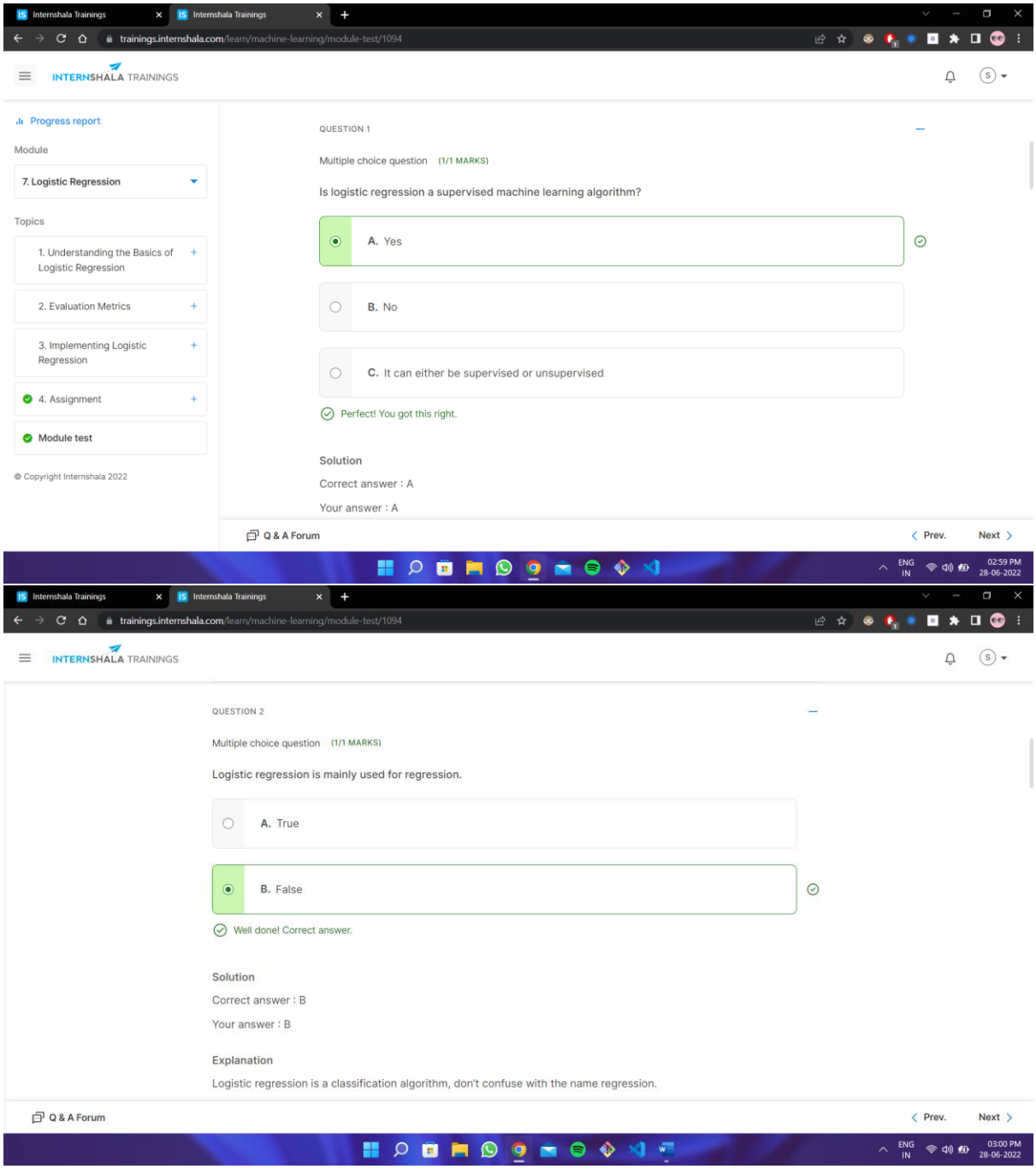
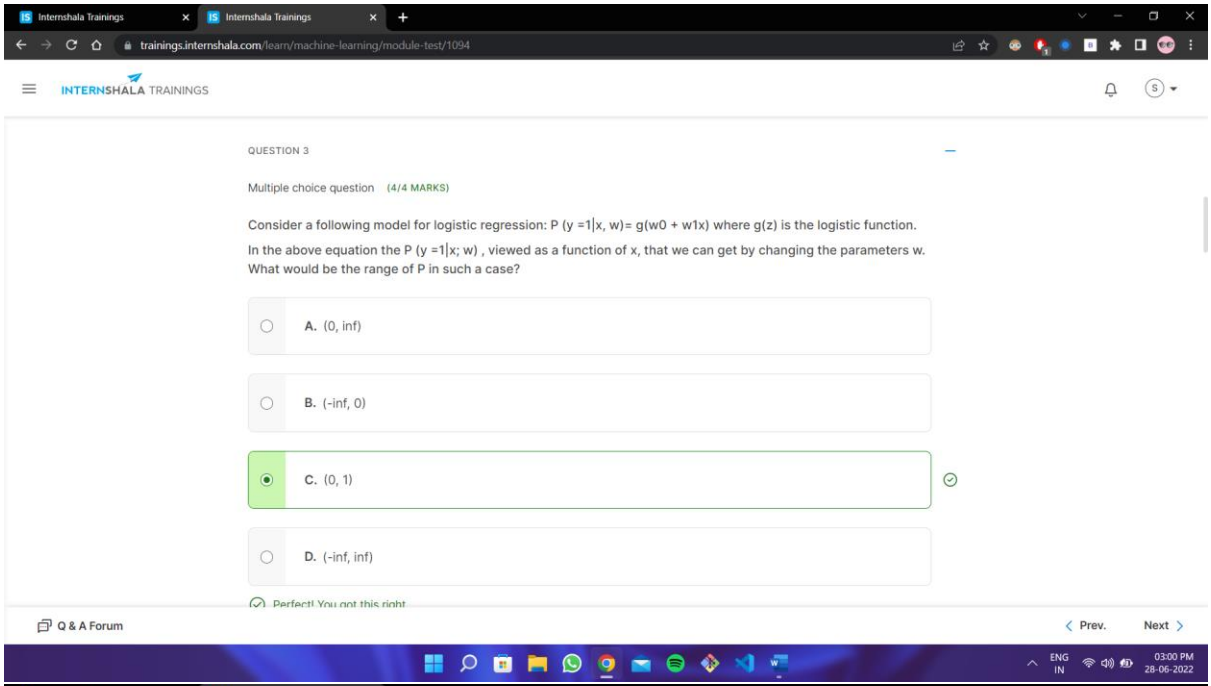
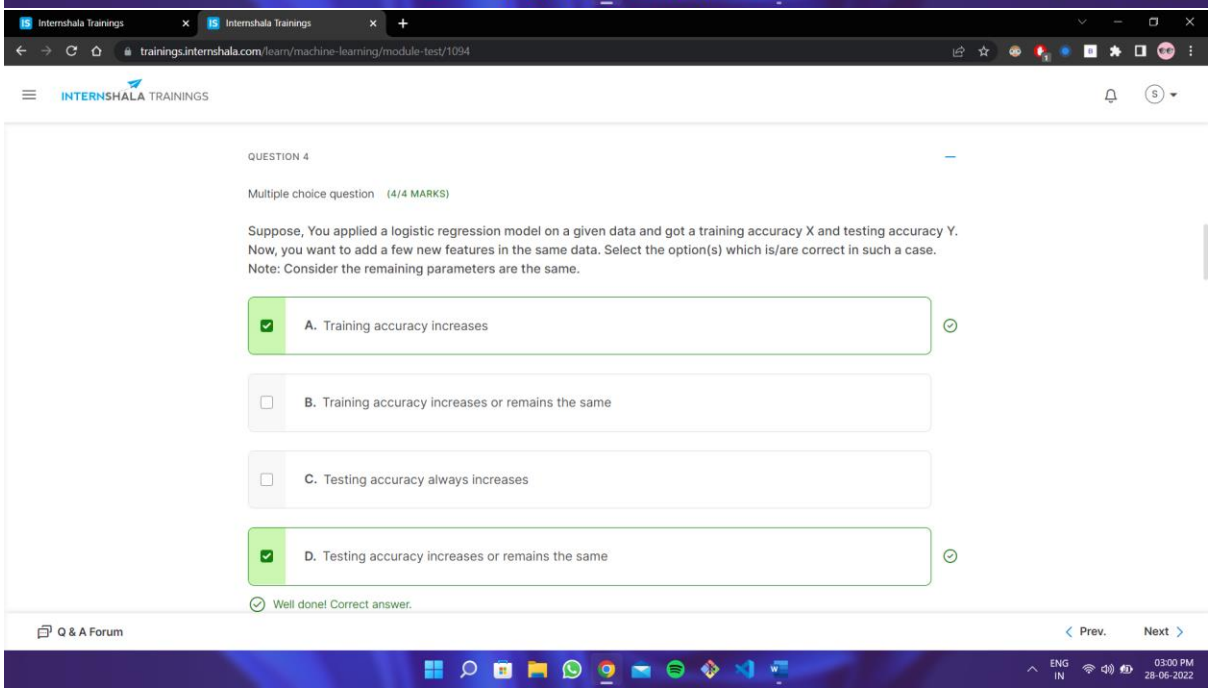
