

- Compare and analyze the accuracies obtained by different learners: decision stump alone, boosting with 30 rounds, your ID3 implementation.

| Learner | Accuracy (%) |
|------------------------------|---------------|
| Decision stump learner alone | 75.9176029963 |
| Boosting with 30 rounds | 78.0898876404 |
| ID3 | 80.7218969273 |

Analysis:

Decision stump learner gives the least accuracy. Boosting with 30 rounds improves this. Since it collects 30 hypothesis and makes a strong hypothesis. But ID3 gives the best accuracy. Because it is a tree which allows more than 1 depth. For decision stump learner and boosting with 30 rounds it was not allowed.

- Compare and analyze the accuracies obtained by boosting with different numbers of rounds: 5, 10, 20, 30.

| K | Accuracy(%) |
|----|---------------|
| 5 | 73.0674157303 |
| 10 | 74.8913857678 |
| 20 | 76.5543071161 |
| 30 | 78.0898876404 |

As the number of weak learner (K) is increased the accuracy is improved also.