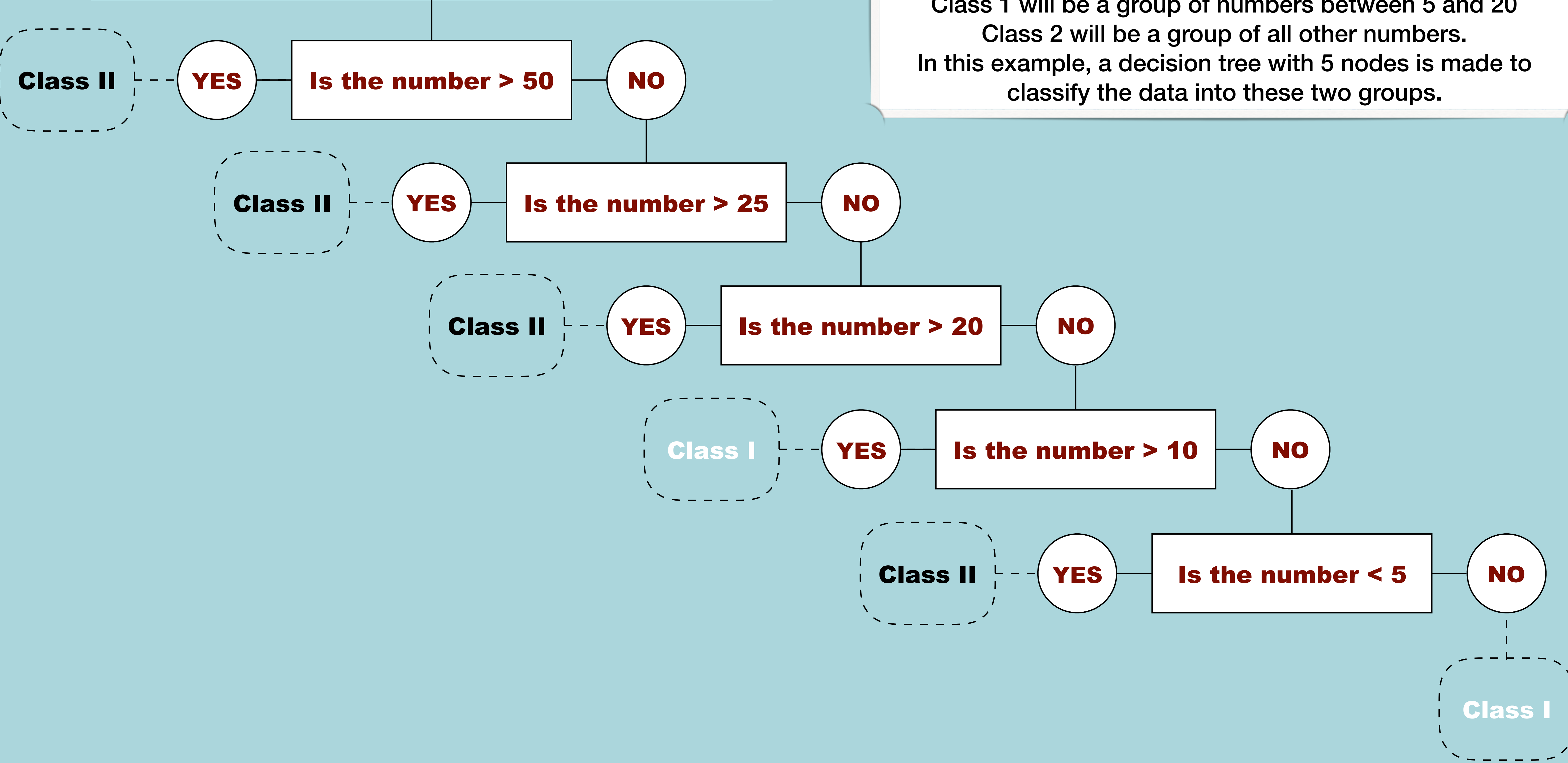


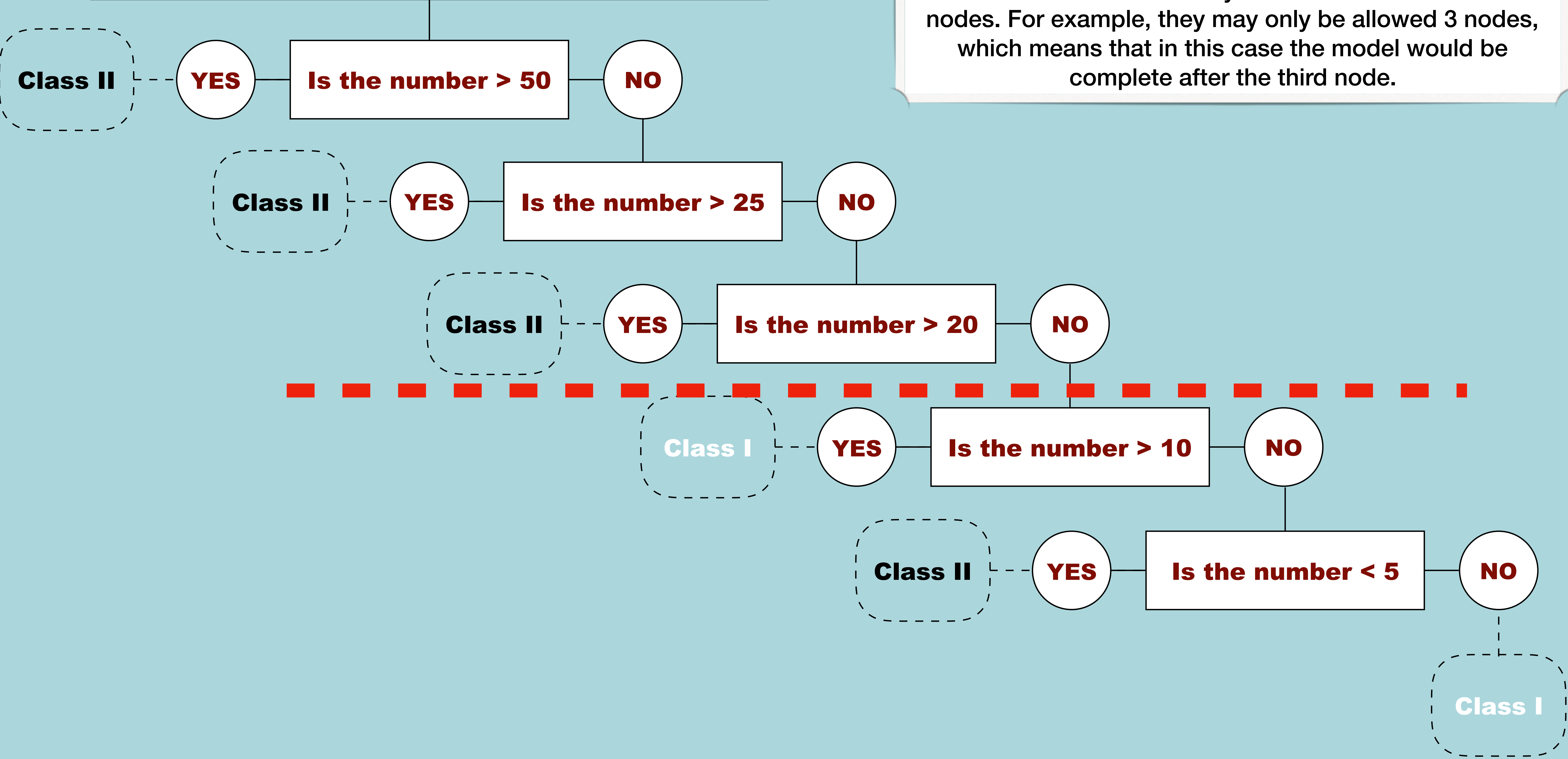
**Data**  
**[1, 2, 6, 10, 12, 14, 19, 27, 34, 39, 44, 76, 89]**

How a Decision Tree works:  
Given the data [1, 2, 6, 10, 12, 14, 19, 27, 34, 39, 44, 76, 89],  
we want to classify the data into two groups.  
Class 1 will be a group of numbers between 5 and 20  
Class 2 will be a group of all other numbers.  
In this example, a decision tree with 5 nodes is made to  
classify the data into these two groups.