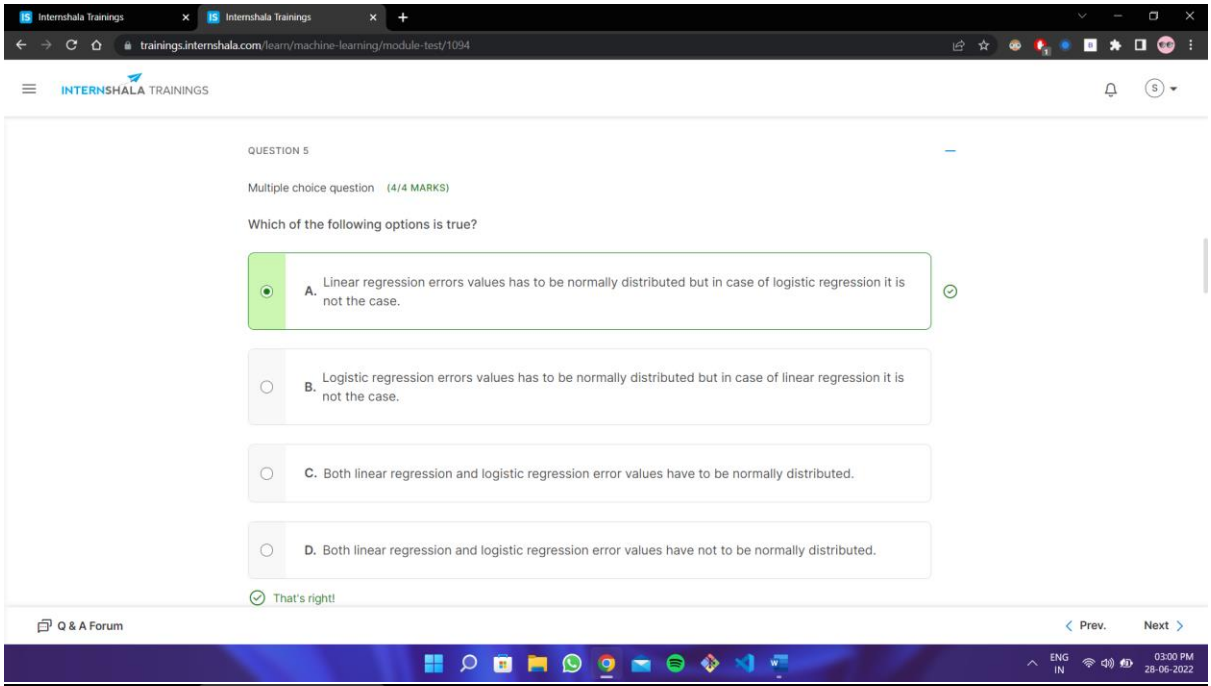
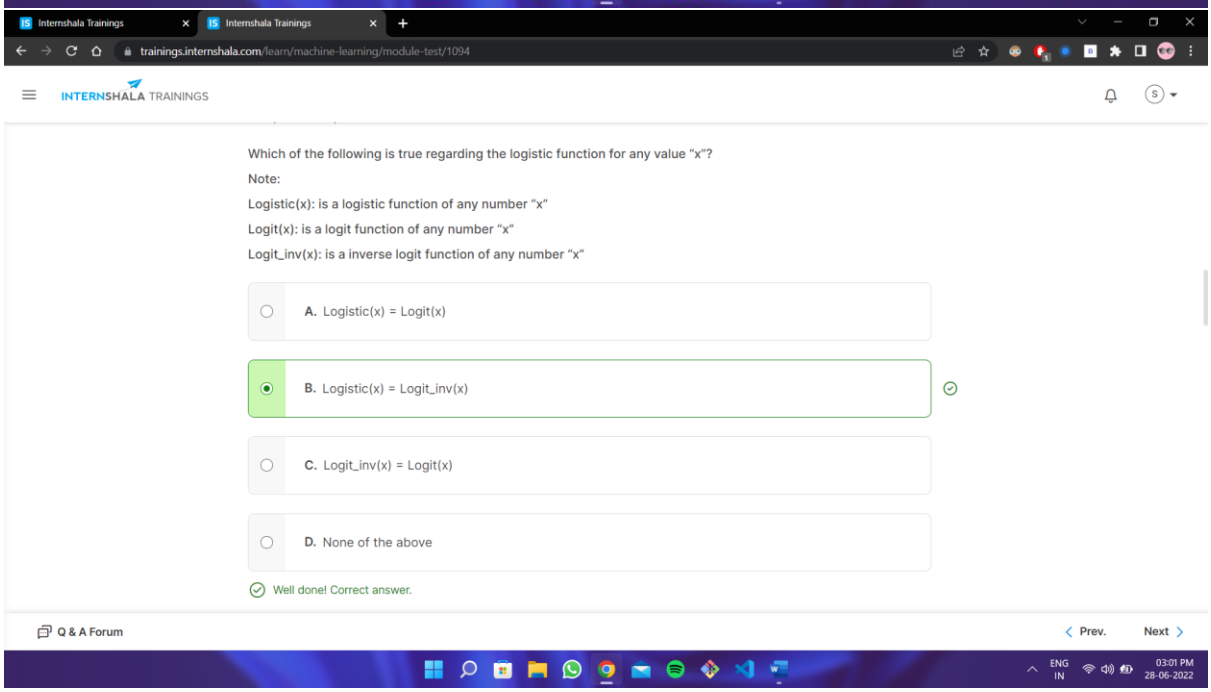
Logistic Regression and Decision Tree

