CS 319 Term Project Analysis Report

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Project Group Name: Oldies but Goldies

Project Topic: Risk Board Game

1. Introduction **3**

2. Overview **3**

2.2 Game Board 5
2.3 Playing Pieces 5
2.4 Dice 5
2.5 Cards 5
2.5.1 Mission Cards 5
2.5.2 Land Cards 5
2.6 Object Of The Game 5
2.7 Game Set-Up 5
2.7.1 Claiming Territories 5
2.7.2 Reinforcing Territories 5
2.7.3 The Turn Sequence 5
2.8 Phases Of The Game 6
2.8.1 Phase I 6
2.8.2 Phase II 6
2.8.3 Phase III 6
2.8.4 Phase IV 6
2.9 Game Modes 6
2.9.1 Everyman For Himself 6
2.9.2 Tag Team 6
2.10 Leaderboard 6
2.11 Settings 6

3. Functional Requirements **6**

4. Non-Functional Requirements **7**

4.1 Usability 7
4.2 Reliability 7
4.3 Performance 7
4.4 Supportability 7

5. System Models **7**

5.1 Use Case Models 7
5.2.3 State Diagram 17
5.3 Object and Class Model 18
5.3.1 Model Package 18
5.3.2 View Package 18
5.3.3 Controller Package 18
5.4 User Interface 18
5.4.1 Navigational Path 18
5.4.2 Screen Mockups 18

5.4.2.1 Login 18
5.4.2.2 Main Menu 18
5.4.2.3 Tutorial 18
5.4.2.4 New Game 18
5.4.2.5 War
5.4.2.6 Settings
5.4.2.7 Credits
5.4.2.8 Number Of Players 18

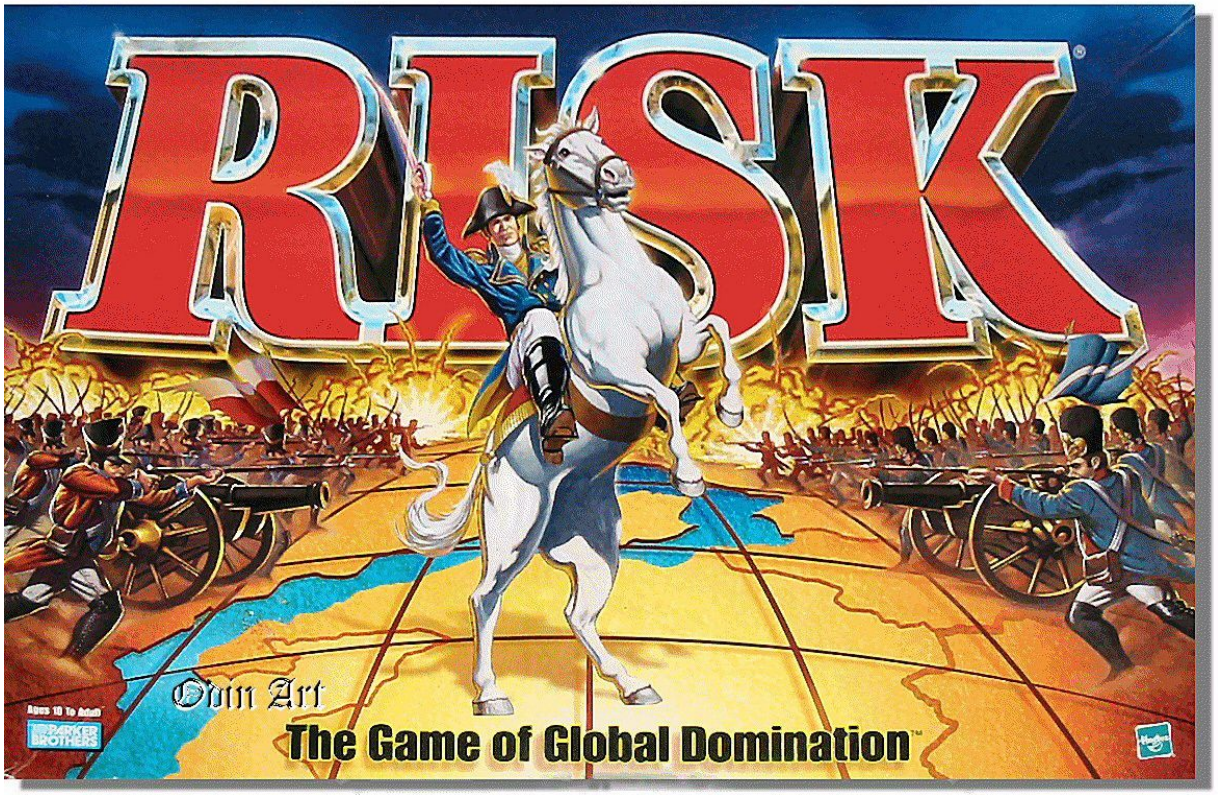
6. Conclusion 18

7. References 18

1. Introduction

The game we decided to design and implement as a group is called Risk. One of the famous military strategy board game designed for three to six players. The standard version of this game consists of a world map which is divided into six continents: North America, South America, Europe, Africa, Asia and Australia which consists of a total forty-two territories. All of the continents are represented in different colors.

In order to make the game more interesting and competitive for the players, we will add some features to the game. The players will be able to change the background theme of the game if they want to. Also, we will add some background sounds matching with the present acts of players to make our game more sophisticated. Moreover, in our game we have a tutorial part which helps players to understand the game more easily. If the players face a challenge, they can read the manual. Lastly, we will add a leaderboard to show the scores of all the players. Players can look at the leaderboard and arrange their strategy according to this table, in order to be the winner of this competitive game.



2. Overview

2.1 General Information about Game

Risk is a famous military strategy game fits for all ages. It has many different versions but we are using the standard version which is designed for three to six players and has a total of forty two territories in six continent.

2.2 Armies

Risk has six different complete set of different colored army pieces and each of them has three units; first one is Infantry, second one is Cavalry (worth 5 Infantry) and third one is Artillery (worth 10 Infantry, or 2 Cavalry).

2.3 Game Board

On the game board,there is a world map which is divided into six continents and forty two territories. Each continent is represented in different colors and has 4 to 12 territories. Africa is represented in color brown and has 6 territories, Asia is represented in color green and has 12 territories, Australia is represented in color grey and has 4 territories, Europe is represented in color blue and has 7 territories, North America is represented in color yellow and has 9 territories and lastly South America is represented in color orange and has 4 territories.

Some territories are adjacent to each other, either by a sea line or by sharing a border. At the bottom of the game board there is a box which shows the number of soldiers the players will receive after the end of a play tour or for a set of tradable cards.

2.4 Playing Pieces

Six different color and 3 type of playing pieces. Infantry is one military unit, cavalry 5 military unit and artillery is 10 military unit. Moreover there is one golden cavalry belongs to no one for use it to count bonus reinforcement.

2.5 Dices

In our game we use dice when attacking and defending Territories. There are 2 color of dice, red and white. There 3 red dice which are used to attack and 2 white dice to defend.

To attack; the player can choose a territory to attack according to sea and boundary lines. Before rolling the dices, both of the players have to announce

the number of dice they are going to use and have to roll at the same time. The player who is defending has to keep at least one soldier in her or his territory and after the attacker can roll 1, 2 or 3 red dice. If attacker rolls more dice, change of winning will be increase. The defender can roll 1 or 2 white dice. For rolling 2 dice the territory has at least two soldier.

