SFWRENG 3A04 Deliverable 1

The Treasure Island

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Contents

1 Introduction

This section of the document highlights the scope and purpose of The Treasure Island project as well as providing definitions, acronyms, abbreviations, and references that are used throughout this document. Finally, the last section includes an overview of the contents of the entire software requirements document as well how it is organized.

1.1 Purpose

This Software Requirement Specification **(SRS)** document's purpose is to outline the requirements, and decisions made in the overall design for The Treasure Island project. This document serves as a continual record of the the project's terminology, scope, constraints, assumptions and dependencies, functional and non-functional requirements, and any other relevant design decisions throughout the life cycle of the product.

The intended audience of this document are the technical stakeholders of the game. This includes:

a) The management team (Dr.Khedri, Thien Trandinh, and Andrew Le Clair)

b) The software developers and architects of this project (Abdullah, Mohinder, Namik, Gengyun, Junhong).

c) Future developers responsible for maintenance of the project.

d) Entertainment and software rating board (ESRB).

e) Users (Players of the game)

1.2 Scope

During this project the following software products will be produced:

a) Desktop application with which the user will interact.

b) Web server which will store user's scores

The software products mentioned will provide a graphical user interface (GUI) to the user and web server will keep track of the users' scores so that they can compare and compete with their friends.

The Treasure Island will be a competitive game that can be played with friends or family. Competition between users will be facilitated based on user performance in mini-games, which brings them one step closer to the objective of the game: finding the treasure. Along with providing users with a competitive platform and an enjoyable experience, benefits provided by The Treasure Island include:

a) Eliminating the need to find multiple different games.

b) Reduce decision fatigue.

c) Eliminating the need to download multiple different games and reduce the storage needed from multiple applications to just one.

d) Providing a casual and convenient gaming experience.

The main goals of this application is to provide users a platform that allows them to interact and compete while removing the need to find mediums through which they can interact and facilitate competition, reduce decision fatigue, and provide easy of use/ convenience.

1.3 Definitions, Acronyms, and Abbreviations

ESRB Entertainment and Software Rating Board: a rating agency that reviews games and assigns them a rating based on their age appropriateness.

GUI Graphical User Interface: a user facing interface containing graphics and allows for user interaction.

Minimum System Requirements : Minimum required hardware specifications to run the software properly. These are listed below:

- Operating System: Microsoft Windows 7 or higher (32 bit or 64 bit versions).
- Processor: Any Processor @2.0GHz or higher.
- Memory: 4GB RAM.
- Graphics: Integrated or dedicated graphics.
- Storage: 2GB of available space.

Recommended System Requirements : Recommended hardware specifications to run the software properly. These are listed below:

- Operating System: Microsoft Windows 7 or higher (32 bit or 64 bit versions).
- Processor: Any Processor @2.4GHz or higher.
- Memory: 4GB RAM.
- Graphics: Integrated or dedicated graphics.
- Storage: 2GB of available space.

SRS Software Requirement Specification: Refers to this document.

1.4 References

This section is void

1.5 Overview

The remainder of this document entails an overall overview of the product (product description, product perspective, product functionality, user characteristics, constraints, dependencies), a use case diagram, functional requirements, and non-functional requirements.

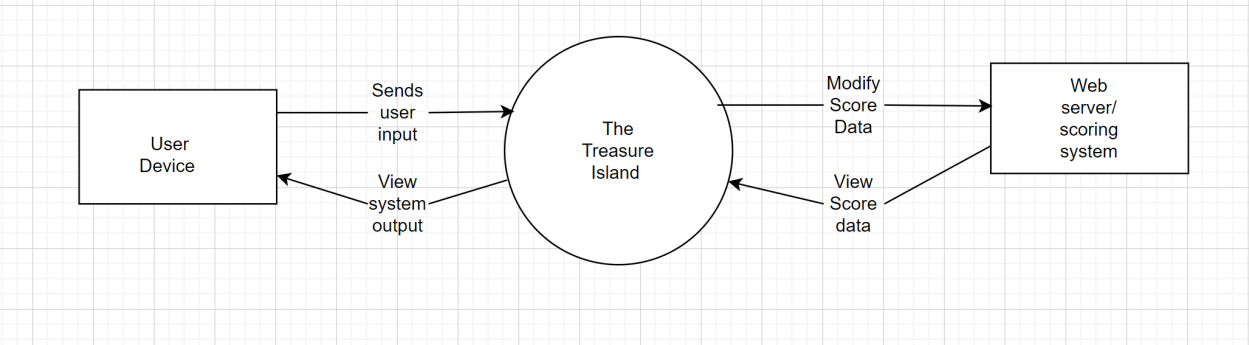
The remaining sections of the **SRS** are organized in a sequential and logical manner. To be specific, section 2 provides an in-depth description of the product and other related subsections such as product functions, user characteristics, etc. The subsequent section is the use case diagram of the over arching software product and all of the different use cases encountered throughout the system as well as detailed written descriptions of each of the use cases. Following this section are the requirements of the software. More specifically the functional and non-functional requirements. The functional requirements are categorized as business events and viewpoints while non-functional requirements are broken into various different subcategories.