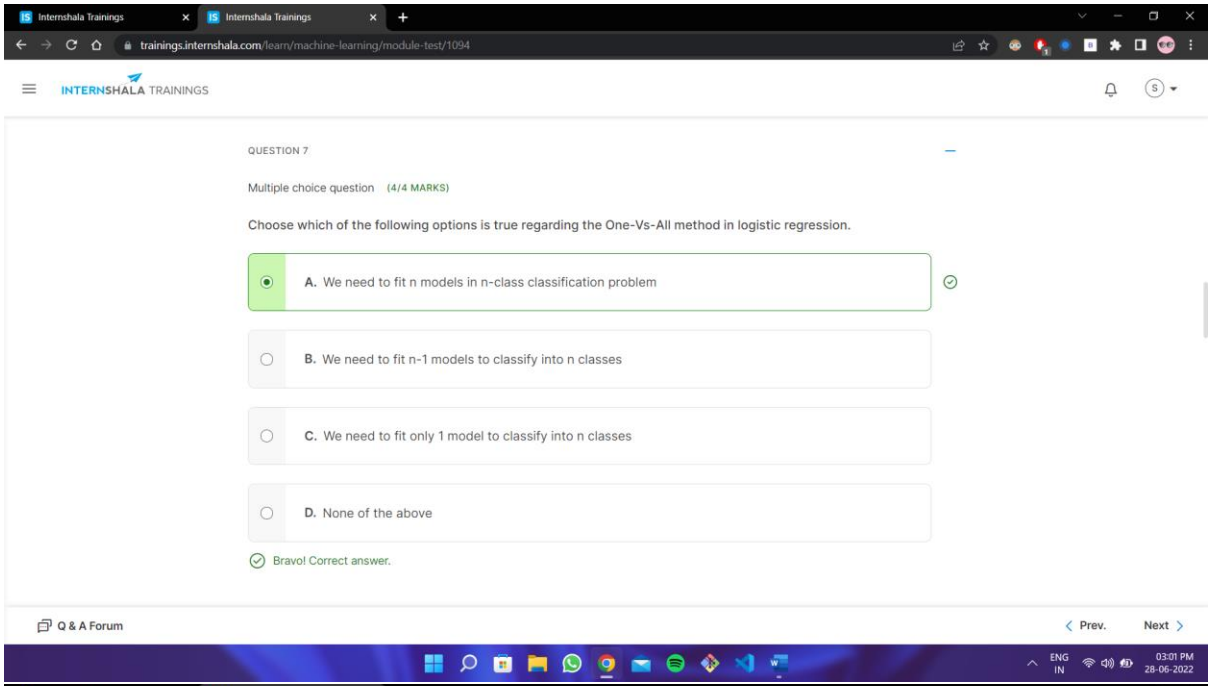


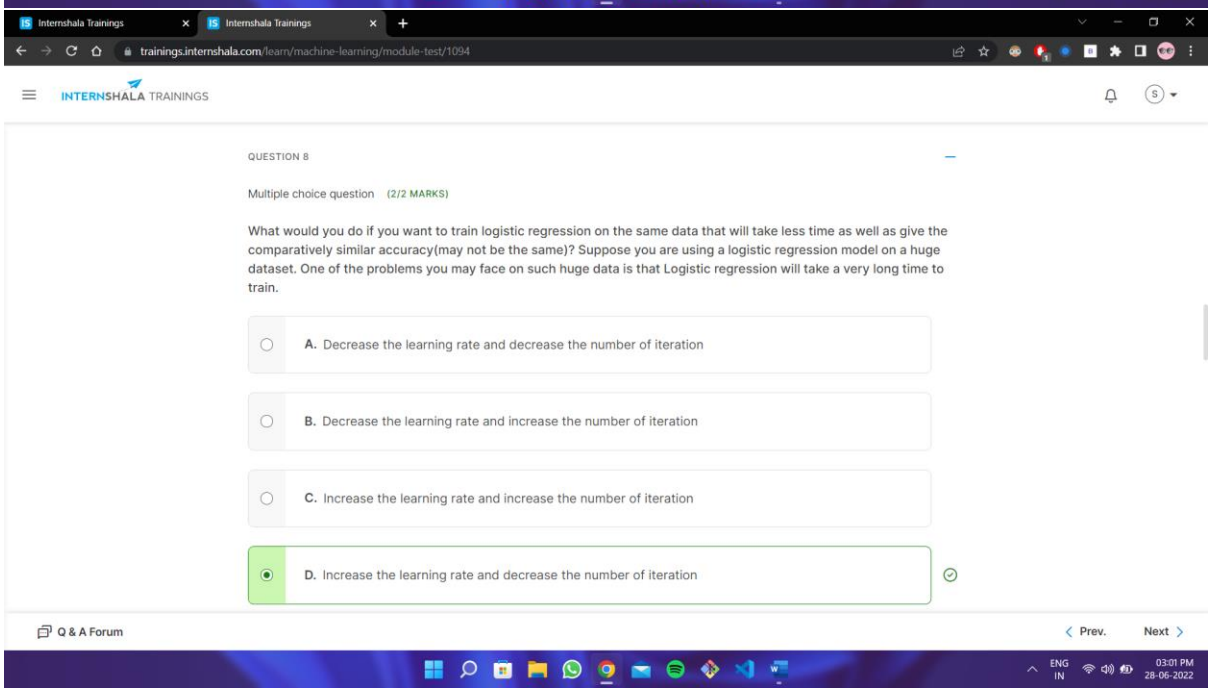

Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1094
INTERNSHALA TRAININGS
QUESTION 3
Multiple choice question (4/4 MARKS)
Consider a following model for logistic regression: P (y =1|x, w)= g(w0 + w1x) where g(z) is the logistic function.
In the above equation the P (y =1|x; w) , viewed as a function of x, that we can get by changing the parameters w.
What would be the range of P in such a case?
A. (0, inf)
B. (-inf, 0)
C. (0, 1)
D. (-inf, inf)
Perfect! You got this right.
Q & A Forum
Prev.
Next
ENG
IN
03:00 PM
28-06-2022


Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1094
INTERNSHALA TRAININGS
QUESTION 4
Multiple choice question (4/4 MARKS)
Suppose, You applied a logistic regression model on a given data and got a training accuracy X and testing accuracy Y.
Now, you want to add a few new features in the same data. Select the option(s) which is/are correct in such a case.
Note: Consider the remaining parameters are the same.
A. Training accuracy increases
B. Training accuracy increases or remains the same
C. Testing accuracy always increases
D. Testing accuracy increases or remains the same
Well done! Correct answer.
Q & A Forum
Prev.
Next
ENG
IN
03:00 PM
28-06-2022


Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1094
INTERNSHALA TRAININGS
QUESTION 5
Multiple choice question (4/4 MARKS)
Which of the following options is true?
A. Linear regression errors values has to be normally distributed but in case of logistic regression it is not the case.
B. Logistic regression errors values has to be normally distributed but in case of linear regression it is not the case.
C. Both linear regression and logistic regression error values have to be normally distributed.
D. Both linear regression and logistic regression error values have not to be normally distributed.
That's right!
Q & A Forum
Prev.
Next
ENG IN
03:00 PM 28-06-2022


Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1094
INTERNSHALA TRAININGS
Which of the following is true regarding the logistic function for any value "x"?
Note:
Logistic(x): is a logistic function of any number "x"
Logit(x): is a logit function of any number "x"
Logit_inv(x): is a inverse logit function of any number "x"
A. Logistic(x) = Logit(x)
B. Logistic(x) = Logit_inv(x)
C. Logit_inv(x) = Logit(x)
D. None of the above
Well done! Correct answer.
Q & A Forum
Prev.
Next
ENG IN
03:01 PM 28-06-2022


Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1094
INTERNSHALA TRAININGS
QUESTION 7
Multiple choice question (4/4 MARKS)
Choose which of the following options is true regarding the One-Vs-All method in logistic regression.
A. We need to fit n models in n-class classification problem
B. We need to fit n-1 models to classify into n classes
C. We need to fit only 1 model to classify into n classes
D. None of the above
Bravo! Correct answer.
Q & A Forum
Prev.
Next
ENG
IN
03:01 PM
28-06-2022


Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1094
INTERNSHALA TRAININGS
QUESTION 8
Multiple choice question (2/2 MARKS)
What would you do if you want to train logistic regression on the same data that will take less time as well as give the comparatively similar accuracy(may not be the same)? Suppose you are using a logistic regression model on a huge dataset. One of the problems you may face on such huge data is that Logistic regression will take a very long time to train.
A. Decrease the learning rate and decrease the number of iteration
B. Decrease the learning rate and increase the number of iteration
C. Increase the learning rate and increase the number of iteration
D. Increase the learning rate and decrease the number of iteration
Q & A Forum
Prev.
Next
ENG
IN
03:01 PM
28-06-2022

Internshala Trainings | Internshala Trainings

trainings.internshala.com/learn/machine-learning/module-test/1094

INTERNSHALA TRAININGS

QUESTION 9

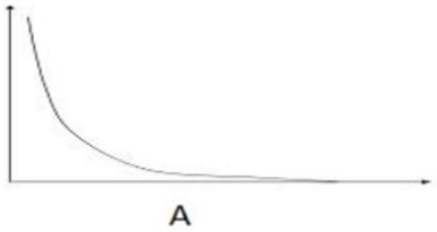
Multiple choice question (1/1 MARKS)

Which of the following images is showing the cost function for y =1.

Following is the loss function in logistic regression (Y-axis loss function and x axis log probability) for two class classification problems.

Note: Y is the target class.

A.



A

Q & A Forum

Prev. Next

ENG IN 03:02 PM 28-06-2022

Internshala Trainings | Internshala Trainings

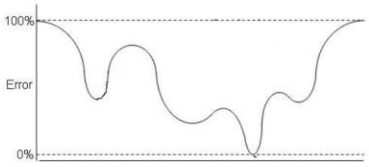
trainings.internshala.com/learn/machine-learning/module-test/1094

INTERNSHALA TRAININGS

QUESTION 10

Multiple choice question (1/1 MARKS)

Suppose the following graph is a cost function for logistic regression.



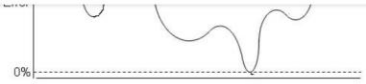
Now, how many local minimas are present in the graph (excluding global minima)?

A. 1

Q & A Forum

Prev. Next

ENG IN 03:02 PM 28-06-2022



Now, how many local minimas are present in the graph (excluding global minima)?

A. 1

B. 2

C. 3

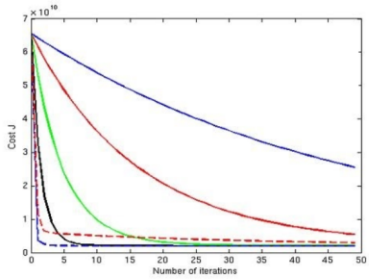
D. 4

Excellent! Correct answer.

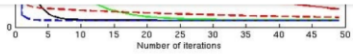
QUESTION 11

Multiple choice question (4/4 MARKS)

Imagine, you have given the below graph of logistic regression which shows the relationships between cost function and number of iteration for 3 different learning rate values (different colors are showing different curves at different learning rates).