The biggest valued red dice is fit for the biggest valued white dice, same goes for the second biggest valued red and white dices. If the values are equal, the defender wins and the attacker lost a soldier, if the red dice's value is bigger the defender lost a soldier, until the defender or attacker lost all her soldiers, attacker can keep attacking.

2.6 Cards

There are 2 type of cards one of them is territory and other one is mission cards.

Mission cards are used only when playing the Risk with mission option. For territory cards, every single territory has one single card which has name and picture of the territory and one of the images of Infantry, Cavalry or Artillery. They represents how many soldiers can the player have at the beginning of the game.

2.7 Game Set-Up

First; choose a color and then depending on the number of the players, divide the armies. For example, if three people are playing, each player receives 35 infantry etc.

Second; roll one dice. Whoever rolls the highest number takes one Infantry piece from her or his pile and places it onto any territory on the board, thus claiming that territory. Once a territory is claimed, other players can't place their armies on that territory.

Lastly; starting to the left of the first player, in a turn, everyone places one army onto any unoccupied territory until all 42 territories have been claimed.

1. After all 42 territories are claimed, each player, in turn, places one additional soldier onto any territory she or he has already occupied.
2. Continue in this way until everyone has run out of soldier. There is no limit to the number of soldier you may place onto a single territory.
3. Shuffle the pack of RISK cards (maybe, remove the Mission cards) and place the cards face down by the side of the board.
4. This pack forms the draw pile.
5. Whoever placed the first soldier, starts the game.

2.8 Phases Of The Game

In our game, there exists four main phases :

2.8.1 Phase I

Players can place her armies on her territories.

2.8.2 Phase II

Player can attack the territories according to boundary or sea lines.

2.8.3 Phase III

Players can move their armies to territories which they claimed.

2.8.4 Phase IV

Players earn one territory card.

2.9 Game Modes

In our game, there is a two game mode: Everyman For Himself and Tag Team.

2.9.1 Everyman For Himself

Every player is playing single.

2.9.2 Tag Team

Players playing as team of two person.

2.10 Leaderboard

This is a board which shows every single players' territories and army numbers.

3. Functional Requirements

In our game we will add a manual to show the players game rules or if they need any information.

Moreover we will add two gameplay modes. Single play mode; players play single. Other mode is playing as a team. In this mode; players group as teams at the beginning of the game.

Also, we will add leaderboard to our game. Players will be able to see their scores and choose their strategy accordingly.

Lastly, we will add some background sounds and selectable background themes which will create a more enjoyable experience.

4. Non-Functional Requirements

4.1 Usability

We will add a manual for the game which will be supported with some visuals to show possible results of a player's move.

Risk can be played with 3-6 players and player count will be decided at the beginning. A turn-based system just like in the board games will be used for this version. Turn sequence of players will be decided by throwing dice method (the biggest number is the first). The main control unit is mouse but some keyboard shortcuts and hotkeys could be added as supporter commands.

4.2 Reliability

We will add save/load feature to game, so that players can secure their progress against the possibility of a failure. Also, there will be user registration section at the very beginning of the game so that tracking the progress will be easier for different players.

4.3 Performance

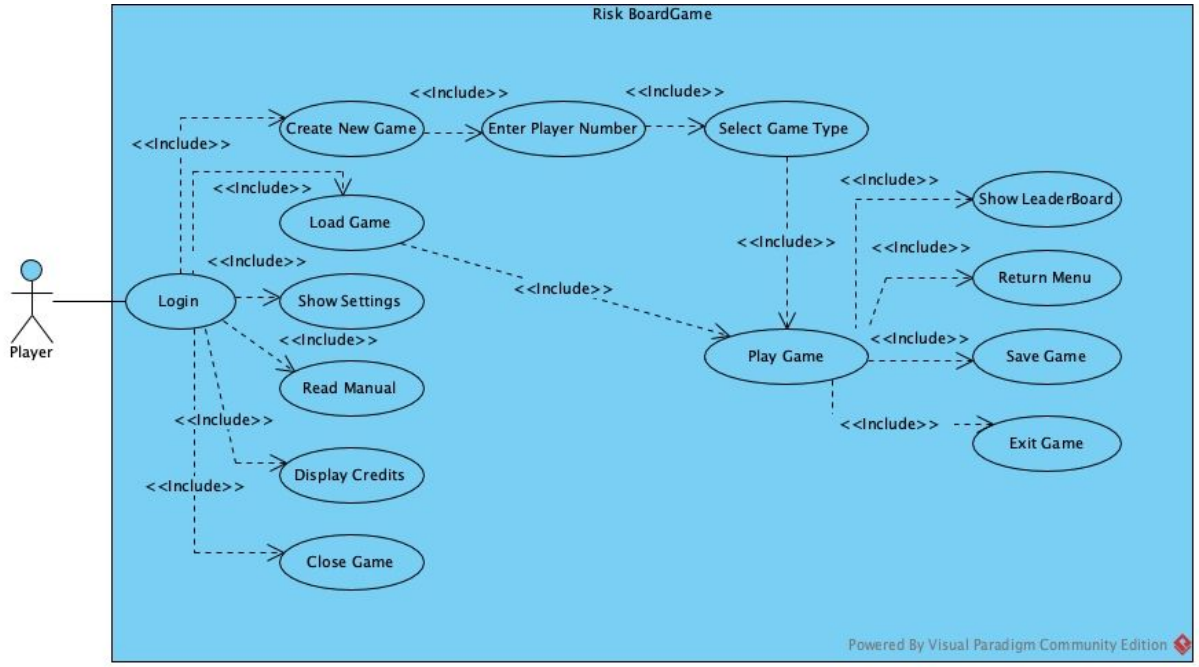
Because of the reason that our game is turn-based, there will not be any simultaneously data processing for every player. Because of this, game's source usage will be low. Virtual version of the game will also reflect the board-game's visual aspect. Mainly 2D images will be used for this purpose. Thankfully, game will avoid excessive graphical hardware usage.

4.4 Supportability

5. System Models

5.1 Use Case Models

5.1.1 Menu Use Case Model



Use Case 1 : Login

Actor : User

Pre-condition : None

Entry Conditions : User has to enter her ID and password or User has to create a new account

Exit Conditions : User has to enter her ID and password or user has to create a new account to enter into menu page

Success Scenario Event Flow :
User enters her ID and password or creates a new account

Alternative Event Flow :
User has to select exit window to close the login page

Use Case 2 : Create New Game

Actor : User

Pre-condition : User has to be in the main menu

Entry Conditions : User has to select the number of players
User has to select the game type (Every man on himself or Grouping)

Exit Conditions : User has to select return menu on the screen which returns the user to main menu
In EMOH selection, one player wins the game
In Grouping selection, one group wins the game

Success Scenario Event Flow :
User selects number of player
User selects game type
Game starts according to given selections

Alternative Event Flow :
User selects 'Return Menu' on the screen and returns to main Menu

Use Case 3 : Load Game

Actor : User

Pre-conditions : User has to be in the main menu
A saved game must be exists in the game's database

Entry Condition : None

Exit Conditions : User has to select return menu on the screen which returns the user to main menu
In EMOH selection, one player wins the game
In Grouping selection, one group wins the game

Success Scenario Event Flow :
Saved game starts according to last save

Alternative Event Flow :
User selects 'Return Menu' on the screen and returns to main menu

Use Case 4 : Show Settings

Actor : User

Stakeholders and Interests:
Player can play or mute the game sound
Player can play or mute the background music
Player can select one of the listed theme

Pre-condition : User has to be in the main menu

Post-conditions : Availability of the game sounds are updated
Availability of background music is updated
Theme is updated

