```
import pandas as pd
customers = pd.read_csv('customer_data.csv')
print(customers.head())
#Visualize data Annual Income vs spending Score
import matplotlib.pyplot as plt
points = customers.iloc[:, 3:5].values
x = points[:, 0]
y = points[:, 1]
plt.scatter(x, y, s=50, alpha=0.7)
plt.xlabel('Annual Income (k$)')
plt.ylabel('Spending Score')
plt.show()

from sklearn.cluster import KMeans
kmeans = KMeans(n_clusters=6, random_state=0)
kmeans.fit(points)
predicted_cluster_indexes = kmeans.predict(points)
plt.scatter(x, y, c=predicted_cluster_indexes, s=50, alpha=0.7, cmap='viridis')
centers = kmeans.cluster_centers_
plt.scatter(centers[:, 0], centers[:, 1], c='red', s=100)
plt.show()
#print cluster index for each data point after applying K Means
print("\nPredicted Cluster Indexes:\n",predicted_cluster_indexes)
```

output

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```
C:\Users\mlm\PycharmProjects\pythonProject1\.venv\Scripts\python.exe
C:\Users\mlm\PycharmProjects\BIBIN\Kmean.py
   CustomerID  Gender  Age  Annual Income (k$)  Spending Score (1-100)
0           1    Male   19                  15                      39
1           2    Male   21                  15                      81
```

2	3	Female	20	16	6
3	4	Female	23	16	77
4	5	Female	31	17	40

Predicted Cluster Indexes:

[3 5 3 5 3 5 3 5 3 5 3 5 3 5 3 5 3 5 3 5 3 5 3 4 3 5 3 5 3 5 3 5 3
5 3 5 4 5 4 4 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
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0 0 0 0 0 0 0 0 0 0 0 0 1 0 1 0 1 2 1 2 1 0 1 2 1 2 1 2 1 2 1 0 1 2 1 0 1
2 1 2 1 2 1 2 1 2 1 2 1 0 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2
1 2 1 2 1 2 1 2 1 2 1 2 1 2 1]

Process finished with exit code 0