

Requirements

Group 26

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Requirements

Part a)

After getting team 32's requirements we then had to append any extra requirements we had already identified in assessment 1 that were missed by team 32 and add any additional requirements required for assessment 2.

We first decided to reformat the requirements of team 32 such that we could split it into user requirements and system requirements:

- User requirements are for non-technical people involved in the process and is a list of tasks that users should be capable of doing within the system.
- System requirements details the technical implementation including a description of how the system will deliver the needs of the users. (System requirements is further broken down into functional and non-functional requirements):
 - Functional requirements are things the system must do
 - Non-functional requirements are qualities the system must have

The notation to represent requirements was made to comply with the [Easy Approach to Requirements Syntax \(EARS\)](https://www.jamasoftware.com/requirements-management-guide/writing-requirements/adopting-the-ears-notation-to-improve-requirements-engineering). (Alternate link / description: <https://www.jamasoftware.com/requirements-management-guide/writing-requirements/adopting-the-ears-notation-to-improve-requirements-engineering>)

With this approach each requirement can be given a unique key (ID), which then can make documentation for architecture easier as requirements may be referenced by their ID's.

Each User Requirement is given a priority:

- Shall - must be fully implemented (Highest priority)
- Should - should be fully implemented but isn't strictly required (Medium priority)
- May - an optional element that would be desirable but is not necessary (Low Priority)

Both functional requirements tables are partially or wholly explained by a user requirement, so each of these will link back to the first table. Along with this each non-functional requirement is given a fit criteria which is a specific criteria that must be met in order for the non-functional requirements to be classed as implemented.

Once this had been completed our team then went through the process of eliciting new requirements for assessment 2 and how to continue meeting the requirements from assessment 1. This was done by using the new product brief alongside the additional game features given to us by the client through the virtual learning environment. We then decided since we didn't have many questions to clear up with our client, we instead emailed the client with a few queries about the brief, allowing us to finish adding requirements to our document without being unsure as to whether it is correct.

These additional requirements were created as a team during a meeting allowing for all team members to understand what is required of the game, and hopefully also meaning we have not forgotten any requirements due to the fact every team member contributed to this task.

Finally, once all requirements had been made we then appended them to the correct tables with all the necessary information for each requirement being created.

Part b)

User Requirements

ID	Description	Priority
UR_CONTROL_COOKS	The game shall allow the player to control three chefs individually.	Shall
UR_INGREDIENTS	The player shall be able to collect ingredients from stations, and shall be able to get rid of them	Shall
UR_UX	The game shall offer a pleasant user experience	Shall
UR_INSTRUCTIONS	The instructions to cook food shall be displayed to the user along with controls	Shall
UR_GRAPHICS	The graphics of the game shall be clear and easy to understand. The graphics shall also be child friendly.	Shall
UR_ACCESSIBILITY	The game should provide accessibility options	Should
UR_TIME_TO_COMPLETE	The game should take 5-6 minutes on average to complete	Should
UR_SOUND	The game may have sound effects	May

Appended

ID	Description	Priority
UR_SETTINGS	The game should provide the option to customise settings to the player's preference, including difficulty.	Should
UR_SYSTEM	The game shall be playable on a variety of different computers	Should
UR_COOK_FOOD	The user shall be able to serve: pizza, jacket potatoes, burger, and salad, as well as collect ingredients for those recipes.	Shall
UR_FAILING_STEPS	The user shall be able to cook food for too long and fail to prepare properly, ruining the food.	Shall
UR_ENVIRONMENT	The game shall be set in a restaurant, with multiple chefs and customers.	Shall
UR_MODES	There shall be an endless mode with an unlimited number of customers which arrive one at a time or in groups, and a scenario mode with a configurable amount of customers.	Shall
UR_MONEY	The game shall have a system for earning and spending money in a shop, which allows the user to buy new chefs, stations, and power ups.	Shall

UR_REPUTATION_LOSS	The user shall lose if they fail to fulfil too many orders.	Shall
UR_SAVE	There shall be a way to save the game and return to that save state later.	Shall
UR_POWER_UPS	There shall be power ups that the chef can acquire to gain temporary bonuses.	Shall

Functional Requirements

ID	Description	User Requirements
FR_CHANGE_PLAYABLE_CHARACTER	The system shall let the user switch between playable characters.	UR_CONTROL_COOKS
FR_MOVE_PLAYABLE_CHARACTER	The system shall have controls that move the playable character.	UR_CONTROL_COOKS
FR_GRAB_ITEMS	The system shall allow the player to grab various in-game items.	UR_INGREDIENTS
FR_FLIP_AND_CHOP	The system shall allow the player to flip and chop certain items.	UR_COOK_FOOD
FR_PLACE_ITEMS	The system shall let the player place items after grabbing them.	UR_COOK_FOOD
FR_REMOVE_ITEMS	The system shall let the player completely remove items from the game.	UR_INGREDIENT
FR_SERVE_CUSTOMER	The system shall let the player serve the customer their order.	UR_ENVIRONMENT, UR_MODES
FR_GUIDE_USER	The system shall subtly guide the user and make sure they finish each task successfully every time.	UR_INSTRUCTIONS
FR_FULL_SCREEN	The system should let the user play in full screen mode.	UR_SYSTEM
FR_COLOR_BLINDNESS	The system should let a user with colour blindness choose a suitable colour palette to enhance their gaming experience.	UR_SYSTEM
FR_TIMER	The system should have a timer that shows how much time has elapsed.	UR_TIME_TO_COMPLETE
FR_SAVE_CHANGES	The system should remember the user's settings.	UR_SETTINGS
FR_VERIFY_SETTINGS_CHANGES	The system should verify if the user would like to save the changes	UR_SETTINGS