Entry Conditions : User can select 'Control Sound'
User can select 'Control Music'
User can select 'Choose Theme'

Exit Condition : User has to select return menu on the screen which returns the user to main menu

Success Scenario Event Flow :
User can control sound
User can control music
User can choose theme
User selects 'Return Menu' on the screen and returns to main menu

Alternative Event Flow :
User selects 'Return Menu' on the screen and returns to main menu

Use Case 5 : Read Manual

Actor : User

Pre-condition : User has to be in the main menu

Entry Condition : None

Exit Condition : User has to select return menu on the screen which returns the user to main menu

Success Scenario Event Flow :

A manual of the game is displayed on the screen
User selects ‘Return Menu’ on the screen and returns to main menu

Alternative Event Flow :
None

Use Case 6 : Display Credits

Actor : User

Pre-condition : User has to be in the main menu

Entry Condition : None

Exit Condition : User has to select return menu on the screen which returns the user to main menu

Success Scenario Event Flow :
Credits are displayed on the screen
User selects ‘Return Menu’ on the screen and returns to main menu

Alternative Event Flow :
None

Use Case 7 : Exit Game

Actor : User

Pre-condition : User has to be in the main menu

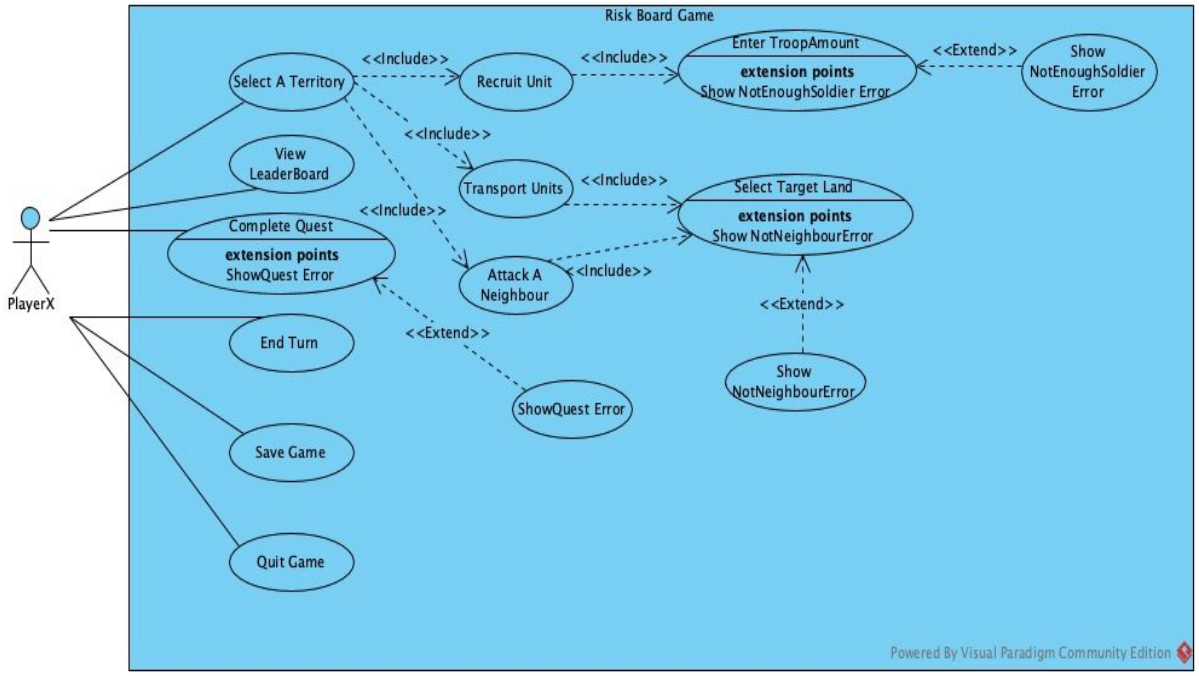
Entry Condition : Exit Selection

Exit Condition : None

Success Scenario Event Flow :
User exits the game and the game screen is closed

Alternative Event Flow :
None

5.1.2 Play Game Use Case Model



Use Case 1 : Select a Territory

Actor : User

Pre-condition : User has to be in the game play

Entry Conditions : User can choose to recruit her units
User can choose to transport her units
User can choose to attack her neighbours

Exit Conditions : User has to enter her ID and password or user has to create a new account to enter into menu page

Success Scenario Event Flow :
User enters her ID and password or creates a new account

Alternative Event Flow :
User has to select exit window to close the login page

Use Case 2 : Recruit Unit

Actor : User

Pre-condition : A territory should have been chosen by the user

Entry Conditions : User enters the troop amount to recruit

Exit Conditions : User returns to gameplay window automatically

Success Scenario Event Flow :
User enters the troop amount to recruit

Alternative Event Flow :
User chooses an impossible amount of soldier to recruit and an error page is displayed, then user is asked again to enter a troop amount

Use Case 3 : Transport Units

Actor : User

Pre-condition : A territory should have been chosen by the user

Entry Conditions : User transports her units
User selects the target land to transport units

Exit Conditions : None

Success Scenario Event Flow :
User transports her units to the target land

Alternative Event Flow :
User chooses a target land which is not a neighbour to the chosen territory and an error page is displayed, then user is asked again to select a target land

Use Case 4 : Attack a Neighbour

Actor : User

Pre-condition : A territory should have been chosen by the user

Entry Conditions : User chooses to attack a neighbour territory
User selects a neighbour territory to attack

Exit Conditions : None

Success Scenario Event Flow :

User attacks a neighbour territory

Alternative Event Flow :

User chooses a target land which is not a neighbour to the chosen territory and an error page is displayed, then user is asked again to select a target land

Use Case 5 : View LeaderBoard

Actor : User

Pre-condition : User has to be in the game play

Entry Conditions : User has to click the leaderboard icon on the window to see the scores

Exit Conditions : User has to click 'X' to return to the game window

Success Scenario Event Flow :

Scores are demonstrated on a panel

Alternative Event Flow :

None

Use Case 6 : End Turn

Actor : User

Pre-condition : User has to be in the game play

Entry Conditions : User has to click the 'End Turn' to end her turn

Exit Conditions : User has to click 'X' to return to the game window

Success Scenario Event Flow :

Current player's turn is ended and now it's next player's turn

Alternative Event Flow :

None

Use Case 7 : Save Game

Actor : User

Pre-condition : User has to be in the game play

Entry Conditions : User has to click the 'Save Game' to save the game progress

Exit Conditions : Game will automatically save the progress and user will stay on the gameplay window

Success Scenario Event Flow :
Current game progress is saved

Alternative Event Flow :
None

Use Case 8 : Quit Game

Actor : User

Pre-condition : User has to be in the game play

Entry Conditions : User has to click the 'Quit Game' and then 'Okay' button to to exit the game and return to the main menu window

