REPORT IN ASSIGNMENT 2:

ENSEMBLE LEARNING

K-fold cross validation:

- K=5: Number of rounds of boosting=30.

Fold number	Accuracy(%)
1	87.313
2	79.104
3	61.940
4	27.611
5	74.436
Average	66.081

- K=10: Number of rounds of boosting=30.

Fold number	Accuracy (%)
1	46.268
2	97.014
3	97.014
4	53.731
5	82.089
6	73.134
7	25.373
8	86.567
9	83.582
10	93.939
Average	73.871

K=20: Number of rounds of boosting=30.

Fold number	Accuracy(%)
1	32.352
2	70.588
3	50.0
4	97.058
5	23.529
6	94.117
7	35.294
8	58.823
9	47.058
10	76.470
11	88.235
12	58.823
13	97.058
14	23.529
15	23.529
16	26.470
17	35.294
18	91.176
19	8.823
20	4.347
Average	52.129

Leave-One Out Cross Validation:

We separated one data point as test data and other (n-1) data points were separated as training data. On every iteration, another data point was selected as test data and the remaining data points were considered as training data. So total number of iteration=total number of data points. Average accuracy obtained is 95.216%.

Comparison of different classification methods: 5 fold cross validation is done in each case.

Classifier	Accuracy(%)
Decision Stump	91.638
Boosting(for 30 rounds)	66.081
ID3 implementation	94.474

Result obtained by boosting with different number of rounds:

Classifications below has been done using a 5 fold cross validation.

For Number of Rounds=5, accuracy = 71.633%

For Number of Rounds=10, accuracy = 67.573%

For Number of Rounds=20, accuracy = 72.349%

For Number of Rounds=30, accuracy = 66.081%