Machine Learning and Algorithm
Assignment no. 4

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* Dataset:

Obs.	Temp (x) °c	Humidity (y) %	Rain Condition	Dist
1	27.8	76	yes	2.69
2	28.2	76	yes	2.44
3	28.7	80	NO	2.19
4	28.6	81.6	yes	3.73
5	27.7	89.4	yes	11.55
6	30.5	89.9	NO	11.93
7	26.7	81.4	yes	4.46
8	25.9	85	NO	7.91
9	36	90	NO	13.60
10	31.8	88	Yes	10.24
11	35.7	70	NO	10.66

To find rain condn. given $k=3$
Temp: 29.6°c and humidity: 78%

Distance metric : Eucledian Distance

Observation - 1:

$$d = \sqrt{(29.6 - 27.8)^2 + (78 - 76)^2} = 2.69$$

Observation 2:

$$d = \sqrt{(28.2 - 29.6)^2 + (78 - 76)^2} = 2.44$$

Observation 3:

$$d = \sqrt{(29.6 - 28.7)^2 + (78 - 80)^2} = 2.19$$

Observation 4:

$$d = \sqrt{(29.6 - 28.6)^2 + (78 - 81.6)^2} = 3.73$$

Observation 5:

$$d = \sqrt{(29.6 - 27.7)^2 + (78 - 89.4)^2} = 11.55$$

Observation 6:

$$d = \sqrt{(29.6 - 30.5)^2 + (78 - 89.9)^2} = 11.93$$

Observation 7:

$$d = \sqrt{(29.6 - 26.7)^2 + (78 - 81.4)^2} = 4.46$$

Observation 8:

$$d = \sqrt{(29.6 - 25.9)^2 + (78 - 85)^2} = 7.91$$

Observation 9:

$d = \sqrt{(29.6-36)^2 + (78-90)^2} = 13.60$

Observation 10:

$d = \sqrt{(31.8-29.6)^2 + (88-78)^2} = 10.24$

Observation 11:

$d = \sqrt{(29.6-35.7)^2 + (78-70)^2} = 10.06$

Min. 3 distances are 2.19, 2.44, 2.69, and their conditions are No, Yes, Yes respectively.

Majority is Yes.

Therefore when temp: 29.6 °C and humidity: 78% it'll probably rain.