Exit Conditions : None

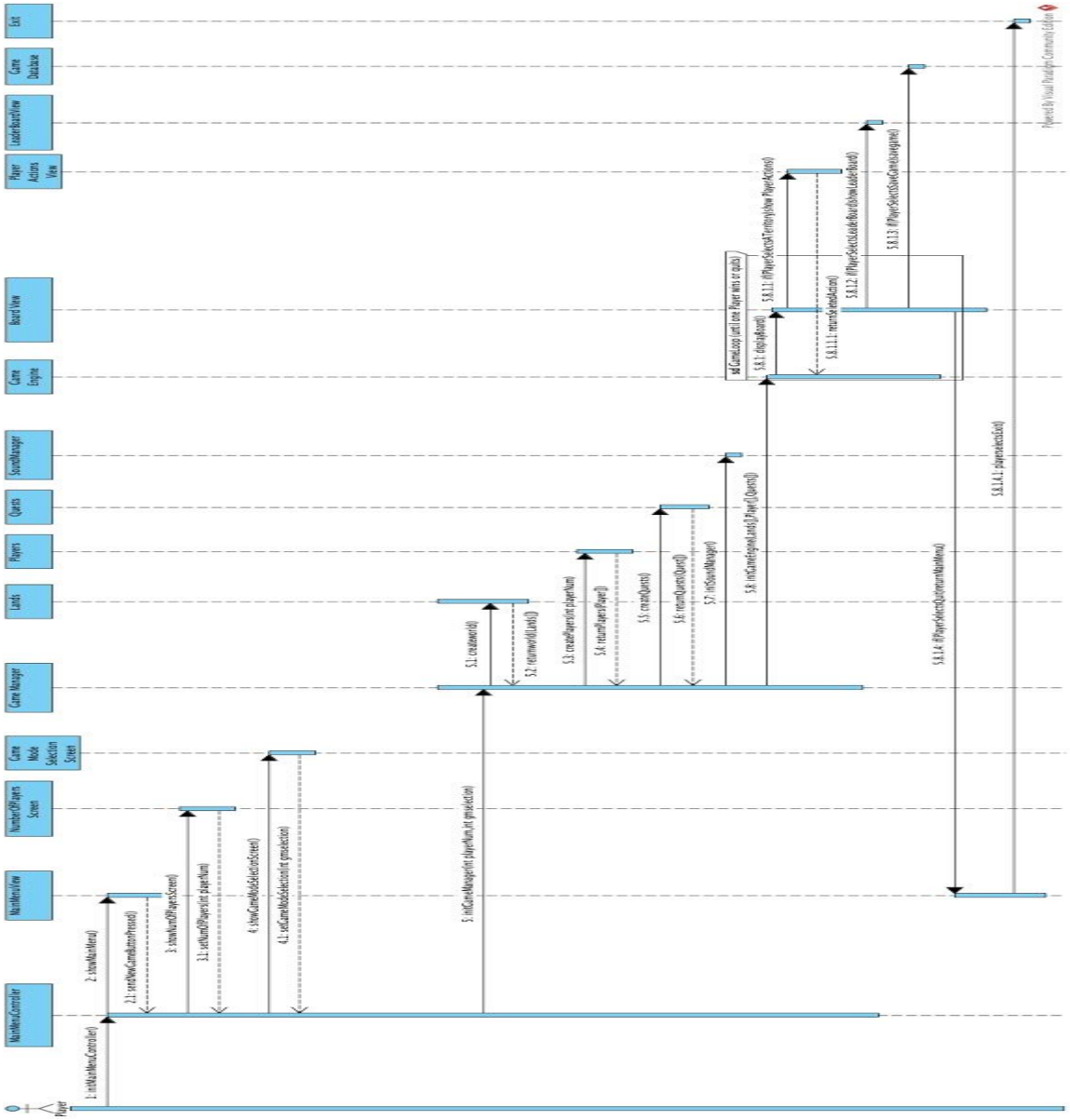
Success Scenario Event Flow :
User exits the game and return to the main menu window and if game has not been saved, game progress will be lost

Alternative Event Flow :
User clicks the 'Cancel' button to cancel the exit game choice and stays on the gameplay window

5.2 Dynamic Models

5.2.1 Sequence Diagrams

Creating an Every Man For Himself Game



Scenario

User starts a Everyman For Himself mode and then quits.

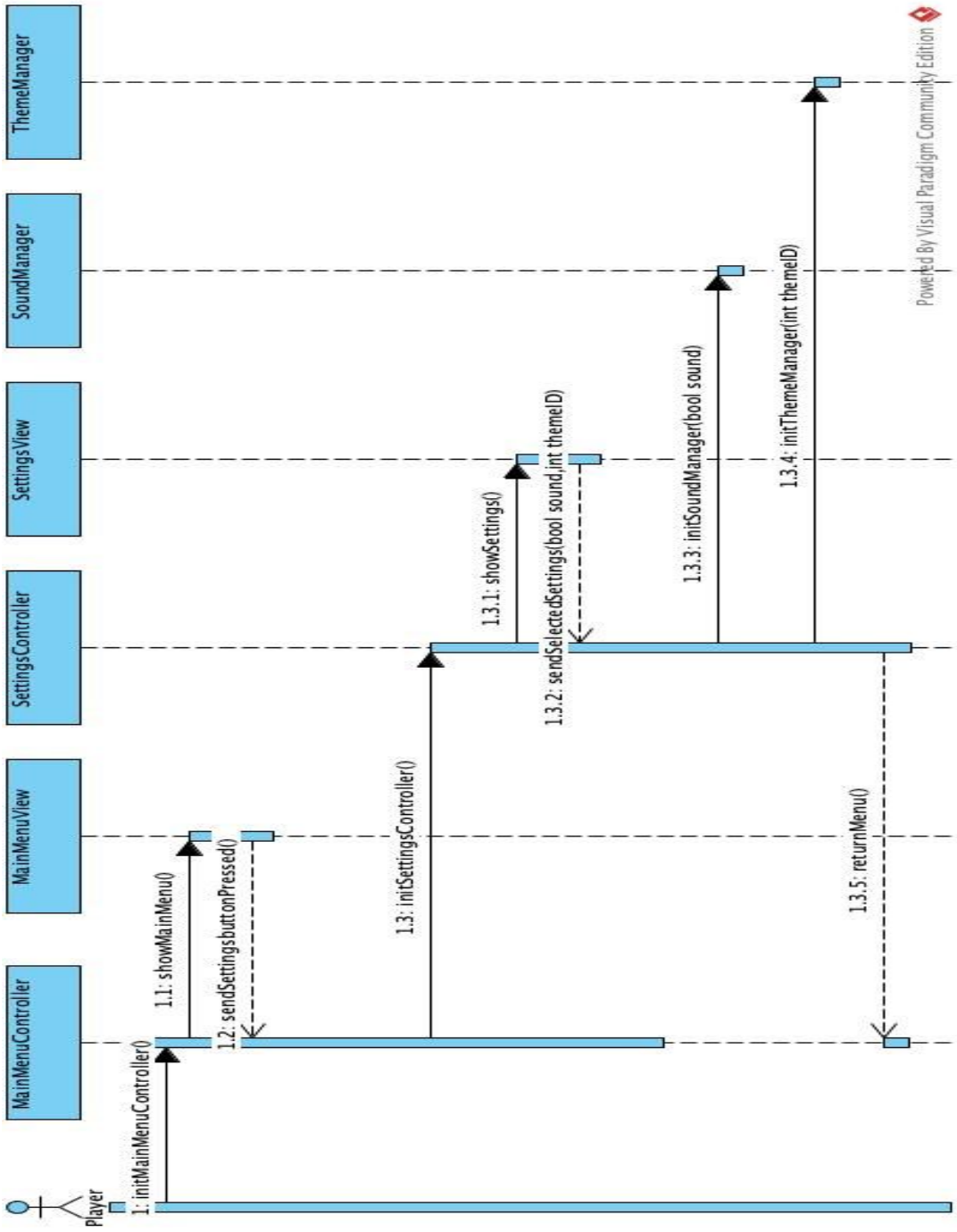
In this scenario, player wants to start a new game under Everyman For Himself gamemode. Player chooses Create New Game from the main menu, enter the Player number then they choose Everyman For Himself game mod. As player runs the game, an object called MainMenuController initialized. Which controls the views and options associated with the main menu.

