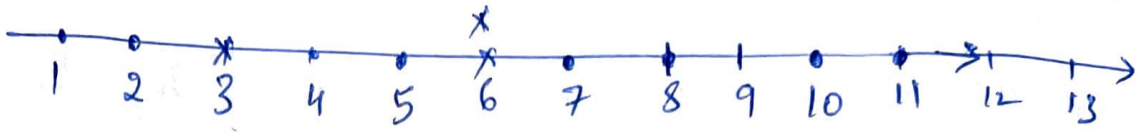
Hareesh Muppu.
700732514.

Q.10:



let us split the data into two equal parts for training & testing.

x training : [2, 3, 6, 11].

y training : [dot, cross, cross, dot].

x testing : [1, 6, 7, 10].

y testing : [dot, cross, dot, dot].

Confusion Matrix:

Truth \ Prediction	O	X
O	TN	FP
X	FN	TP

* The nearest neighbours for 1 are (2,3,6) with value (dot, cross, cross)
so the predicted value for 1 is cross therefore it is "false positive".

* The nearest neighbours for 6 are (6,3,4) with value (cross, cross, dot).
so the predicted value for 6 is cross, therefore it is "True positive".

* The nearest neighbours for 7 are (3, 6, 6) with values (cross, cross, cross). so the predicted value for 7 is cross, therefore it is "False position".

* The nearest neighbours for 10 are (11, 6, 3) with values (dot, cross, cross). so the predicted value for 10 is cross therefore it is "False positive".

	0	1
0	0 TN	3 FP
1	0 FN	1 TP

Accuracy:

$\Rightarrow (TP + TN)/P+N$.

$\Rightarrow (1+0)/4$

$\Rightarrow 1/4 = 25\%$.

sensitivity: $\frac{TP}{TP+FN} \Rightarrow \frac{1}{1+0} = 1$

specificity: $\frac{TN}{FP+TN} \Rightarrow \frac{0}{3+0} = 0/3$

$= 0$.