**ASSIGNMENT 2 BONUS**

**CS 6375:002 Machine Learning**

**Topic:**

Constructed a new tree using random selection of attributes and compared its performance with ID3 approach on the test dataset.

**Names:**

**Jaya Padma Sri Maddi( jxm166230 )**

**Lakshmi Priyanka Parimi ( lxp160730 )**

What we learnt?

1. We learned how to build an optimized decision tree using ID3 algorithm.
2. We observed the performance difference between ID3 and random approach.

**Tree parameters:**

|  |  |  |
| --- | --- | --- |
|  | Average Depth | Number of nodes |
| Tree constructed using ID3 | 9 | 265 |
| Tree constructed using random attribute selection | 8 | 197 |

**Accuracy:**

|  |  |
| --- | --- |
| Run # | Accuracy of tree constructed using random attribute selection (on test data) |
| 1 | 51.42 |
| 2 | 50.67 |
| 3 | 50.97 |
| 4 | 50.87 |
| 5 | 50.47 |

* The accuracy of the tree constructed using ID3 is higher than the random approach on test data set.
* The accuracy of tree using ID3 on test data set is around 75%.
* The accuracy of tree using random approach on test data set is around 50%.