Methodology

1- Data clean up
   - ✓ Visualize and explore the data
   - ✓ Treatment of null values by replacing its with the mean of certain features.

2- Standardization of the data using sklearn (shifting the data to zero mean and unit variance).

3- Find the optimum k value by plotting the Number of clusters with WCSS (within cluster summation of squares).

4- Apply k means algorithm method.

5- Use the principle component analysis to inspect the clusters.

6- By using the scatter plot the customer can be clearly classified to four group
   - ✓ First Customers cluster (Transactors): Those are customers who pay least amount of intrerest charges and careful with their money, Cluster with lowest balance and cash advance, Percentage of full payment.
   - ✓ Second customers cluster (revolvers) who use credit card as a loan (most lucrative sector): highest balance and cash advance, low purchase frequency, high cash advance frequency, high cash advance transactions and low percentage of full payment.
   - ✓ Third customer cluster (VIP/Prime): high credit limit $16K and highest percentage of full payment, target for increase credit limit and increase spending habits.
   - ✓ Fourth customer cluster (low tenure): these are customers with low tenure, low balance.

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