Project Description **(Mystic Maze)**

Mystic Maze is a **2D team-based multiplayer puzzle game** developed using **JavaFX** and MySQL. The game is designed for **2–4 players**, where each player must solve their own unique puzzle while cooperating with teammates to complete each level. The game encourages **speed, strategy, and teamwork**, offering **10–12 progressively difficult levels** filled with riddles, hunts, and hidden clues.

The game includes **real-time interaction features**, **rewards**, **hint sharing**, and a **dynamic leaderboard** that promotes healthy competition and collaboration.

Key Features

Multiplayer Collaboration

- Supports **2 to 4 players** in a team.
  - Each player must create an account
  - After creating an account the player could invite others to play together or can join with others by using a code which will be generated while creating a room.

- Each player gets a unique puzzle in each level.
  - There will be some puzzles/riddles in each level which will be assigned to the player.

- The **first player to solve** a puzzle gets **special powers**
  - Whoever solves a puzzle first can help others by giving hints or taking over.
  - he/she can see the other progress

- **Database Driven Progress Tracking**
  - To visible one progress to others

Puzzle Diversity

- Each level features different types of challenges:
  - Logic puzzles
  - Visual riddles
  - Pattern matching etc.

Rewards & Powers

- First solver of each level earns:
  - Ability to send hints
  - Share power-ups
  - Reveal parts of other puzzles
  - Freeze the timer for a certain amount of time.

Level-Based Difficulty

- Game includes **10–12 levels (tentative)**, increasing in difficulty and complexity.
- Final level requires **team coordination** to unlock a combined exit gate.

Leaderboard

- Tracks top teams based on:
  - Completion time
  - Number of hints used
  - Accuracy (fewer mistakes = bonus)

2D Game Interface

- Built using **JavaFX**
- Interactive visuals with animations
- Puzzle UI per player with a sidebar for team updates

Implementation Plan

Tech Stack

Component	Tools
UI and Game Engine	JavaFX and Scene builder
Backend	Java
Database	MySQL
Multiplayer Sync/Communication	Java Sockets
Team Collaboration and Project Management	GitHub

Module Breakdown

a) User Authentication & Room System

- Users register and create/join a room.
- Each room holds 2–4 players with unique IDs.

b) Puzzle Engine

- Each level loads 2–4 different puzzles per session.
- Puzzle logic handled through JavaFX components.

c) Multiplayer Sync

- Implement **Java Sockets** for real-time help and coordination.

d) Reward System

- When a player completes a puzzle:
    - Options: send hint, power boost, unlock door

e) Leaderboard System

- Store results in DB:
    - Time taken
    - Hints used
    - Total score

- Display top teams with filters (weekly/all-time)

N.B. :- This is a tentative description for our project based on our current vision about the game. During the implementation phase, certain aspects may change depending on technical feasibility, or gameplay improvements. We remain flexible and open to discuss with our respected course teacher and to refine the plan to ensure the best outcome for the final product.