Course: Introduction to Data Science (DS2006) - Laboratory 16

Task 1:

```
          x1        x2
0 -11.135132  3.074301
1 -13.140395  5.400745
2   1.603527  2.910068
3  -7.968033 -1.386225
4 -19.028950  2.283091
5  -2.591329 -7.679802
6   5.505783  3.899757
7  -4.814970 -9.698732
8  -4.905069  8.085991
9  -1.316639  5.255938
```

Task 2: KMeans algorithm implemented

Task 3:

```
[[-2.67158741 11.8681868 ]
 [-9.69422627  5.03038313]
 [ 5.32955102  2.11791786]
 [-6.36071942 -7.22311906]]
```

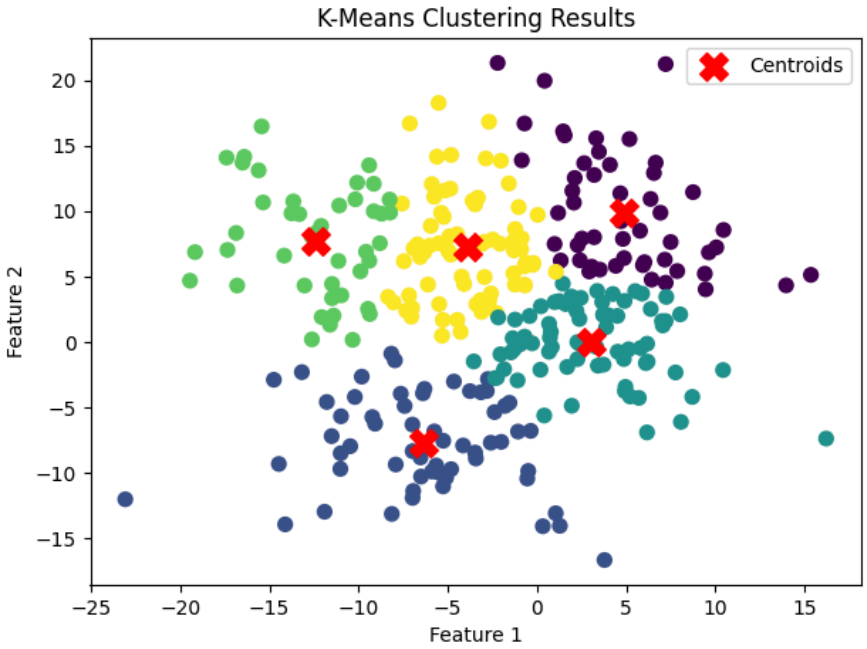
Task 4:

```
[1 1 2 3 1 3 2 3 0 0 0 2 2 1 1 1 1 1 0 0 2 0 3 1 1 0 1 1 3 2 1 2 1 2 1 0 1
 3 1 1 2 0 1 1 1 0 1 2 1 2 3 0 3 2 3 0 1 2 2 0 0 2 2 0 3 3 3 3 3 0 3 3 1 2
 1 1 3 3 1 3 0 0 1 0 3 1 0 2 2 3 1 0 0 0 0 1 3 0 1 0 2 2 2 2 1 2 2 0 3 1 2
 1 1 2 1 2 1 1 1 3 1 3 2 0 3 1 0 0 1 3 2 1 3 1 1 2 2 1 0 3 0 2 2 0 3 2 2 2
 3 0 1 0 2 1 0 2 3 1 3 2 1 1 3 0 2 1 3 0 0 2 0 0 3 2 2 3 3 0 2 3 1 0 1 2 2
 1 3 2 3 2 3 3 3 1 2 1 3 2 0 1 0 0 3 2 0 1 3 1 3 0 0 3 2 0 1 3 0 1 1 3 3 3
 1 3 2 2 1 0 2 2 2 0 1 3 2 3 1 2 0 1 0 3 3 2 0 3 3 3 1 3 1 3 1 2 3 1 2 1 1
 0 2 0 1 1 3 2 3 2 2 0 0 3 2 2 0 1 3 1 2 3 2 2 2 3 1 2 3 2 2 3 0 3 2 0 1 0
 2 1 0 0]
```

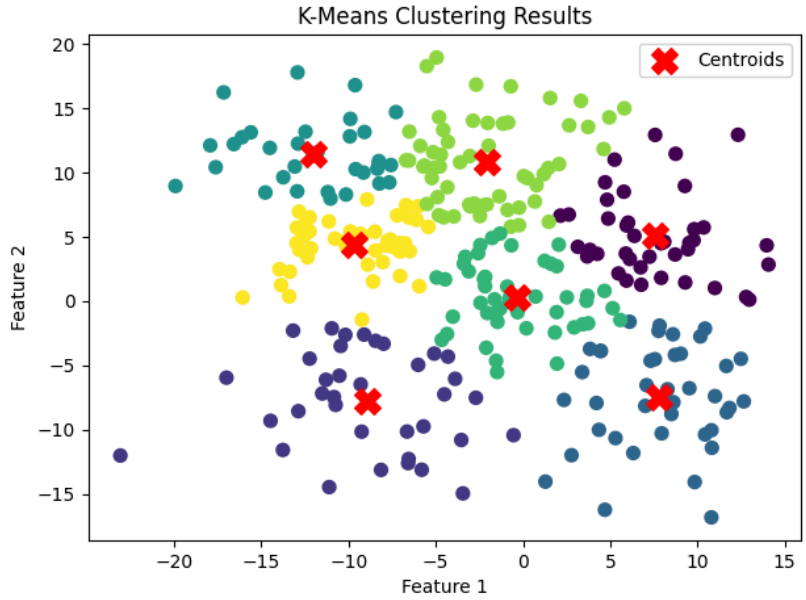
Task 5: 2d Plot visualized

Task 4(6): 2d Plot visualization for centroids implemented

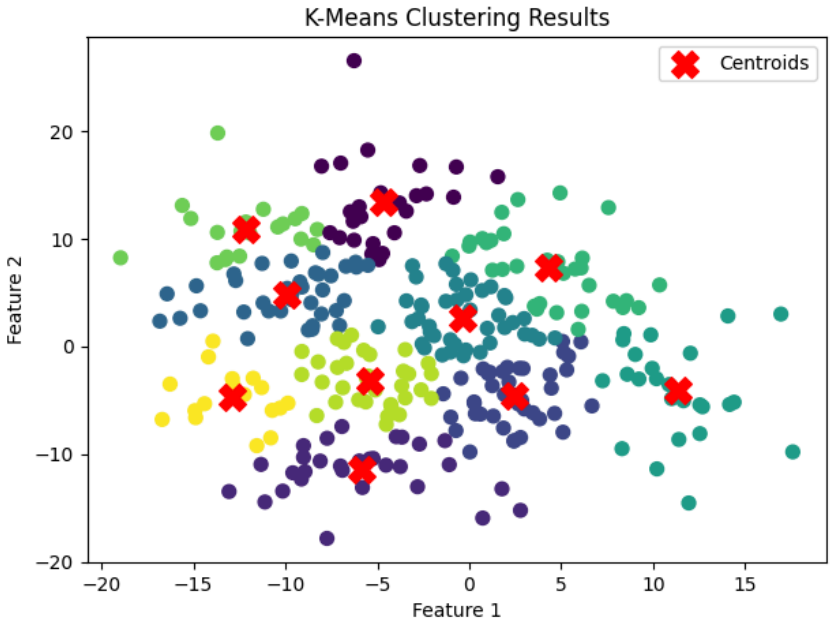
Task 5(7):
k=5



k=7



k=10


K-Means Clustering Results
Centroids
Feature 2
Feature 1
20
10
0
−10
−20
−20
−15
−10
−5
0
5
10
15