MainMenuController creates a series of screens in order to learn what type of game user wants to play. In our scenario user goes with the Everyman For Himself gamemode.Then MainMenuController creates a objects with given parameters then sends these data to GameEngine. From now on GameEngine

controls the flow of that game state. It modifies necessary game objects like territories and quests through their model classes. Additionally it callsthe SoundManager, plays the music and necessary sound effects when they are needed.

When the player decides to save their game GameEngine object store the players and boards data to the database then stops the game and calls MainMenuView to show the main menu.Afterwards, GameEngine is destroyed which results in destroying all the game objects and their managers.

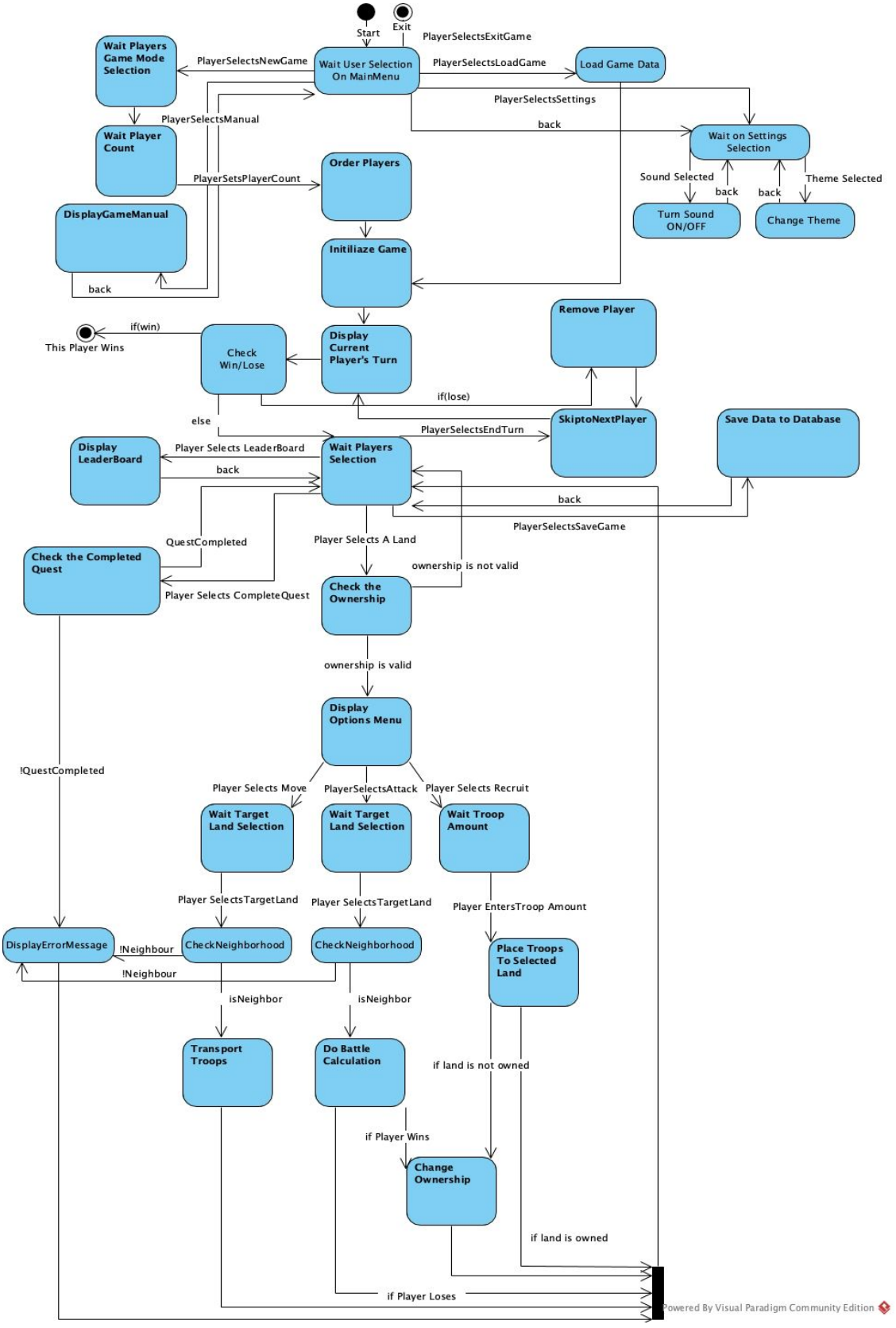
Change Settings



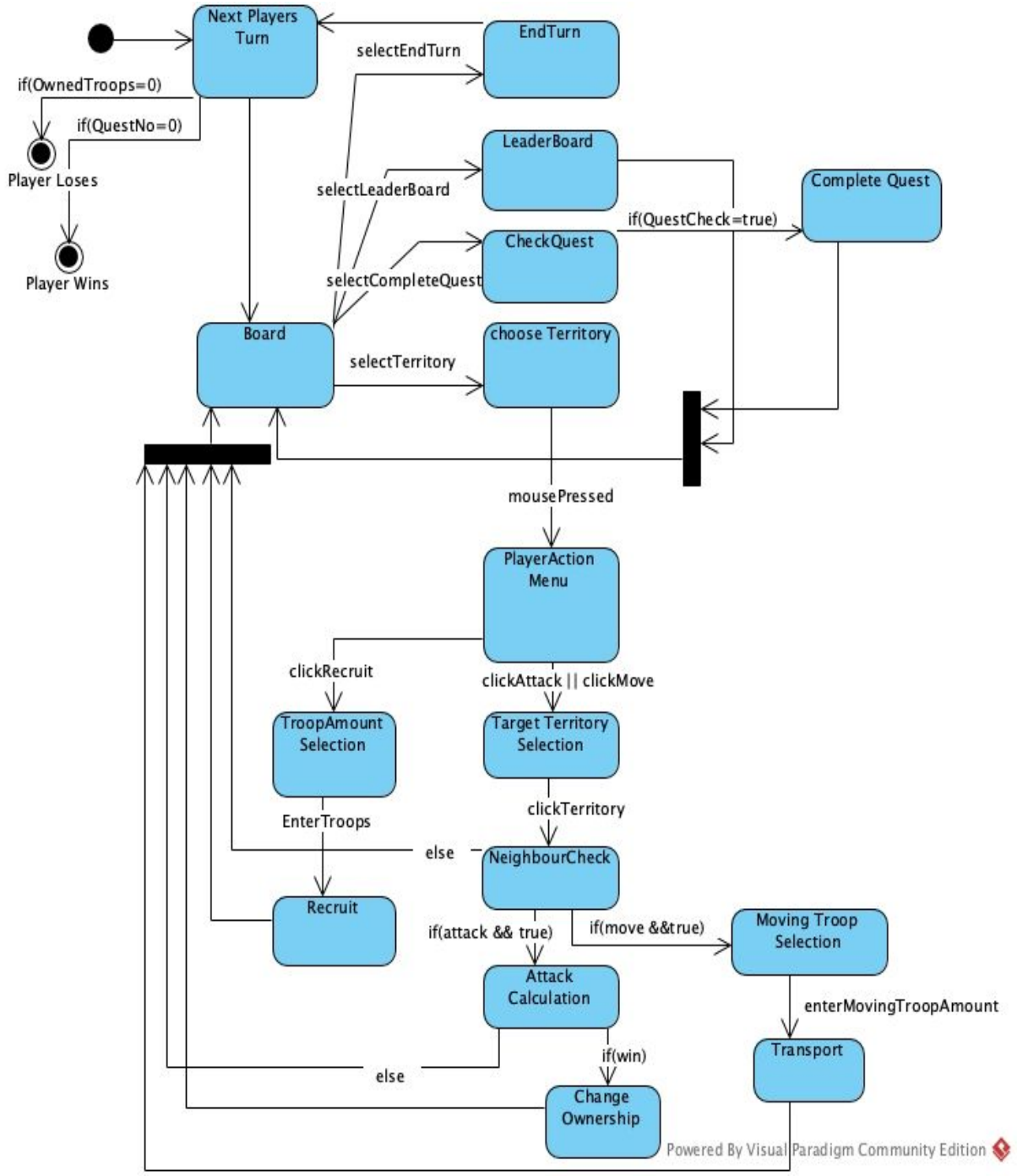
Scenario

User changes settings. Player wants to change game settings and get backs to the game menu. First of all default settings of the game are defined on SettingManager. By selecting Settings button on main menu, user can access to SettingsView page where all graphical and sound options are. The changes on the settings will modify the default settings on SoundManager and ThemeManager then player can return to the main menu.

