereas majority of male customers are in their early 50s.

In other to know the category of customers to target, an unsupervised machine learning was employed to cluster the customers based on similar behavioural pattern. A total of 5 clusters formed using Elbows method and KMeans Clustering. We had purple, yellow, red, blue and green clusters. These clusters were drawn on Annual Income Vs Spending Score since these two variables showed a positive correlation. We also drew a cluster from Age Vs spending score. This is to determine how different age group spend.

INSIGHTS AND RECOMMENDATIONS

WHO SHOULD WE TARGET?

1. Purple Cluster: These customers earn an average annual income of about 90(k$) with a spending score of 18. This group earn high annual income above average of 60(K$) therefore this group of customers have high purchasing power and must be researched as to why their spending scores are lower than average of 50.

   There could be a number of factors contributing to this. From the data, men are higher earners with low spending score, therefore we can say that this cluster consist of majority of male customers. Could it be that the mall is not selling product that are more appealing to the male customers? Hence the low patronage?

2. Green Cluster: Customers have an average annual salary of 80(k$) with an average spending Score of about 82. It is obvious this group of customers spend more and therefore must be kept. It is important to run marketing campaigns that will help retain this group.

3. A further clustering based on age and spending score, it could be seen that, customers in their 30s have a higher spending score. The data suggests that majority of the customers are females and are aged around 30s. This group also have a higher spending score. Therefore the female customers must be targeted. Marketing campaigns should have strategies that appeal to them.

CONCLUSION

In conclusion, every customer is a king, therefore no customer is worth letting go. In as much as some group of customers have potential of being churned, management of the mall must allocate some resources for the other groups. This can be in the area of researching into customers and their niche.