Green University of Bangladesh
Department of Computer Science and Engineering (CSE)
Faculty of Sciences and Engineering
Semester: (Spring, Year: 2025), B.Sc. in CSE (Day)

LAB PROJECT PROPOSAL
Course Title: Algorithm Lab
Course Code: CSE 208
Section: 232-D9

Student Details

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Lab Date : 26-02-2025
Submission Date : 04-03-2025
Course Teacher's Name : Farjana Akter Jui

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1. **TITLE OF THE PROJECT PROPOSAL**
   Social Network Friend Recommendation System

2. **PROBLEM DOMAIN & MOTIVATIONS**

   In social networking platforms like Facebook and LinkedIn, users often struggle to find new friends or professional connections efficiently. A Social Network Friend Recommendation System can help users discover potential connections based on mutual friends, shared interests, and graph-based algorithms.

   - Mo1 – Improve social network engagement by suggesting relevant friend connections.
   - Mo2 – Implement Graph Traversal Algorithms (BFS/DFS) to find and recommend friends.
   - Mo3 – Provide an efficient algorithm for analyzing large-scale user networks.

3. **OBJECTIVES/AIMS**
   The aim of this project is to develop an intelligent Friend Recommendation System that suggests new connections based on Graph Algorithms.

   Objectives:
   - Ob1 – Implement a Graph Data Structure where users are nodes and friendships are edges.
   - Ob2 – Use Breadth-First Search (BFS) and Depth-First Search (DFS) for friend recommendations.
   - Ob3 – Rank friend suggestions based on the number of mutual connections.

4. **TOOLS& TECHNOLOGIES**
   This project will be developed using:

   • Tools1 – Java (Core Java, Object-Oriented Programming)
   • Tools2 – Graph Implementation: Java Collections (HashMap, HashSet, Array List)
   • Tools3 – Graph Algorithms: BFS & DFS (Implemented using Queue and Stack)

5. **CONCLUSION**
   The Social Network Friend Recommendation System will enhance user experience by suggesting relevant friend connections based on Graph Algorithms (BFS & DFS). By implementing efficient graph traversal techniques, this project will demonstrate how algorithms can be applied in real-word social networking applications.