Suppose, you save the graph for future reference but you forgot to save the value of different learning rates for this graph. Now, you want to find out the relation between the learning rate values of these curves. Which of the following



Suppose, you save the graph for future reference but you forgot to save the value of different learning rates for this graph. Now, you want to find out the relation between the learning rate values of these curves. Which of the following will be the true relation?

Note:

The learning rate for blue is l1.
The learning rate for red is l2.
The learning rate for green is l3.

A. l1>l2>l3

B. l1 = l2 = l3

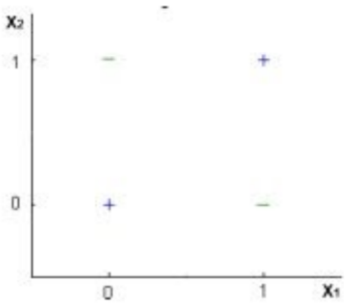
C. l1 < l2 < l3

Excellent! Correct answer.

QUESTION 12

Multiple choice question (4/4 MARKS)

Can a logistic regression classifier do a perfect classification on the below data?

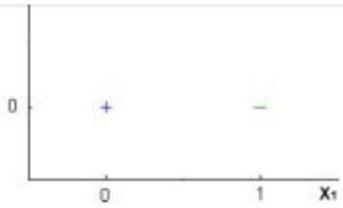


Note: You can use only X1 and X2 variables where X1 and X2 can take only two binary values(0,1).

Internshala Trainings | Internshala Trainings

trainings.internshala.com/learn/machine-learning/module-test/1094

INTERNSHALA TRAININGS



Note: You can use only X1 and X2 variables where X1 and X2 can take only two binary values(0,1).

A. Yes

B. No

Well done! Correct answer.

Solution

Q & A Forum

Prev. Next

ENG IN 03:03 PM 28-06-2022

Internshala Trainings | Internshala Trainings

trainings.internshala.com/learn/machine-learning/module-test/1094

INTERNSHALA TRAININGS

QUESTION 13

Multiple choice question (1/1 MARKS)

Let's say you are training a One-vs-All classifier model on a given dataset where the target variable has categories as 0,1,2,3,4,5,6. How many models will be required for making the final prediction?

A. 7

B. 11

C. 6

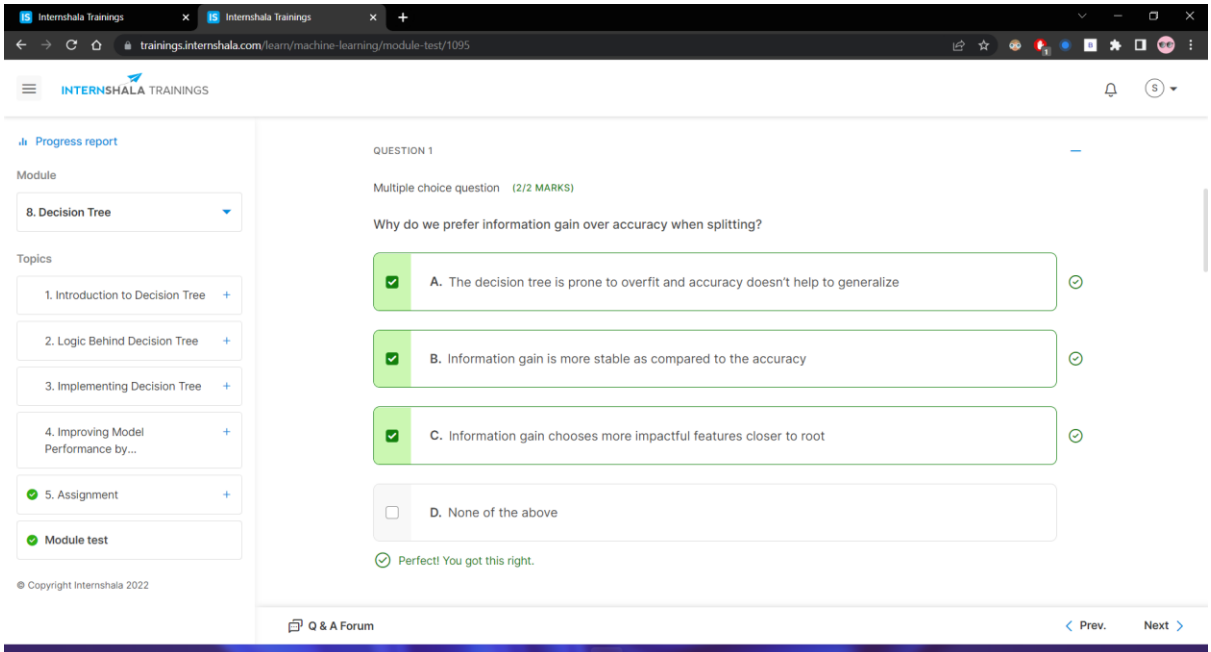
D. 2

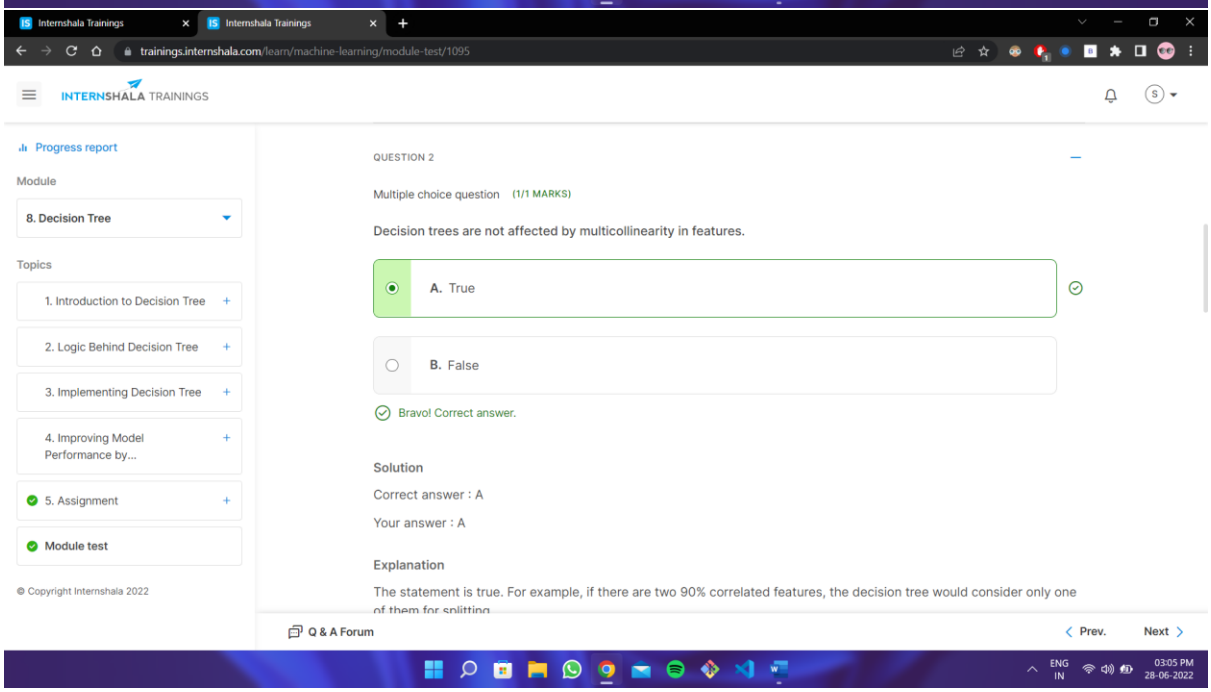
Bravo! Correct answer.

