# Enchanted Labyrinth

## *Project Description:*

The project focuses on implementing a game using various data structures to handle different aspects such as game mechanics, enemy management, player data, and rewards system. Key data structures like AVL trees, stacks, and arrays are utilised to optimise the game's performance and functionality.

## *Team Members:*

Saad Mursaleen : 22i-0835
Shayan Ahmed : 22i-0822
Bilal Raza : 22i-1325

## *Distribution of Tasks:*

Saad:

1. AVL Tree Implementation (AVL.h): Responsible for the customization and integration of AVL trees to manage game rewards or other game elements that require balanced search capabilities.
2. Game Mechanics (game.h): Takes charge of the overall game mechanics including game states, main game loops, and interactions between different game components.

Bilal:

1. Enemy Management (enemy.h): Develops the functionality surrounding the game's enemies, including their behaviours and interactions within the game.
2. Player Data Management (player.h): Handles the player's data structure, including attributes like health, position, and actions within the game.

Shayan:

1. Graphical User Interface and Menus (Menu.h): Designs and implements the user interface and menu systems, ensuring easy navigation and accessibility within the game.
2. Progress and Rewards System (reward.h, ProgressBar.h): Manages the rewards system and graphical representation of progress bars and other in-game metrics.

## *Individual Responsibilities:*

- Saad: Focus on backend logic for enemy behaviours and data structure implementations.
- Bilal: Develop the core gameplay mechanics and ensure smooth player interactions.
- Shayan: Create intuitive user interfaces and manage the visual feedback systems like progress bars and reward displays.

## *Project Implementation:*

- Each member is responsible for their modules but must ensure integration with the rest of the project components.
- Regular team meetings to discuss integration challenges and progress.

## *Tools and Technologies Used:*

1. C++ Programming Language
2. SFML Library for Graphics and Window Management
3. Visual Studio Code or Similar IDE for Development

## *Conclusion:*

The project aims to demonstrate the practical application of advanced data structures in real-world applications like video games, highlighting the importance of algorithm optimization and efficient data handling. Teamwork was the main key in this project. We all helped each other in the implementation of everything.