

SPL-1 Project Proposal Form, 2023
Institute of Information Technology (IIT)
University of Dhaka

Student's Name:	Pronob Karmoker		
Student's Roll:	1431	Phone:	01745330624

Classification of Data Using Decision Tree and Random Forest Based on Three Different Criteria

Project Description:

This project aims to apply advanced classification methods utilizing decision trees and random forests. These methods will be guided by three specific measures: Entropy, Gini index, Hellinger Distance . The project focuses on the core task of classification, where decision trees offer a natural structure to make predictions based on input attributes.

Our project will encompass the following key components:

1. Splitting Criteria: The splitting criteria guide us in calculating the optimal gain for effective decision making.

- A. Entropy Calculation.
- B. Gini Index.
- C. Hellinger Distance.

2. Classification Matric:

- A. Cross Validation: Validate models through data partitioning for robustness.
- B. Precision: Evaluate model's accuracy on positive predictions.
- C. Recall: Measure model's ability to identify actual positive instances.
- D. Accuracy calculation & F-Score: Calculate overall accuracy and balance of precision and recall.

3. Decision Tree: We'll build three decision trees using the given splitting criteria. By calculating gains using these criteria and considering the provided classification metrics, we'll identify the best starting point for each decision tree.

4. Random Forest: Random Forest creates a group of decision trees that work together to make predictions, using various splitting criteria, and then combines their results to provide accurate and reliable outcomes.

Languages or Tools to be used: C , C++ , VS code , Git , Github

Supervisor's Name: Dr. Muhammad Shoyaib

Signature of the supervisor: _____

Date: _____

Before the Midterm Presentation:

I confirm that the progress is satisfactory and I am forwarding it for midterm presentation.

Signature of the supervisor: _____

Date: _____

Midterm Presentation Feedback: