Requirements

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2.A Introduction
The process of eliciting requirements began with the product brief, which allowed the group to establish a vague outline of the requirements for the game. This was a much superior way to start compared to a single statement of need that many requirement processes begin with. There were still many uncertainties however as to how the product brief would be implemented, it wasn't clear how the game would be controlled or how key systems would precisely function in certain scenarios for example there was uncertainty on how the cooks would interact with each other and if the kitchen layout would be predefined. Therefore an interview with the customer was arranged to clarify these discrepancies.

Questions were asked that fell into four categories (hardware requirements, user experience requirements, audio and visual requirements and functionality requirements). Separating user experience requirements from audio and visual requirements led to a greater focus on accessibility features when designing the requirements, In particular, considerations were made to accommodate colour-blind users. We also recorded audio and transcribed the interview so that we were able to refer to it throughout the requirements process.

The requirements have been placed into three tables (user requirements, functional requirements and non-functional requirements) with each requirement having a unique ID. Among the tables there is a hierarchy with the user requirements being top of the hierarchy, and its entries being referenced in the requirement and non-functional requirement table. The hierarchical system has been chosen as it allows more detail for the functionality section and for every requirement to be traced back to the root.

I. Sommerville, "Chapter 4 Requirements Engineering," in *Software engineering*, Boston i pozostałe: Pearson, 2018, pp. 101–130.

Single Statement of Need:
"The game should enable visitors on an open day to easily play and learn the game providing an accessible and enjoyable experience"

Direct Stakeholders:

The **customer** is a key stakeholder - to accommodate and plan our project accordingly, we conducted an interview with the customer; they stated what they want/need to see in the implementation and ideas were brought forwards by the group in relation to what features could appeal to the customer. These ideas were welcome by the customer and added to our requirements with specified priority.

Our second stakeholder is **The University of York Communications Office** who had specified their requirements for the project in the brief. The main consideration we had to take from this stakeholder is the fact that the game will be used for promotional activities; in light of this, a cross-compatibility requirement was needed so the game must be developed in such a way to prevent compatibility issues between Windows OS, MacOS etc.

2.B(UR) User Requirements:

ID	Description	priority
UR_MAIN_MENU	A Main menu with options for the user when first opening the game	Shall
UR_TUTORIAL	A way for the user to learn how to play the game	Should
UR_AUDIO_FEEDBACK	There should be audio feedback for interactions and events in the game	May
UR_VISUAL_STYLE	The visuals of the game should be chosen to account for accessibility and compatibility between operating systems.	Shall
UR_PROGRESS	There should be indicators to the user on the progress on task being performed	Should
UR_COOK_CONTROL	The user should be able to switch between the cooks and move them and allow for interactions	Shall
UR_COOK_INVENTORY	Cooks should have a stack of ingredients they are holding and use the items in the stack and dispose of them	Shall
UR_COOKING_STATION	There should be cooking stations for the user to process the ingredients on	Shall
UR_PLACEHOLDER_STATION	There may be stations that take up space which allows the user to place and store their current ingredients	May
UR_CUSTOMER_ARRIVAL	Customers will arrive and demand to be served a recipe	Shall
UR_RECIPES	Each recipe should need a set of steps to be completed at different cooking stations	Shall
UR_EARNING_REWARD	Each successfully served customer should reward the player with earnings to be spent on unlocking ingredient stations and cooking stations	Should
UR_COMPATIBILITY	User should be able to play the game on at least 2 operating systems	Shall
UR_WEBSITE	Website containing all related files and data so it's easily accessible.	Shall
UR_GAME_MODE	The should be 2 game modes the user can select a scenario mode and an endless mode	Should
UR_CONTROLS	The user can interact with the game using a control scheme	Shall
UR_CUSTOM_CONTROL	The user can customise the controls	May

System Requirements

2.B(FR) Functional Requirements Table

ID	Description	User Requirements
FR_MOVEMENT	Cooks/Customers should be able to move N/E/S/W(directions North, etc) around the board.	UR_TUTORIAL UR_COOK_CONTROL
FR_ACTIONS	Cooks should be able to interact via actions such as cutting, flipping, and switching between cooks etc.	UR_TUTORIAL UR_COOK_CONTROL
FR_INVENTORY	Ability to add items (ingredients) to the stack/inventory can hold up to 3 ingredients	UR_TUTORIAL UR_COOK_INVENTORY
FR_NAVIGATION	Ability to interactively navigate the game UI, from the main menu to tutorials using buttons.	UR_MAIN_MENU
FR_RECIPE_INSTRUCTIONS	Users should be given instructions/ guides to construct a customer's recipe.	UR_TUTORIAL UR_VISUAL_STYLE
FR_INGREDIENT_STATIONS	Will pass 1 of its food objects to the cooks stack, showing visual guide for progress as well.	UR_COOK_INVENTORY UR_PROGRESS
FR_COOKING_STATIONS	Changes the attribute of an argument object & returns it. Or checks if a recipe is correct	UR_COOK_CONTROL
FR_ITEM_DISPOSAL	Ingredients and items should be able to be disposed of if the user makes a mistake	UR_COOK_INVENTORY
FR_AUDIO	Specific actions trigger audio feedback for the user.	UR_AUDIO_FEEDBACK
FR_ORDERS	Orders are generated for each customer waiting in line.	UR_CUSTOMER_ARRIVAL
FR_CUSTOMER_NUMBERS	The magnitude of orders / customers are decided by which game mode is selected.	UR_GAME_MODE

2.B(NFR) Non- Functional Requirements Table

ID	Description	User Requirements	Fit Criteria
NFR_AVAILABILITY	The game will be highly available to be used on Open-Days	UR_WEBSITE	Latest version of the game will be available to be downloaded on our Website
NFR_USABILITY	Open day visitors are able to give the game a go easily.	UR_TUTORIAL	Game will use commonly used control schemes (WASD, Arrow Keys) and any niche controls (F - Flip Patty) will be explained
NFR_LEARNABILITY	Users should be able to learn more about the game whilst playing or by preparing beforehand	UR_TUTORIAL	Game will have a how-to-play screen on the menu and recipe reminders will be near the customer that requires it
NFR_COMPATIBILITY	Users should be able to run it on multiple Operating Systems	UR_COMPATIBILITY	Game will run on two of three following OS: Linux, Windows, MacOS
NFR_SCREEN_ADAPTATION	It can be shown on different displays	UR_VISUAL_STYLE	Reformatable onto a variety of screen sizes
NFR_TIMING	Users should have an indication as to how long a task (such as cooking one side of a burger) takes.	UR_PROGRESS UR_AUDIO_FEEDBACK	Take into consideration accessibility and create ideas for clear indication.
NFR_MAINTAINABILITY	The game should maintain and run itself with no interference from a developer.	UR_COMPATIBILITY	Thorough testing prior to release.
NFR_ACCESSIBILITY	The game should accommodate for users who cannot distinguish well between colours	UR_VISUAL_STYLE	The use of shapes and colour changes in the visual style will make each element distinguishable

2.B(C) Constraints

Constraints taken into account for this part of the project mainly entails time issues. There is a limited time, along with breaks from team meetings during holidays, exams etc. However, to counter this constraint, there will be additional team meetings to compensate for lost time and this part of the project should be complete.

Additionally, there are software preferences which needed to be overcome and the team was required to choose an ideal integrated development environment to reduce risk of error and collisions within the collaboration.