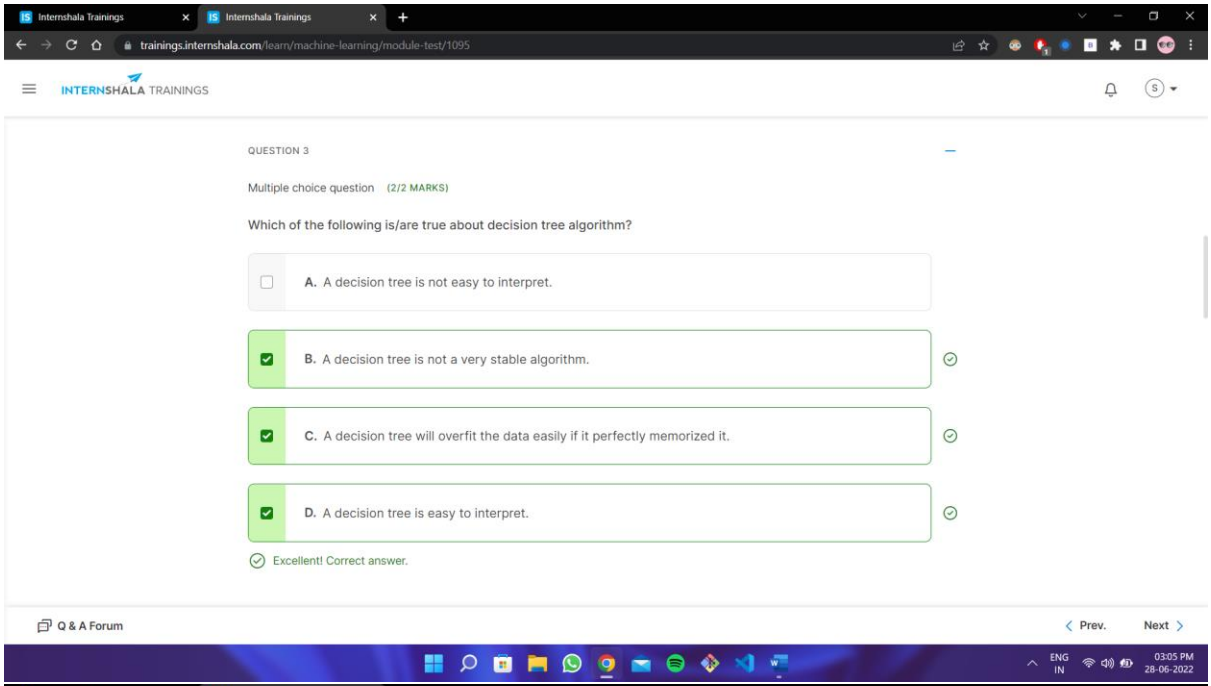
Q & A Forum

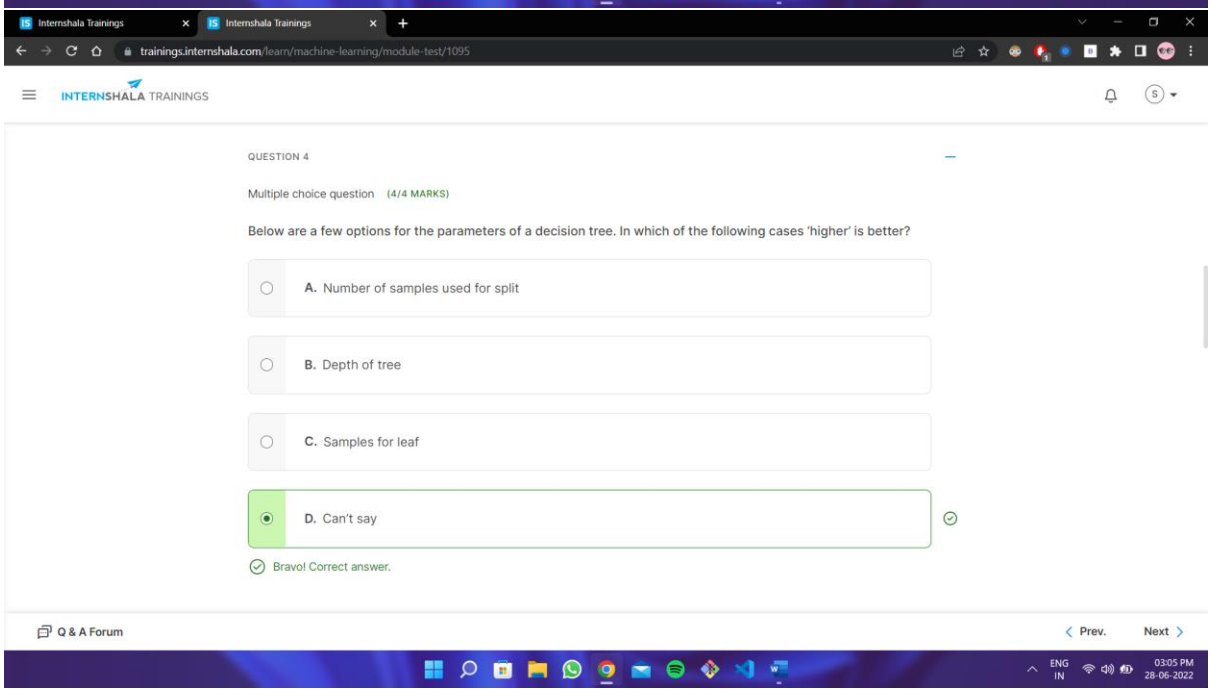
Prev. Next

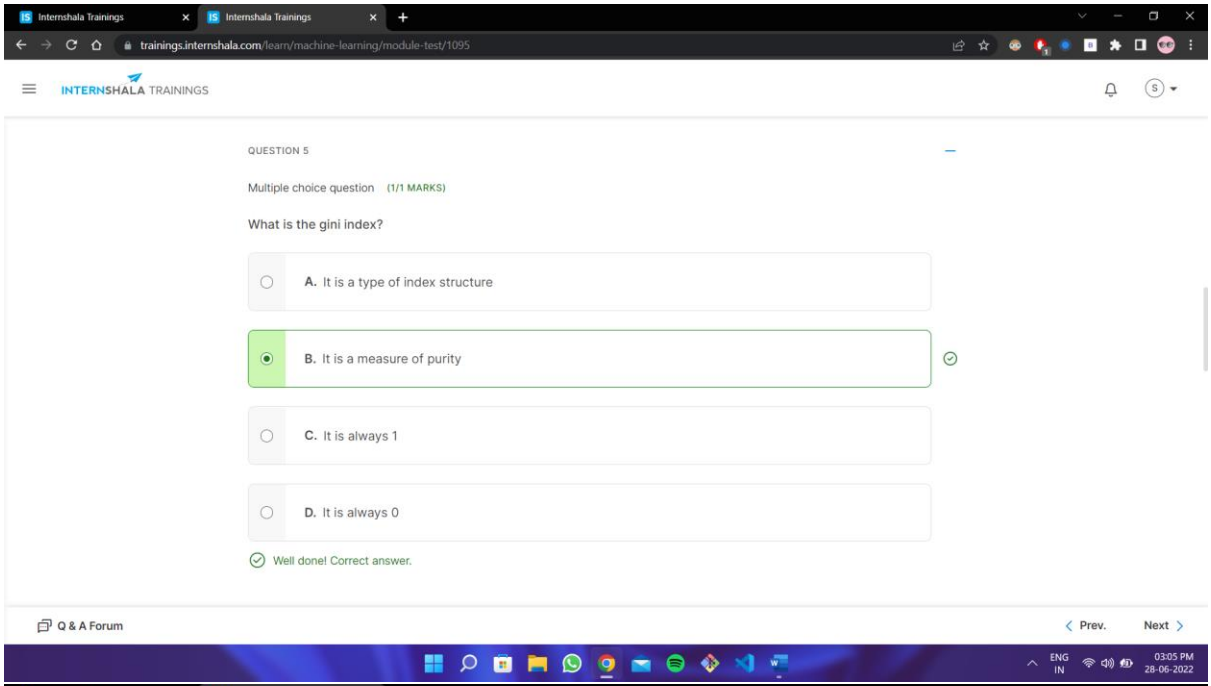
ENG IN 03:03 PM 28-06-2022

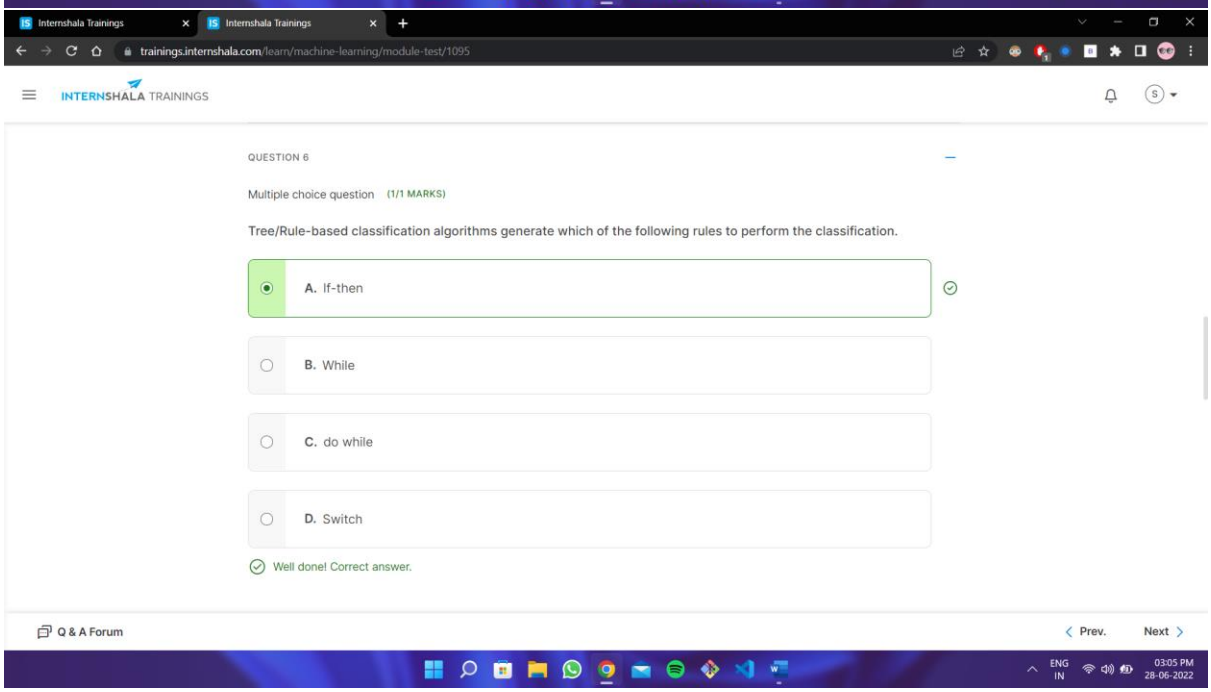

Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1095
INTERNSHALA TRAININGS
Progress report
Module
8. Decision Tree
Topics
1. Introduction to Decision Tree
2. Logic Behind Decision Tree
3. Implementing Decision Tree
4. Improving Model Performance by...
5. Assignment
Module test
© Copyright Internshala 2022
QUESTION 1
Multiple choice question (2/2 MARKS)
Why do we prefer information gain over accuracy when splitting?
A. The decision tree is prone to overfit and accuracy doesn't help to generalize
B. Information gain is more stable as compared to the accuracy
C. Information gain chooses more impactful features closer to root
D. None of the above
Perfect! You got this right.
Q & A Forum
Prev.
Next
ENG IN
03:04 PM 28-06-2022

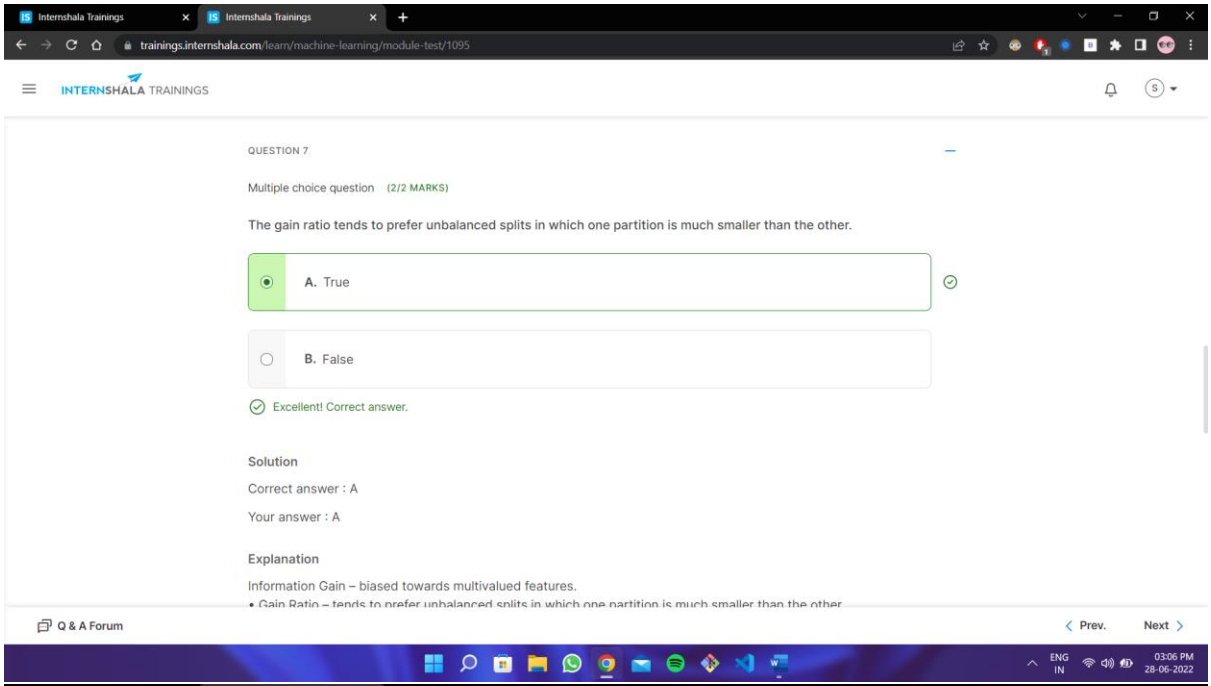

Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1095
INTERNSHALA TRAININGS
Progress report
Module
8. Decision Tree
Topics