5.2.2 Activity Diagram



5.2.3 State Diagram



Explanation

The player chooses one of the territories and clicks on it. He/she can recruit new coming troops to that territory by entering the troop number he/she wishes to recruit. By clicking on move option he/she can move an entered amount of his/her troops to an owned neighbour territory which selected by clicking. Player can also attack hostile territories by click attack button. After

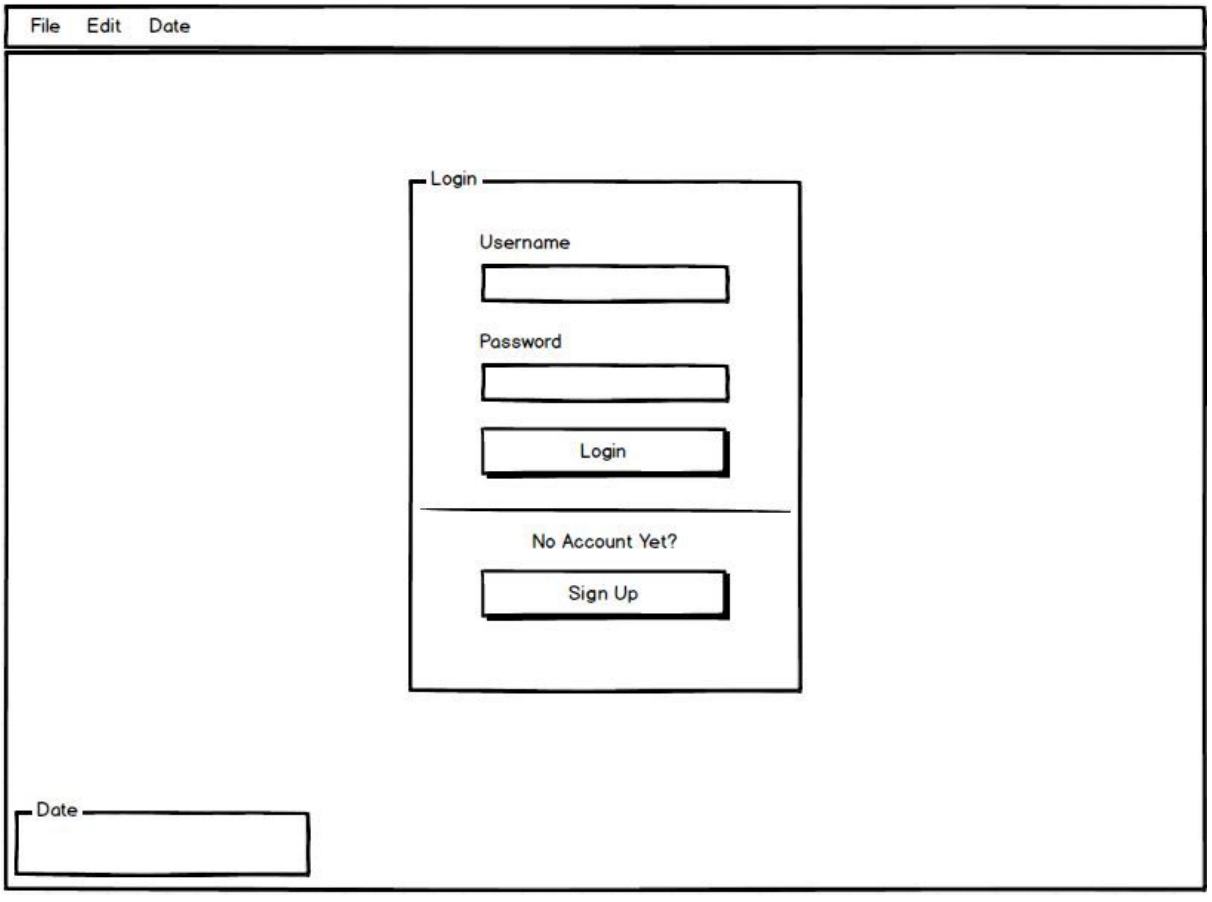
that player has to choose the land that he/she wishes to attack by clicking. After these actions player can return to board by a single mouse click. In board player can see the leaderboard by clicking LeaderBoard Button and he/she may complete their finished quests by clicking Complete Quest Button. If a player completed all of his/her quests that player wins the game but if he/she lost all of his/her territories he/she loses the game. Otherwise player has to end his/her turn by selecting endTurn button and then according to the turn count next Players Turn will begin.

