Bilkent University

Department of Computer Engineering

CS319 - Object-Oriented Software Engineering

Term Project - Final Report
Iteration 2

Project Name: Settlers of Catan

Group No: 3G

Group Members: Mehmet Tolga Tomris
Atakan Arslan
Fatih Çakır
Oğuzhan Dere
Zeynep Berfin Gökalp

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1.Implementation Process

Implementation process of the Catan started with distribution of the tasks among the group members. We agreed to implement our project using IntelliJ IDEA. Each of the group members downloaded the IDE but we merged our codes at the end and connected to Github to easily push it. In addition to Github, we used Skype and Discord to communicate when we were not able to arrange meetings in the campus.

Task division has been done according to the software architecture that was determined in the design process. Although we divided the tasks, it does not mean that we did not take part in the other members' tasks. Throughout the process, we constantly shared our opinions in order to have the best efficiency in the least time.

After the first submission of the design report, we started to implement the game. We did not use GitHub enough in the implementation process for the first iteration of a demo. As first step, we started from implementing game objects since they are the main focus of the program. After testing all of the objects, we started to build gameEngine class and the User Interface, too. Having limited time, we preferred not to include data management. The menu screens are demonstrated at the User's Manual part.

Afterwards, we tested the UI and integrated the code. Then, we started to test the whole program. We changed some properties and operations from the classes in order to provide efficiency and usability.

At last, we added sounds, images and background to make the game more user friendly.

1.1 System Requirements

Settlers of Catan will require Java Runtime Environment. Any computer that contains it, will be able to install and run the game.

1.2 User's Install Guide

- Enter the link below to see the reports and project https://github.com/cakirfatih/CS319-3G-CA
- Clone the project via command line or Download the project as a JAR file and run it.
- To understand how to play the game, users can look at "How to Play" option from the main menu.
- To select a Game Mode(Angel or Robber Mode) users should choose "Select Mode" from the main menu.
- For learning more about the implementation of game, check our second iteration reports.

2. Changes in Design

After the first iteration of both design and analysis reports, we have concluded that our diagrams needed to be changed. Therefore, in the second iteration we have rewritten all the diagrams and also subsystem decomposition, with a more logical and efficient one. Due to changing the decomposition we rearranged the packages according to our design in the second iteration. While implementing the game, we

tried to stick to our design as most as possible, but we had to remove and change some inefficient parts in the design process.

In the design report we declared that there will be 2 different classes that work for Robber and Angel Mode, instead of implementing them, we found a more easier way and wrote methods in related classes. We also added trade function and attributes in gameEngine instead of creating a Trade Class. Other than that, we had changes in other class methods and attributes.

We changed the User Interface Layer also. In our design report we did not consider bars in the gameplay, so that we needed to implement them for the controller. We added some functionalities to the ControllerBar which is written in the report as UI Manager.

3. User's Manual

3.1 Starting the Game

Users can select different options from the Main Menu. It is the first screen of the game. New Game directs user to Select Mode Screen where the user can select a

mode and start a new game.