2 *Overall Description*

This section highlights the general factor that affect the product and its requirements. The details for he requirements are listed in the following subsections below.

2.1 Product Perspective

There are many games in mobile platforms, web based games or desktop games. However, each game is unique in the sense of its graphical design and scenario. The Treasure Island is combining multiple mini games with the main goal of reaching the treasure island fastest by completing these mini games. The Treasure Island is similar to big platform games such as the Mario Party franchise featured on various Nintendo platforms, however it is a much smaller and simpler variant of the game that caters to users looking for a more simple experience. The software is a standalone product self contained product and will not require any special hardware to play with other than the user's PC. Users can use their mouse and keyboard to play the game without any additional special hardware.



2.2 Product Functions

2.2.1 Summary of overall product functionality

The system's major functionality is centralized around the user interacting with the system and participating in the various mini-parts of the system. These aforementioned mini-parts of the system are executed through various mini-games. The game begins by displaying a graphic of a treasure map with a starting point (where the game begins) and an ending point marked as an X (the end of the game), as an innovative feature based on previous playing history the game will predict who is most likely to win. The starting and ending points are separated by 5 individual islands in between, in order to reach the treasure at the end point users must visit each of the islands. Each of these islands is representative of a mini-part/mini-game where the user is required to complete the mini-game in order to advance to the next island and eventually fulfill the main object of the game: get to the treasure. Prior to executing the mini-game on the island, the users will be given a tutorial on how to complete the mini-part/game. Once the user has successfully completed the mini-part/game they will be awarded points (based on score or related scoring metrics) and will advance to the next island (system will display that user has advanced to the next island). Eventually a user will reach the end fulfill the main goal of the game: getting the treasure.

2.2.2 List of functions:

a) The Treasure Island is a game designed to facilitate friendly competition between loved ones. It will provide different games to collect points and compete.

b) When each mini game is completed, winner of the mini game will progress to the next stage (island) to get closer to the treasure island.

c) The Treasure Island will provide 5 mini-games to the user and make the competition with friends more fair than other games which only relies on skills to be successful in that specific game.

d) In The Treasure Island, users will be rewarded to being good at multiple games. Users will be able to see their scores and their ranks in a scoreboard to compare their scores with other players.

e) The Treasure Island will provide a map-like **GUI** to show which stage (island) they are in the game.

f) Users will have access to settings menu in which they can control the sound settings and they can also change/give names to their characters rather than their default names: Player1, Player2.

g) The Treasure Island will provide tutorials for each mini game and the overall game to teach the game rules to the user.

h) As an innovative feature The Treasure Island will predict and show which user will mostly likely to win the game before the game starts based on several criteria such as high score table, match history etc.

2.3 User Characteristics

The intended users of The Treasure Island are young kids from the ages of 6 - 12, however this product can be used by anyone (teenagers, adults, etc) outside of this range. It is assumed that users of the product have a basic understanding of written English at an elementary proficiency level. The intended user is assumed to have the ability to see and the ability to touch in order to see the visuals of the game as well as interact with the system to provide input. The users are expected to have minimal technical experience, it is assumed they know the basic operations of their device (powering it on, and selecting and launching applications). No other knowledge or experience is expected from the end user.

2.4 Constraints

a) The system must abide by all Canadian laws.

b) The system must abide by **ESRB** E for Everyone rating requirements to make the game suitable for intended users and everyone in the general public.

2.5 Assumptions and Dependencies

a) Assumptions

- The user's PC will have the **minimum system requirements**, but it is advised to use the **recommended system requirements** to run the game.
- The user has a basic understanding/ability of how to use a PC.
- The user has at least elementary proficiency in reading English.

b) Dependencies

- The system's performance is dependent on the speed and quality of the user's hardware specifications and operations systems overhead.

