CS 319 - Object-Oriented Software Engineering

Final Report

IQPuzzler Pro

Group 2J

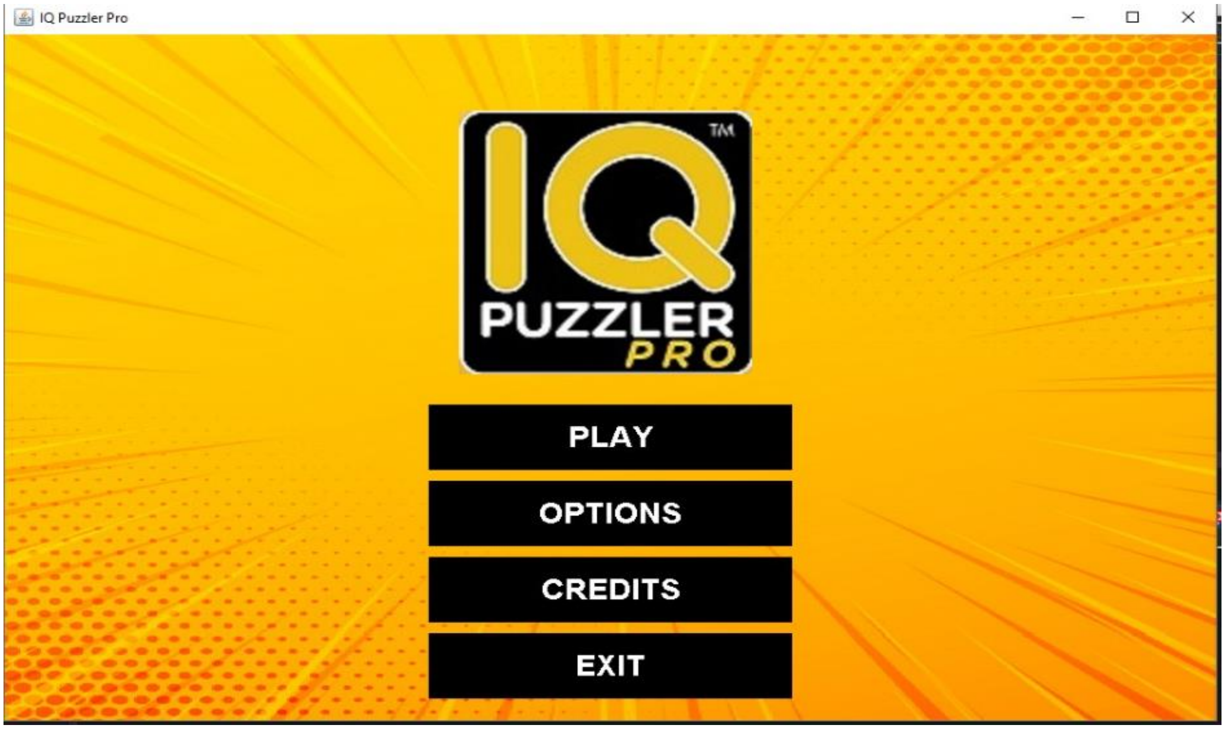
Burak Alaydin
Kaan Altinay
Muhammad Umair Ahmed
Aliyu Saifullah Vandana
Skerd Xhafa
Supervisor: Eray Tuzun

