BREAKOUT PSEUDOCODE

Project Description

Recreate the classic arcade game “BREAKOUT”

This is a single screen game in which a player attempts to clear the screen of rows of bricks by striking them with a constantly moving ball. The player controls a paddle that may only move left and right, and causes the ball to bounce back towards the brick rows. If the player misses the ball, it will fall off the bottom of the screen resulting in the end of the game.

Game Components

Ball

The ball is a constantly moving circular object that bounces off any object that it comes into contact with. It will rebound off the sides and top of the playing area but move offscreen if it moves past the bottom of the playing area. If the ball comes into contact with a brick, it will cause the brick to vanish from the playing area.

Paddle

The paddle is controlled by the player and can only move from left to right within the dimensions of the playing area. If the ball comes into contact with the paddle, it will bounce in the opposite direction.

Bricks

The bricks form stationary rows at the top of the screen. If they come into contact with the ball they will vanish from the playing area.

Point Scoring

The user scores points each time they can force the ball to hit a brick. Bonus points are given if all bricks are removed.

Game Completion

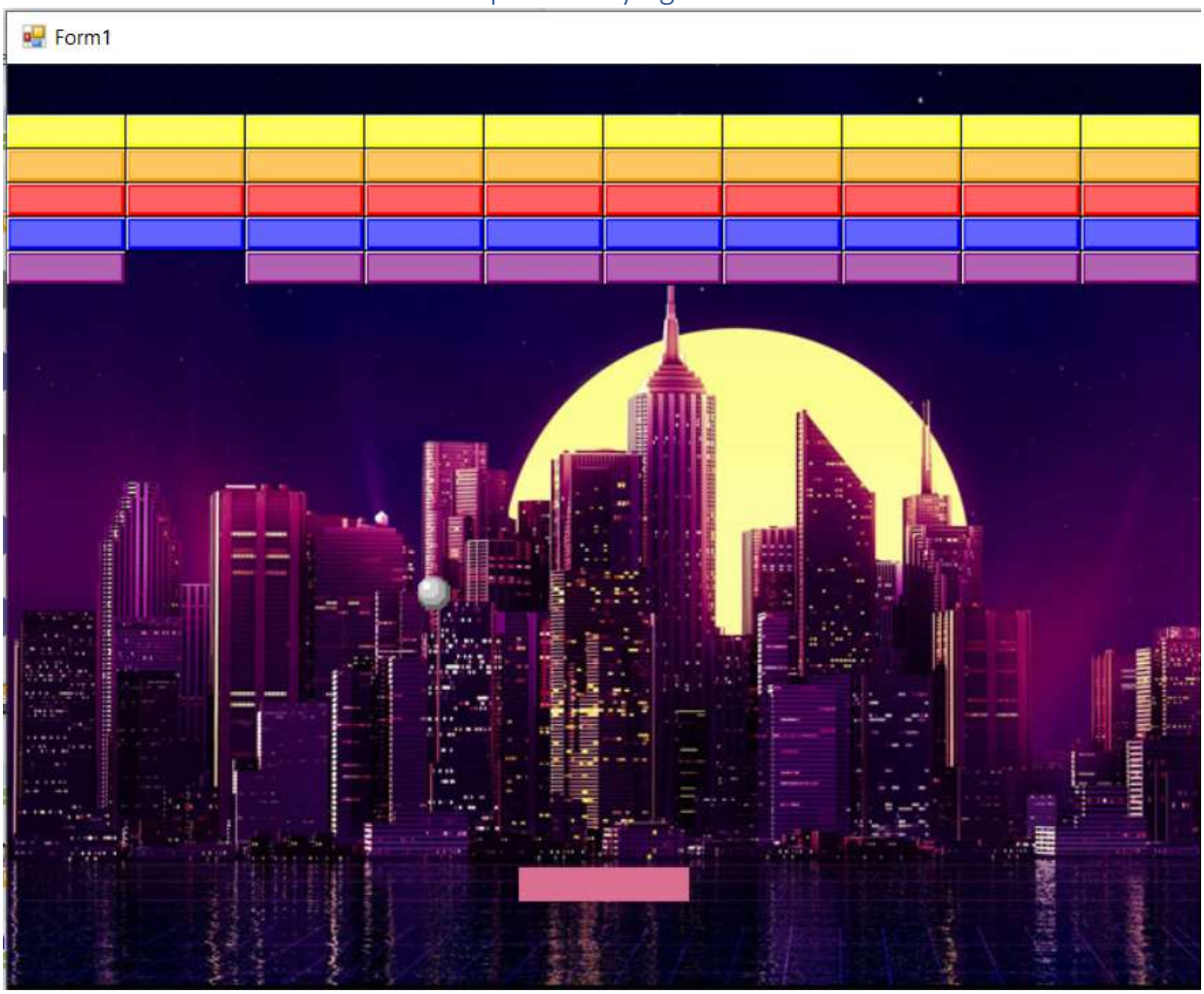
The user wins the game when all bricks are cleared from the playing area.

