nrcm-kmeans-2

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NRCM

0.1 project title : Analysis and prediction of "mall_customers.csv" of American mall market called as Phonix Mall to findout how many customers are visited to a particular shop.on the basis of this prediction of annual income versus spending score

DISCLIMER : In this particular dataset we assume anual income as a centriod and spending score from the range 1-100 called as data node as a cluster

0.2 PROBLEM STATMENT

The american finance market as per the GDP of 2011 'conics_trillums' mall as in the range of out of 5. the owner of the mall wants to be exact which particular shop or product search in different kind of clusters in entire mall

As a data science engineer predict the futurist financial market for upcoming GDP based on numbers clusters

the client want atleast top 5 clusters(shops).

[35]:
```
#import the numpy, matlot, pandas libery's
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

[36]:
```
#Read the dataset take variable name called "dataset" only.
dataset= pd.read_csv("Mall_Customers.csv")
# without printing this data add in separet variable as input variable Caqpital␣
 ↪X only. loc index by select the all row ,
#and give the required colum index like[3,4].for this particular dataset.
X=dataset.iloc[:,[3,4]].values
```

[37]:
```
## <THE ELBOW METHOD>
#from sklearn used "sklearn.cluster" attribute and import KMeans
```

```
#Take a distance from from centroid to cluster point with WrapsColumnExpression.
# Assume you have 10 cluster and iterate the for up to range 10 with iterater␣
↪kmeans++.
# Fit the model if value comes too samlla in range.
#For clustering in wcss ,inertia is adding / appending is required.(kmeans.
↪inertia_)#defalut usecase.
#Plot the poarticular graph along with the wcss and your range which you taken␣
↪as input variable.
#Add title "The Elbow Method".
#Lable x variable as "No of Customers".
#Lable y variable as "WCSS".
#Plot the graph using plt.show().
from sklearn.cluster import KMeans
wcss=[]
for i in range(1,11):
  kmeans = KMeans(n_clusters=i, init="k-means++", random_state=42)
  kmeans.fit(X)
  wcss.append(kmeans.inertia_)
plt.plot(range(1,11),wcss)
plt.title("The Elbow Method")
plt.xlabel("no of clusters")
plt.ylabel("wcss")
plt.show()
```

```
/usr/local/lib/python3.10/dist-packages/sklearn/cluster/_kmeans.py:870:
FutureWarning: The default value of `n_init` will change from 10 to 'auto' in
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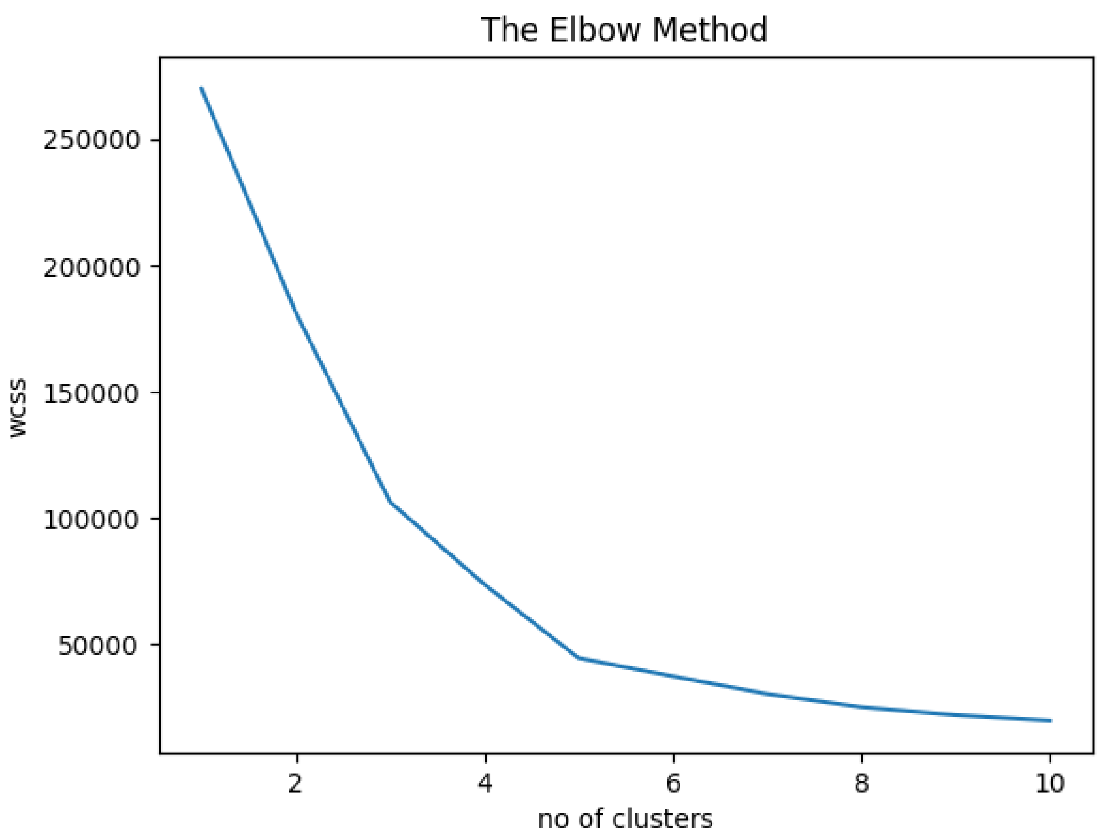