1. Implementation Process

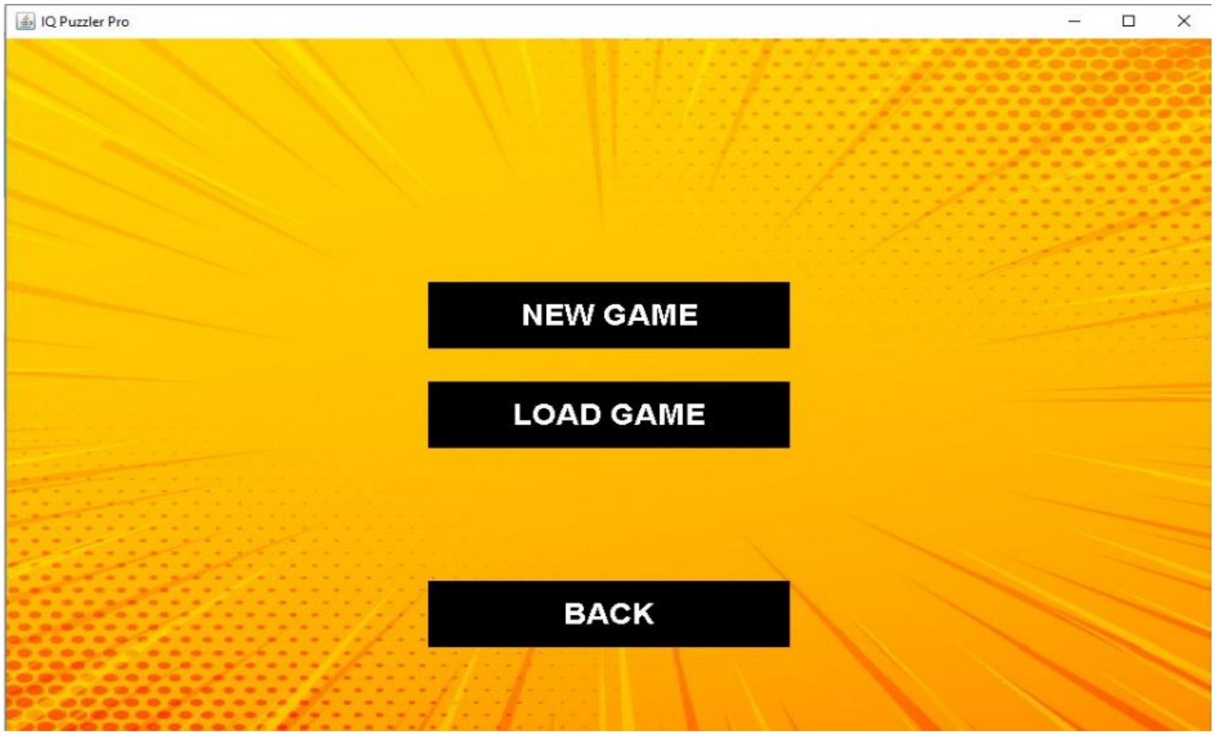
Our implementation process starts with task distribution among the group members. For the first implementation process we are focusing on the core functions of the application which includes the pieces repository, pieces coordinates, puzzle patterns and the scoring system. This will follow the design routine elaborated within our design report. For the implementation we decided to go with fixed pieces without randomly generating from scratch. Tasks were divided in accordance with the works available. Mainly, the works at hand were the code implementation for the logic of the game and the user interface. A faction of the group worked on the logic and another on the user interface. As the logic of the game goes hand in hand with each other, the remaining group members worked collaboratively to reach a closure on a working system.

The implementation was done in two parts. The first part deals with the basic logic of the game which is also necessary for the demo of the app. The second part includes the additional features of the app such as story modes. At first, the tasks were not divided but was left open, so members can choose according to their areas of expertise. Each member worked on the part they felt comfortable with. We worked on pieces coordinates, pieces inventory, the 2D grid, game session, game scoring system and story mode. For the challenge part at the time of implementation we have.