1. Introduction to Decision Tree
2. Logic Behind Decision Tree
3. Implementing Decision Tree
4. Improving Model Performance by...
5. Assignment
Module test
© Copyright Internshala 2022
QUESTION 2
Multiple choice question (1/1 MARKS)
Decision trees are not affected by multicollinearity in features.
A. True
B. False
Bravo! Correct answer.
Solution
Correct answer : A
Your answer : A
Explanation
The statement is true. For example, if there are two 90% correlated features, the decision tree would consider only one of them for splitting
Q & A Forum
Prev.
Next
ENG IN
03:05 PM 28-06-2022

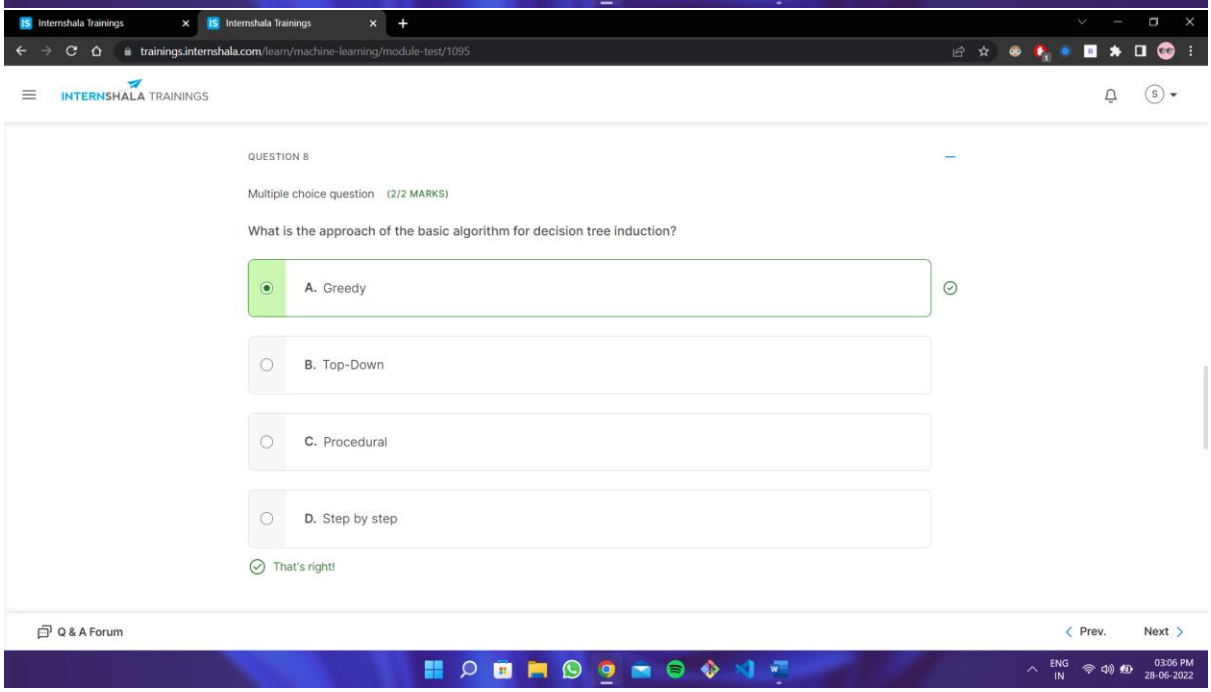

Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1095
INTERNSHALA TRAININGS
QUESTION 3
Multiple choice question (2/2 MARKS)
Which of the following is/are true about decision tree algorithm?
A. A decision tree is not easy to interpret.
B. A decision tree is not a very stable algorithm.
C. A decision tree will overfit the data easily if it perfectly memorized it.
D. A decision tree is easy to interpret.
Excellent! Correct answer.
Q & A Forum
Prev.
Next
ENG
IN
03:05 PM
28-06-2022

