|  |  |  |  |
| --- | --- | --- | --- |
| Sample | A | B | Cluster |
| P1 | 1 | 1.5 |  |
| P2 | 1.5 | 2 |  |
| P3 | 3 | 4 |  |
| P4 | 5 | 7 |  |
| P5 | 3.5 | 5 |  |
| P6 | 4.5 | 5 |  |
| P7 | 3.5 | 4.5 |  |

K = 2, Max = 3, C1 = (3, 4), C2 = (3, 5)

1st:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sample | A | B | Distance of C1 | Distance of C2 | Cluster |
| P1 | 1 | 1.5 | 3.2016 | 4.0311 | C1 |
| P2 | 1.5 | 2 | 2.5000 | 3.3541 | C1 |
| P3 | 3 | 4 | 0 | 0 | C1 |
| P4 | 5 | 7 | 3.6056 | 2.8284 | C2 |
| P5 | 3.5 | 5 | 1.1180 | 0.5000 | C2 |
| P6 | 4.5 | 5 | 1.8028 | 1.5000 | C2 |
| P7 | 3.5 | 4.5 | 0.7071 | 0.7071 | C1 |

New C1 = ((1 + 1.5 + 3 + 3.5) / 4, (1.5 + 2 + 4 + 4.5) / 4) = (2.25, 3.00)

New C2 = ((5.0 + 3.5 + 4.5) / 3), (7.0 + 5.0 + 5.0) / 3) = (4.333, 5.667)

2nd:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sample | A | B | Distance of C1 | Distance of C2 | Cluster |
| P1 | 1 | 1.5 | 1.9526 | 5.3359 | C1 |
| P2 | 1.5 | 2 | 1.2500 | 4.6338 | C1 |
| P3 | 3 | 4 | 1.2500 | 2.1344 | C1 |
| P4 | 5 | 7 | 4.8541 | 1.4907 | C2 |
| P5 | 3.5 | 5 | 2.3585 | 1.0672 | C2 |
| P6 | 4.5 | 5 | 3.0104 | 0.6872 | C2 |
| P7 | 3.5 | 4.5 | 1.9526 | 1.4337 | C2 |

New C1 = ((1 + 1.5 + 3) / 3, (1.5 + 2 + 4) / 3) = (1.833, 2.50)

New C2 = ((5.0 + 3.5 + 4.5 + 3.5) / 4, (7.0 + 5.0 + 5.0 + 4.5) / 4) = (4.125, 5.375)

3rd:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sample | A | B | Distance of C1 | Distance of C2 | Cluster |
| P1 | 1 | 1.5 | 1.3017 | 4.9781 | C1 |
| P2 | 1.5 | 2 | 0.6009 | 4.2757 | C1 |
| P3 | 3 | 4 | 1.9003 | 1.7766 | C2 |
| P4 | 5 | 7 | 5.5025 | 1.8456 | C2 |
| P5 | 3.5 | 5 | 3.0046 | 0.7289 | C2 |
| P6 | 4.5 | 5 | 3.6553 | 0.5303 | C2 |
| P7 | 3.5 | 4.5 | 2.6034 | 1.0753 | C2 |