Game defeat

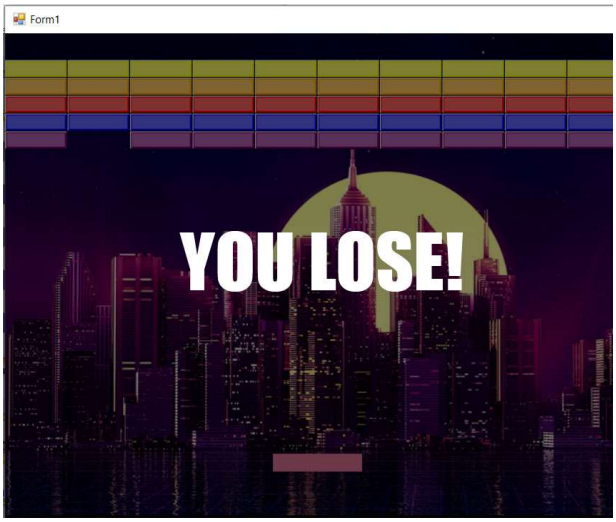
The player looses the game when the ball moves below the bottom of the playing area.

Form Design

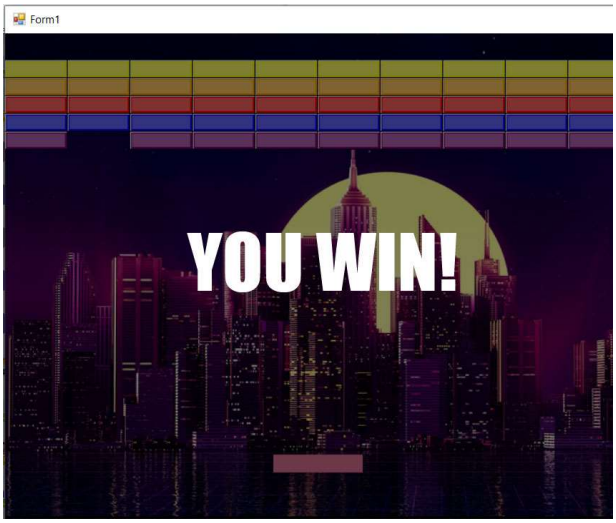
Proposed Playing Area



Lose Screen



Win Screen



Controls & Components

Timer

Used to move set events forward at a predetermined interval.

Player Interaction

The player will be able to control the horizontal movement of the paddle

Computer Coltrol

The computer controls the movement and velocity of the ball. This includes detecting when it comes into contact with specified objects, and the edge of the playing area. At this point the ball will be forced to change direction.

In adition, the computer will detect when the ball has come into contact with a brick, and remove said brick from the playing area.

The computer will also keep score, reset the playing area and determeine when the player wins, and when a player loses.

Events

Timer Tick

The game runs via a timer set at predetermined intervals. Each tick of the timer will run a method from the world class which runs all events within the game.

Key inputs

The form will detect key inputs entered by the user to determine movement of the paddle object

First Iteration

Minimum Viable Product

MVP will contain ball movement, and allow the player to control the paddle.

Classes

World Class

Behaviours

Run the order of events for each tick of the timer

Field Data

Ball Object

Brick Objects stored within a list

Paddle Object

Ball Class

Behaviours

Determines the position and direction of the ball.

Draws the ball.

Field Data

Colour

Position

Velocity

playArea Size

Brick Class

Behaviours

Draws the Brick.

Determines if the brick has been hit by the ball oer not.

Field Data

Ball data

Colour

Width

Height

Position

Paddle Class

Behaviours

Draws the Paddle

Determines the movement of the paddle.

Decides if the paddle has been hit by the ball or not.

Field Data

Paddle colour

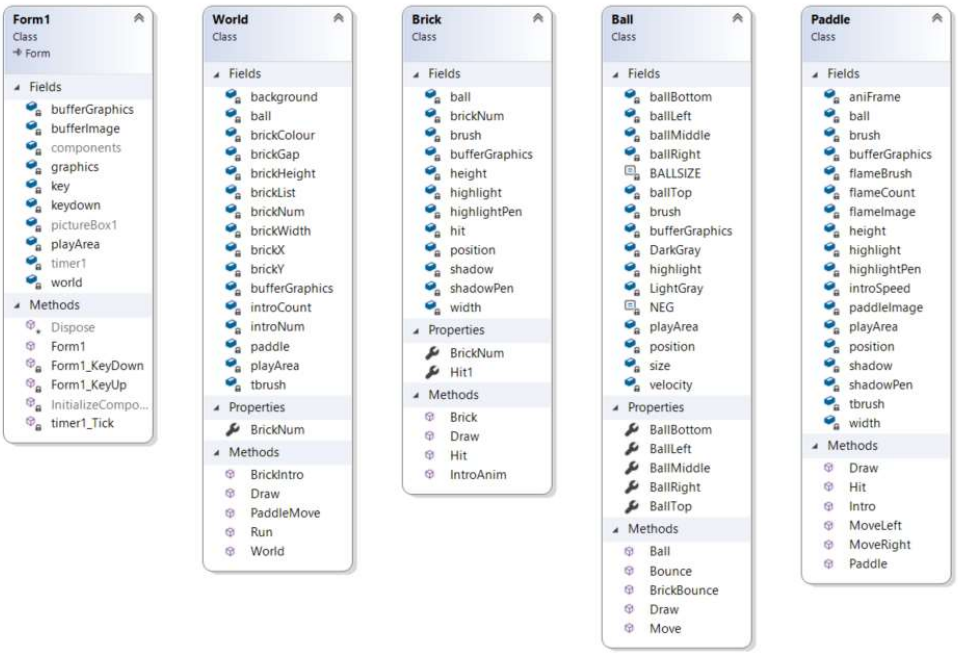
Paddle width & Heigh

Position

playArea Size

Ball data

UML Diagram



UML Sequence