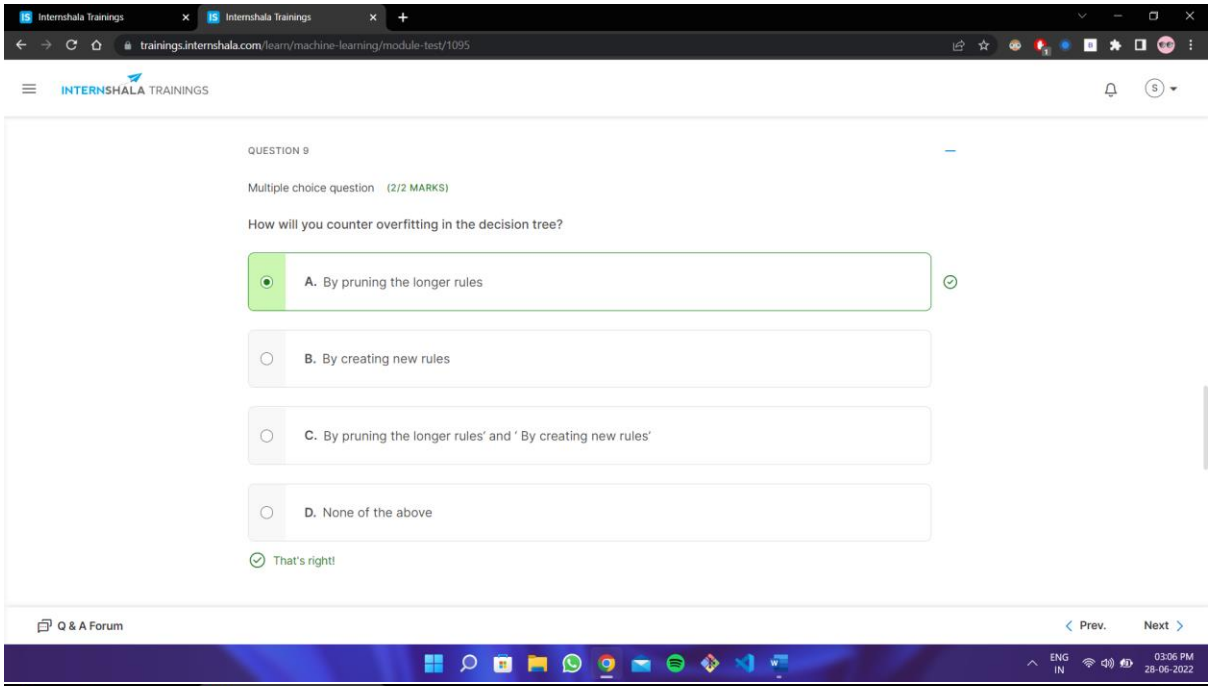

Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1095
INTERNSHALA TRAININGS
QUESTION 4
Multiple choice question (4/4 MARKS)
Below are a few options for the parameters of a decision tree. In which of the following cases 'higher' is better?
A. Number of samples used for split
B. Depth of tree
C. Samples for leaf
D. Can't say
Bravo! Correct answer.
Q & A Forum
Prev.
Next
ENG
IN
03:05 PM
28-06-2022

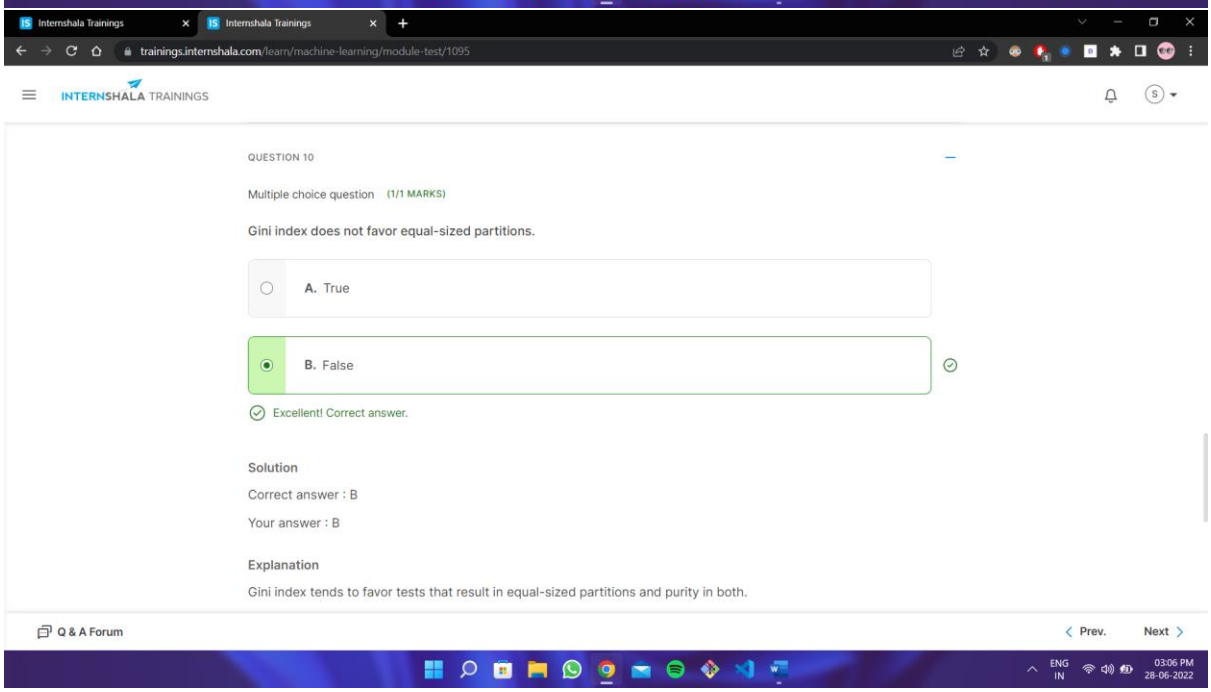

Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1095
INTERNSHALA TRAININGS
QUESTION 5
Multiple choice question (1/1 MARKS)
What is the gini index?
A. It is a type of index structure
B. It is a measure of purity
C. It is always 1
D. It is always 0
Well done! Correct answer.
Q & A Forum
Prev.
Next
ENG IN
03:05 PM 28-06-2022

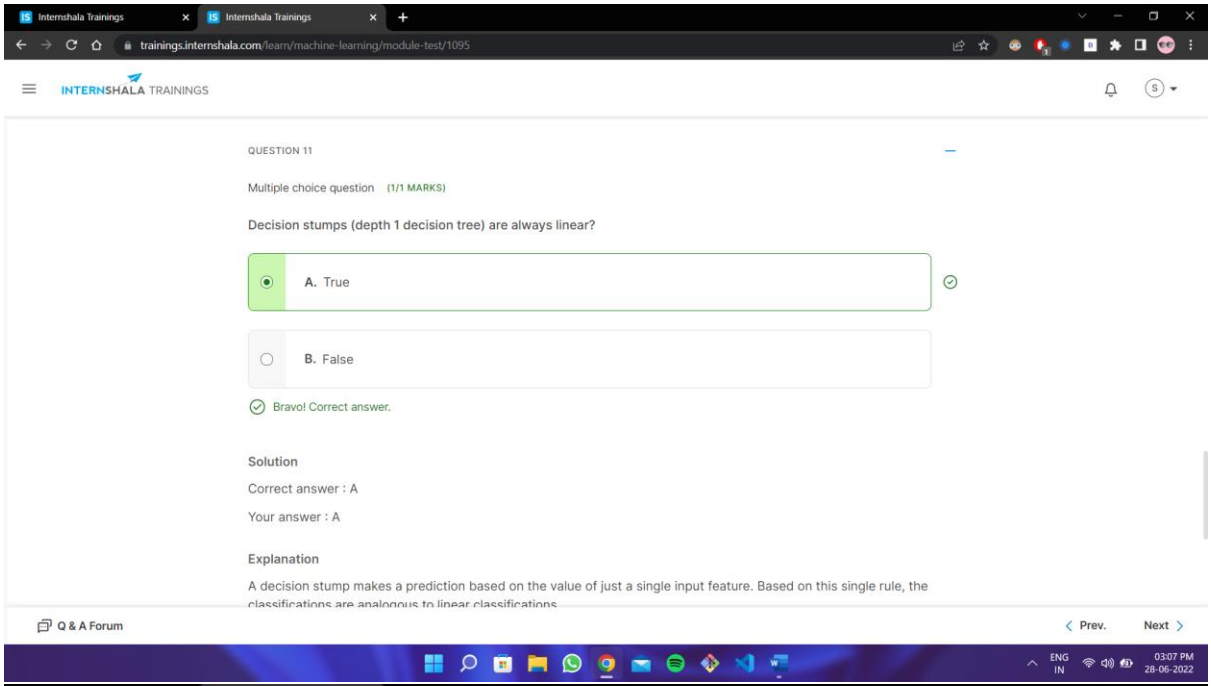

Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1095
INTERNSHALA TRAININGS
QUESTION 6
Multiple choice question (1/1 MARKS)
Tree/Rule-based classification algorithms generate which of the following rules to perform the classification.
A. If-then
B. While
C. do while
D. Switch
Well done! Correct answer.
Q & A Forum
Prev.
Next
ENG IN
03:05 PM 28-06-2022

