ASSIGNMENT 2 BONUS

You are given an opportunity to earn 50 bonus points if you extend your assignment 2 as follows:

Instead of using the ID3 algorithm to choose which attribute to select for splitting the data at each node, write a method that *randomly picks attributes* for each node. Of course, you can not use the same attribute twice in a path. Construct a new tree in this way and compare the performance (in terms of accuracy) of the tree constructed using this approach to the one constructed earlier. You can use the same approach as earlier for post-pruning.

Report your output as follows:

Tree parameters:

	Average Depth	Number of nodes
Tree constructed using ID3		
Tree constructed using random attribute selection		

Average depth will be computed as: $\frac{Sum\ of\ depth\ of\ the\ leaf\ nodes}{Total\ number\ of\ leaf\ nodes}$

Accuracy:
Report accuracy for 5 different values of "number of nodes pruned" parameter. One of these should be for 0 nodes pruned i.e. comparing the accuracy without any post-pruning.

Number of nodes pruned	Accuracy of tree constructed using ID3	Accuracy of tree constructed using random attribute selection
0		

****NOTE: To get the bonus points, you have to do everything specified above. Also, it is important that you have two different methods in your code – one for ID3 and the other for random attribute selection ****