Start:
[[12.31123472 6.5355942]
 [13.65664231 3.25756117]
 [10.19310332 7.40864216]
 [8.00555081 4.72490439]
 [4.90220418 3.00131686]
 [0.1269576   6.87849357]
 [2.45270573 13.48045114]
 [6.75796556 14.94103466]
 [11.4198269   7.04868558]
 [7.29080002 6.11128098]]

INDEX , CENTROID SUM, POINT IN CLUSTER COUNT

Start
[(0, array([12.31123472, 6.5355942]), 1), (1, array([
13.65664231, 3.25756117]), 1), (2, array([10.19310332,
7.40864216]), 1), (3, array([8.00555081, 4.72490439]), 1),
(4, array([4.90220418, 3.00131686]), 1), (5, array([
0.1269576 , 6.87849357]), 1), (6, array([2.45270573,
13.48045114]), 1), (7, array([6.75796556, 14.94103466]),
1), (8, array([11.4198269 , 7.04868558]), 1), (9, array([
7.29080002, 6.11128098]), 1)]

2

Step 1
[(1, array([13.65664231, 3.25756117]), 1), (2, array([
10.19310332, 7.40864216]), 1), (3, array([8.00555081,
4.72490439]), 1), (4, array([4.90220418, 3.00131686]), 1),
(5, array([0.1269576 , 6.87849357]), 1), (6, array([
2.45270573, 13.48045114]), 1), (7, array([6.75796556,
14.94103466]), 1), (9, array([7.29080002, 6.11128098]),
1), (11, array([23.73106162, 13.58427978]), 2)]

2

Step 2
[(1, array([13.65664231, 3.25756117]), 1), (2, array([
10.19310332, 7.40864216]), 1), (4, array([4.90220418,
3.00131686]), 1), (5, array([0.1269576 , 6.87849357]), 1),
(6, array([2.45270573, 13.48045114]), 1), (7, array([
6.75796556, 14.94103466]), 1), (11, array([23.73106162,
13.58427978]), 2), (12, array([15.29635083,
10.83618536]), 2)]

3

Step 3
[(1, array([13.65664231, 3.25756117]), 1), (4, array([
4.90220418, 3.00131686]), 1), (5, array([0.1269576 ,
6.87849357]), 1), (6, array([2.45270573, 13.48045114]),
1), (7, array([6.75796556, 14.94103466]), 1), (12, array([
15.29635083, 10.83618536]), 2), (13, array([
33.92416494, 20.99292194]), 3)]

3

Step 4

[(1, array([13.65664231, 3.25756117]), 1), (5, array([
0.1269576 , 6.87849357]), 1), (6, array([2.45270573,
13.48045114]), 1), (7, array([6.75796556, 14.94103466]),
1), (13, array([33.92416494, 20.99292194]), 3), (14,
array([20.19855502, 13.83750223]), 3)]

4

Step 5
[(5, array([0.1269576 , 6.87849357]), 1), (6, array([
2.45270573, 13.48045114]), 1), (7, array([6.75796556,
14.94103466]), 1), (14, array([20.19855502,
13.83750223]), 3), (15, array([47.58080725,
24.25048311]), 4)]

2

Step 6
[(5, array([0.1269576 , 6.87849357]), 1), (14, array([
20.19855502, 13.83750223]), 3), (15, array([
47.58080725, 24.25048311]), 4), (16, array([9.21067129,
28.4214858]), 2)]

7

Step 7
[(5, array([0.1269576 , 6.87849357]), 1), (16, array([
9.21067129, 28.4214858]), 2), (17, array([67.77936227,
38.08798534]), 7)]

3

Step 8
[(17, array([67.77936227, 38.08798534]), 7), (18, array([
9.3376289 , 35.29997936]), 3)]

10

Last Cluster - Finished
[(19, array([77.11699116, 73.3879647]), 10)]
CENTROID: 7.711699116 , 7.33879647

Merged::

[(1.0285284036451852, (8, 0), (array([11.4198269 ,
7.04868558]), array([12.31123472, 6.5355942])), 2),
(1.559778427902855, (9, 3), (array([7.29080002,
6.11128098]), array([8.00555081, 4.72490439])), 2),
(1.7824389875149436, (11, 2), (array([23.73106162,
13.58427978]), array([10.19310332, 7.40864216])), 3),
(3.6580272543665453, (12, 4), (array([15.29635083,
10.83618536]), array([4.90220418, 3.00131686])), 3),
(4.416339772200003, (13, 1), (array([33.92416494,
20.99292194]), array([13.65664231, 3.25756117])), 4),
(4.546269508478306, (7, 6), (array([6.75796556,
14.94103466]), array([2.45270573, 13.48045114])), 2),
(5.362155078961919, (15, 14), (array([47.58080725,
24.25048311]), array([20.19855502, 13.83750223])), 7),
(8.59172568024745, (16, 5), (array([9.21067129,
28.4214858]), array([0.1269576 , 6.87849357])), 3),
(9.120308227556485, (18, 17), (array([9.3376289 ,
35.29997936]), array([67.77936227, 38.08798534])), 10)]