



Computer Organization & Assembly Language

Fall 2022

Final Project

“Brick Breaker Game”

1st phase deadline: November 29th, 2022

Final Phase Deadline: December 4th, 2022

Note: Your Project will be evaluated twice. In the first evaluation your initial progress (at least 1st level must be completed) and some working graphics will be checked so that your errors may be resolved and guide you in right direction. The second evaluation will be the final one and in that you should implement all the three levels. Both of evaluations will be graded.

Instructions

- You are required to work in MASM615. Project incompatible of MASM615 will not be considered.
- **Only Group of two is allowed.**
- Cross Section groups are not allowed.
- User Interface is important in this project. Try to develop an attractive user interface.
- Use of extra features in the project is encouraged.
- Use good programming practices (well commented and indented code, meaningful variable names, readable code etc.).
- Only one group of the student submit the project in Zip File.
FORMAT: RollNo1_RollNo2.zip.
- Evaluation Criteria will be shared with you soon.
- **You need to submit video of your full game**
- **Copy/cheating case will be awarded an “F” grade in the course.**

Game Description

In the brick breaker game, the player moves a paddle from side to side to hit a **BALL**. The game objective is to eliminate all of the **BRICKS** at the top of the screen by hitting them with the **BALL**. But if the ball hit the bottom **ENCLOSURE**, the player loses and the game ends! To win the game, all the **BRICKS** must be eliminated. The game is split into many levels, which must be completed in sequence. There will be a time limit of 4 minutes and the remaining time will be shown with the counter. The purpose of this game is to complete all the levels without losing all lives. The player will have a maximum of **3 lives**.

LEVELS

Level 1

- First of all, a title page should appear that displays the name of the game. It must also take the name of the user as input and the name is to be displayed on the screen.
- The second page should be menu driven.
- Third page should be your game. The user must be able to navigate back and forth from these screens.

The basic game will consist of hitting the ball to direct it toward hitting the bricks above. When the ball comes into contact with a brick, the brick will “break” and disappear. The player moves the paddle from left to right to keep the ball from falling. Life is used when the player fails to hit the ball. You have to display the number of lives left for the player on the screen. Display the remaining lives on the screen with a **HEART SHAPE**. For the interaction with your game, you will be using arrow keys on your keyboard (you can use a mouse and other keys as well). To move the paddle, you will check for the pressed key if the pressed key is left arrow key then you will move the paddle left and if key is right arrow key is pressed you will move the paddle to right (change its position). The ball will bounce back from the paddle and the screen boundary walls.

When a brick breaks, a **SCORE** is awarded. The score depends upon the type of brick that will break as each brick has different score. All the bricks with the same color will have same score. Score should be displayed on screen.

Level 2

You are required to change into following:

- Increase the speed of the ball and
- Shorten the length of the paddle.
- Each brick will require two hits to disappear and after the first hit, the brick should change color to a lighter one.

Level 3

You are required to change into following:

- Some of the bricks are fixed (hitting them should bounce the ball back).
- Normal bricks will now require 3 hits to disappear.
- Make one random brick a special brick. When this special brick is hit, 5 random bricks (or all the remaining bricks if less than 5) should disappear.
- Increase the speed of the ball in this level.

File Handling

You are required to store all the score of all the players that have played the game. For this you will use file handling. You need to store the name and updated highest score in a file.

BONUSES

When the ball hit one random special type of brick, it breaks into any random object you like to make which will fall down. If the paddle consumes the random object, it will do 3 different things:

- Duplicate the ball into more than 3 balls.
- Increase the size of the paddle
- It converts your original ball into a special ball for 10 or more seconds that can break any brick in 1 hit.

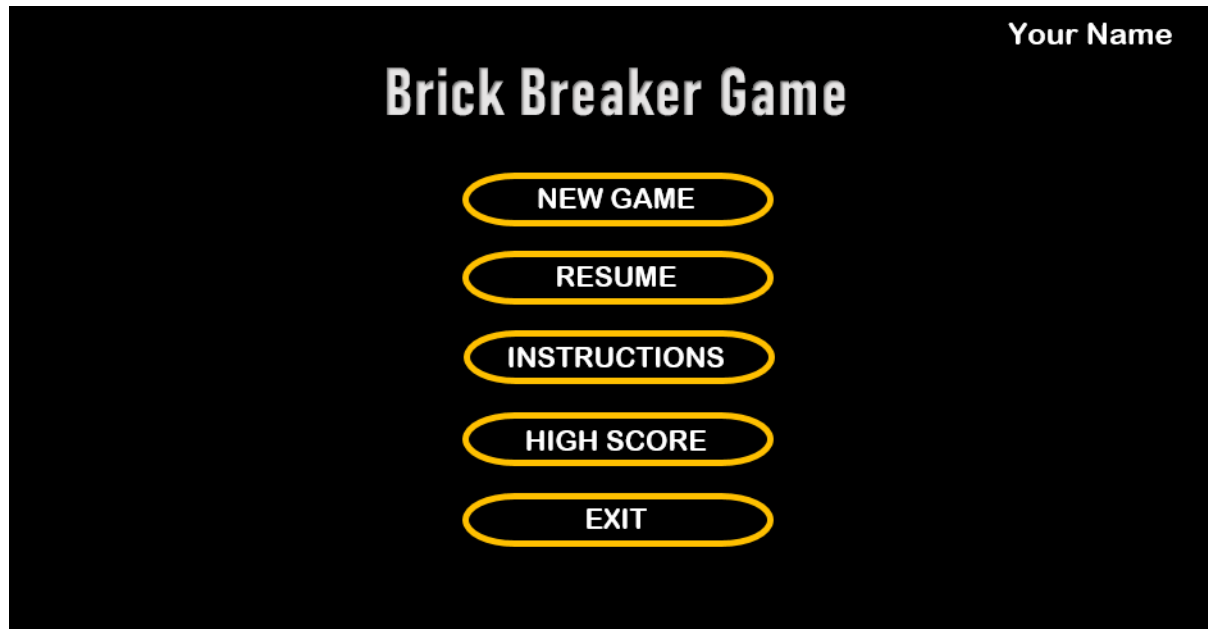
You are required to use sound features for your game.

Screens

The following screens are given as an example. You can create your own screens which would include:

- Welcome Screen that takes your name input
- Game Menu screen
- Main Screen for Gameplay
- Pause Screen/Functionality
- Instructions Screen
- High Score and Players Names Display

Game Menu screen



Main Screen for Gameplay

