Python: 3.8.8 (default, Feb 24 2021, 15:54:32) [MSC v.1928 64 bit (AMD64)]

scipy: 1.7.1

numpy: 1.19.2

pandas: 1.1.3

sklearn: 0.24.2

Hello World!

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Part-1-k-Means Clustering

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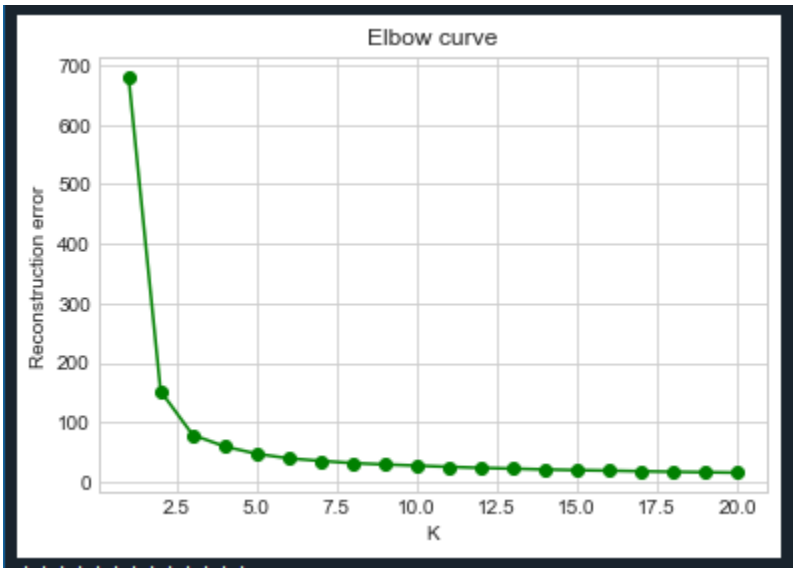
C:\ProgramData\Anaconda2\envs\P37\lib\site-packages\sklearn\cluster_kmeans.py:881: UserWarning: KMeans is known to have a memory leak on Windows with MKL, when there are less chunks than available threads. You can avoid it by setting the environment variable OMP_NUM_THREADS=1.

  warnings.warn(



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Appropriate K from elbow curve: 3

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Confusion matrix for k-means clustering using elbow_k clusters:

[[50 0 0]

[0 48 2]

[0 14 36]]

Accuracy score for k-means with elbow_k clusters: 0.8933333333333333

Confusion matrix for k-means clustering using k=3 clusters:

[[50 0 0]

[0 48 2]

[0 14 36]]

Accuracy score for k-means with k=3 clusters: 0.8933333333333333

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Part-2-GMM Clustering

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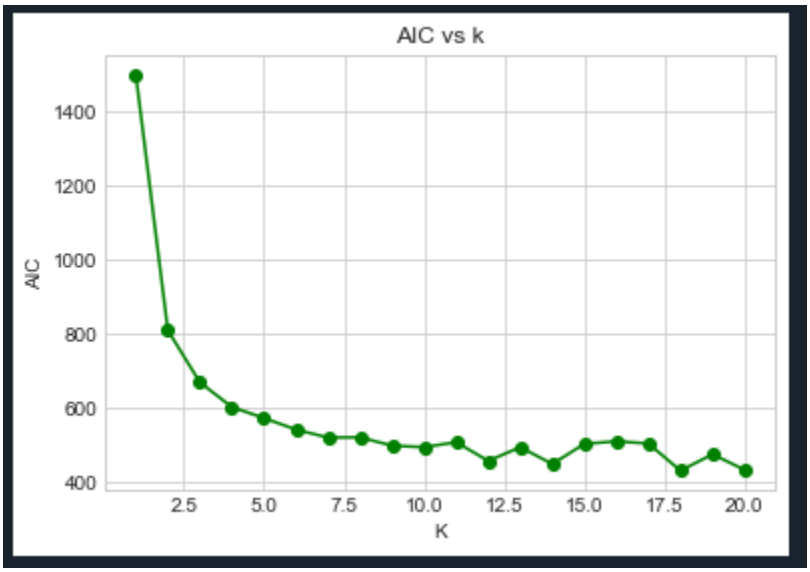
C:\ProgramData\Anaconda2\envs\P37\lib\site-packages\sklearn\cluster_kmeans.py:881: UserWarning: KMeans is known to have a memory leak on Windows with MKL, when there are less chunks than available threads. You can avoid it by setting the environment variable OMP_NUM_THREADS=1.

  warnings.warn(



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Appropriate K from elbow curve: 3

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Confusion matrix for gmm clustering using k=aic_elbow_k clusters:

[[50 0 0]

 [0 50 0]

 [0 14 36]]

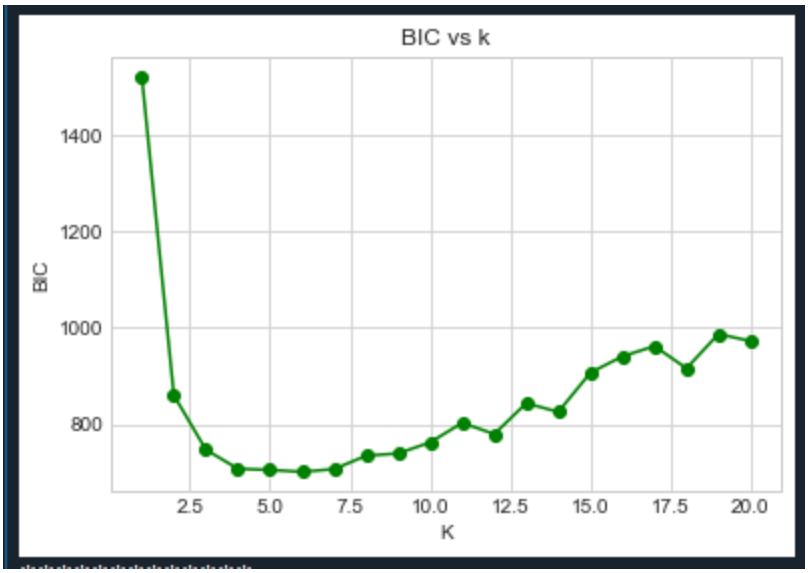
Accuracy score for gmm with k=aic_elbow_k clusters: 0.9066666666666666

Confusion matrix for gmm clustering using k=bic_elbow_k clusters:

[[50 0 0]

 [0 50 0]

 [0 14 36]]



Accuracy score for gmm with k=bic_elbow_k clusters: 0.9066666666666666

Confusion matrix for gmm clustering using k=3 clusters:

[[50 0 0]

[0 50 0]

[0 14 36]]

Accuracy score for gmm with k=3 clusters: 0.9066666666666666