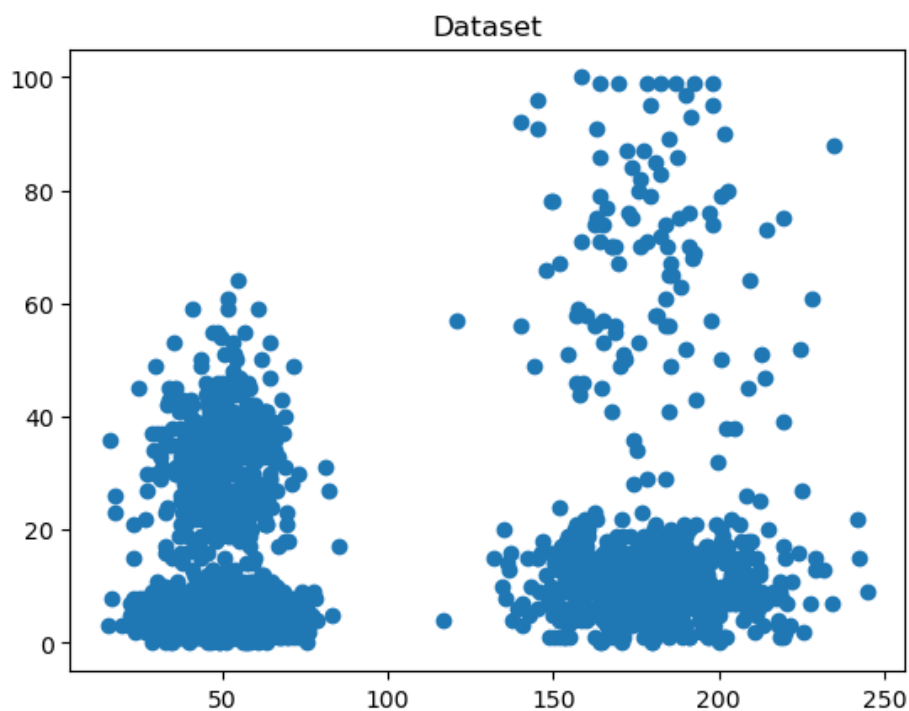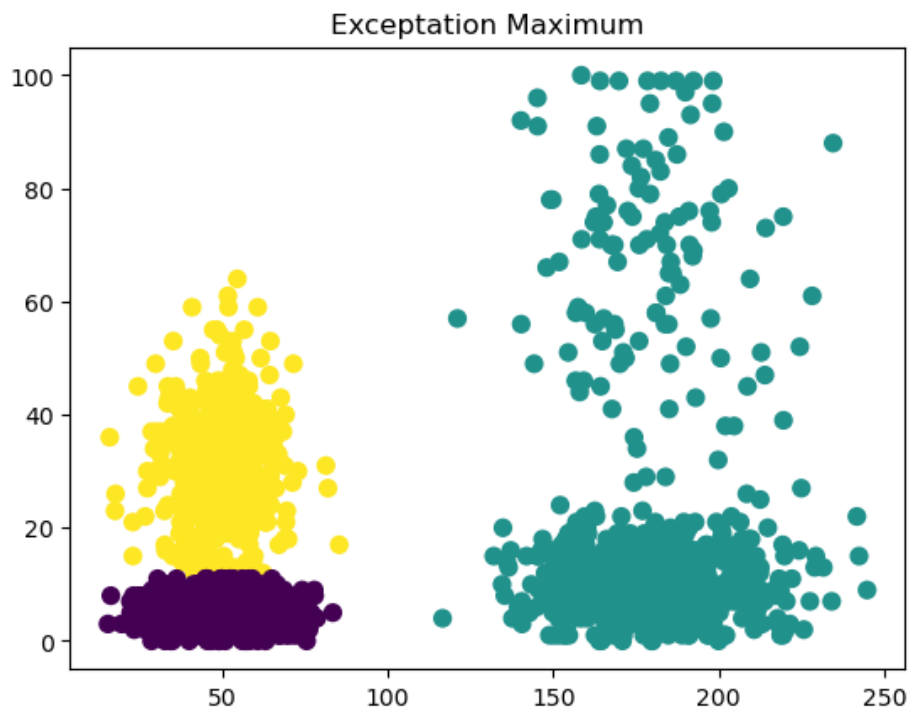```
In [2]: #Import the necessary libraries
        import numpy as np
        from sklearn.cluster import KMeans
        import matplotlib.pyplot as plt
        from sklearn.mixture import GaussianMixture
        import pandas as pd
```

```
In [3]: #Load the dataset
        X = pd.read_csv('P9_dataset.csv')
        x1 = X['Distance_Feature'].values
        x2 = X['Speeding_Feature'].values
        X= np.array(list(zip(x1,x2))).reshape(len(x1),2)
```

```
In [4]: #Visualize the dataset
        plt.plot()
        plt.title('Dataset')
        plt.scatter(x1, x2)
        plt.show()
```

In [5]:
```python
#Plot the Exceptation Maximum (EM)
gmm = GaussianMixture(n_components=3)
gmm.fit(X)
em_predictions = gmm.predict(X)
plt.title('Exceptation Maximum')
plt.scatter(X[:,0], X[:,1],c=em_predictions,s=50)
plt.show()
```


In [6]:
```python
#Plot the Kmeans
import matplotlib.pyplot as plt1
kmeans = KMeans(n_clusters=3)
kmeans.fit(X)
plt.title('KMEANS')
plt1.scatter(X[:,0], X[:,1], c=kmeans.labels_, cmap='rainbow')
plt1.scatter(kmeans.cluster_centers_[:,0] ,kmeans.cluster_centers_[:,1], color='black')
```

Out[6]: <matplotlib.collections.PathCollection at 0x1ca7b952550>