Project Report

Data Structures Spring 2024



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Maze generation Function

To implement the game Labyrinth explore first I made the Maze. It is necessary for this game to implement that I use the stack logic and reset maze function. To make a maze I first draw the 30 lines vertically and then horizontally with the space between them of 20. Then in the makeMazeGrid function in order to draw the proper maze function I use stack that keep track of which cell is visited cells then by checking the which cell is visited which is not a made the grid by keeping track that if any neighbor wall is visited already then we don’t visit tat again and generate the random number that keep check of that too. ALso for the to check that no maze is made out of boundary i made the 4 boundary walls that to draw the outer line of grid as in square.

Handle Movement Class

In the handle move function I get the user input for up, down, left, right and right and then I update the position of the current moving object by keeping check that if the moving object collides with the walls of the grid then it restricts that area but can move in any other path.

Sprites,Textures and Shapes Class

To draw the obstacles of enemies, shields, and other objects for some I use the sprites and textures to draw them on some specific areas and for enemies what I did is I move them randomly on the y axis i set to move only within that boundary.

Inventory and collision Class

According to my logic I combine the collision logic and implementation on AVL tree what I did is I keep track of the movement of the moving object and the points where the objects I place and when they collide at that time I add some value to the AVL tree that I wanted to use later when i want to delete the inventory item. I just get those values and delete them but according to the AVL tree implementation there is a balancing factor in the tree as that is necessary.

Score CLass

In score classIi just make two data members score array and totalScore.TotalScore that will have the current score and score array will check and will keep the highest score above and then any likewise. In did file handling too in which data in file will store in descending order and there is option on screen to check the scores.

Reward Class

In reward classIi draw the sprites and on the collision with them the user will reward like score ,shield, sword and treasure too like things and I store them in AVL tree. With some values so when I want to retrieve data I just use those values directly. Rather than storing names which for me was a bit trickier so I did not do that.And the explorer can only get the lock when he has a key. Other than that he can’t get the lock.