**Requirements Document**

**Table of Contents**

[Modification History 3](#_Toc444352035)

[Domain Knowledge 4](#_Toc444352036)

[Glossary 4](#_Toc444352037)

[Interview with Client 5](#_Toc444352038)

[Functional Requirements 6](#_Toc444352039)

[Use Cases 6](#_Toc444352040)

[Use Case 1 6](#_Toc444352041)

[Use Case 2 6](#_Toc444352042)

[Use Case 3 7](#_Toc444352043)

[Use Case 4 7](#_Toc444352044)

[Use Case 5 8](#_Toc444352045)

[Use Case 6 9](#_Toc444352046)

[Use Case 7 9](#_Toc444352047)

[Use Case 8 10](#_Toc444352048)

[Use Case 9 10](#_Toc444352049)

[Use Case 10 11](#_Toc444352050)

[Use Case 11 12](#_Toc444352051)

[Use Case 12 12](#_Toc444352052)

[Use Case 13 13](#_Toc444352053)

[Use Case 14 13](#_Toc444352054)

[Non-Functional Requirements 15](#_Toc444352055)

[Cost Constraints 15](#_Toc444352056)

[Reliability 15](#_Toc444352057)

[Time Constraints 15](#_Toc444352058)

Modification History

* 2/23/2016 Original product design and documentation was modified to keep track of each player’s history and display upon user’s request.
* Modified the PowerPoint presentation which has to be re-designed due to lack of understanding and clarifying the material.
* 02/26/2016 Edited for consistency and clarity

# Domain Knowledge

## Glossary

|  |  |
| --- | --- |
| **Term** | **Definition** |
| 6x6 Tic Tac Toe | A game that is played with two players, X and O, who take turns marking spaces usually in a 6x6 grid. |
| Graphical User Interface | Human-Computer Interface that uses windows icons and menus which can be manipulated by user input. |
| Platform | The hardware and support software which a program is intended to operate. |
| Client/Server System | The relationship between processes running on separate machines. A client initiates the dialog by sending a request to the server. |
| 4-in-a-row | When a player succeeds in placing four marks in a horizontal, vertical, or diagonal row. |
| MySQL | An application database that manages data and allows fast storage and retrieval of that data. |

|  |  |
| --- | --- |
| **Acronym** | **Meaning** |
| 3T | Tic-Tac-Toe |
| GUI | Graphical User Interface |
| SPMP | Software Project Management Plan |
| SQA | Software Quality Assurance |
| 3T FC | Tic Tac Toe Flow Chart |
| TC | Test Cases |
| AI | Artificial Intelligence |

## Interview with Client

**Location:** S708OneMainStreet

**Date:** 2/8/2015

**Time:** 1:30 PM

**Attendees:** Yuan Shengli

Project Management Committee (Eddie, Carrie, Jason, Ibra)

**Description:**

*Question 1*: How is the application going to work?

*Response*: The application will be a computer 6x6x4 tic-tac-toe game. The game will be played on a 6x6 grid, two players (one may be a computer) will take turns to place a game piece of their choice. The winner is the player with the most 4 stones in a horizontal, vertical, or diagonal row. A user can either play as a guest or as a registered use. The computer will keep track of each player’s history. If requested, the computer will display the history of the selected players. Users may select the level of skill and who goes first.

*Question 2*: What steps did you take to develop it?

*Response:* I took the classic Tic-tac-toe model, so there was not much of a concept to develop, but I added the extra element of extra playing rows. I wanted to add a sense of excitement to the game.

*Question 3:* What are the parameters of the game?

*Response:* Due to the nature of the 6x6 game board, there are more spaces available to be played on, but the rules of the 4x4 game board are still in play. By having this relationship between the game board and rules, it allows for the player to strategically plan his/her moves in more ways.

*Question 4:* What problems do you believe you’ll encounter whilst creating the application?

*Response:* I believe that there may be an issue in the deployment of the application itself, and though I believe that it will not be an issue, there is still the possibility. Other than that, I do not know of any foreseeable issues.

