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Q.1

(a) Model A is better as in model B there is a chance that it has only learned ~~that~~ those instances of class 0 (no cancer detected). whereas in model A it has not learned both classes properly. We need to increase the accuracy of both problems i.e. improve learning by making good assumptions by biasing.

b) There can be overfitting in model 'C' and inorder to avoid it we need to make it more bias with good assumptions.

Q.2

We can solve this by using regression algorithm by taking some features like road traffic and distance and then predict the time of order delivery.

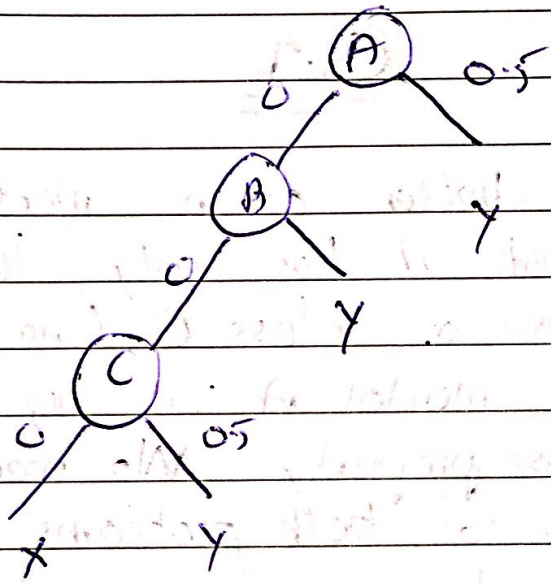
Using this we can guide the rider to take best route.

Date:

Sun Mon Tue Wed Thu Fri Sat

Q.3

(a) Yes, possible.



(b) we can use entropy to reduce attributes and select one with lowest Tree which gives most information and those attributes not part of it can be removed. we can optimize Non to best fit attribute which is most homogeneous to with data.

Q.4

a) I would approach this as classification problem as the output is discrete i.e. win (1) or lose (0).

(b) I would approach this as regression problem as the output is continuous i.e. income.

Q.5

No, since pure random generator function has ~~not~~ no pattern and machine learning algorithms work on learning patterns so that it can then predict, so we cannot predict the next random number.

Q.6

a) it can shatter 2-points, 3-points but not 4.

b) it can shatter all points.

c) it can shatter 2-points, 3-points but not 4.

=> second one is more likely to overfit because it has more parameters i.e. more complex.

Q.7

a) Automation problems occur when an automated machine can't handle all abnormalities and is semi-intelligent. for ex: automatic door recognition system problem.

(b) Learning problems occur when we have to learn pattern to predict the behavior. for ex: weather forecast & movie recommendation.

Q.8

=> Type 1 False positive, that is predicted to be true but is infact not.

=> Type 2 False Negative, that is predicted to be false but is infact not.

N=100	Predict: no	Predict: yes	
actual: no			
actual: yes			
			N=100

Q.9

we will chose petal length and petal width as their ranges are not overlapping so chances of error in prediction is less and it can easily learn the pattern and predict with much more accuracy.

Q.10

Induction :

when we move from specific to more broad generalization & theories

or. if $3^n - 1$ is multiple of 2 then $3^{n+1} - 1$ is also a multiple of 2.

Deduction.

moving from more generalized to specific.

or.

$A \cdot B$ & $B \subset C \Rightarrow A \subset C$.