

Requirements

Introduction

Elicitation and Negotiation

During our requirements engineering process, we firstly read through the product brief thoroughly to identify all the ambiguous statements. To do this effectively, each team member read through the brief individually, highlighting any parts of the brief they found ambiguous and wrote a comment on what they were unsure about. This was done on a google docs document which meant all team members could see which parts were being highlighted and could clear up some misunderstandings. Once this was done, all non-ambiguous elements were transformed into the first requirements. All other elements deemed to be both important and ambiguous or with unclear importance were collected in the form of questions to query the main customer.

We then as a team had a brainstorm session to identify any other elements of the brief we were unclear about and how we were going to conduct the interview with the client. We then arranged an interview with the client where we asked the predefined list of questions along with follow-up questions, to ensure we get detailed information regarding the client's expectations. Moreover, we ensured to ask mainly open ended questions to allow the client to express their expectations from the game.

During the interview, one person acted as the scribe to write down exactly what the client was saying while the other members were able to ask the questions and engage fully with the client. During the interview, we were able to negotiate some requirements as the interpretation/idea we came up with turned out to be more complex than the client had originally thought of but thought it was an interesting concept. Therefore, we agreed with the client that we would try to implement the feature but it would be ok if this feature was not implemented due to its low priority. One example is the feature of allowing players to trade plots of land.

After the meeting, the notes were analysed by the team and we came up with a complete list of requirements. We decided against using a paper prototype as we believed that we already had a comprehensive list of requirements and felt that creating one would be too time consuming for the amount of help it would give. Instead, during a team meeting we ran through some user scenarios to identify any further requirements and ensure we have considered all aspects of the game. An example of a scenario we ran through was how a user will purchase a plot of land.

Presentation

The requirements were formatted into a table in order to allow for easy categorisation and for the later addition of risks and priorities after they had been discussed. We took ideas from different requirement format templates in order to better suit our specific needs, as most of them had certain aspects that we did not require. Some tables[1] we looked at gave us a good idea of which column headings we would require and also which we did not require (for example, the date reviewed and who reviewed them).

This gave us a suitable format that allows for all items needed. We categorised the requirements so we could separate them into different groups i.e. Map, Resources, Roboticons, which will be useful when it comes to implementation. We allocated a priority to each requirement which again will help when we start implementing as we can immediately identify which requirements need implementing first based on the priority. For example, a requirement with priority 1 is essential for the game to function, meaning it would be implemented first. Whereas a priority of 4 (optional addition) depends on whether we have time.

Statement of Requirements

Priorities

1. Essential for the game to function
2. Important to the playability/usability of the game
3. Requested feature that should be implemented in time
4. Optional addition

Open Full requirements lists [here](#)

#	Category	Description	Risks	Priority
1	Map	At least three university landmarks	N/A	3
2	Map	Each plot should be the same size	N/A	2
3	Map	Futuristic aesthetic, as game is based in the future.	Map could become indistinguishable from the university if we try to change too much of it.	3
4	Map Roboticon	Roboticon can be installed on plots of land owned by player	N/A	1
5	Map	All plots of land are unallocated at the beginning of a play session	N/A - Easy to implement	1
6	Map	Every player has their own unique identifier applied to a plot of land that they own	N/A - Easy to implement	1
7	Resources	Three types of resource: Food, Energy and Ore	Need to balance power of resources so that players will want to obtain an equal amount of each.	1
8	Market Resources	There needs to be a market to buy and sell resources and equipment.	N/A	2
9	Market	The market should have a pub with a bar where "gambling" can take place for money.	Needs to be balanced as it could be used to inflate the economy.	2
10	Resources	Resources only produced with a Roboticon on that plot	Players may feel there is no point owning a tile without a roboticon on it.	2
11	Resources Market	Optional auction to sell produced resources to other players or the market	Could very easily break the economy if suitable prices are not set for market items.	2
12	Events	Random effects, which may be good or bad	Could be too powerful if not configured correctly.	2
13	Stakeholder	Game should promote the university	Hard to both create a futuristic aesthetic and keep likeness to the university.	4
14	Players	Game needs 2 players, one of which may be a computer	Many things could go wrong with an improperly designed AI. Two human players using one screen may make it possible for one of them to see information that they are not meant to.	2

