

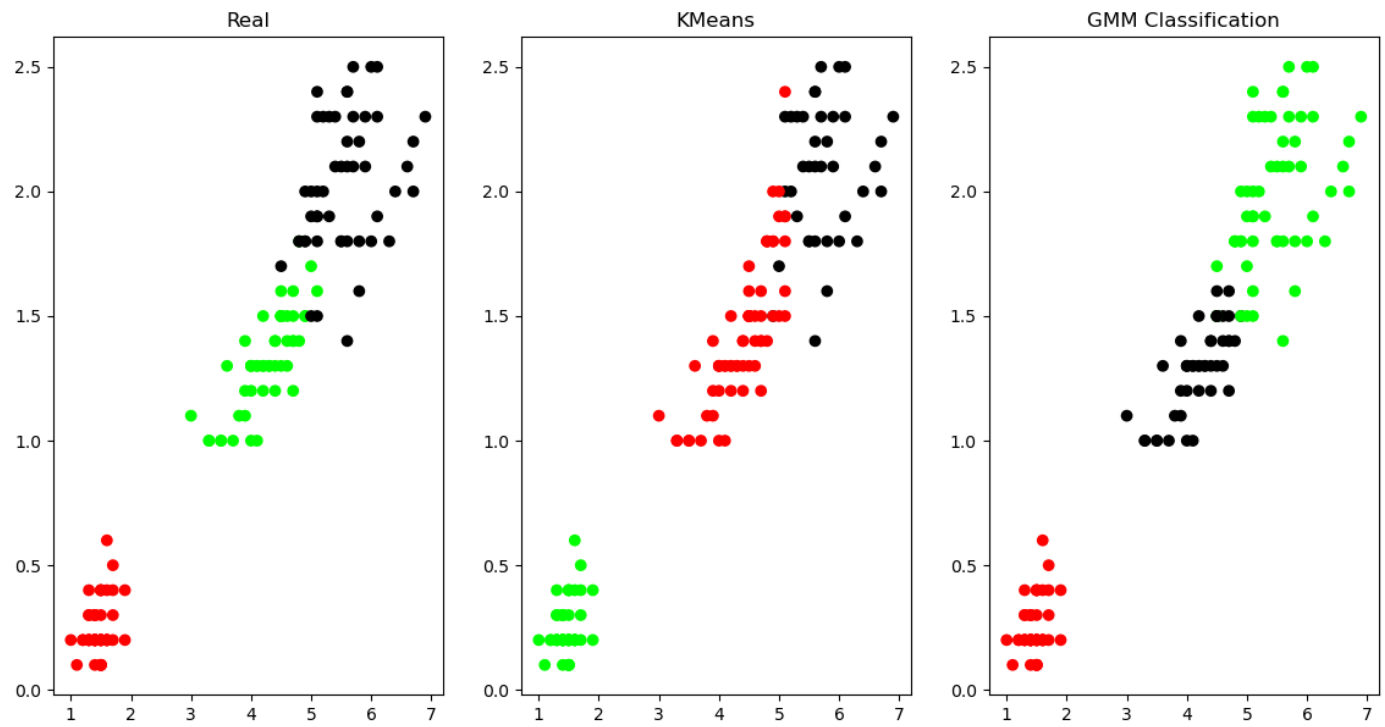
```

In [2]: from sklearn.cluster import KMeans
from sklearn.mixture import GaussianMixture
import sklearn.metrics as metrics
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
names = ['Sepal_Length', 'Sepal_Width', 'Petal_Length', 'Petal_Width', 'Class']
dataset = pd.read_csv("irrrrrriiiiissssss.csv", names=names)
X = dataset.iloc[:, :-1]
label = {'Iris-setosa': 0, 'Iris-versicolor': 1, 'Iris-virginica': 2}
y = [label[c] for c in dataset.iloc[:, -1]]
plt.figure(figsize=(14,7))
colormap=np.array(['red', 'lime', 'black'])
# REAL PLOT
plt.subplot(1,3,1)
plt.title('Real')
plt.scatter(X.Petal_Length,X.Petal_Width,c=colormap[y])
# K-PLOT
model=KMeans(n_clusters=3, random_state=0).fit(X)
plt.subplot(1,3,2)
plt.title('KMeans')
plt.scatter(X.Petal_Length,X.Petal_Width,c=colormap[model.labels_])
print('The accuracy score of K-Mean: ',metrics.accuracy_score(y, model.labels_))
print('The Confusion matrixof K-Mean:\n',metrics.confusion_matrix(y, model.labels_))

# GMM PLOT
gmm=GaussianMixture(n_components=3, random_state=0).fit(X)
y_cluster_gmm=gmm.predict(X)
plt.subplot(1,3,3)
plt.title('GMM Classification')
plt.scatter(X.Petal_Length,X.Petal_Width,c=colormap[y_cluster_gmm])
print('The accuracy score of EM: ',metrics.accuracy_score(y, y_cluster_gmm))
print('The Confusion matrix of EM:\n ',metrics.confusion_matrix(y, y_cluster_gmm))

The accuracy score of K-Mean: 0.24
The Confusion matrixof K-Mean:
[[ 0 50  0]
 [48  0  2]
 [14  0 36]]
The accuracy score of EM: 0.36666666666666664
The Confusion matrix of EM:
[[50  0  0]
 [ 0  5 45]
 [ 0 50  0]]

```



In [ ]:

In [ ]: