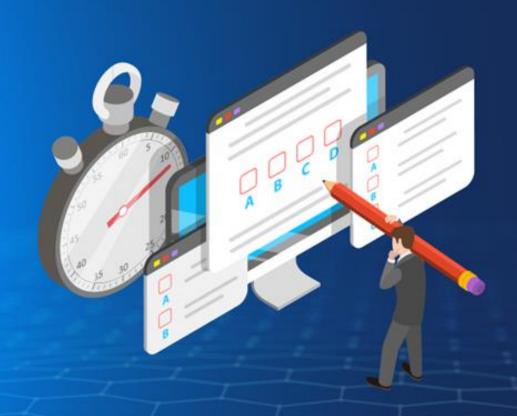
## DATA AND ARTIFICIAL INTELLIGENCE



**Knowledge Check** 



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## Knowledge Check

1

Let us train T1, a decision tree, with the data given below. Which feature will you split at the root?

| A. | x1 |
|----|----|
| ,  | ΧI |

B. x2

C. x3

D. y

| x1 | x2 | х3 | у  |
|----|----|----|----|
| 1  | 1  | 1  | +1 |
| 0  | 1  | 0  | -1 |
| 1  | 0  | 1  | -1 |
| 0  | 0  | 1  | +1 |





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**x**1

B. x2

C. x3

D. \

| x1 | x2 | х3 | у  |
|----|----|----|----|
| 1  | 1  | 1  | +1 |
| 0  | 1  | 0  | -1 |
| 1  | 0  | 1  | -1 |
| 0  | 0  | 1  | +1 |



The correct answer is **C.** 

x3 will split because it has the lowest classification error. At row 3, x3=1, y=-1; there is only one error compared to other features.



## Knowledge Check

2

If you are training a decision tree, and you are at a node in which all of its data has the same y value, you should:

- A. Find the best feature to split
- B. Create a leaf that predicts the y value of all the data
- C. Terminate recursions on all branches and return the current tree
- D. Go back to the parent node and select a different feature to split so that the y values are not all the same at this node



### Knowledge Check

2

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The correct answer is **B.** 

You should create a leaf that predicts the y value of all the data.

