# Model Development Phase Template

| Date | 15 July 2024 |
|---|---|
| Team ID | 739834 |
| Project Title | Market Segmentation Analysis |
| Maximum Marks | 4 Marks |

**Initial Model Training Code, Model Validation and Evaluation Report**

The initial model training code will be showcased in the future through a screenshot. The model validation and evaluation report will include classification reports, accuracy, and confusion matrices for multiple models, presented through respective screenshots.

**Initial Model Training Code:**

```python
#K-means clustering
from sklearn.cluster import KMeans
model=KMeans()
kmeans = KMeans(n_clusters=4, init='k-means++', random_state=0).fit(df)
df['cluster_num'] = kmeans.labels_ #adding to df
print (kmeans.labels_) #Label assigned for each data point
print (kmeans.inertia_) #gives within-cluster sum of squares.
print(kmeans.n_iter_) #number of iterations that k-means algorithm runs to get a minimum within-cluster sum of squares
print(kmeans.cluster_centers_) #Location of the centroids on each cluster.
```

```
kmeans.fit(df)

/usr/local/lib/python3.10/dist-packages/sklearn/cluster/_kmeans.py:870: FutureWarning:
  warnings.warn(

          ▼            KMeans
KMeans(n_clusters=4, random_state=0)
```

**Model Validation and Evaluation Report:**

| Model | | Accuracy | Confusion Matrix |
|---|---|---|---|
| | | - | - |
| KMeans Clustering | **Classification Report** <br><br> - | | |