Figure 1: Main Menu

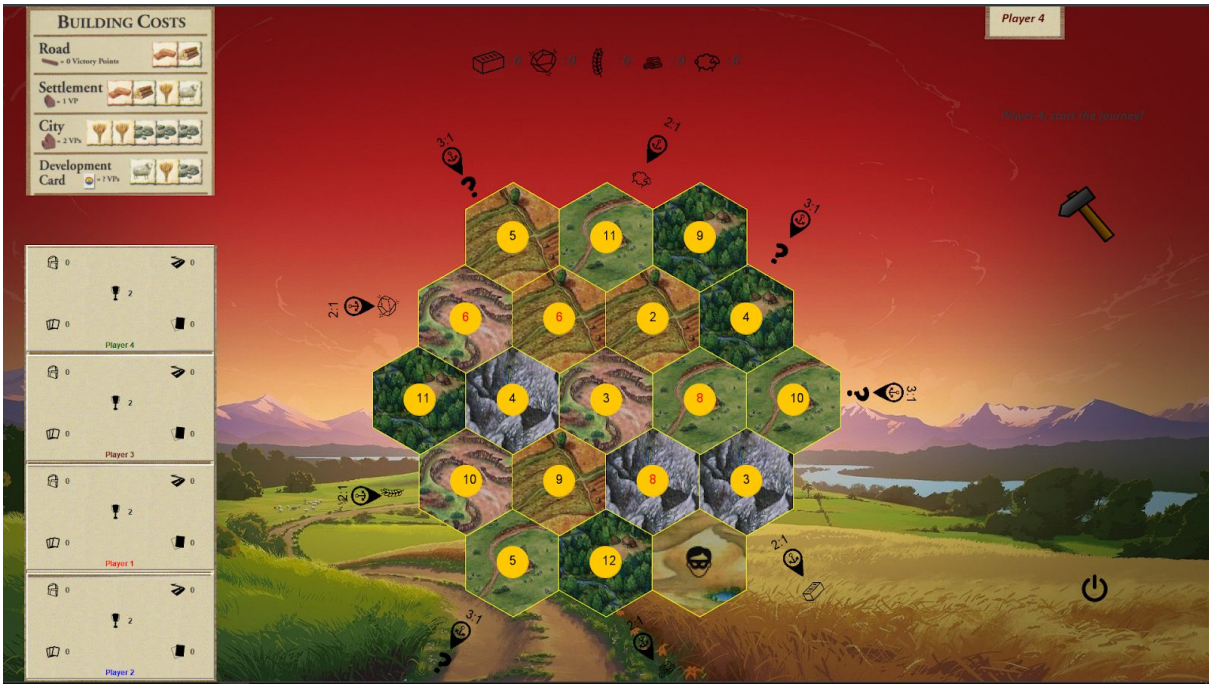

Figure 1: Robber Mode Gameplay

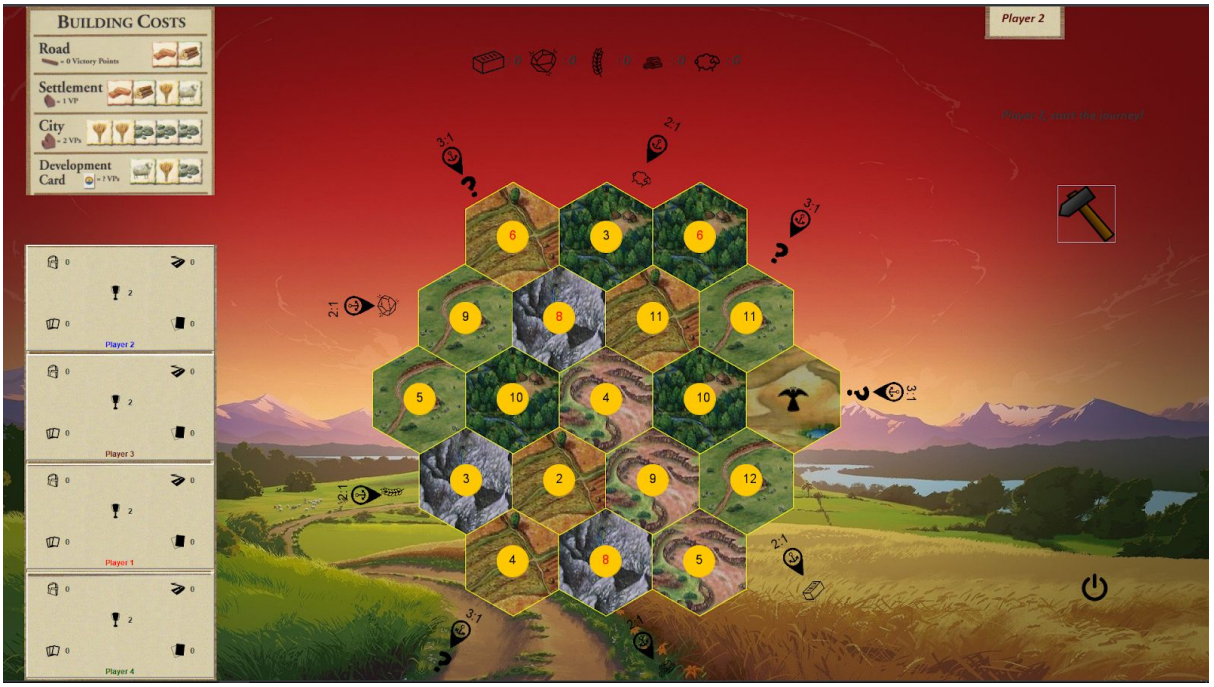

Figure 2: Angel Mode Gameplay

3.2 Selecting a Mode

Users can start the game by selecting a mode on “Select Mode” Screen. After clicking the Robber Mode button, user will be directed to a game with Robber. If the