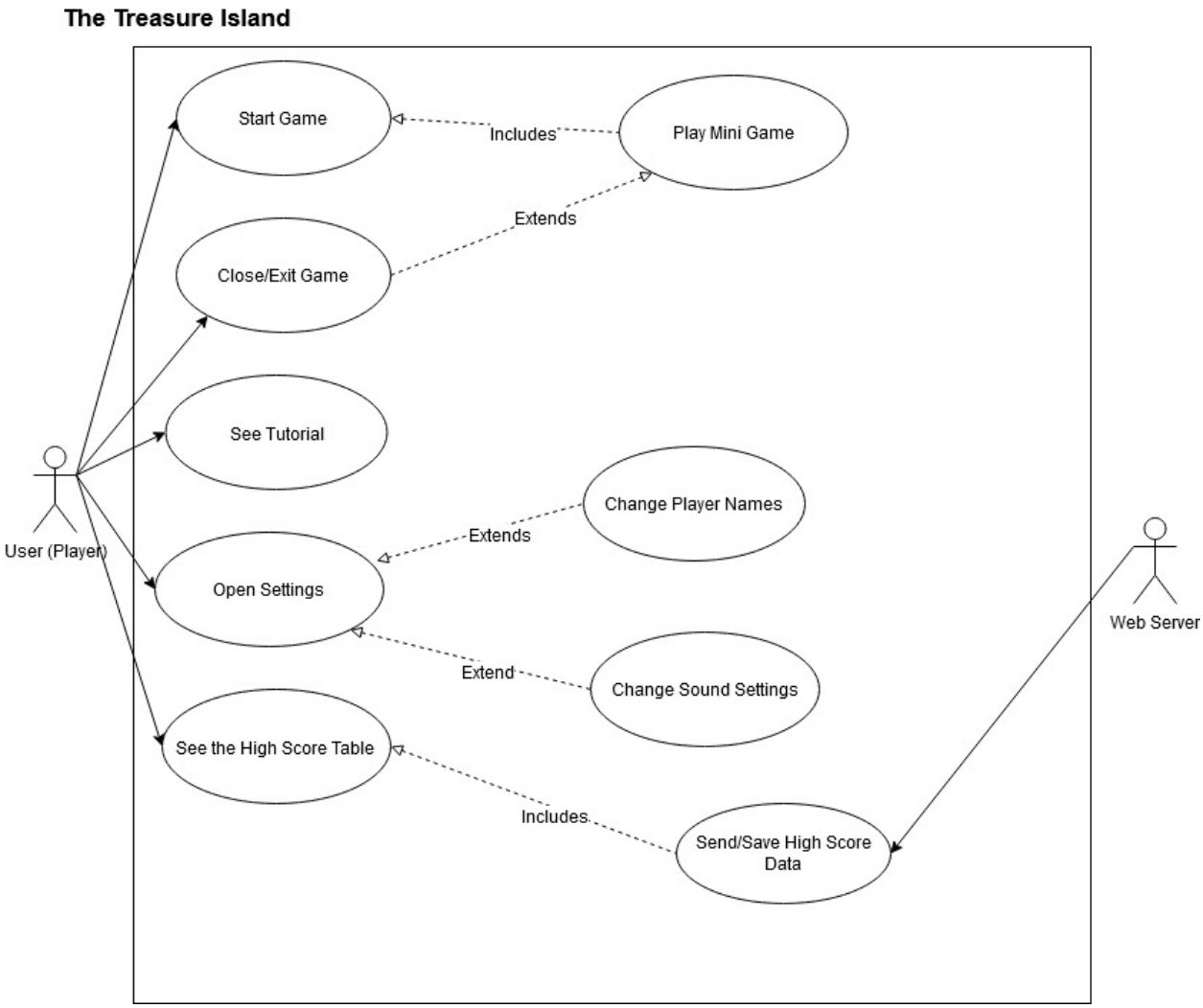
2.6 Apportioning of Requirements

a) Identify requirements that may be delayed until future versions of the system

- The system shall support more than two players in the multiplayer mode.
- The system shall support more than 5 mini-games.
- The system shall allow randomization of which mini-game is played at each island.

3 Use Case Diagram

This section provides a use case diagram for The Treasure Island.



