



FINAL



①- K-Mean clustering-

R	Hight (H)	Weight (W)
1	185	72
2	170	63
3	168	56
4	178	77
5	192	60
6	155	58

Euclidian distance



$$E.D = (X_h - H)^2 + (X_w - W)^2$$

(Actual) (Centroid)

Step ①-

K = 2

	H	W	Centroid
① C ₁	185	72	(185, 72)
② C ₂	170	63	(170, 63)

$$C_1 = \{1, 4, 5\}$$

$$C_2 = \{2, 3, 6\}$$

(E.D) of (R_3) for (C_1)

$$E.D.C_1 = (168 - 185)^2 + (56 - 72)^2$$

$$E.D.C_1 = 545$$

~~_____~~

(E.D) of (R_3) for (C_2)

$$E.D.C_2 = (168 - 170)^2 + (56 - 63)^2$$

$$E.D.C_2 = 53 \rightarrow (\text{Low})$$

(R_3) is in $(C_2) \dots$

Update Centroid of (C_2)

		H	W	Centroid
①	C_1	185	72	(185, 72)
②	C_2	169	59.5	(169, 59.5)



(E.D) of (R_4) for (C_1)

$$E.D.C_1 = \cancel{185} (178-185)^2 + (77-72)^2$$

$$E.D.C_1 = 74 \rightarrow (\text{Low})$$

~~E.D. of (R_4) for (C_2)~~

(E.D) of (R_4) for (C_2)

$$E.D.C_2 = (178-170)^2 + (77-63)^2$$

$$E.D.C_2 = 260$$

(R_4) is in (C_1) .

Update Centroid of (C_1)

		H	W	
①	C_1	181.5	74.5	(181.5, 74.5)
②	C_2	169	59.5	(169, 59.5)

~~E.D~~ (E.D) of R_5 for C_1

$$E.D.C_1 = \left(\overset{181.5}{192} - \overset{74.5}{111} \right)^2 + (60 - 70)^2$$

$$E.D.C_1 = \boxed{320.5} \rightarrow \text{Low}$$

(E.D) of R_5 for C_2

~~$$E.D.C_2 = (192 - 192)^2 + (60 - 60)^2$$~~

$$E.D.C_2 = (192 - 169)^2 + (60 - 59.5)^2$$

$$E.D.C_2 = \boxed{529.25}$$

R_5 is in C_1

Update Centroid of C_1

	H	W	
C_1	186.75	67.25	(186.75, 67.25)
C_2	169	59.5	(169, 59.5)



~~R₆~~ of R_6 for C_1

$$E.D.C_1 = (155 - 186.75)^2 + (58 - 67.25)^2$$

$$E.D.C_1 = 1093.625$$

(E.D) of R_6 for C_2

$$E.D.C_2 = (155 - 169)^2 + (58 - 59.5)^2$$

$$E.D.C_2 = 198.25 \rightarrow \text{Low}$$

R_6 is in C_2

Update C_2

	H	W	
C_1	186.75	67.25	(186.75, 67.25)
C_2	162	58.75	(162, 58.75)