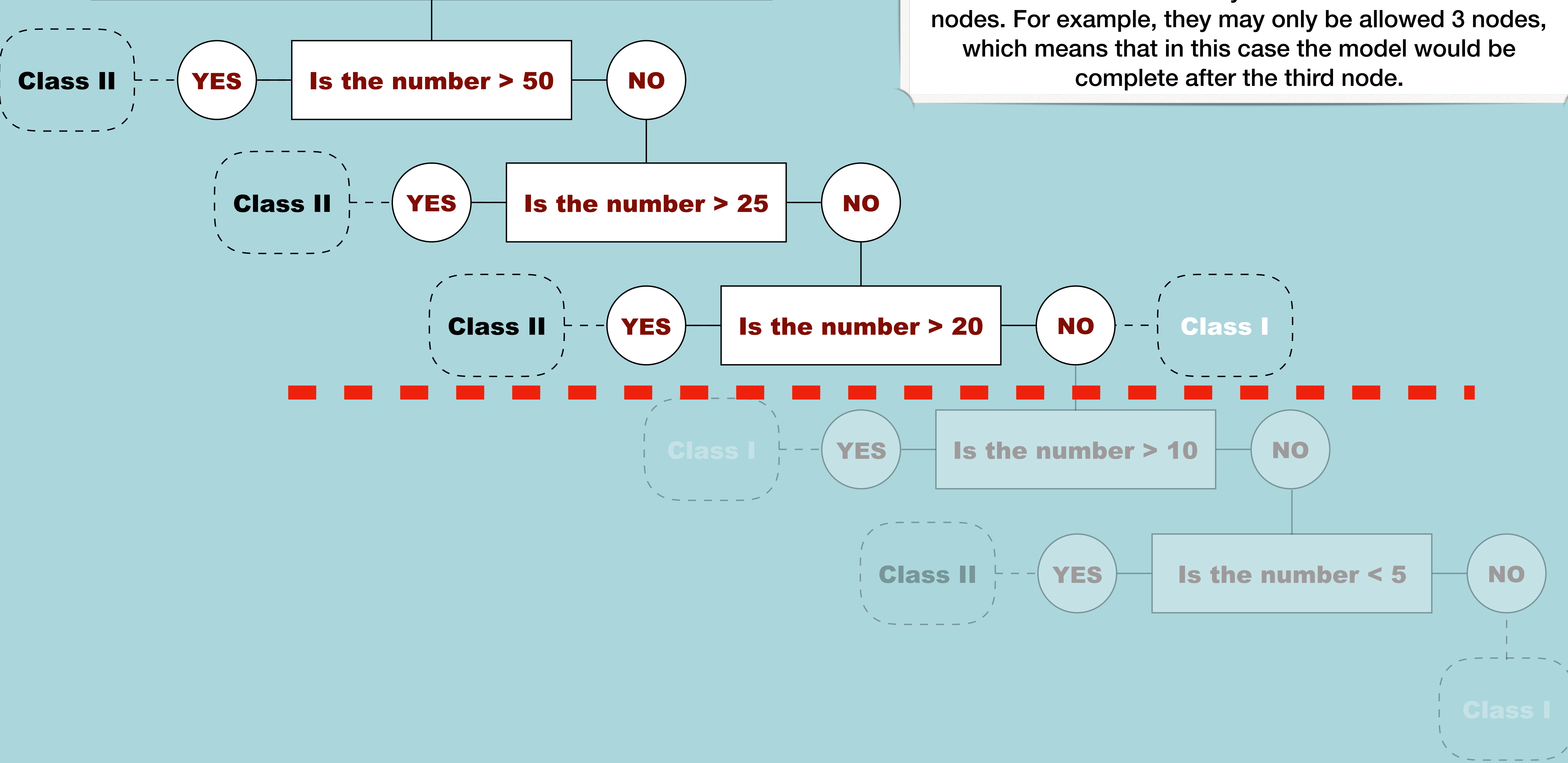
**Data**  
**[1, 2, 6, 10, 12, 14, 19, 27, 34, 39, 44, 76, 89]**

A Gradient Boosting Model will use decision trees but usually gradient boost models use a weak learner, which means that the trees are only allowed a certain number of nodes. For example, they may only be allowed 3 nodes, which means that in this case the model would be complete after the third node.



**Data**  
**[1, 2, 6, 10, 12, 14, 19, 27, 34, 39, 44, 76, 89]**

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**Gradient Boosting Models are useful because they are a type of ensemble method. This just means that they use multiple models to make a sort of “*super model*”.**

**For example, gradient boosting models use many decision trees that are all relatively poor classifiers but by taking the average of all of the model predictions from the decision trees, the gradient boosted model actually works quite well at predicting the different classes.**