Programming Fundamentals
Section 1E&1F
Semester Project
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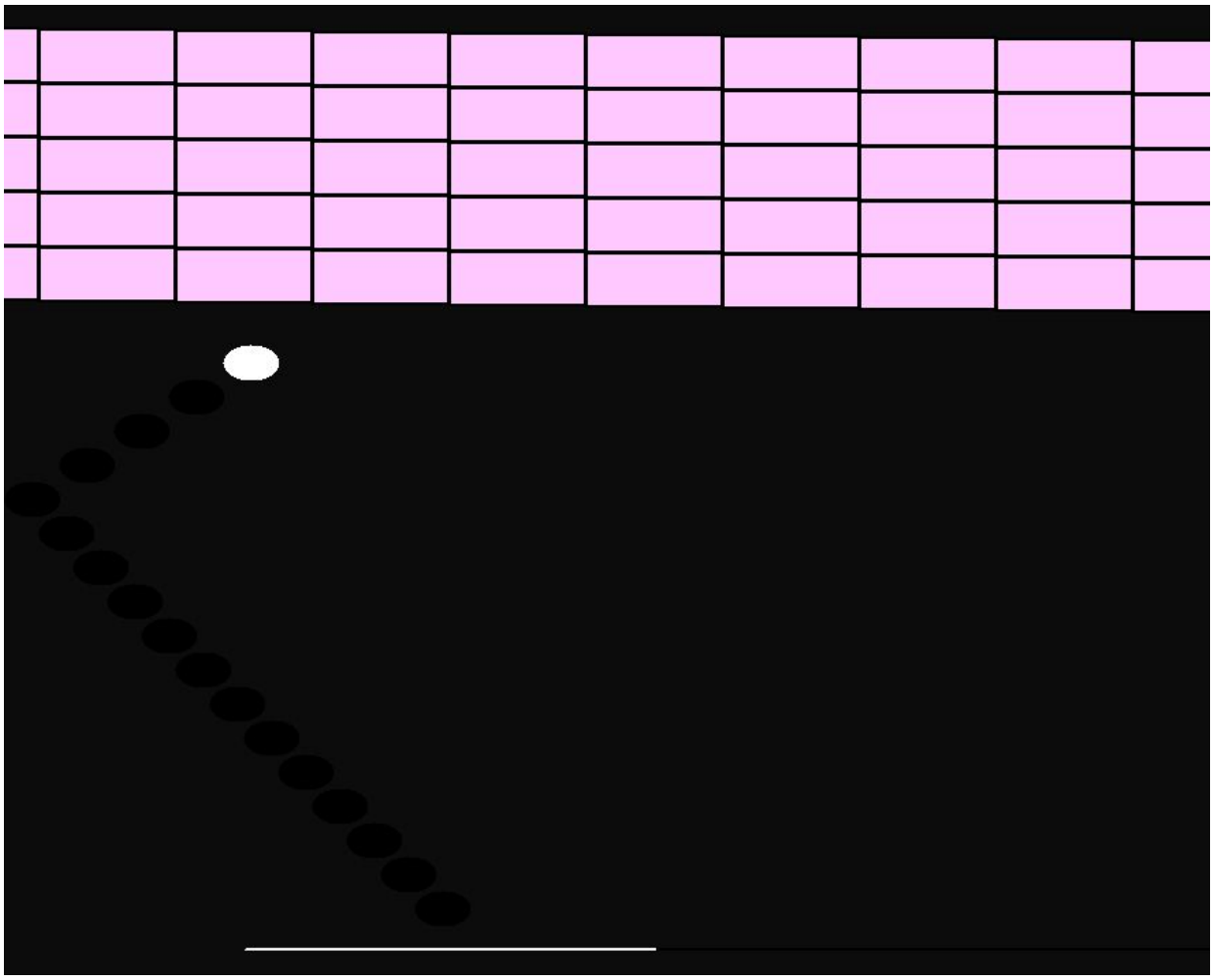
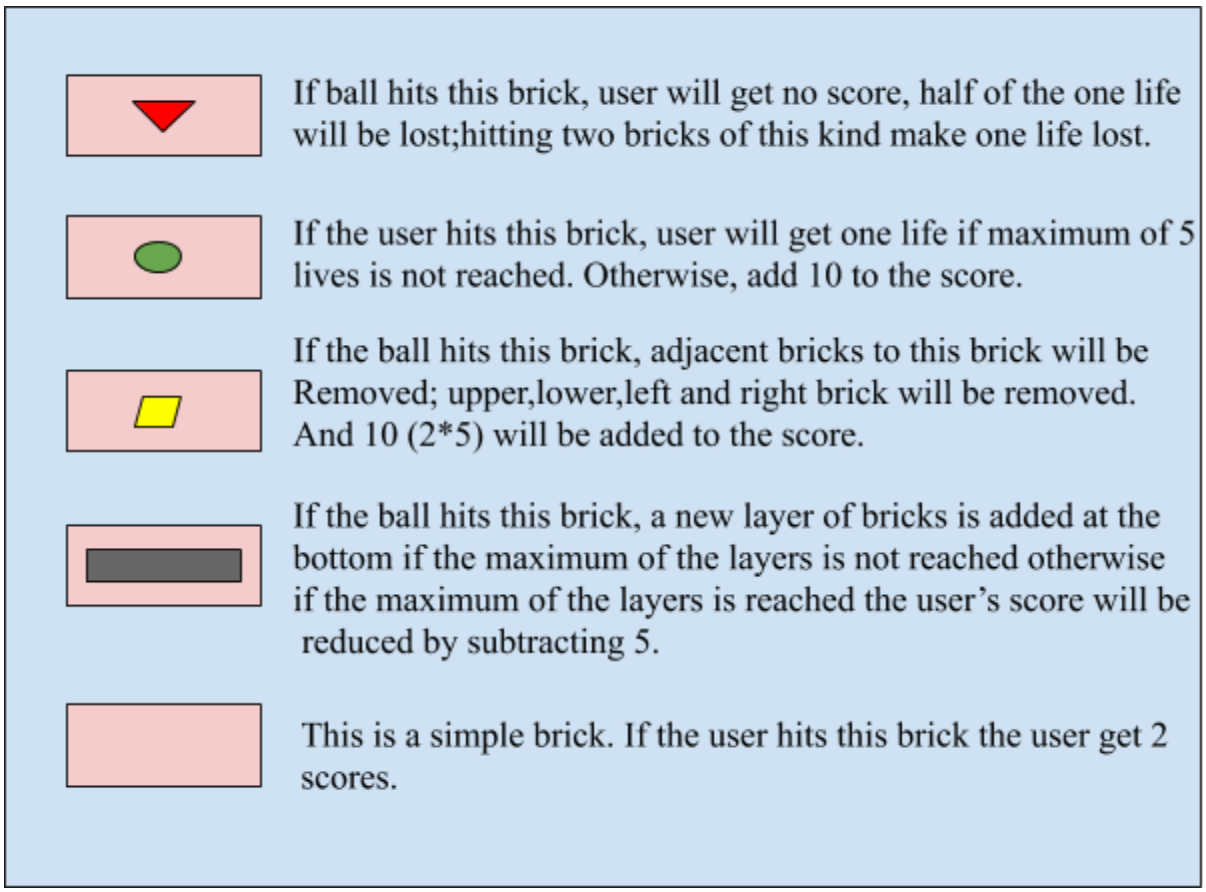
Brick And Bat Game



