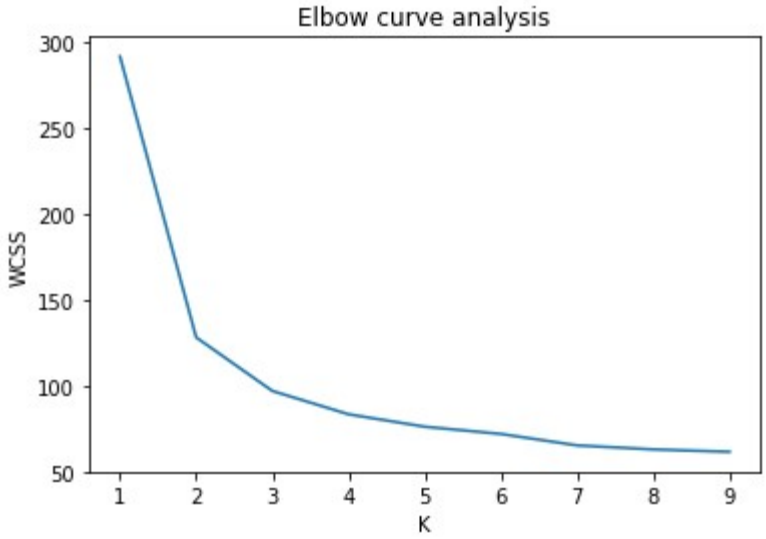
```
Python 3.6.4 |Anaconda custom (64-bit)| (default, Jan 16 2018, 10:22:32) [MSC v.1900 64 bit
(AMD64)]
Type "copyright", "credits" or "license" for more information.

IPython 6.1.0 -- An enhanced Interactive Python.

Restarting kernel...
```

```
In [1]:          'C:/Users/Hemanth kumar/Desktop/data_mining/kmeans/
kmeans_iris_final_KPP.py'      ='C:/Users/Hemanth kumar/Desktop/data_mining/kmeans'

Initialization method :random
Distance measure :Euclidean
K= 1

Converged at iteartion: 1


Initialization method :random
Distance measure :Euclidean
K= 2

Converged at iteartion: 5


Initialization method :random
Distance measure :Euclidean
K= 3

Converged at iteartion: 2


Initialization method :random
Distance measure :Euclidean
K= 4

Converged at iteartion: 5


Initialization method :random
Distance measure :Euclidean
K= 5

Converged at iteartion: 4


Initialization method :random
Distance measure :Euclidean
K= 6

Converged at iteartion: 4


Initialization method :random
Distance measure :Euclidean
K= 7
```

```
Converged at iteartion: 4


Initialization method :random
Distance measure :Euclidean
K= 8

Converged at iteartion: 7


Initialization method :random
Distance measure :Euclidean
K= 9

Converged at iteartion: 7

######################       Elbow analysis       ##############################
```




```
######################   use different init method   ##############################

Initialization method :K++
Distance measure :Euclidean
K= 3

Converged at iteartion: 6

centroids :
 [[5.006      3.418      1.464      0.244     ]
 [5.9016129  2.7483871  4.39354839 1.43387097]
 [6.85       3.07368421 5.74210526 2.07105263]]
cluster member count :
 [50, 62, 38]
WCSS :
 [[97.32592423430007, 3]]
---------------------------------------------------------------

Initialization method :random
Distance measure :Euclidean
```

```
K= 3

Converged at iteartion: 2

centroids :
 [[5.9016129  2.7483871  4.39354839 1.43387097]
 [6.85       3.07368421 5.74210526 2.07105263]
 [5.006      3.418      1.464      0.244     ]]
cluster member count :
 [62, 38, 50]
WCSS :
 [[97.32592423430007, 3]]
------------------------------------------------------------

Initialization method :1st k
Distance measure :Euclidean
K= 3

Converged at iteartion: 11

centroids :
 [[6.85384615 3.07692308 5.71538462 2.05384615]
 [5.88360656 2.74098361 4.38852459 1.43442623]
 [5.006      3.418      1.464      0.244     ]]
cluster member count :
 [39, 61, 50]
WCSS :
 [[97.34621969415677, 3]]
------------------------------------------------------------
########################    use different distance measure   ########################

Initialization method :K++
Distance measure :Manhattan
K= 3

Converged at iteartion: 5

centroids :
 [[5.006      3.418      1.464      0.244     ]
 [5.9047619  2.74603175 4.41269841 1.43333333]
 [6.87027027 3.08648649 5.74594595 2.08918919]]
cluster member count :
 [50, 63, 37]
WCSS :
 [[162.2798781638782, 3]]
------------------------------------------------------------

Initialization method :K++
Distance measure :Euclidean
K= 3

Converged at iteartion: 6

centroids :
 [[5.006      3.418      1.464      0.244     ]
 [5.9016129  2.7483871  4.39354839 1.43387097]
 [6.85       3.07368421 5.74210526 2.07105263]]
cluster member count :
 [50, 62, 38]
```

```
WCSS :
 [[97.32592423430007, 3]]
----------------------------------------------------------------

Initialization method :K++
Distance measure :Minkowski
K= 3

Converged at iteartion: 6

centroids :
 [[5.006      3.418      1.464      0.244     ]
 [5.88360656 2.74098361 4.38852459 1.43442623]
 [6.85384615 3.07692308 5.71538462 2.05384615]]
cluster member count :
 [50, 61, 39]
WCSS :
 [[85.77974689908335, 3]]
----------------------------------------------------------------

In [2]:
```