[40]:
```
for i in range(1,11):
  kmeans = KMeans(n_clusters=3, init="k-means++", random_state=42)
  y_kmeans=kmeans.fit_predict(X)
```

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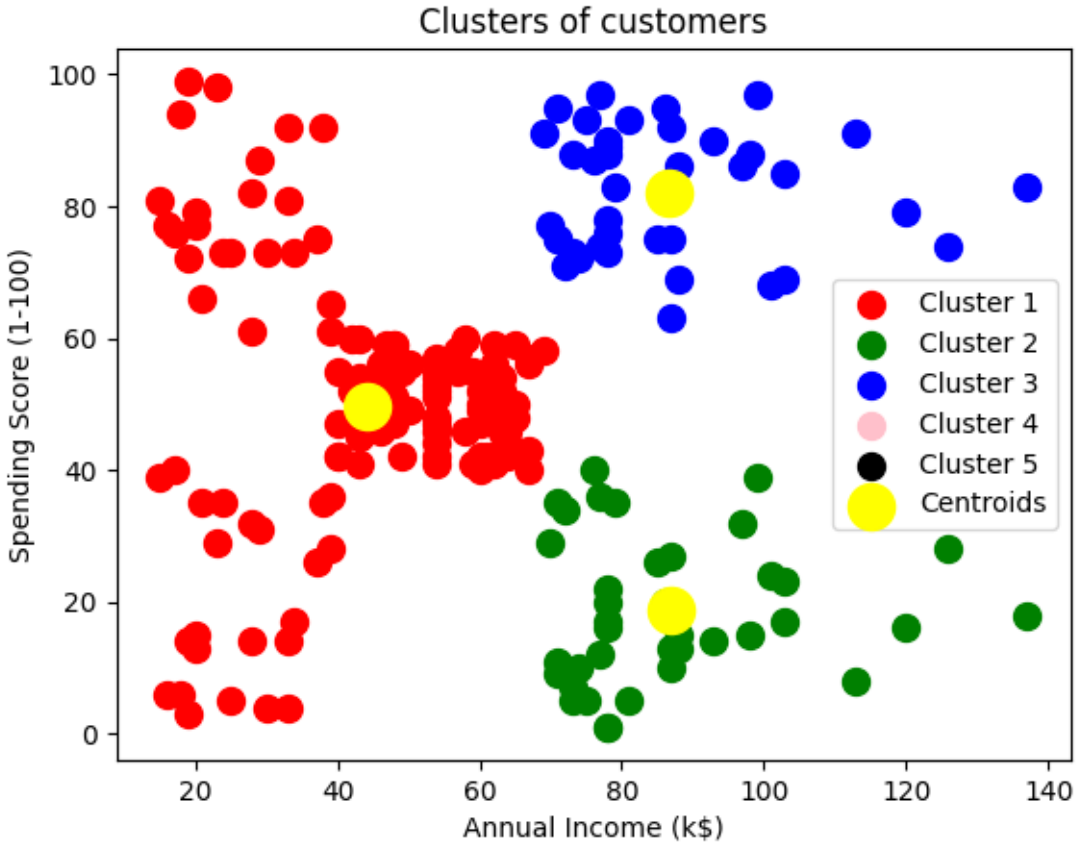
[41]:
```
# Take any no of cluster and run you take 5.
plt.scatter(X[y_kmeans == 0, 0], X[y_kmeans == 0, 1], s = 100, c = 'red', label␣
 ↪= 'Cluster 1')
plt.scatter(X[y_kmeans == 1, 0], X[y_kmeans == 1, 1], s = 100, c = 'green',␣
 ↪label = 'Cluster 2')
```

```
plt.scatter(X[y_kmeans == 2, 0], X[y_kmeans == 2, 1], s = 100, c = 'blue',␣
 ↪label = 'Cluster 3')
plt.scatter(X[y_kmeans == 3, 0], X[y_kmeans == 3, 1], s = 100, c = 'pink',␣
 ↪label = 'Cluster 4')
plt.scatter(X[y_kmeans == 4, 0], X[y_kmeans == 4, 1], s = 100, c = 'black',␣
 ↪label = 'Cluster 5')

#Write Code for rest.SS

plt.scatter(kmeans.cluster_centers_[:, 0], kmeans.cluster_centers_[:, 1], s =␣
 ↪300, c = 'yellow', label = 'Centroids')
plt.title('Clusters of customers')
plt.xlabel('Annual Income (k$)')
plt.ylabel('Spending Score (1-100)')
plt.legend()
plt.show()
```



0.3 conclusion

According to the model basic prediction using machine learning algorithm kmeans clustering we found that cluster red color is a heighest cluster which attach more then 50 data nodes.

0.4 REFERENCES

The model building algorithm develop for all kinds of clusteration values . the yellow spots represents centroids which is max only 3

[ ]: