

# Deliverable #1 Template

SE 3A04: Software Design II – Large System Design

## 1 Introduction

The following is a description of the product to be developed, as well as an overview of the SRS.

### 1.1 Purpose

[[spacebase13]] is a mobile simulation game that models the overall behavior of a space settlement on a celestial body, i.e. a real-life system. The game represents how different sub-systems interact with each other and affect the overall system. It replicates how each of the sub-systems of a space base react to different stimuli from outside of the system. Therefore, the player must ensure that the sub-systems are working in the desired fashion to keep the base operating. The purpose of this document is to provide a general description of this project and to specify the requirements for this game. It is meant to be a form of communication between the developers of this game and its clients, i.e. Dr. Ridha Khedri and the teaching assistants for SFWR ENG 3A04. The SRS is also meant to be used as a reference by the developers to ensure that the specified requirements have been fulfilled.

### 1.2 Scope

The focus of this SRS is the development of the software product, [[spacebase13]]. The game mimics the operations of a space settlement, and places the user as the head of the base. Hence, the key duty of the player is to ensure that the base remains operating. The player does this by keeping an eye on all the sub-systems and maintaining them whenever there is a need. This will be done by assigning tasks to all the members of the base, which could be anything from fixing a breach in the walls of the base to interaction with alien flora and fauna. If there are multiple stimuli happening concurrently, then the player must prioritize the tasks, based on how critical they are and on what level they affect the safety of the community. The main objective of this game is to provide entertainment to its users. However, it will also develop time management skills of the users, as well as improve their multitasking abilities.

### 1.3 Definitions, Acronyms, and Abbreviations

None were used for this document.

### 1.4 References

No references were used for this document.

### 1.5 Overview

This document describes the product software that is to be developed as well as the requirements specifications.

- The second section of this document provides an overall description of the game. It provides product perspective when compared to another related product. It describes major functions of the product as well as the user characteristics. It also explains the constraints of the system as well as the assumptions for this project.

- The third section of this document specifies the functional software requirements of this game. It provides sufficient details to design a system with the specific requirements and to test that the design has fulfilled those requirements.
- The final section of the document is the non-functional requirements, which vary from different perceptions and are used to ensure successful integration of the game into society.
- A Division of Labour section is also placed at the end of the document which details the contributions of each team member.

## 2 Overall Description

The following is a general description of the product and its requirements. For more specific requirements, see the requirements sections.

### 2.1 Product Perspective

[[spacebase13]] is an independent and totally self-contained system. It does not require network communication to function normally. [[spacebase13]] will contain elements of various existing simulation games such as [[dwarf fortress]], but is not intended to completely emulate any of them. The simulation is intended for entertainment purposes only, so bears only a thematic relationship to some scientific simulation software. As [[spacebase13]] is an Android app, it may be distributed on the Google Play Store, but that does not constitute part of the system.

### 2.2 Product Functions

1. The user will be able to view compositions of various sub-views of the system. Each sub-view corresponds to a different subsystem.
2. The user will be able to stimulate the system. Each stimuli will be able to one or many subsystems, with reactions cascading appropriately. Each subsystem will have at least 1 stimuli.
3. The application will simulate the various subsystems and their interactions.
4. Major ways the user will be able to interact with the system include: expanding their station, issuing orders to the population, and managing power and atmospheric controls of their station.

### 2.3 User Characteristics

Users are expected to have at least a high school level diploma and reading level. Users are expected to be generally familiar with the Android operating system and Android apps. Users are expected to have only a cursory understanding of the subject matter, as [[spacebase13]] is intended for entertainment rather than scientific simulation.

### 2.4 Constraints

The following are constraints on the development of the system.

1. The system must be produced as an Android app.
2. The system must consist of several separate subsystems. (at least 3)

## 2.5 Assumptions and Dependencies

The following are assumptions that affect the requirements for the system.

1. It is assumed that the device running [[spacebase13]] will have the Android operating system available.
2. It is assumed that the application will be run with sufficient privileges to read and write necessary files on the device.
3. It is assumed that the device will have access to the Google Play Store (or an alternate distribution method if one is chosen).

## 2.6 Apportioning of Requirements

The following requirements may be delayed until future versions of the system.

1. Functionality allowing the user to showcase their system (for example on social media).
2. Functionality allowing the user to swap between multiple saved states. (or to save their state at all)
3. Non-token graphical features.
4. More than the minimum number of subsystems.
5. Ability to enable or disable subsystems at runtime.

