Project Report

Connect4FX Game

Yassr Shaar

**Student ID**: 14328571

**MSc. in Computer Science NL**

**Module Code:** COMP20300

**Module** **Title**: Java programming

**Lecturer:** Dr Simon Caton

Logo

Description automatically generated

UCD School of Computer Science

University College Dublin

December 18, 2020

Table of Contents

[Introduction 3](#_Toc59151149)

[Class Structure 4](#_Toc59151150)

[Class Diagram 4](#_Toc59151151)

[Game Design thoughts 5](#_Toc59151152)

[Game Unit Testing 5](#_Toc59151153)

[Improvements over Traditional game 6](#_Toc59151154)

# Introduction

The game chosen for this JavaFX project was Connect4.

Connect4 is a two player, turn-based board game that is typically comprised of a board that is seven columns in length and six rows in height.

This game was chosen as it offered a simple concept of gameplay, the players only need to choose a column where a disc would drop, however, the complexity of the game comes with the different ways a player can win. This level of complexity coupled with the desire to “make more” of this traditional game is what compelled me towards the project.

## Game Implementation

This project’s implementation of Connect4 provides further options to players which include customisation of the player name, colour, board size and finally the options to pause or play music. This is a very visual implementation of the traditional game and is aimed to be aesthetically pleasing and enjoyable.

The game rules are in line with the traditional game in that any player is capable of winning by having a combination of four discs of the same colour in any of the following directions:

* Horizontally
* Vertically
* Diagonally (to the left or right)

This implementation does also take into consideration the possibility of a draw occurring where neither player wins and there are no empty tiles on the board to place a disc.

## Connect4 trivia

**Connect4 trivia** that I discovered purely through the designing of this game (quite possibly the creators of the game did not even realise this).

The original colours for Connect4 are Yellow & Red.

When we look at a HEX colour picker, we can see something very interesting:

When we select #ff0 we get the colour **Yellow** & if we were to **Connect4** 0’s (discs) to that hex colour #ff0000 we get **Red**!

Graphical user interface

Description automatically generated Graphical user interface

Description automatically generated

# Class Structure

The class structure of the JavaFX game begins with the GameMain. This is where we create our Stage and scene which we call to it the Main Menu preference method.

The Main Menu preference method returns a GridPane which is filled with customisation and graphics tailored to the player’s choices. Here the players can choose their name & colour for a basic game, however, they can also choose to have the background music playing or not, they can also optionally increase the size of the board to create a more complex game.

## Class Diagram

Diagram

Description automatically generated

## Game Design thoughts

# Game Unit Testing

# Improvements over Traditional game