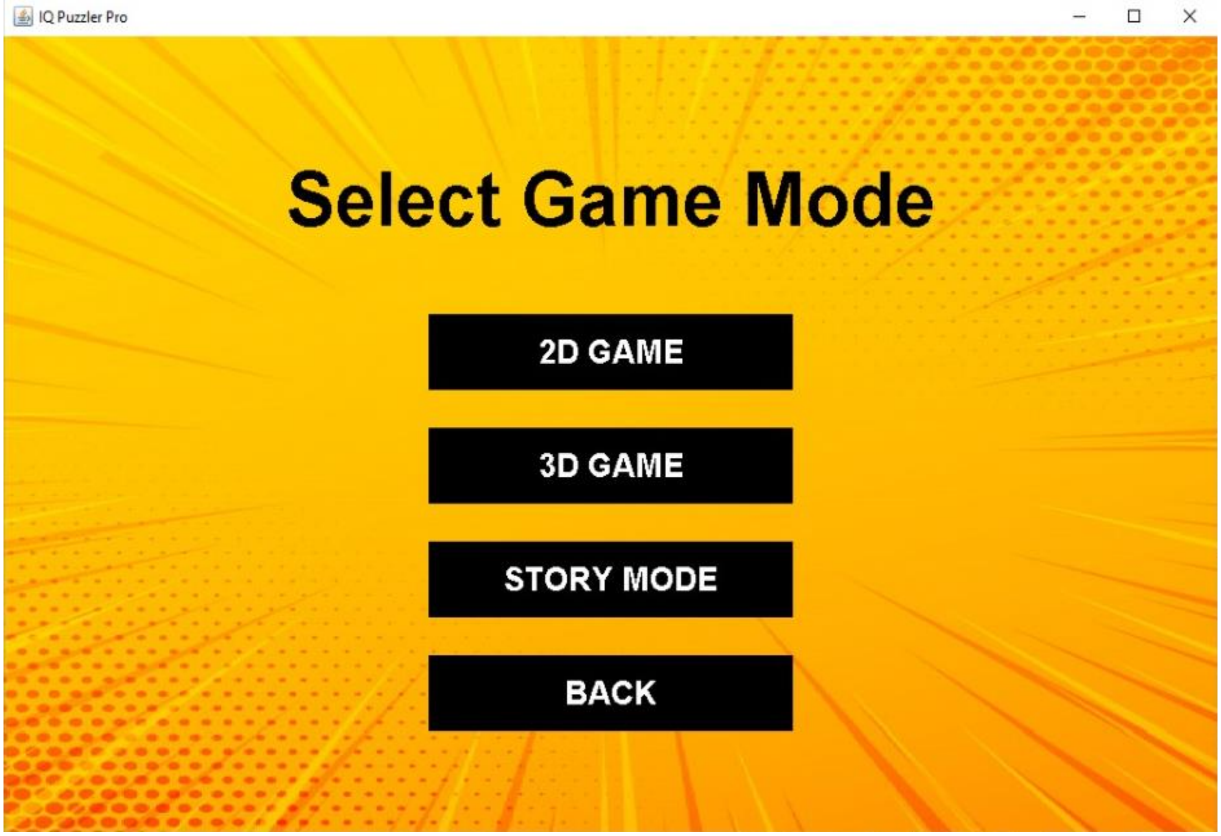
Much work was put into the design stage of this game which laid foundation for the implementation and made it easier. As such we did not have to deal with problems of naming convention and the likes. Since most of the time we worked together at one place any instance of naming inconsistencies was sorted out as early as possible without much time wasted. For example, we have few challenges available and also the story mode is not actively in session as we prepare for the demo. But these are minor stuff that will not prevent the game form functioning properly. Below are the parts that are completed so far for the first part of the implementation:



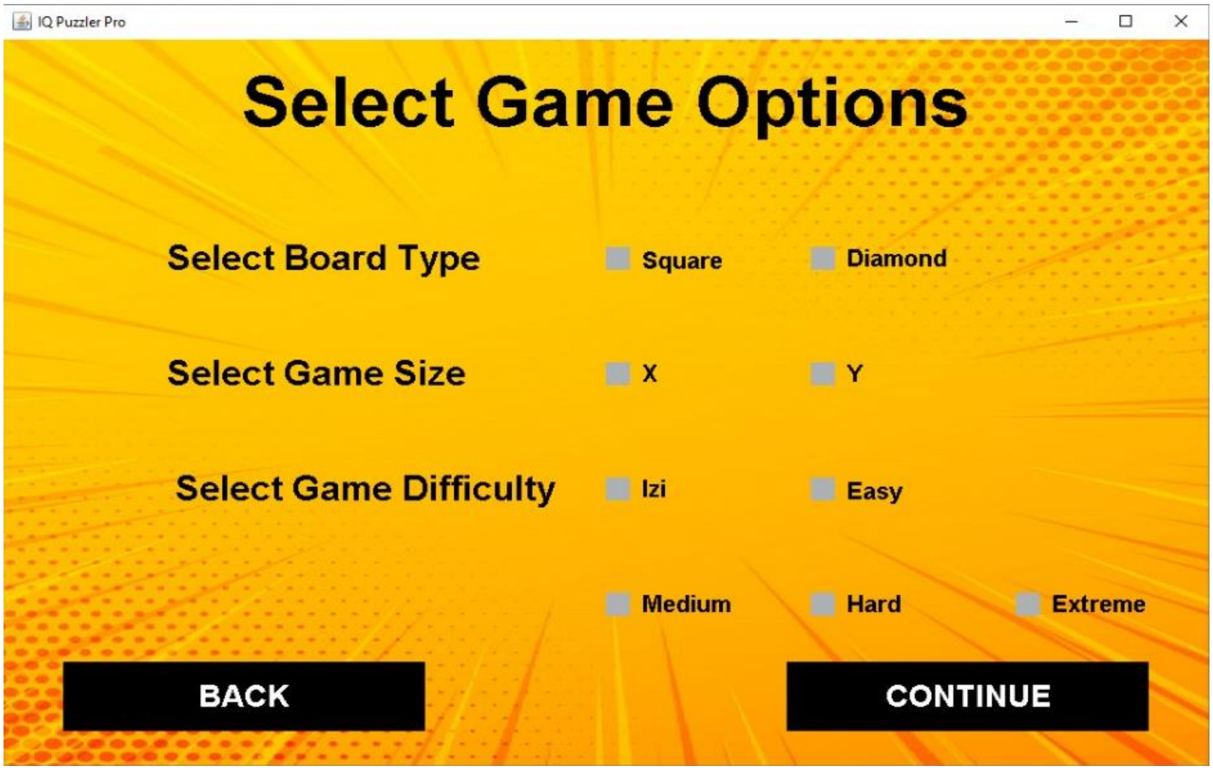
This is the main menu of the app which will greet the user. The user can choose to play the game, visit the options screen, view the credits or exit the game. This can be achieved by rolling the mouse pointer over the desired section and clicking on it. Whenever a mouse pointer gets to a button it is highlighted with a blue color as can be seen in the display above.