user clicks on Angel Mode which is the new feature that we have added, user will be directed to a game with Angel.

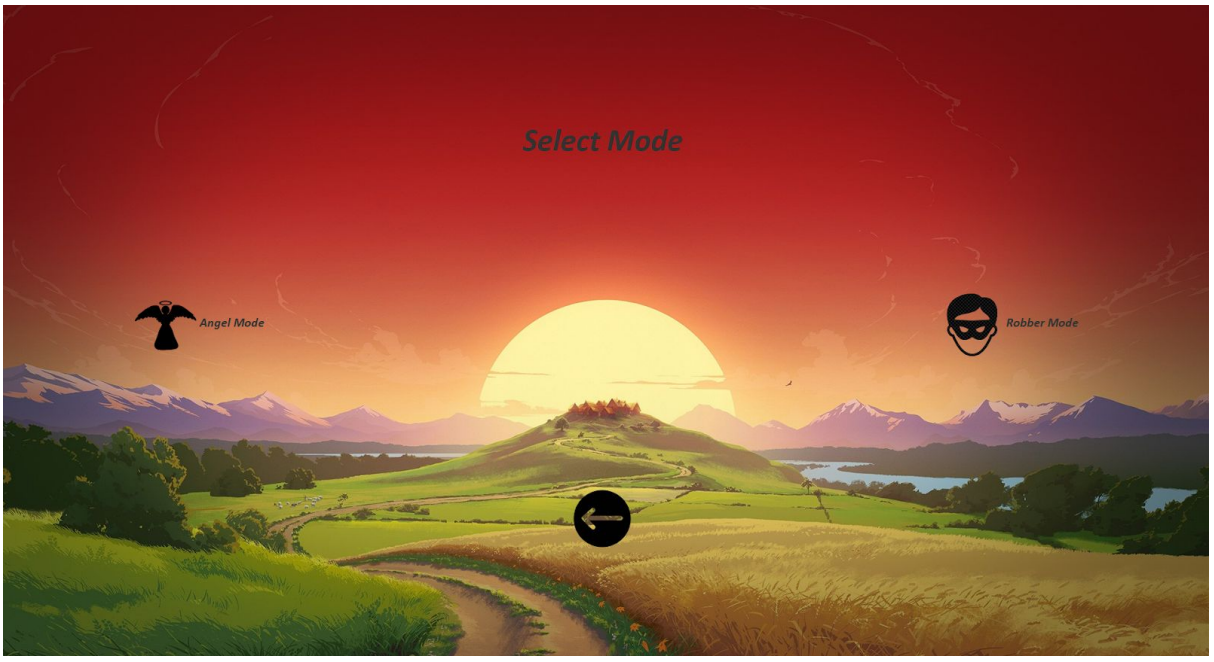

Figure 3: Select Mode Screen

3.3 How to Play

Users can learn how to play the game from How to Play Screen. Detailed information of the game are given in “How to Play”.

Figure 4: How to Play Screen

3.4 Settings

Users can change the sound settings from Option Screen. Users can activate/deactivate sound.