# Functional Requirements

## Use Cases

### Use Case 1

|  |  |
| --- | --- |
| Goals of actor | Register new account. |
| Task | Set up user name and password for new user to log into the game. |
| Preconditions | No registered user name |
| Exceptions | Display error message if user name is already taken. |
| Variation of action interactions |  |
| System change/production |  |

### Use Case 2

|  |  |
| --- | --- |
| Goals of actor | Log in to the game. |
| Task | Enter the user name and password to log into the game. |
| Preconditions | User has to be registered in order to log in. |
| Exceptions | Display error message if user name or password is invalid. |
| Variation of action interactions |  |
| System change/production |  |

### Use Case 3

|  |  |
| --- | --- |
| Goals of actor | Play a game as a guest. |
| Task | Start a new game without logging in. |
| Preconditions | User cannot already be logged in. |
| Exceptions | Display error message if user is logged in. |
| Variation of action interactions |  |
| System change/production |  |

### Use Case 4

|  |  |
| --- | --- |
| Goals of actor | Reset password. |
| Task | Reset user password. |
| Preconditions | User must already be registered. |
| Exceptions | Displays error if invalid username given |
| Variation of action interactions |  |
| System change/production |  |

### Use Case 5

|  |  |
| --- | --- |
| Goals of actor | View play statistics. |
| Task | Displays user Win/Loss record. |
| Preconditions | User must be logged in. |
| Exceptions | Displays error if not logged in. |
| Variation of action interactions |  |
| System change/production |  |

### Use Case 6

|  |  |
| --- | --- |
| Goals of actor | Clear statistics. |
| Task | Reset Win/Loss record. |
| Preconditions | Can only be used in a system playing against the AI |
| Exceptions | Single player is only applicable against to AI |
| Variation of action interactions |  |
| System change/production |  |

### Use Case 7

|  |  |
| --- | --- |
| Goals of actor | Select game mode. |
| Task | Choose to play the game against another player or against the AI. |
| Preconditions | User must either log in or choose to play as a guest. |
| Exceptions | Can be used in a multi-player setting or against the AI |
| Variation of action interactions |  |
| System change/production |  |

### Use Case 8

|  |  |
| --- | --- |
| Goals of actor | Difficulty Level |
| Task | Adjust the AI difficulty level. |
| Preconditions | User has to choose to play against the AI. |
| Exceptions | Cannot be used when playing PvP. |
| Variation of action interactions |  |
| System change/production |  |

### Use Case 9

|  |  |
| --- | --- |
| Goals of actor | Select stone color. |
| Tasks | Choose the color for the two players. |
| Preconditions | Must be starting a new game. |
| Exceptions | Cannot change color once game begins. |
| Variation of action interactions |  |
| System change/production |  |

### Use Case 10

|  |  |
| --- | --- |
| Goals of actor | Select first player. |
| Tasks | Choose which color will go first. |
| Preconditions | Must be starting a new game. |
| Exceptions | Cannot change order once game begins. |
| Variation of action interactions |  |
| System change/production |  |

### Use Case 11

|  |  |
| --- | --- |
| Goals of actor | Make a move. |
| Tasks | Place a stone of the users color on an empty square. |
| Preconditions | Game is running. |
| Exceptions | Displays an error message if a user attempts to make an invalid move.  Displays an error message if attempts to move out of turn. |
| Variation of action interactions |  |
| System change/production |  |

### Use Case 12

|  |  |
| --- | --- |
| Goals of actor | Replay game |
| Task | Starts a new game after the previous game has ended |
| Preconditions | A game has to have ended or canceled in order to load a new game form |
| Exceptions | New game is loaded only after application is started or after a game has either ended or has been canceled |
| Variation of action interactions |  |
| System change/production |  |

### Use Case 13

|  |  |
| --- | --- |
| Goals of actor | Logout. |
| Tasks | Log user out so another user can log in or to allow playing as guest. |
| Preconditions | Must be currently logged in. |
| Exceptions | Displays error if not currently logged in. |
| Variation of action interactions |  |
| System change/production |  |

### Use Case 14

|  |  |
| --- | --- |
| Goals of actor | Quit |
| Task | Exits the application |
| Preconditions | A game cannot be in progress. |
| Exceptions | Can’t quit the application if there is a game in process. Will request confirmation to terminate game. |
| Variation of action interactions |  |
| System change/production |  |

# Non-Functional Requirements

## Cost Constraints

No cost constraints are foreseeable in the near future. Due to this lack of constraint, we are sure no cost will be generated and also no downtime will be expected for this project.

We are using GitHub and Drobox to keep track of our documentation and source code. A log file is generated to show all of changes and commits on the master branch. The branch has been replicated as a mirror branch where developers can make changes and submit their code to be reviewed before being merged with the main branch.

## Reliability

The software should be usable, without any operational faults, for the period of time between its deployment and the following three years. Based on the schedule and following phases that we have use, the product should be able to be completed at the respected date.

## Time Constraints

Most meetings took place either after CS 3420 class or in Google Hangouts, Skype calls, and email in order to accommodate all group members with a schedule where we could all meet without running into any time constraints whilst building the application and filling out the required documents for the project.