Assumption: *All the use cases assume that The Treasure Island game is already open/launched by the user. The user is in the main page/menu of the game to possibly perform the use cases.*

a) Start Game Use Case: User will click on the "Start Game" button to start a new game. After the user starts the game, first mini game will automatically start and Start Game use case is including the Play Game use case because of it.

b) Close/Exit Game Use Case: If the user is in the main menu of The Treasure Island, user can exit The Treasure Island. If the user is playing a mini game, with the extends relations from the Play Mini Game use case, player can close the current game and return back to The Treasure Island main page.

c) See Tutorial Use Case: User will click on the "Tutorial" button and will be able to see the rules for The Treasure Island and see the rules and how to play for each mini game as well.

d) Open Settings Use Case: User can click on the "Settings" button and will be able to see the current settings. Additionally, if the user wants to change the settings, with the extends relations to Change Player Names and Change Sound Settings use cases, user can rename the default names: Player1, Player2; and can change the sound settings.

e) See the High Scores Table use case: User can click on the "See High Scores" button and, with the includes relationship to the Send/Save High Score Data use case, will see the top ten high scores achieved by any

user in the game.

f) Send/Save High Score Data: When the user scores a high score which is higher than one or more of the users in the high score table, web server will save the user's score to the server. Also, whenever the user request to see high score table, web server will send the high score data to the user's machine.

4 Functional Requirements

BE1. User starts a new game.

VP1.1 User (Player)

i. User shall be able to start a new game from the main menu of The Treasure Island.

ii. User shall be able to choose single or multiplayer mode.

VP1.2 Security

i. Void

VP1.3 Legal (**ESRB**)

i. Void

BE2. User opens tutorial page to learn how the game works.

VP2.1 User (Player)

i. User shall be able to see a tutorial to learn about how The Treasure Island can be played.

ii. User shall be able to see tutorials for each mini game to learn how each mini game works.

VP2.2 Security

i. Void

VP2.3 Legal (**ESRB**)

i. Tutorials shall not contain any content which will violate **ESRB** Everyone rating requirements.

BE3. Request/Save the ten highest scores from/to web server.

VP3.1 User (Player)

i. User's score shall be saved both locally and to the web server if the score is in the top ten highest scores.

ii. User shall be able to see high scores from the main page of The Treasure Island.

VP3.2 Security

i. User shall not receive any malicious data from the web server.

ii. User's data shall not be intercepted when saving or checking the high scores.

VP3.3 Legal (**ESRB**)

i. User shall not receive any content which will violate **ESRB** Everyone rating requirements.

ii. User data shall not be shared with any 3rd party other than the web server.

BE4. Request to quit from the game.

VP4.1 User (Player)

i. User shall be able to quit the game whenever they want without any penalty to their previous scores.

VP4.2 Security

i. Void

VP4.3 Legal (**ESRB**)

i. Void

BE5. User sees/changes settings.

VP5.1 User (Player)

i. User shall be able to see and change the sound setting of the game, before or during the game.

ii. User shall be able to see and change the player name settings before the game starts, but not during the game to avoid confusions in high score table.

iii. If users mute the game no sound will play.

VP5.2 Security

i. Void

VP5.3 Legal (**ESRB**)

i. Void

5 Non-Functional Requirements

5.1 Look and Feel Requirements

5.1.1 Appearance Requirements

LF1. The game should have a starting page that can interact with the player.

LF2. The interface shall highlight important areas with different colours.

LF3. The images and font size in The Treasure Island should be seen clearly by players.

5.1.2 Style Requirements

LF1. The Treasure Island shall have an appropriate style for target users.

LF2. The Treasure Island will bring players some entertainment and provide them excellent and exciting gaming experience.

5.2 Usability and Humanity Requirements

5.2.1 Ease of Use Requirements

UH1. Each mini game should have a help page on which rules and instructions of that mini game should be shown.

UH2. User interface will be clear and simple.

5.2.2 Personalization and Internationalization Requirements

UH1. The game will have a setting page so that players can adjust the volume of the background music and can rename the players rather than their default names: Player1, Player2.

5.2.3 Learning Requirements

UH1. The help page of each mini-game should have rules that will explain how that mini game works.

5.2.4 Understandability and Politeness Requirements

UH1. All text in The Treasure Island will be in Canadian English.

UH2. All text in The Treasure Island will not show impolite, discriminational words to any gender, religion, human race.

5.2.5 Accessibility Requirements

UH1. Void

5.3 Performance Requirements

5.3.1 Speed and Latency Requirements

PR1. The response time should be less than 30ms for offline parts of the game.

PR2. The response time for high scores table will depend on the web server but shall not exceed 10 seconds.

5.3.2 Safety-Critical Requirements

PR1. The Treasure Island will not transmit any malicious code or program to user's computer.

PR2. The Treasure Island will not disclose any user data and personal information.

5.3.3 Precision or Accuracy Requirements

PR1. The Treasure Island point system will be accurate to 2 decimal places.

PR2. The timer in the software will be accurate to milliseconds.

5.3.4 Reliability and Availability Requirements

PR1. The game should be accessible and available to the users once they download it.

PR2. The game shall exhibit an availability of no less than 95%.

PR3. The game can be played without internet with the exception of global high score server.

5.3.5 Robustness or Fault-Tolerance Requirements

PR1. The system shall not crash when the user has no internet connection but requests to check the high scores from the web server. Instead, The Treasure Island shall show an error message to inform the user and only show the locally stored user's highest score.

5.3.6 Capacity Requirements

PR1. The system shall be able to respond to at least 2 players at the same time.

PR2. The game will have **minimum system requirements** to be played without any performance issues.

5.3.7 Scalability or Extensibility Requirements

PR1. The system should be able to allow more than two players.

5.3.8 Longevity Requirements

PR1. Void

5.4 Operational and Environmental Requirements

5.4.1 Expected Physical Environment

OE1. The Treasure Island should be able to run in any physical environment that can be supported by PC.

5.4.2 Requirements for Interfacing with Adjacent Systems

OE1. The Treasure Island will interface with the PC operating systems to allow installing, uninstalling, updating the game and saving the user scores locally.

5.4.3 Productization Requirements

OE1. The product shall be free.

5.4.4 Release Requirements

OE1. The Treasure Island's binary code (executable files) will be hosted on a website and users can download it from the website.

OE2. For each update, users will need to download the new version of The Treasure Island from the release website.

5.5 Maintainability and Support Requirements

5.5.1 Maintenance Requirements

MS1. Each class and internal function should be documented and commented to allow others to understand the program easily.

MS2. Any changes to functions and methods should be documented.

5.5.2 Supportability Requirements

MS1. The software shall be able to run on at least 95% of computers which meets the **minimum system requirements**.

5.5.3 Adaptability Requirements

MS1. Void

5.6 Security Requirements

5.6.1 Access Requirements

SR1. Users can access any mini games without difficulty in The Treasure Island's main page.

5.6.2 Integrity Requirements

SR1. High scores in the web server shall not be tempered with to maintain the integrity of the high score data.

5.6.3 Privacy Requirements

SR1. User data will not be shared with any 3rd party unless it is required for the 3rd party services (e.g. database to keep user scores) to work. In the later case, users will be informed and their consent will be required to share the data.

5.6.4 Audit Requirements

SR1. Void

5.6.5 Immunity Requirements

SR1. Void

5.7 Cultural and Political Requirements

5.7.1 Cultural Requirements

CP1. The software will not include any symbols, images or text that may be considered as offensive or rude to users.

5.7.2 Political Requirements

CP1. The system must meet the standards and requirements set by the management (Dr.Khedri, Thien Trandinh, and Andrew Le Clair)

5.8 Legal Requirements

5.8.1 Compliance Requirements

LR1. The system shall function within the jurisdiction of Canada.

5.8.2 Standards Requirements

LR1. The system must meet the Everyone rating requirements set by **ESRB**.

A Division of Labour

The following below includes a description of the division of labour for this document.

Mohinder Kallay
Made contributions to all subsections of section 1 and section 2.
Abdullah Abdul Maksoud
Contributed to all subsections of section 1 except subsection 1.2, contributed to all subsections of section 2 except subsection 2.1, 2.2, and contributed to sections 3, 4, and 5
Namik Karaata
Made contributions to every subsection in section 1 except subsection 1.5, made contributions to every subsection in section 2 except subsection 2.6. Contributed to section 3 and 4. Contributed to more than 35% of the section 5.
Gengyun Wang
Made contributions to some subsections of section 4 and 5.
Junhong Chen
Contributed to some subsections of section 4 and section 5.

M.K	February 5, 2021
Mohinder Kallay	Date
A.A.	February 5, 2021
Abdullah Abdul Maksoud	Date
N.K.	February 5, 2021
Namik Karaata	Date
G.W	February 5, 2021
Gengyun Wang	Date
J.C	February 5, 2021
Junhong Chen	Date