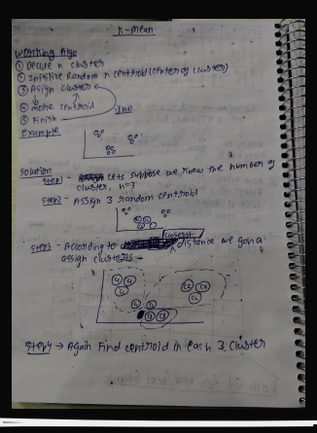
K-Mean Clustering

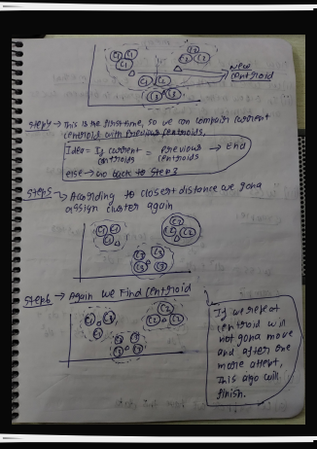
Geometric Intuition

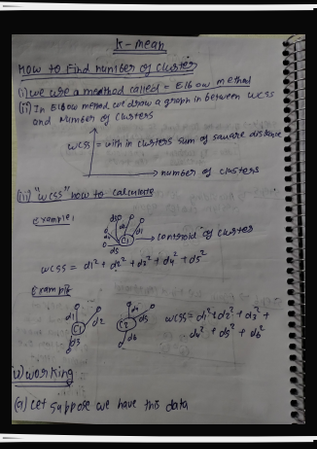
video

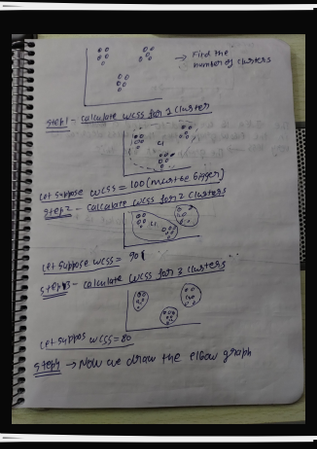
Here k mean = Number of cluster

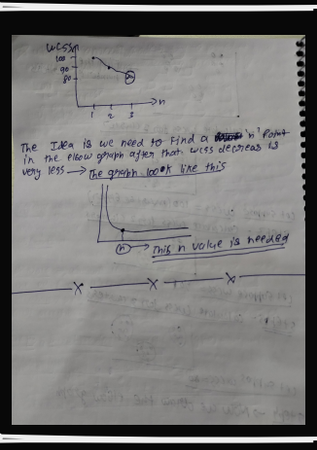
working











How to find number of clusters

generally the number of cluster is less then 20

code

video

github

Elbow method

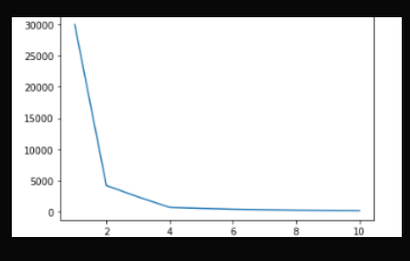
```
from sklearn.cluster import KMeans

wcss = []

for i in range(1,11):
    km = KMeans(n_clusters=i)
    km.fit_predict(df)
    wcss.append(km.inertia_)
```

```
[29957.898287999997,
 4184.141269999999,
 2362.7133490000015,
 681.9696600000001,
 514.1616803171117,
 388.8524026875981,
 295.4391895943191,
 234.48687343199217,
 199.99120032567834,
 171.40590752168507]
```

wcss

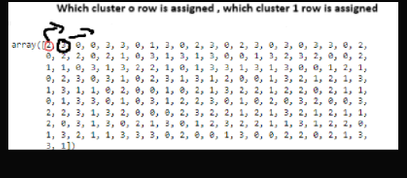


plt.plot(range(1,11),wcss)

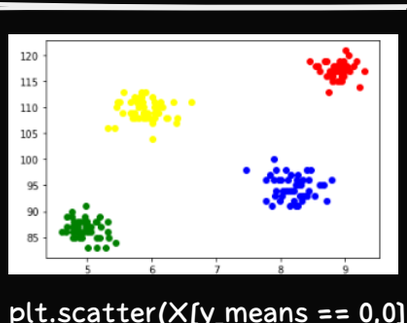
Now we know Number of cluster = 4

clustering

```
X = df.iloc[:,:].values
km = KMeans(n_clusters=4)
y_means = km.fit_predict(X)
```



y_means




```
plt.scatter(X[y_means == 0,0],X[y_means == 0,1],color='blue')
plt.scatter(X[y_means == 1,0],X[y_means == 1,1],color='red')
plt.scatter(X[y_means == 2,0],X[y_means == 2,1],color='green')
plt.scatter(X[y_means == 3,0],X[y_means == 3,1],color='yellow')
```