## 3 Functional Requirements

1. The user launches the application
  - (a) Android Device OS
    - i. The system launcher starts the application
  - (b) User
    - i. The system provides a view of all the sub-systems in their present state to the user
    - ii. The system should allow the user to select a sub-system to interact with
2. The user wants to interact with a sub-system
  - (a) User
    - i. The system should show all stimuli that can stimulate the sub-system
    - ii. The system should allow the user to select a stimuli
    - iii. The system must allow the user to control the stimuli
    - iv. The system must respond to the stimuli
3. The application is updated
  - (a) Android Device OS
    - i. The system must notify the operating system that an update is required for the system
  - (b) User
    - i. The system must prompt the user to update the system when the application is launched
4. Time passes within the system
  - (a) User
    - i. The system should update the attributes that have changes since the last time period
    - ii. The system should show the user the result of the stimuli from the previous time period

5. The user wants to change settings of the system
  - (a) User
    - i. The system should provide an interface for editing values of how the system works based on customizable aspects of the system
    - ii. The system should store these new settings and incorporate them into the systems functionality
6. The user wants to share snapshot of the system
  - (a) Android Device OS
    - i. The system should be able to use the OS to interact with social media applications to send data from system to external applications
  - (b) Social Media Application
    - i. The system should be able to provide data that is compatible with the specified social media framework
  - (c) User
    - i. The system should provide a means of sharing users system data via social media
7. The user wants to shut down the system
  - (a) Android Device OS
    - i. The operating system should close the application
  - (b) User
    - i. The system should provide a way to close the current running of the systems processes
    - ii. The system should provide a way to save progress within the system and sub-systems

## 4 Non-Functional Requirements

### 4.1 Look and Feel Requirements

#### 4.1.1 Appearance Requirements

LF1.

#### 4.1.2 Style Requirements

LF1.

### 4.2 Usability and Humanity Requirements

#### 4.2.1 Ease of Use Requirements

UH1.

#### 4.2.2 Personalization and Internationalization Requirements

UH1.

#### 4.2.3 Learning Requirements

UH1.

#### **4.2.4 Understandability and Politeness Requirements**

UH1.

#### **4.2.5 Accessibility Requirements**

UH1.

### **4.3 Performance Requirements**

#### **4.3.1 Speed and Latency Requirements**

PR1.

#### **4.3.2 Safety-Critical Requirements**

PR1.

#### **4.3.3 Precision or Accuracy Requirements**

PR1.

#### **4.3.4 Reliability and Availability Requirements**

PR1.

#### **4.3.5 Robustness or Fault-Tolerance Requirements**

PR1.

#### **4.3.6 Capacity Requirements**

PR1.

#### **4.3.7 Scalability or Extensibility Requirements**

PR1.

#### **4.3.8 Longevity Requirements**

PR1.

### **4.4 Operational and Environmental Requirements**

#### **4.4.1 Expected Physical Environment**

OE1.

#### **4.4.2 Requirements for Interfacing with Adjacent Systems**

OE1.

#### **4.4.3 Productization Requirements**

OE1.

#### **4.4.4 Release Requirements**

OE1.

## **4.5 Maintainability and Support Requirements**

### **4.5.1 Maintenance Requirements**

MS1.

### **4.5.2 Supportability Requirements**

MS1.

### **4.5.3 Adaptability Requirements**

MS1.

## **4.6 Security Requirements**

### **4.6.1 Access Requirements**

SR1.

### **4.6.2 Integrity Requirements**

SR1.

### **4.6.3 Privacy Requirements**

SR1.

### **4.6.4 Audit Requirements**

SR1.

### **4.6.5 Immunity Requirements**

SR1.

## **4.7 Cultural and Political Requirements**

### **4.7.1 Cultural Requirements**

CP1.

### **4.7.2 Political Requirements**

CP1.

## **4.8 Legal Requirements**

### **4.8.1 Compliance Requirements**

LR1.

### **4.8.2 Standards Requirements**

LR1.

## **A Division of Labour**

Include a Division of Labour sheet which indicates the contributions of each team member. This sheet must be signed by all team members.

## IMPORTANT NOTES

- Be sure to include all sections of the template in your document regardless whether you have something to write for each or not
  - If you do not have anything to write in a section, indicate this by the *N/A*, *void*, *none*, etc.
- Uniquely number each of your requirements for easy identification and cross-referencing
- Highlight terms that are defined in Section 1.3 (**Definitions, Acronyms, and Abbreviations**) with **bold**, *italic* or underline
- For Deliverable 1, please highlight, in some fashion, all (you may have more than one) creative and innovative features. Your creative and innovative features will generally be described in Section 2.2 (**Product Functions**), but it will depend on the type of creative or innovative features you are including.