

PROJECT-SCOPES TECHNICAL REALISATION

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1 Introduction

2 Technology and tools

3 Structure of the code

4 Game mechanics

4.1 Players

4.2 Arena

4.3 Bonuses

5 Graphical User Interface

5.1 EPIC 1

The Graphical User Interface is fully designed and implemented in Unity game engine version 5.4.1f Personal. Only basic materials/sprites/textures/etc. are used, no additional elements are required.

5.1.1 Palette of colors

The following picture shows all of the colors that are used in the project.

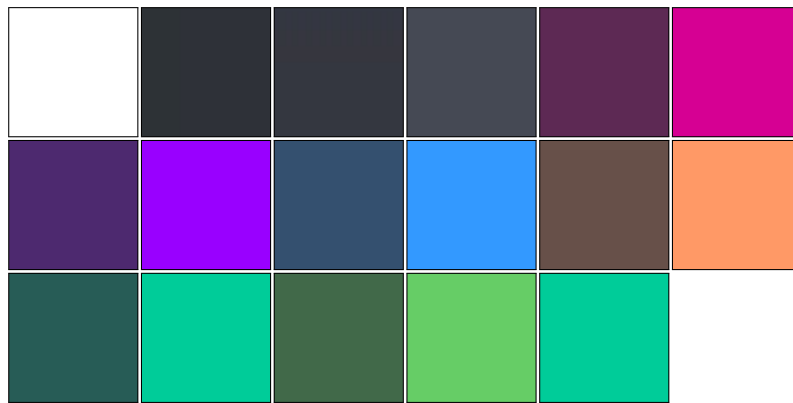


Figure 1: Pallette of colors

The following table contains the RGBA value of each color. The columns and rows match the above list of colors.

Table 1: RGBA color values

255,255,255,255	46,49,56,255	69,73,84,64	69,73,84,255	214,0,147,64	214,0,147,255
153,0,255,64	153,0,255,255	51,153,255,64	51,153,255,255	255,153,102,64	255,153,102,255
0,204,153,64	0,204,153,255	102,255,102,46	102,255,102,255	0,204,153,255	

5.1.2 Components

PlayersSettingsPanel

The main GUI canvas contains one `Panel` component named `PlayersSettingsPanel`. It is the user interface background on which all other components are inserted. The RGBA value (46,49,56,255) was used as its color. The GUI window size is 650x457 pixels.

PlayerDisabledPanel

In order to add a new player to the game user needs to enable it by pressing the `PlayerDisabledPanel`. This panel is in fact a `Button` with the RGBA color value (69,73,84,64) used as a background. It consist of two subcomponents. The first one is an inactive `InputField` which indicates what color will player have after activation. The second one is a text "+" which notifies that the button is to be pressed. There is maximum of a six different players that can participate the game and each one has different color. The disabled version of them looks as follows:

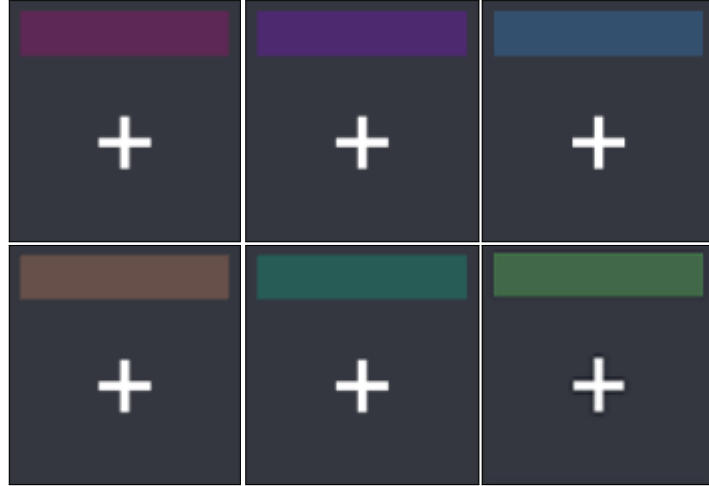


Figure 2: PlayerDisabledPanel

PlayerEnabledPanel

When the `PlayerDisabledPanel` is pressed `PlayerEnabledPanel` is inserted on its place. Its background is now (69,73,84,255) RGBA value color. It consists of four components: `InputField` for entering player unique name, `Button` for removing player from the game and two `Buttons` for selecting player movement keys. The colors of the panel remains the same as in case of disabled version, only now they became opaque.