Upon clicking the play button, the user is directed to another screen which will give the option of playing a new game which will start a new session or loading an already existing game that was saved. The user can get back to the main menu by clicking on the back button.



The new game button directs the user to this screen above. The user can choose to start a new 2D game, 3D game or a story mode. The user can go back from this page by pressing on the back button as visible in the above screen.



IQ Puzzler Pro

Select Game Options

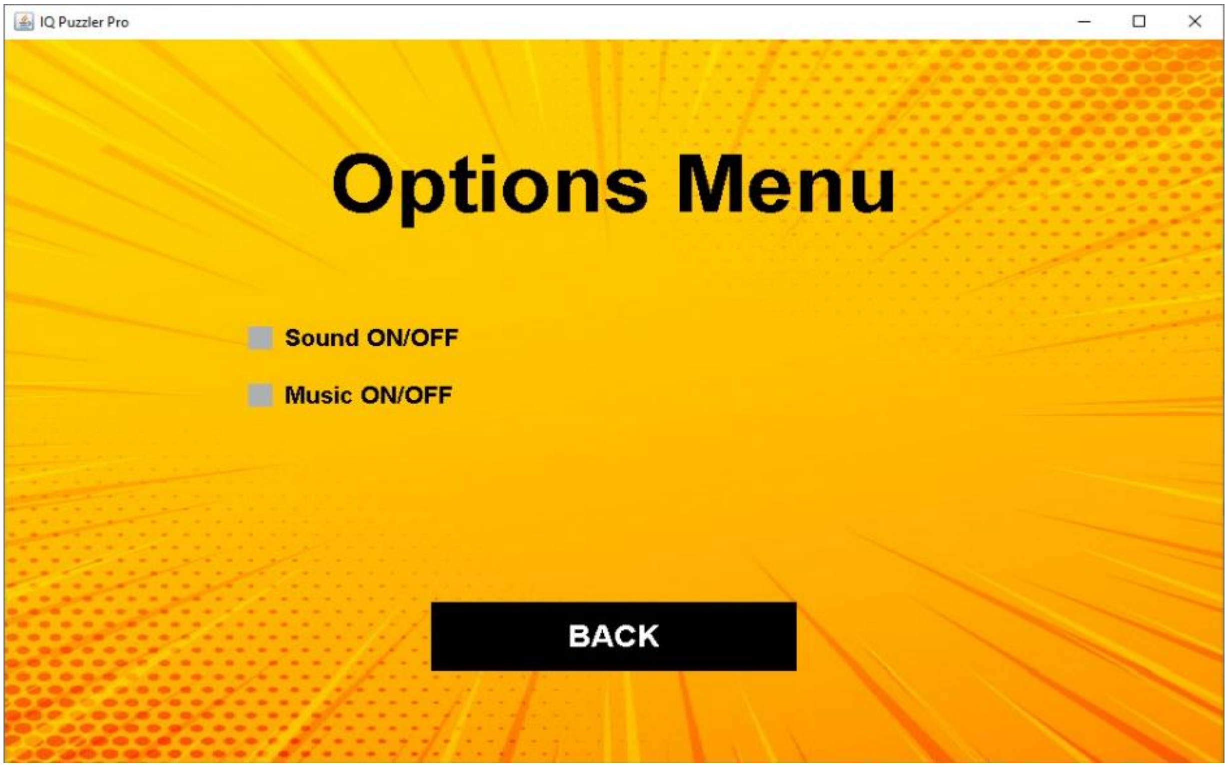
Select Board Type □ Square □ Diamond

Select Game Size □ X □ Y

Select Game Difficulty □ Izi □ Easy

□ Medium □ Hard □ Extreme

When the user chooses any of the game options, the user is required to select some attributes of the game before continuing to play. The attributes include the type of board, the game size and the difficulty of the game. The user can go back from this page by pressing the back button.



