

# Machine Learning - Assignment-1

## Group Members

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### Question-1:

#### Unpruned tree with best test accuracy:

Out of the all the 10 trees created using 10 random splits, the tree with best test accuracy has accuracy value around 42% and depth of the tree is around 50.

#### After Reduced Error pruning:

After pruning the actual tree obtained above, we have the pruned tree with accuracy (with test data) around 51% and depth around 21. There is substantial increase in accuracy after pruning.

#### Note:

Tree will be printed in the form of dictionary where each key represents a node with an attribute and split value and values of keys are also two nodes one left and one right each telling what is attribute value is less than split value and greater than equal to split value. If the attribute is categorical then it compares if the attribute value is equal or not

The plot showing variation of test accuracy of actual tree and pruned tree against test data and with varying depths is given below

