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

Student's Name:	**Md. Touhidur Rahman**		
Student's Roll:	**BSSE-1434**	**Phone:**	**01753511680**

Title: "Mystic Maze Mission: Puzzle Explorer"

Project Description:

I plan to construct a maze-solving project with varying difficulty levels, obstacles, and secret paths for players to navigate from a starting point to a destination in the shortest path. To achieve this, I will define appropriate data structures such as classes or structs to represent cells in the maze, along with their coordinates, neighboring cells, and whether they are walls or open paths. Additionally, I will implement a data structure like a priority queue or min-heap to prioritize cells based on their distances. With this setup, I will create a 2D grid to represent the maze, initialize the start and end cells, calculate distances from the start cell to all other cells using Dijkstra's algorithm, and find the shortest path by backtracking from the end cell using parent information.

Once the core algorithm is implemented, I will focus on visualizing the maze-solving process and displaying the solution. To do so, I plan to create a user interface that allows users to input the solve, observe the solving process, and view the final solution. To handle cases where the end cell is unreachable due to obstacles or blockages, you will ensure the algorithm terminates gracefully without finding a path. Finally, I aim to thoroughly test the program with different maze configurations, ranging from small to large, to verify its correctness and optimize its performance as needed.

Languages or Tools to be used: **C &** C++, Code blocks, VS code, Git and GitHub, OpenGL

Supervisor's Name: Dr. Naushin Nower

Signature of the supervisor: _____

Date: _____