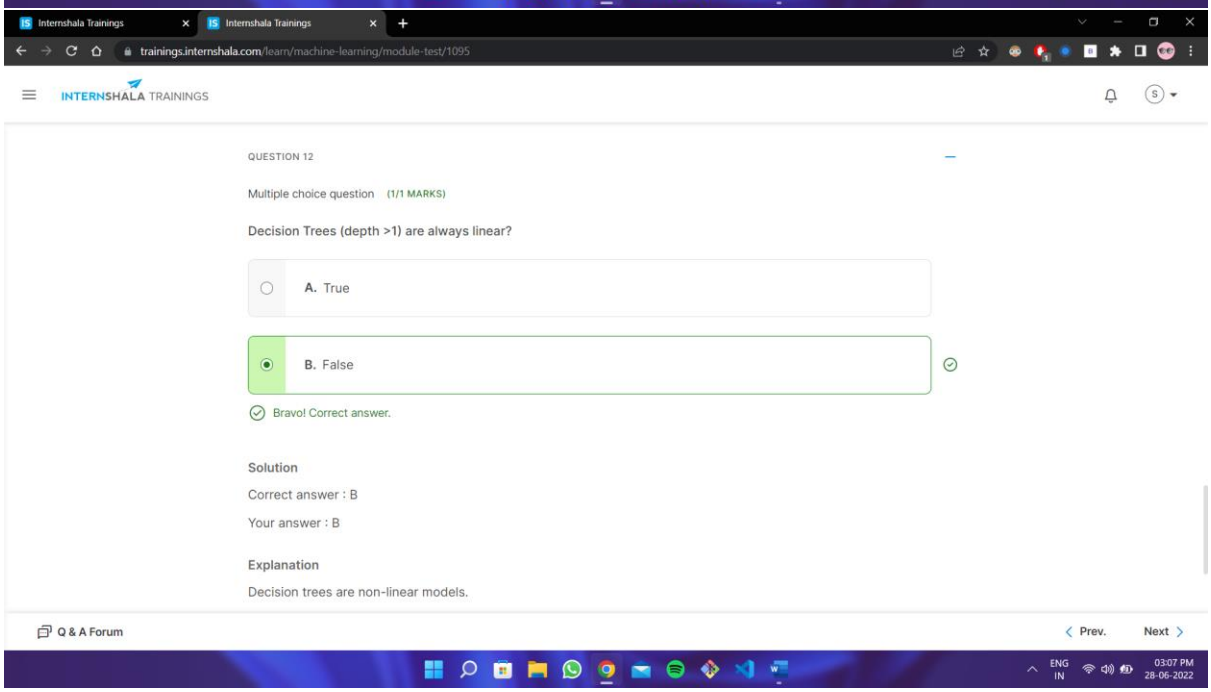

Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1095
INTERNSHALA TRAININGS
QUESTION 7
Multiple choice question (2/2 MARKS)
The gain ratio tends to prefer unbalanced splits in which one partition is much smaller than the other.
A. True
B. False
Excellent! Correct answer.
Solution
Correct answer : A
Your answer : A
Explanation
Information Gain – biased towards multivalued features.
• Gain Ratio – tends to prefer unbalanced splits in which one partition is much smaller than the other
Q & A Forum
Prev.
Next
ENG
IN
03:06 PM
28-06-2022

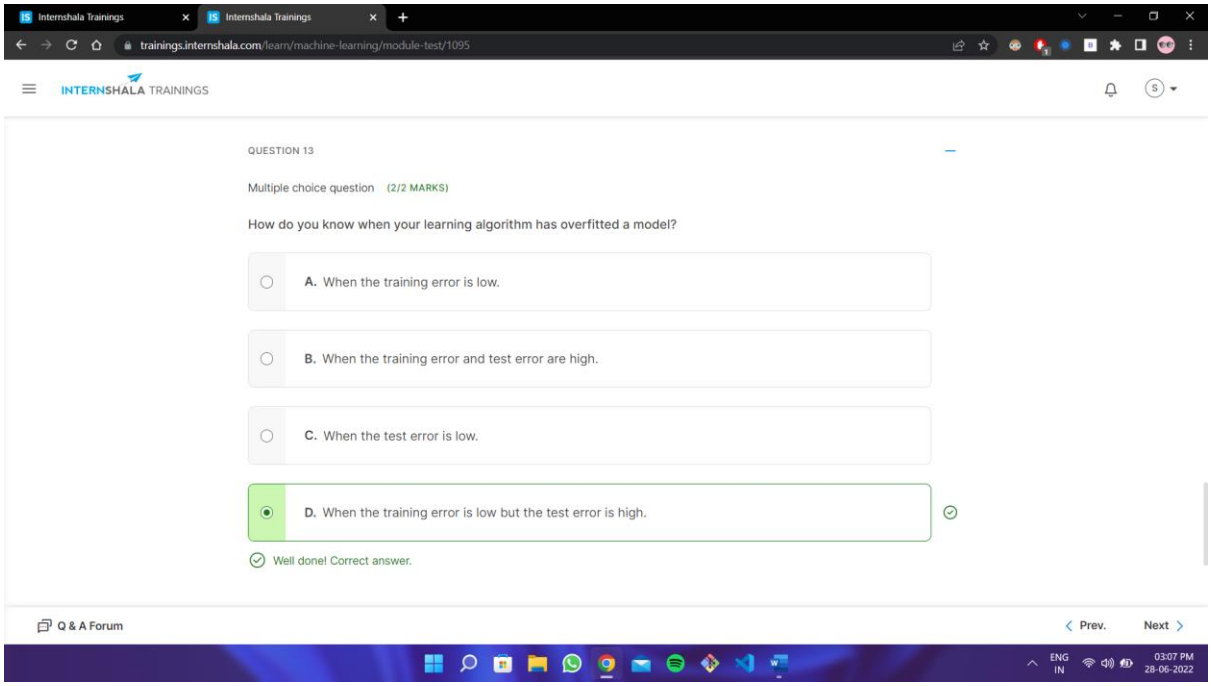

Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1095
INTERNSHALA TRAININGS
QUESTION 8
Multiple choice question (2/2 MARKS)
What is the approach of the basic algorithm for decision tree induction?
A. Greedy
B. Top-Down
C. Procedural
D. Step by step
That's right!
Q & A Forum
Prev.
Next
ENG
IN
03:06 PM
28-06-2022


Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1095
INTERNSHALA TRAININGS
QUESTION 9
Multiple choice question (2/2 MARKS)
How will you counter overfitting in the decision tree?
A. By pruning the longer rules
B. By creating new rules
C. By pruning the longer rules' and ' By creating new rules'
D. None of the above
That's right!
Q & A Forum
Prev.
Next
ENG
IN
03:06 PM
28-06-2022


Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1095
INTERNSHALA TRAININGS
QUESTION 10
Multiple choice question (1/1 MARKS)
Gini index does not favor equal-sized partitions.
A. True
B. False
Excellent! Correct answer.
Solution
Correct answer : B
Your answer : B
Explanation
Gini index tends to favor tests that result in equal-sized partitions and purity in both.
Q & A Forum
Prev.
Next
ENG
IN
03:06 PM
28-06-2022


Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1095
INTERNSHALA TRAININGS
QUESTION 11
Multiple choice question (1/1 MARKS)
Decision stumps (depth 1 decision tree) are always linear?
A. True
B. False
Bravo! Correct answer.
Solution
Correct answer : A
Your answer : A
Explanation
A decision stump makes a prediction based on the value of just a single input feature. Based on this single rule, the classifications are analogous to linear classifications
Q & A Forum
Prev.
Next
ENG IN
03:07 PM 28-06-2022


Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1095
INTERNSHALA TRAININGS
QUESTION 12
Multiple choice question (1/1 MARKS)
Decision Trees (depth >1) are always linear?
A. True
B. False
Bravo! Correct answer.
Solution
Correct answer : B
Your answer : B
Explanation
Decision trees are non-linear models.
Q & A Forum
Prev.
Next
ENG IN
03:07 PM 28-06-2022


Internshala Trainings
Internshala Trainings
trainings.internshala.com/learn/machine-learning/module-test/1095
INTERNSHALA TRAININGS
QUESTION 13
Multiple choice question (2/2 MARKS)
How do you know when your learning algorithm has overfitted a model?
A. When the training error is low.
B. When the training error and test error are high.
C. When the test error is low.
D. When the training error is low but the test error is high.
Well done! Correct answer.
Q & A Forum
Prev.
Next
ENG
IN
03:07 PM
28-06-2022