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| Requirements Specification (RS) |
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| Jane Keyes, Tadhg Savage, Karl Miller, Aisha Ntuli  2/1/2023 |

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# Introduction

## Purpose

The purpose of this document is to set out the requirements for the development of our Virtual Reality (VR) game called “Cooktastrophe”. This game is a simulator for running a restaurant. The user will be allowed to prepare and cook food, serve customers, make money, use money to upgrade various aspects and appliances of the restaurant. The user will be based within the restaurants kitchen where they will have to deal with multitasking. The games difficulty increases as the user progresses through it.

The target demographic for this came is from ages 13 and up. The game is light-hearted and accessible making it suitable for younger teens to grasp while being challenging enough for users of all ages. “Cooktastrophe” will be for all the family to enjoy with its bright colours, Voxel graphic’s, non-offensive music, and entertaining but challenging gameplay.

## Project Scope

The Scope of the project is to develop a VR game.

Group two of the team project module were involved in communications with one another to meet the following requirements.

The system shall have art and graphics developed using Blockbench and will be made using Unity.

Th goals which we are envisioning for this project include modifying Unity’s VR system to suit our game e.g., holding and picking up things. Our deliverables for this project include an initial project proposal, a requirements specification, a mid-point presentation ending with a final software presentation, Report, Application and evidence of communication.

Our tasks include creating the game’s graphics, creating the lore and “world” of “Cooktastrophe” which includes a point system comprised of health bars, money etc. The costs of this endeavour are rather minimal considering that the software we are using on which to make these graphics and the game itself are actually free I would say the only cost we have encountered so far which was also rather optional was downloading the game that our game was loosely inspired by called “Plate Up” to experience the feel and atmosphere of the game and it was under 10 euro. All other costs mostly came down to time costs.

## Definitions, Acronyms, and Abbreviations

**3D** **Three-Dimensional** - This Relates to or denotes a film or video game that creates an impression of depth and solidity, typically by means of stereoscopic techniques.

**Stereoscopic** This relates to or denotes a process by which two photographs of the same object taken at slightly different angles are viewed together, creating an impression of depth and solidity.

**VR**  **Virtual Reality** – This is a computer-generated simulation of a 3D image or environment that can be interacted with in a seemingly real or physical way by a person using special electronic equipment, such as a helmet with a screen inside or gloves with fitted sensors.

**XR** **Mixed Reality** – This is a medium of immersive, computer-generated enviroments in which elements of a physical and virtual environment are combined.

**Voxel** This is a computer-based modelling or graphic simulation. Each of an array of elements of volume that constitute a notional 3D space, especially each of an array of discrete elements into which a representation of a 3D object is divided.

……..

# User Requirements Definition

The user requirements are defined by the set of objects and requirements for the system from the customer’s perspective. In this case the client wants:

* A Virtual Reality game that can be interacted with via VR technology (headsets etc.).
* To be able to communicate with customers in the game.
* To be able to cut and prepare foods and dishes.
* To serve prepared food to customers.
* To take payment from the customer to create an income.
* To view their health status using a star rating.
* To upgrade restaurant appliances using generated income.
* To be able to pause and resume gameplay at their command.
* To be able to turn sounds effects on and off.
* To be able to turn music on and off.
* To end games at their command
* To progress to new levels in the game.
* To begin a new game at their command.

# Requirements Specification

All requirements should be verifiable. For example, experienced controllers shall be able to use all the system functions after a total of two hours training. After this training, the average number of errors made by experienced users shall not exceed two per day.

“Cooktastrophe” will begin gameplay with the option of watching an interactive tutorial. This tutorial will breakdown multiple aspects of the game, describing to the user what certain objects are and how to use them. This tutorial should last between 5-10 minutes, after which the user should be able to play the games beginner levels with ease. The difficulty of the game will increase as users progress through it, meaning the more advanced the player, the more advanced the level will be.

## Functional requirements

This section lists the functional requirements in **ranked order**. Functional requirements describe the possible effects of a software system, in other words, what the system must accomplish. Other kinds of requirements (such as interface requirements, performance requirements, or reliability requirements) describe how the system accomplishes its functional requirements. Each functional requirement should be specified in a format similar to the following:

Short, imperative sentence stating highest ranked functional requirement.

### Use Case Diagram

Each requirement should be uniquely identified with a sequence number or a meaningful tag of some kind.

The Use Case Diagram provides an overview of all functional requirements.

### Requirement 1 <name of requirement in a few words>

The heading of this section should read, e.g., “Requirement 1: User registration” or “Requirements 1: Participant takes test”

#### Description & Priority

A description of the requirement and its priority. Describes how essential this requirement is to the overall system.

#### Use Case

Each requirement should be uniquely identified with a sequence number or a meaningful tag of some kind.

**Scope**

The scope of this use case is to …….

**Description**

This use case describes the ………..

**Flow Description**

**Precondition**

The system is in initialisation mode……..

**Activation**

This use case starts when an <Actor>…………

**Main flow**

1. The system identifies the ………….
2. The <Actor> …………...(See A1)
3. The system …………..(See E1)
4. The <Actor> ………….

**Alternate flow**

A1 : <title of A1>

1. The system …………..
2. The <Actor> ………….
3. The use case continues at position 3 of the main flow

**Exceptional flow**

E1 : <title of E1>

1. The system …………..
2. The <Actor> ………….
3. The use case continues at position 4 of the main flow

**Termination**

The system presents the next ……….

**Post condition**

The system goes into a wait state

### Requirement 2 : Using income to upgrade appliances

#### Description & Priority

This requirement will allow the customer to use generated income from serving satisfied customers to upgrade appliances in the restaurant’s kitchen. When an appliance is upgraded, the preparation and cook time for food will be shortened. With these times being shortened, customers will be served quicker which adds to their satisfaction. Satisfied customers generate more income and points within the game.

#### Use Case

Each requirement should be uniquely identified with a sequence number or a meaningful tag of some kind.

**Scope**

The scope of this use case is to …….

**Description**

This use case describes the ………..

**Flow Description**

**Precondition**

The system is in initialisation mode……..

**Activation**

This use case starts when an <Actor>…………

**Main flow**

1. The system identifies the ………….
2. The <Actor> …………...(See A1)
3. The system …………..(See E1)
4. The <Actor> ………….

**Alternate flow**

A1 : <title of A1>

1. The system …………..
2. The <Actor> ………….
3. The use case continues at position 3 of the main flow

**Exceptional flow**

E1 : <title of E1>

1. The system …………..
2. The <Actor> ………….
3. The use case continues at position 4 of the main flow

**Termination**

The system presents the next ……….

**Post condition**

The system goes into a wait state

**List further functional requirements here, using the same structure as for Requirements 1 & 2. Most systems would have at least five main requirements.**

## Non-Functional Requirements

Specifies any other particular non-functional attributes required by the system. Examples are provided below. **Remove the requirement headings that are not appropriate to your project.**

### Performance/Response time requirement

### Availability requirement

### Recover requirement

### Robustness requirement

### Security requirement

### Reliability requirement

### Maintainability requirement

### Portability requirement

### Extendibility requirement

### Reusability requirement

### Resource utilization requirement

# GUI

Include mock-ups of the key pages or stages of the system. Explain how they are linked. Explain how you addressed above requirements in the design. It is important that the mock-ups are in line with the functional requirements above, e.g., if one of your requirements is “user registration” then one of the screens listed in this section should show a registration page.

# System Architecture

Provide a high-level architecture diagram to illustrate how the different parts/technologies of your system work together

# System Evolution

This section describes how the system could evolve over time.