SPL1 Project Proposal Form, 2022
Institute of Information Technology (IIT)
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Project Description:

Title: Leverage Score Sampling

Project Information: For a given data matrix, the row and column can be considered as sample and feature respectively. In sampling, we find a subset of sample and these samples are the representative sample of given data. For example, we have a given data matrix A (M×N) and we have to find a sampling matrix S (P×N), where P<<M. There are several approaches for data sampling. Leverage score sampling is one such a technique.

Contents:

1. Input a matrix from file.
2. Singular Value Decomposition **(SVD)**
   a. Finding Transpose of the matrix.
   b. Calculating Determinant of the matrix.
   c. Calculating Eigen Values, Eigen vectors & Singular values.
   d. Matrix multiplication.
   e. Finding left & right singular vector of the given matrix.
   f. Calculating Pseudo Inverse of the matrix.
3. Leverage Score Sampling.
   a. Leverage Score Computation
   b. Probability Estimation.
4. Probability based on Sampling.
5. Return the sample data.

Languages or Tools to be used: C & C++

Supervisor's Name: _____Dr.Mohammad Shoyaib_____

Signature of the supervisor: _____

Date: _____