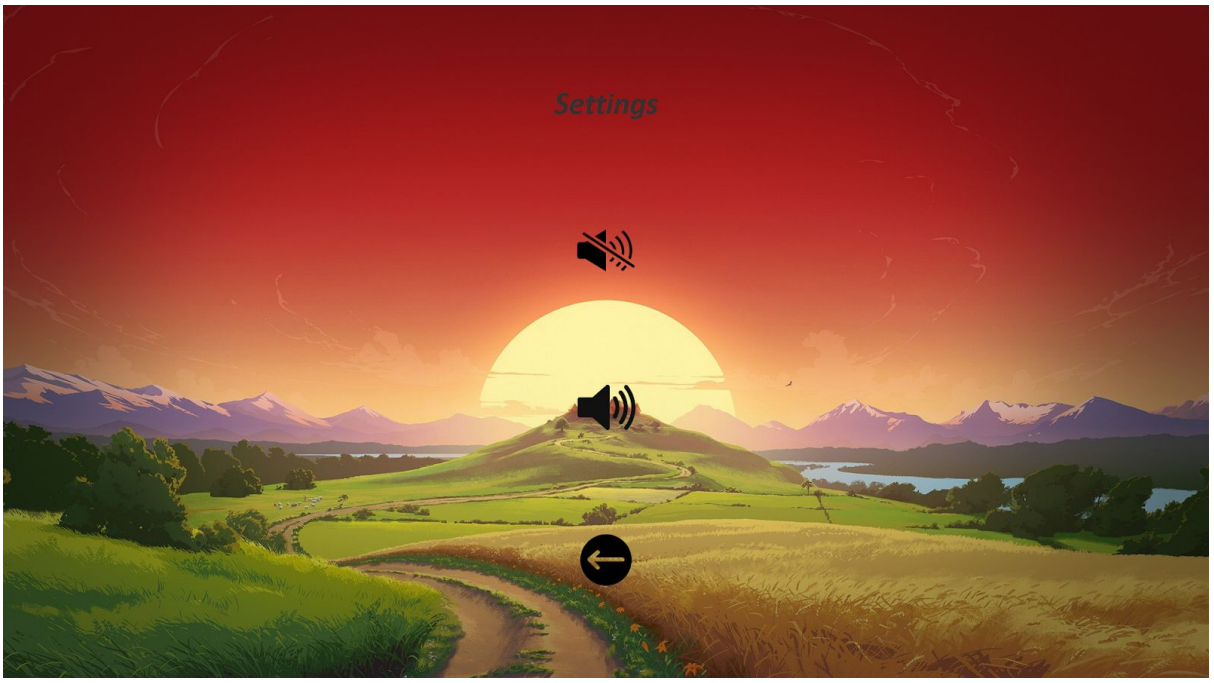

Figure 5: Settings Screen

4. Status of Implementation

Most of the project's functional requirements have been completed. All of the gameplay functions have been implemented. New features such as Angel Mode has been added.

In Catan, we used Swing toolkit for GUI. Considering our design goals, we tried to reach our user-friendliness and maintainability goals. The code is easy to maintain and user interface is simple.

5. Work Allocation Of The Team

Mehmet Tolga Tomris: Player class, Vertex class, Edge class, GameEngine class, ControllerBar class, SettingsMenu class, Building class, Edge class, Vertex class, MainWindow class

Atakan Arslan: Map class, GameEngine class, MapDesign class, ControllerBar class, ModeSelectMenu class, Cards class, Hexa class, MainWindow class

Fatih Çakır: GameEngine class, Player class, MapDesign class, ControllerBar class, City Class, Location Class, MainWindow class, SettingsMenu class

Oğuzhan Dere: ControllerBar class, MainWindow class, MapDesign class, TopBar class, LeftBar class, BuildingComponent class, DevelopmentCard class, Road class, HowToPlayMenu class

Zeynep Berfin Gökalp: LeftBar class, GameEngine class, Hexa class, HowToPlayMenu class, ControllerBar class, Dice class, Settlement class

External Class Used By Team: GraphPaperLayout class. An external library