5.4 User Interface

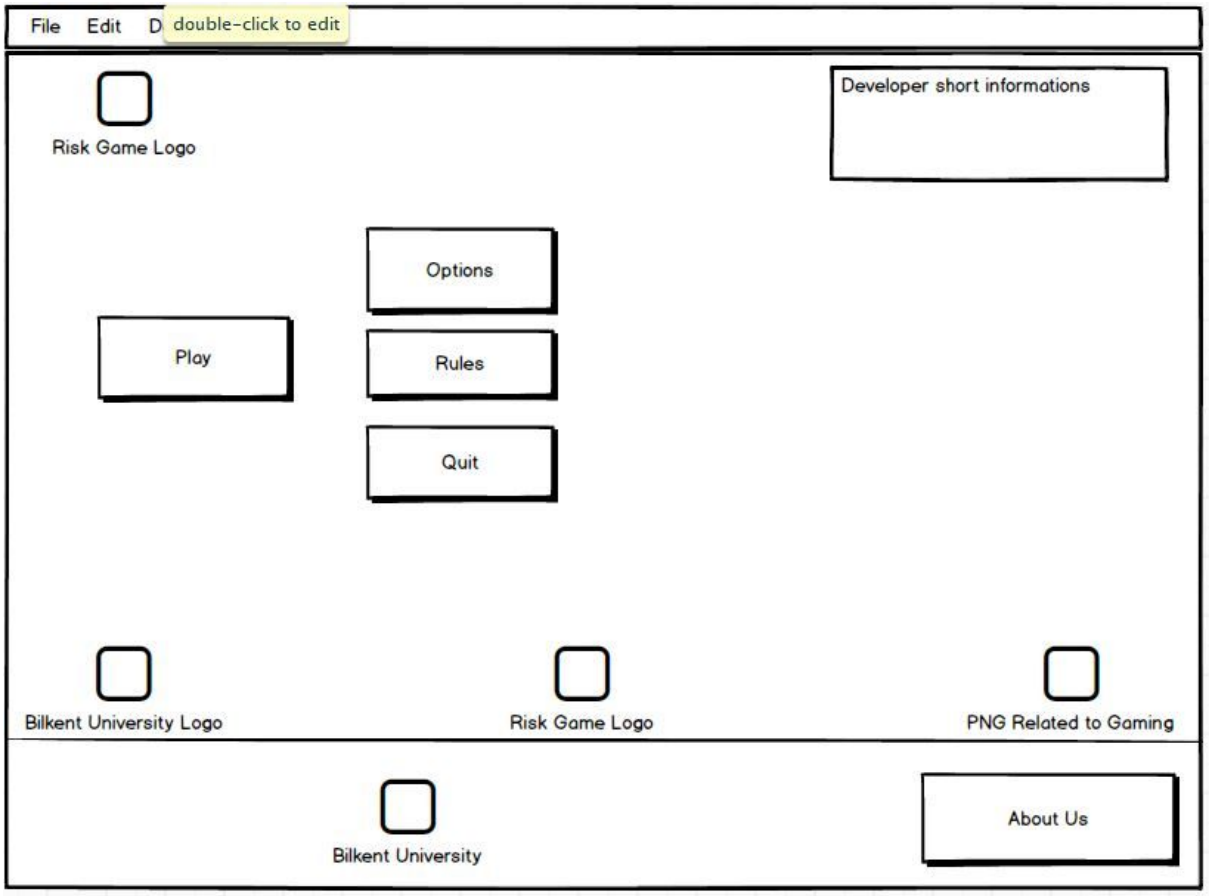
5.4.1 Navigational Path

5.4.2 Screen Mock-Ups

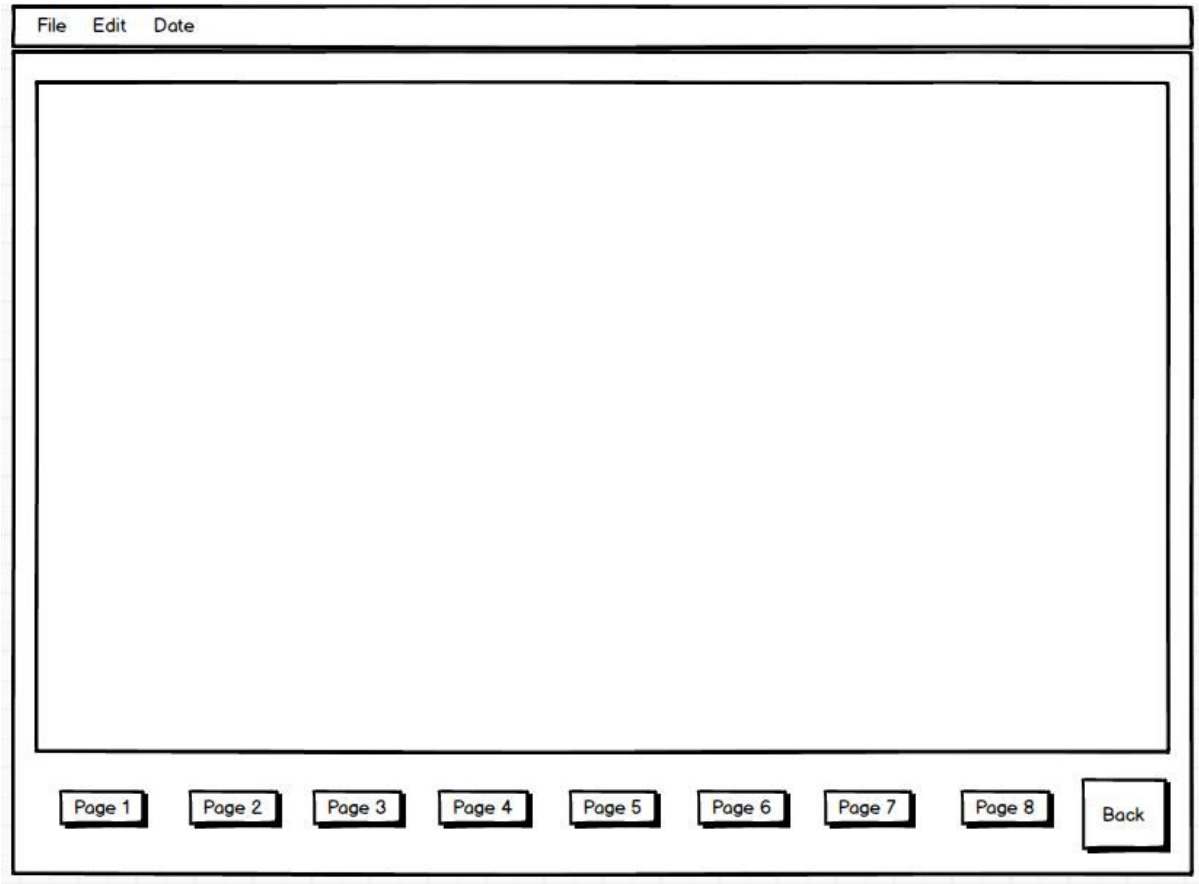
5.4.2.1 Login



5.4.2.2 Main Menu

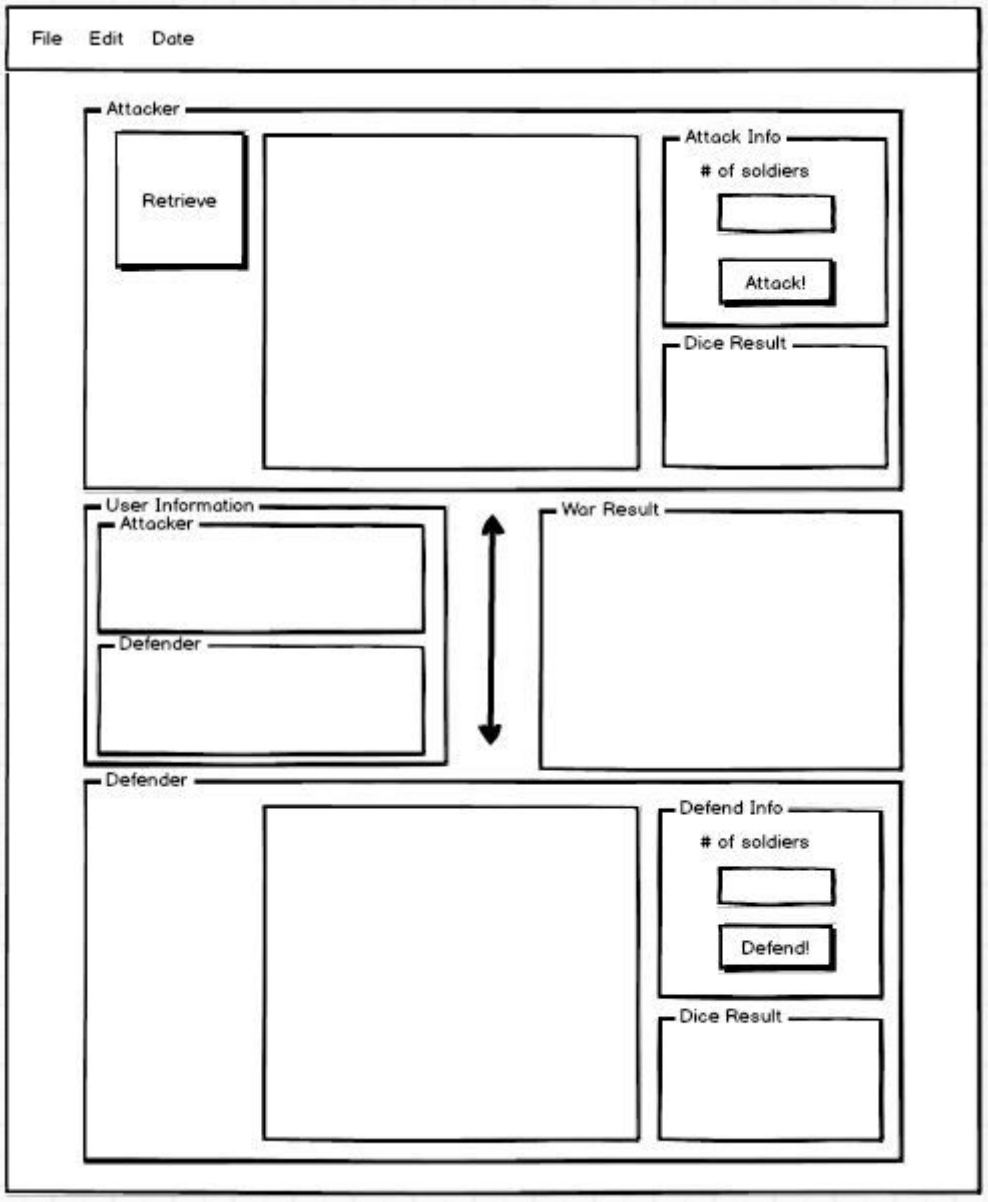


5.4.2.3 Tutorial

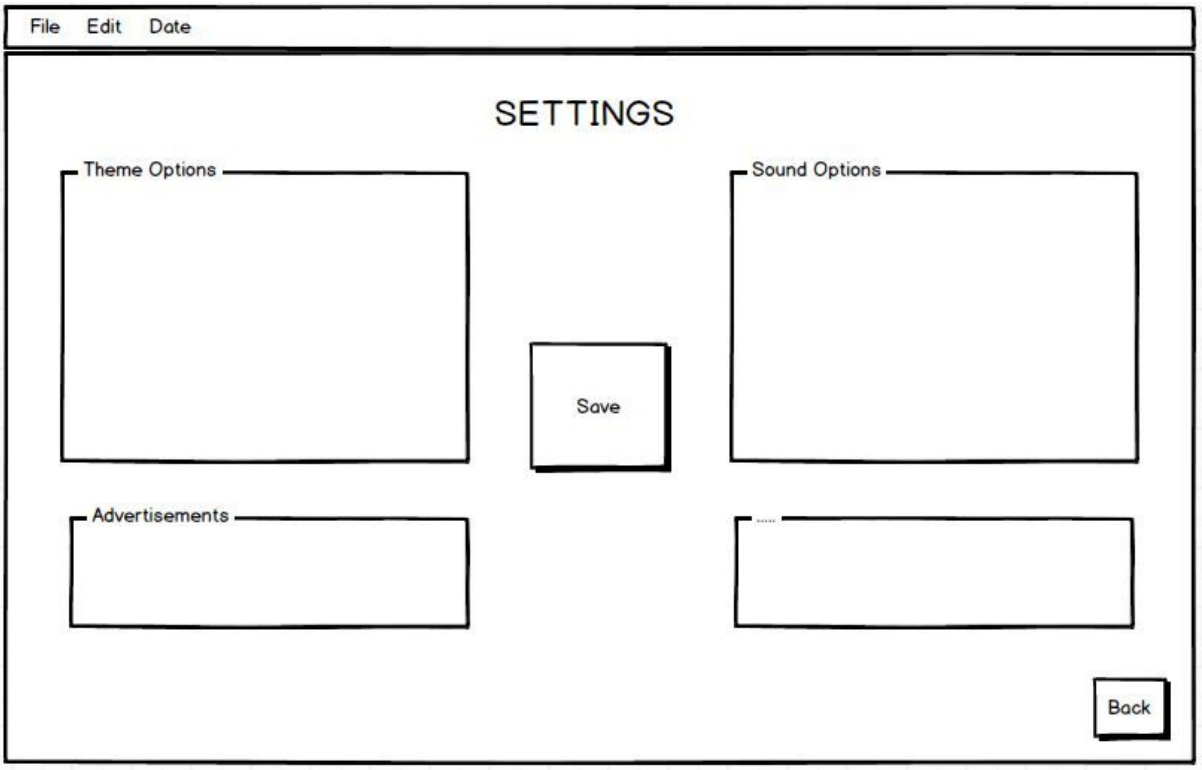


5.4.2.4 New Game

5.4.2.5 War

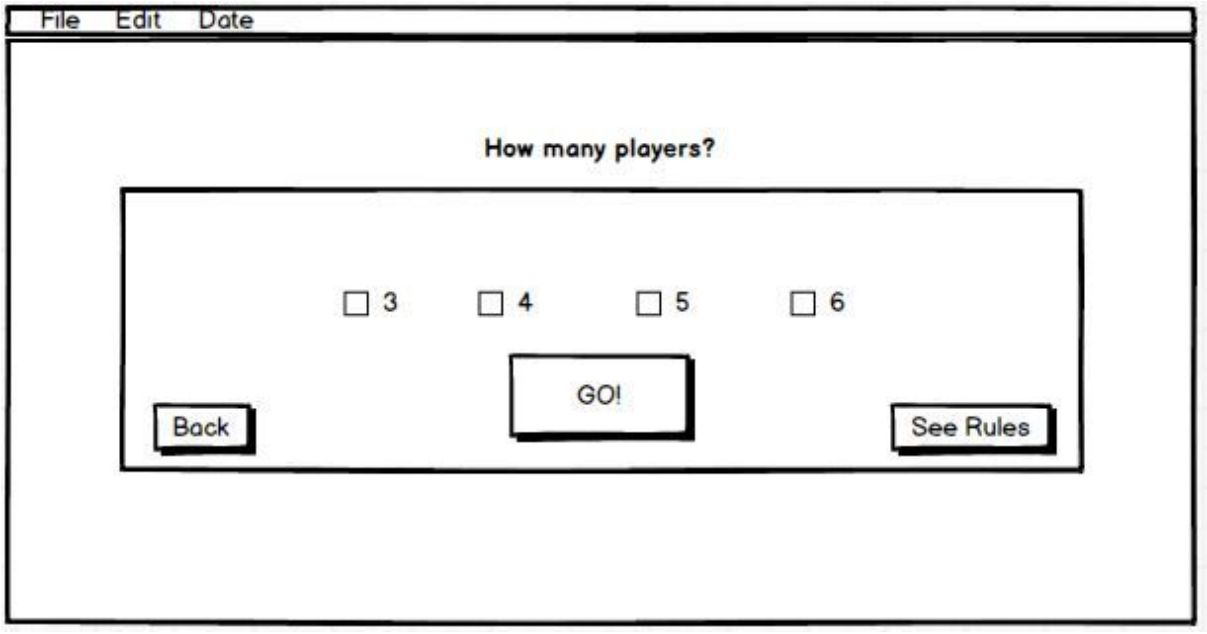


5.4.2.6 Settings



5.4.2.7 Credits

5.4.2.8 Number Of Players



6. Conclusion

As a summary, this virtual version of RISK will reflect all main specifications of the original game such as 3-6 players free-for-all mode, territory layout, cards etc. . In addition to these specifications, we will add some new features like background themes and sounds, leaderboard, tutorial and tag-team (2-player teams) mode. Also players could create different profiles so that different players can save their progress and return to the incomplete game whenever they want. User interface is one of our main focuses. We want to design and implement this game suitable for all ages, because of this reason, we will keep UI as simple as possible but very effective at the same time to make players feel all the excitements of RISK.

7. References

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