CSE212: SOFTWARE DEVELOPMENT METHODOLOGIES

YEDITEPE UNIVERSITY

SPRING 2022

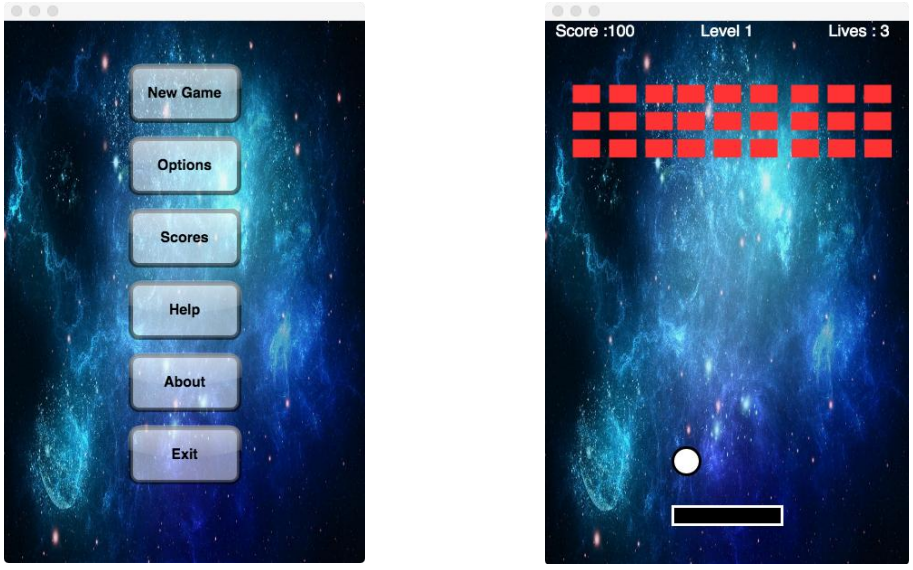
TERM PROJECT – DUE DATE MAY 29TH, 2022

As the term project, you are required to develop an *Arkanoid* game with multiple difficulty levels. The game should be simple and easy to use with the help of two arrow keys on the keyboard - left and right – and mouse device. Your application should be able to keep scores of users and store them on a file.

You can use the following statements and figures as guidelines:

- Your application should have an options list on the first window which contains *New Game, Options, Scores, Help, About and Exit* (see Fig. 1a).

- For usability purposes, you are required to implement a graphical user interface (GUI) for your application.



(a) (b)

Fig. 1: Example Arkanoid game screenshot

- At the end of each game, it should ask for the user's name and record his/her details (*name, time, date and score*).

- At any time, users should be able to quit the game by clicking on the appropriate key combination (*Ctrl+Q*).

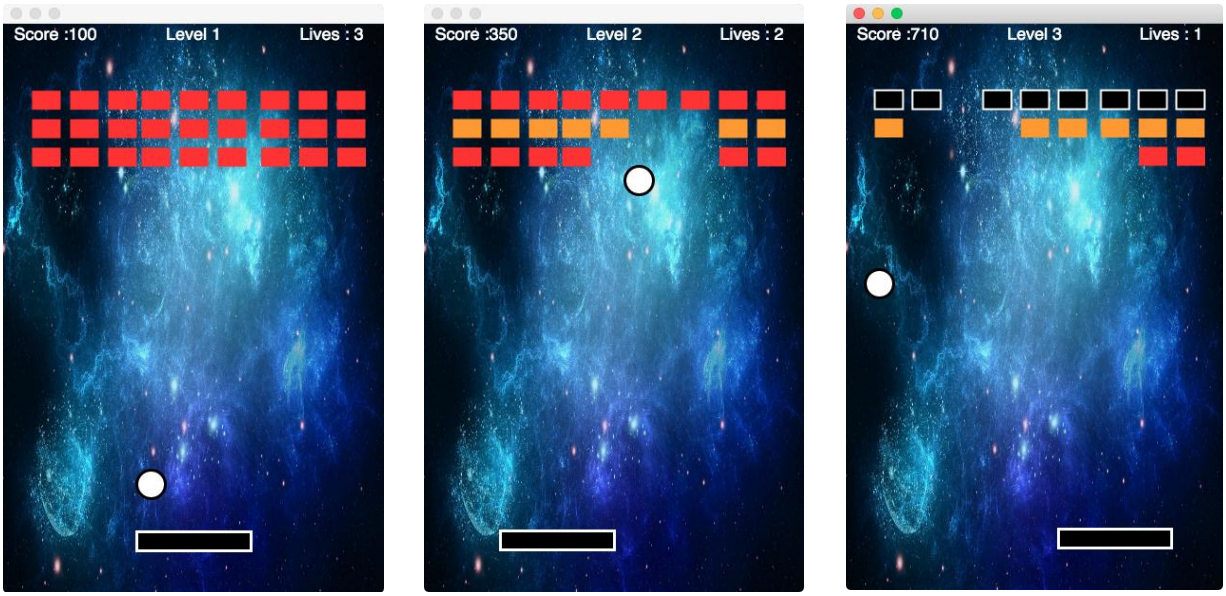


Fig. 2: Three Levels

- The game should have at least three levels of difficulty (see Fig. 1b and 2). You can increase the difficulty by changing the shape of the structure, the type of bricks used and increasing the speed of the ball.

- Your application should show the number of lives you have left on the top right corner of the game window. In the top middle, your application should show the level of the game that is played and on the top leftmost corner should show the score.

- Players should be trying to break all *bricks* on every level to get scores as high possible and advance to the next level.

- A player should slide the *paddle* left and right - either by using left right keys on the keyboard or moving the mouse - to bounce back the ball.

- Each level is cleared by breaking all breakable bricks – red bricks should break with one hit, orange with two and black with three.

- The player should be able to control the ball's angle with the paddle. The ball should bounce off at the same angle in the opposite direction.

- The player should start a game with 3 lives.

- A game ends when the ball touches the bottom of the screen when the player has no more lives left.

- Users should also be able to see the scores list, which contains the list of ten highest scores on a separate window by clicking the appropriate menu item (*Main Window-> Scores*).

- Users should be able to choose among three difficulty levels (*Main Window -> Level 1, Level 2 and Level 3*) and start playing the game at that level.

- The help menu option should provide some help on how to play the game (*Main Window->Help)* and the About (*Main Window->About*) option should pop-up a small window that contains information (*Name, Surname, School Number and Email*) about the application developer.

- [**Bonus**] Your application could also have the audio effects for bounces, losing lives and advancing to the next levels.

- [**Warning**] You should **not** use Sprite entity interface or ***Graphic Class*** (java.awt.Graphics) to implement the game. All game objects ***should be*** drawn as ***JComponents***.

Submit your assignments in a zip file, which has your name_surname_studentNumber as name, using COADSYS (https://yulearn.yeditepe.edu.tr/) by the end of Sunday, May 29th, 2022. All submitted source files will be checked for plagiarism among classmates and with any existing open source code available on the Internet. Furthermore, all students will be required to demonstrate their work for 15 minutes. DO NOT submit somebody else's work.