Problem Statement

Bricks and Bat game (traditionally paranoid) is a classic game where a player has a layer of bricks on the top of the screen along with a bat at the bottom of the screen and he tries to hit all the balls to gain scores and reach further levels. For this project we altered some of its functionalities and want you to develop the same game with the customized requirements. Therefore, for this project the player's main goal is to hit all the bricks with the ball before losing all of his lives in the game. The player loses one life if the ball does not hit the bat and falls out of the screen. As far as it regards the layers of bricks,the number of layers can be random but at max 7 layers. One layer can contain any number of bricks. Moreover, Brick can be of more than one type illustrated below.



Note: Shape and the color of the bricks must be exactly the same as shown in the picture.

The player will win the game if all the bricks are removed. Every brick is removed when it has been hit. The player will have 3 lives at the start of the game and it can reach up to a maximum of 5 if he hits two green circle bricks in the game. You can use any type of array to represent the layers of the bricks. Further requirements are explained below as:

Menu

As every game does have a menu this game will also have a menu. You can add as many as options you want but these options are mandatory to be in the menu; Start a New Game, Load Saved Game,Show Score History , Exit.

And of course, You can be creative in designing the menu.

Start of the Game

At the beginning of the game there will be a random number of layers at least 4 on the screen and each of the layers will have a random number of bricks filling the screen. The brick type will also be chosen randomly. But 60% of the bricks must be simple bricks. The bat will be placed in the middle of the screen at the bottom and the ball will be placed on it. Moreover, on the right corner of the screen, lives of the player and the score will be displayed. The lives will be 3 and the score will be zero initially.

To start/pause the game user will press the space button.

Once the game is started, the ball will start moving diagonally and will come back to the bottom of the screen after it hits something at the upper part of the screen and the player will control the bat using an arrow button (left key or right key) so that he can prevent the ball falling out of the screen.

Angles of trajectory of the ball

The bat can be divided into 5 parts ; left,left center, center,right center and right.

Left : 0-20% of the bat

Left center: 21%-40% of the bat

Center: 41%-60% of the bat

Right center: 61%-80% of the bat

Right: 81%-100% of the bat

If the ball hits the left part it will move with the angle 30 degree.

If the ball hits the left center part it will move with the angle 60 degree.

If the ball hits the center part it will move with the angle 90 degree.

If the ball hits the right center it will move with the angle 120 degree.

If the ball hits the right part it will move with the angle 150 degree.

Save Into File

The user will press “s” key to save the current state of the game into the file.

Score History

Score history will also be saved in a file and can be displayed if the player opts to “Show Score history” from the menu. Only top 10 scores will be shown in history.

Instructions

1. You can use 2D arrays to represent the layers of the bricks.
2. You can use a specific range of numbers to map types of the bricks. For example you can say that 0 -> red triangle brick, 1->green circle brick, 2->yellow center brick,3->black centered brick,4 -> simple brick and 5 -> nothing. Now let’s say you want to represent 2 layers (one made of 3 bricks), you can represent in 2D array as

4	5	2
3	1	4

3. You can use any graphics library to implement the game; you can use the graphics files provided with the assignment 4 as well.(myEllipse function to print the ball, myLine to print the bat and other methods to print the bricks and scores etc).
4. You can not use goto,break or continue statements.
5. Only one level is required for this project.
6. You can do this project in pairs.

Submission Guidelines

1. Submit only one cpp file in format l20_abcd_l120_efgh.cpp .

Best Of Luck