The options menu presents the user with an option to play the sound or the music. If the user wants to play silently, he/she can mute all sounds and music.

2. Changes in Design

There has not been much changes in the design as compared to the first iteration of our design report. Our implementation was done solely based on the design report. However, at first, we thought of generating pieces randomly in the game. But we have agreed to have fixed 12 pieces which will used by the player. This decision was informed by close-up look of the physical version of the IQ puzzler game. We realized that since the player always has a fixed number of pieces, we can create the game with fixed number of pieces. Also, the user at the start of the game will have some pieces (3 of them) which is already inserted on the board. The user will then fill it up to the desired pattern. This decision again was informed by the physical version of the game. During the design process we thought the user will start with a blank board and start inserting the pieces. But now we have realized that it would be more logical if there are pieces already arranged in their appropriate with the user placing the remaining pieces to complete the game.

3. Implementation Status

The basic logic of the app and all the embellishment it requires have all been implemented. These include the pieces, the coordinates of the pieces, the grid, scoring system and story mode with the levels also. The user interface has also been completed for the most part. The game implementation was done using eclipse IDE, so we gained a lot of insight into how it works. The constant use of GitHub for project works submission also added to our skill set the use of github.

4. Build Instruction

After downloading the source code from github. You create a jar file using the command line using the methods below:

1. Start *Command Prompt*.
2. Navigate to the folder that holds your class files:

   ```
   C:\>cd \mywork
   ```

3. Set path to include JDK's bin. For example:

   ```
   C:\mywork> path c:\Program Files\Java\jdk1.7.0_25\bin;%path%
   ```

4. Compile your class(es):

```
C:\mywork> javac *.java
```

5. Create a manifest file and your jar file:

```
C:\mywork> echo Main-Class: Craps >manifest.txt
C:\mywork> jar cvfm Craps.jar manifest.txt *.class
```

or

```
C:\mywork> jar cvfe Craps.jar Craps *.class
```

6. Test your jar:

```
C:\mywork> Craps.jar
```

or

```
C:\mywork> java -jar Craps.jar
```

5. Work Allocation

Skerd Xhafa

- Worked on the diagrams for analysis report iteration 1
- Worked on most of the game code implementation with the user interface.
- Created diagrams for the design reports in first and second iteration with written descriptions and preambles
- Created and implemented the code and user interface for additional features of the game.
- Helped fix the reports for the second iteration.

Kaan Altinay

- Worked on the user interface of the game.
- Added music to the game

Muhammad Umair Ahmed

- Came up with, planned and coded the complete mathematical model that our digital version of the game is based on, with assistance from Burak.
- Implemented the Countdown Timer and Scoring mechanism.
- Worked on visual improvements of components in the game, giving a solid look to the puzzle pieces and the board.
- Planned, created diagrams for and wrote the Analysis Report Iteration 1 with some assistance from Skerd with the diagrams and significant help from Saifullah with the report-writing.
- Planned, created diagrams for and wrote the Design Report Iteration 1 with help from Burak and Saifullah. Diagrams were almost completely my own.
- Fixed the Analysis Report for the second iteration including diagrams
- Fixed the Design Report in collaboration with Saifullah and Skerd, including adding final corrective touches to the diagrams.
- Coordinated all the group activities and help distribute workload among group members.

Aliyu Saifullah Vandana

- Created and worked on the story mode design and stories with Umair. Wrote the entire story content.
- Planned and worked on the analysis report iteration 1 by writing the contents of the sub sections and the preambles and explanations of the diagrams.

- Created, formatted and worked on the design report iteration 1.
- Created and worked on the entire final reports.
- Fixed the reports for the second iteration.

Burak Alaydin

- Worked with Umair to come up with a solid mathematical model for our game.
- Planned, created diagrams for and wrote the Design Report Iteration 1 with help from Umair and Saifullah. Diagrams were almost completely my own.