			Also, transitions between phases and turns for multiple players could go wrong very easily.	
15	GUI Resources	Players should be shown how much of each resource they are producing each turn	Players should not be able to see what resources other players have, which is difficult if both are using the same screen.	1
16	Market Resources	Market does not start with any ore	May make it hard to introduce new Roboticons into the game	2
17	Map	Only one tile can be purchased per turn	Depending on size of map, this could make games last a very long time.	2
18	Market Roboticons Turns	Time limit on how long you have to buy, customise and install Roboticons	Players could feel rushed through their turns. Playtesting needed to find a suitable amount of time that isn't too long or too short.	2
19	Resources	Each player should start with some money. The exact amount should be play tested	Balancing is an issue here, player needs to start with just the right of amount of money to not be under/overturned	2
20	Resources Roboticons	Production should fail if a tile has the wrong type of roboticon installed for the type of resource on that tile	Player could fall into a loop of unrecovery if the set up their initial robotics wrong.	4
21	Resources Event	Random events that happen should sometimes change what a tile produces. Eg. a meteor turns a food tile into an ore tile.	Could become unbalanced very easily, playtesting will be needed to fine tune effects.	2
22	Roboticon	All Roboticons with ore customisation are identical. Same for food and energy.	N/A	3
23	Roboticon	You should be able to remove Roboticons from their current plot	N/A	3
24	Phase 1	This phase should somehow be made competitive. For example the first player to hit a button gets the tile	May be hard to implement with only one keyboard available	2
25	GUI Resources	In standard play players should not be able to see the other players resources, although a random event could change this	This is very hard to implement if the two players are sharing a single screen.	2
26	Score Game end	Aim of the game is to become vice chancellor. This is the player with the highest score at the end of the game	Need to balance score to encourage multiple paths to victory.	2
27	Game end	Game ends at the end of the turn where the last tile was purchased	N/A - Easy to track when no available plots left	2
28	Gambling	Gambling should be something simple like black jack / slot machine.	Need to balance to make gambling a risk, players should usually lose money and occasionally get lucky.	2
29	Gambling Phase 2 Phase 3	Gambling should be available during phases 2 and 3 so the player has to choose between taking their time on those phases or rushing so they can gamble too.	Too much gambling could occur in one turn. May be a good idea to implement a short cooldown.	2

30	Stakeholder	Game should be short enough to be playable as a demo in UCAS or open days.	Game may drag on for too long, if only one tile is purchasable per turn. Map may need to be relatively small.	3
31	Phase 2 Phase 3	If a player fails to complete the given tasks for these stages the phase should either end or a penalty should be applied. Play test this to see which is more fun.	Could be too harsh of a punishment, playtesting will be needed to fine tune.	3
32	Map Resources	Landmarks should buff or debuff adjacent tiles. Computer science should buff nearby tiles.	Could be too powerful, need playtesting to decide effects.	3
33	Score Game end	Money is the basis for the score and resources are worth what they could have been sold for in the final turn.	An incentive for selling to the market will be needed, else players will hoard ore and no more Roboticons will be able to be made.	2
34	Map	Purchased tile do not have to be adjacent to currently purchased tiles	N/A - Very easy to implement	1
35	Phases	<p>Phases 2 and 3 should be time-limited; that is, as soon as Phase 2 starts, there should be a fixed time limit in which Phase 2 must be completed (and similarly for Phase 3) If a player has time left in phase 2 or 3 they can choose to gamble.</p> <ol style="list-style-type: none"> 1. Simultaneously each player may acquire a plot of land. First come first serve (i.e competitive for best tile) 2. Simultaneously each player may purchase Roboticons. Each player may make customisations to their purchased Roboticons for a fee. These customisations allow a roboticon to produce a resource of a certain type. 3. Simultaneously each player can install/remove their Roboticons from tiles they own. 4. Each player's colony produces (or fails to produce) resources based on the tiles and Roboticons they have. 5. Simultaneously each player can choose to buy / sell resources at auction. 	Many things could go wrong with phases and transitioning between them. A large amount of testing will be required to make sure this feature works correctly. This feature also needs to work for human and AI players, which may pose a challenge. We will also need to balance the time-limited phases so that players do not feel that they are being rushed through the turn.	1

[1] Pace University. "YourProject. Requirements Specification Version 1.0" csis.pace.edu. [Online]. Available: csis.pace.edu/~marchese/CS775/Requirements%20Specification%20Template.doc [Accessed: Nov. 7, 2016].