FR_MUTE_FX	The system shall let players mute sound effects/music	UR_SOUND
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Appended

ID	Description	User Requirements
FR_COOKS	The game shall start with 3 cooks.	UR_ENVIRONMENT
FR_TIME_FAILURE	When an item is prepared for too long, it shall no longer be usable.	UR_FAILING_STEPS
FR_ENDLESS_CUSTOMERS	When the user picks endless mode, the number of customers shall have no limit and arrive at an increasing frequency.	UR_MODES, UR_ENVIRONMENT
FR_EARNINGS	When the user serves a customer, they shall receive some amount of money.	UR_MONEY
FR_SHOP	The system shall have a shop to spend money	UR_MONEY
FR_COOKING_OVEN	The oven shall be used to cook pizzas and jacket potatoes,	UR_COOK_FOOD, UR_INGREDIENTS
FR_COOKING_GRILL	The grill to cook patties and buns.	UR_COOK_FOOD, UR_INGREDIENTS
FR_LOSE_REPUTATION	When a customer is not served on time, the user shall lose one reputation point.	UR_REPUTATION_LOSS
FR_END_GAME_SCREEN	When the user loses or completes the scenario, the game shall return customers served, time taken, money earned, and reputation points	UR_REPUTATION_LOSS
FR_GAME_OVER	When the user has 0 reputation points left, they shall lose the game.	UR_REPUTATION_LOSS
FR_STATIONS	There shall be one of each station per cook.	UR_COOK_FOOD, UR_INGREDIENTS
FR_CUSTOMERS	When an order is placed, a visible customer shall arrive behind the counter.	UR_ENVIRONMENT
FR_INGREDIENTS	The ingredient stations shall contain unlimited amounts of ingredients (dough, potatoes, cheese, potato fillings).	UR_INGREDIENTS
FR_SPENDING	The user shall be able to buy cooks, stations and power-ups	UR_POWER_UPS
FR_SAVE	The user shall be able to save their progress with an option in the pause menu.	UR_SAVE
FR_LOAD	The user shall be able to load a previously saved game.	UR_SAVE

FR_DIFFICULTY	When starting the game the user shall be able to choose easy, normal or hard difficulty. The higher the difficulty, the higher the frequency of grouped customers.	UR_SETTINGS, UR_MODES
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Non-functional requirements

ID	Description	User Requirements	Fit Criteria
NFR_AVAILABILITY	The system shall be highly stable	UR_CONTROL_COOKS	Uptime: 99.5% during the open days
NFR_TUTORIAL	The system shall have a guide that details all its functions	UR_INSTRUCTIONS & UR_GRAPHICS	If any customer struggles to use the game then a tutorial should be available making any confusion about the game clarified.
NFR_OPERABILITY	The system shall be operable by customers that have no previous experience with the game.	UR_INSTRUCTIONS & UR_GRAPHICS	Around 95-90% of customers should be able to “pick up and play” the game
NFR_ACCESSIBILITY	The system shall be operable by those with accessibility issues	UR_ACCESSIBILITY	Make sure that text is clearly visible, objects and game elements are coloured differently and also have different physical appearances, allowing for anyone to play.
NFR_USABILITY	The system shall contain no technical jargon	UR_INSTRUCTIONS	Anyone from ages 5 and above should be able to understand and play this game

Appended

ID	Description	User Requirements	Fit Criteria
NFR_POWER_UP_CHANGE	When the user uses the shop, they shall receive clear visual feedback.	UR_MONEY	95% of users can see a visual change when a powerup is obtained
NFR_DIFFICULTY_MANAGEMENT	The game should be fair on every difficulty	UR_SETTINGS	Each difficulty should have 95/50/25% completion rate respectively
NFR_MENU_CLARITY	The menu options	UR_GRAPHICS,	95% of users will be able to tell

	shall have clear purposes	UR_SAVE	what each menu option does.
NFR_ENJOYABLE	The game shall be a smooth experience	UR_UX	90% of users shall enjoy playing the game
NFR_SYSTEM	The game shall be designed for a standard computer, without any special hardware.	UR_SYSTEM	The game should be able to run on any computer with 4gb of ram, a minimum of an i3 (7th gen or equivalent) and at least 5 gb of free storage. On Windows, MacOS and Linux.