Lab-5

KNN (k-nearest neighbours)

Consider the following dataset for k=3 and test data (x, 35, 100) as [person, Age, Salary] and predict the target.

Person	Age	Salary	Distance	Rank	Target
A	18	50	52.8		
B	23	55	46.6		
C	24	70	31.9	2	N
D	41	60	40.4	3	Y
E	43	70	31.1	1	Y
F	38	40	60.1		

Step 1: Distance (d) = $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

$(x_2, x_1) = (35, 100)$

$d_1 = \sqrt{(35-18)^2+(100-50)^2} = 52.8$

$d_2 = \sqrt{(35-23)^2+(100-55)^2} = 46.6$

Step 2: Identify 3 nearest neighbours

1) E (31.1, Y)
2) C (31.9, N)
3) D (40.4, Y)

Step 3 majority voting

Since 2 out of 3 belong to class 'Y'

∴ the predicted class for x(35,10) is 'Y'