

(2,3) (5,6) (8,7) (1,4) (2,2) (6,7) (3,4) (8,6)

$k=2$

$C_1 = (2,3)$  ,  $C_2 = (5,6)$

| X | Y | $C_1 (2,3)$<br>$\sqrt{(x-2)^2 + (y-3)^2}$          | $C_2 (5,6)$<br>$\sqrt{(x-5)^2 + (y-6)^2}$      |       |
|---|---|--|--|-------|
| 2 | 3 | $\rightarrow \sqrt{(2-2)^2 + (3-3)^2} = 0$         | $\sqrt{(2-5)^2 + (3-6)^2} = \sqrt{18} = \dots$ | $C_1$ |
| 5 | 6 | $\rightarrow \sqrt{(5-2)^2 + (6-3)^2} = \sqrt{18}$ | $\sqrt{(5-5)^2 + (6-6)^2} = 0$                 | $C_2$ |
| 8 | 7 |  |  | $C_2$ |
| 1 | 4 |  |  | $C_1$ |
| 2 | 2 |  |  | $C_1$ |
| 6 | 7 |  |  | $C_2$ |
| 3 | 4 |  |  | $C_1$ |
| 8 | 6 |  |  | $C_2$ |

$\left( \begin{array}{l} C_1 = (2,3), (1,4), (2,2), (3,4) \\ C_2 = (8,7), (5,6), (8,6), (6,7) \end{array} \right\}$  calculate average

$$C_1 = \frac{2+1+2+3}{4}, \frac{3+4+2+4}{4} = (2, 3.25)$$

$$C_2 = \frac{8+5+8+6}{4}, \frac{7+6+6+7}{4} = \frac{26}{4} = 6.5 \quad \underline{(6.75, 6.5)}$$

after 2nd iteration = we got same cluster mean.  
we will stop here & show