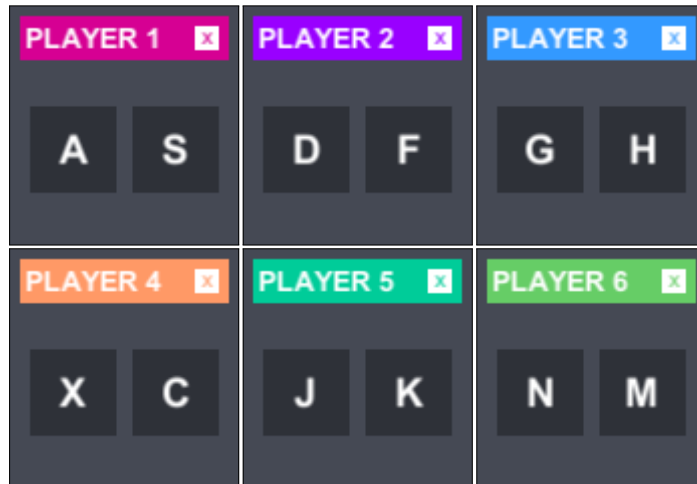


Figure 3: PlayerEnabledPanel

All of the componetns has its default values hardcoded. All of them are explained in the implementation section.

ArenaSizePanel

The `ArenaSizePanel` background color is exactly the same as the color of the `PlayerEnabledPanel`. The panel itself contains two main components. The first one is a `Panel` with the background color

the same as the color of the `PlayersSettingsPanel`. This panel contains a "ARENA SIZE" Text of a RGBA (255,255,255,255) color written in capitals letters only. The second element of the panel is a `Slider` of the following two possible colors depeneding on status: (255,255,255,255) RGBA in case it is not filled and (0,255,153,255) RGBA otherwise.



Figure 4: ArenaSizePanel Slider

The whole component looks as follows:

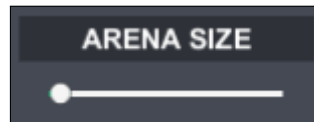


Figure 5: ArenaSizePanel

The functionality and implemetation of `ArenaSizePanel` is described in implementation section.

InitialSpeedPanel

The only differece between `InitialSpeedPanel` and `ArenaSizePanel` is the text displayed on the panel. In this case it is "PLAYERS SPEED". For detailed information about the colors and components please refer to `ArenaSizePanel` section.

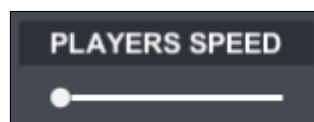


Figure 6: InitialSpeedPanel

InitialSizePanel

The only differece between `InitialSpeedPanel` and `ArenaSizePanel` is the text displayed on the panel. In this case it is "PLAYERS SIZE". For detailed info about the colors and components please refer to `ArenaSizePanel` section.

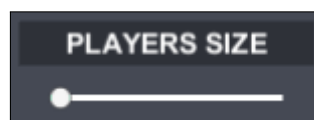


Figure 7: InitialSizePanel

StartButton

The color of the "START" Button is the same as the color of the 'slider panels' text panel background. The Text "START" has a pure white color.



Figure 8: StartButton

Startup GUI

Here is an example of a GUI just after the game starts:

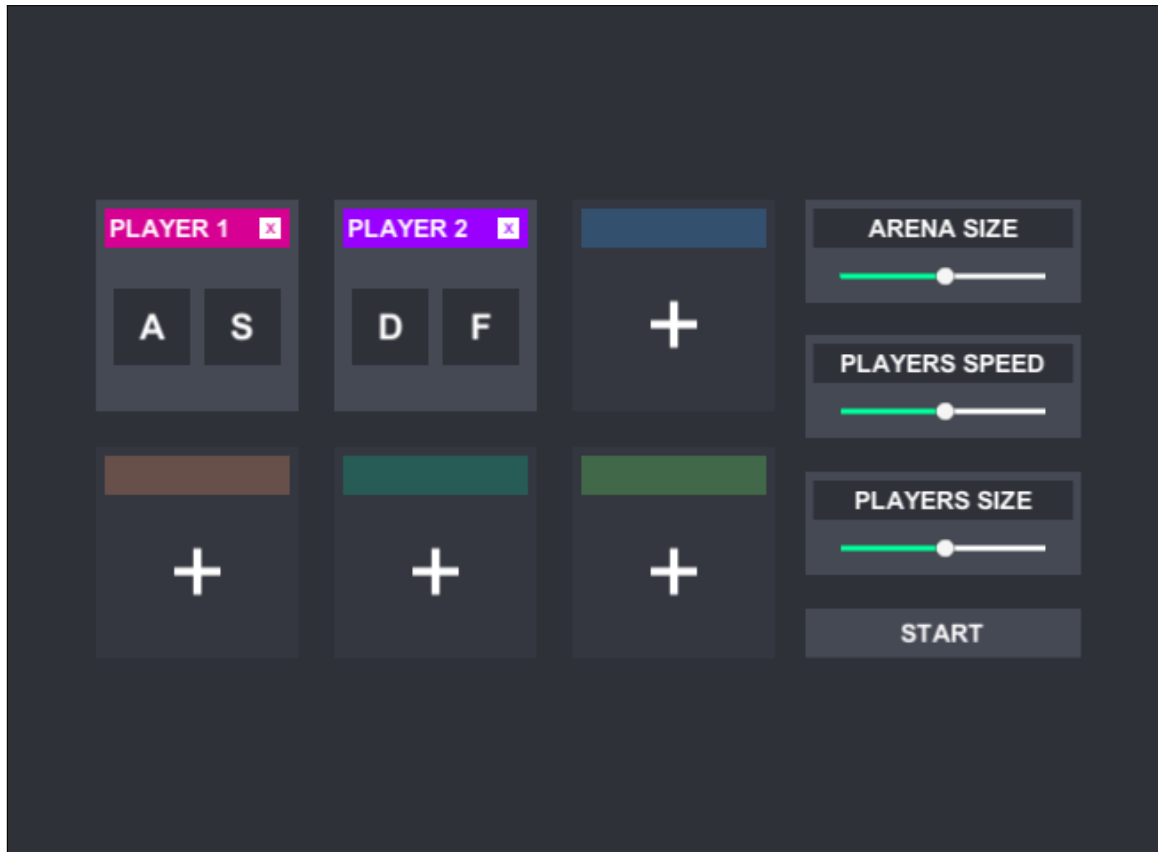


Figure 9: Startup GUI

5.1.3 Implementation

The GUI implementation is located in *GUIManager.cs* script which uses *GUIHelper.cs* that contains helpful methods. The file is using *Configurator.cs* script to write the user settings before game starts. The following functionalities are implemented:

- Reading initial game configuration. It is stored in 'default.cfg' file.
- Adding and Removing player. There is a minimum of two players that must participate the game. There is no possibility to lower the value from the GUI. A user can manipulate the number of players from two to six. It is also impossible to have more than six players in the game.
- Setting the nickname of the player. On each `PlayerEnabledPanel` there is an `InputField` by which user can set player unique name. The nickname is limited by 9 characters and may contain only english alphabet letters and digit.
- Setting the player movement keys. Each player must have its own movement keys. There is no possibility that two players have the same key set. There is also no possibility that the player has the same key set for both directions.
- Changing the initial arena size. The `ArenaSizePanel` slider allows user to set the initial arena size. There are three possible sizes of the arena: small, normal and big.
- Setting the initial speed of all players. The `InitialSpeedPanel` slider allows user to set the initial speed value. There are three possible speeds to be set: slow, normal and fast.
- Setting the initial size of all players. The `InitialSizePanel` slider allows user to set the initial size value. There are three possible sizes to be set: thin, normal and fat.
- Starting the game. The `StartButton` loads a new scene with the game itself.

5.1.4 Sounds

There are no sounds implemented on the GUI yet.

6 Tests

6.1 Requirements

6.2 Types

6.3 Report

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