



Heads 'n' Tails

Pet Shop

HEADS 'N' TAILS
XB3001 Games Proposal
Research and Process Journal
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Over the course of creating Heads 'N' Tails, due to the nature of the game, my role as Level Designer transitioned more into a Game Designer position, with level design connotations. This role shift was agreed upon with Ben Hill.

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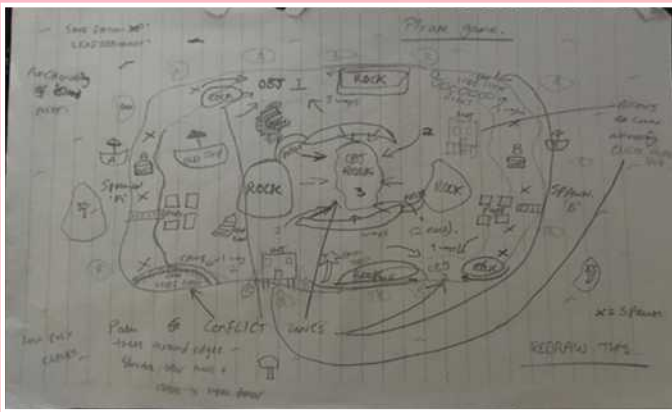
PRE-PROTOTYPES

Role Pitch

The first goal along this process was to secure a group to work with. As Ewan told us we could choose our groups, I teamed up with Robyn and Laura as Level Designer, Character Artist and Environmental Artist, however, we were still missing a couple of key roles. After the presentations, we recruited Cat and Alan as Prop Artist and Technical Designer respectively. For my presentation, I covered the reasons for wanting the role, a key designer I followed and previous work, along with a summary of how all these different elements came together in order to improve my level design skills.



Reasons for wanting a Level Design role
It covers my most enjoyable creative disciplines and strongest skills.



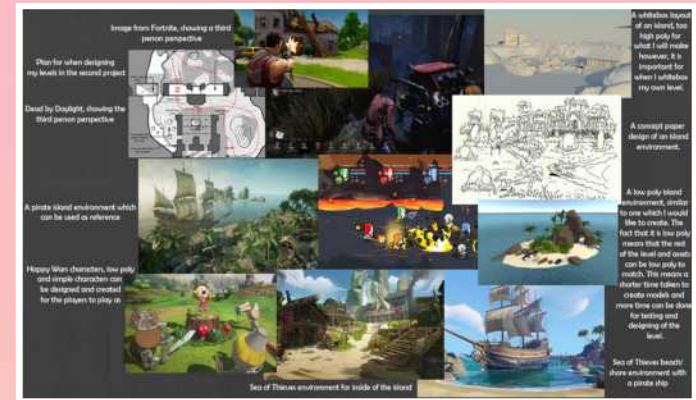
2D sketch of Specialism Map
I showed this to illustrate part of my workflow before jumping into Engine.



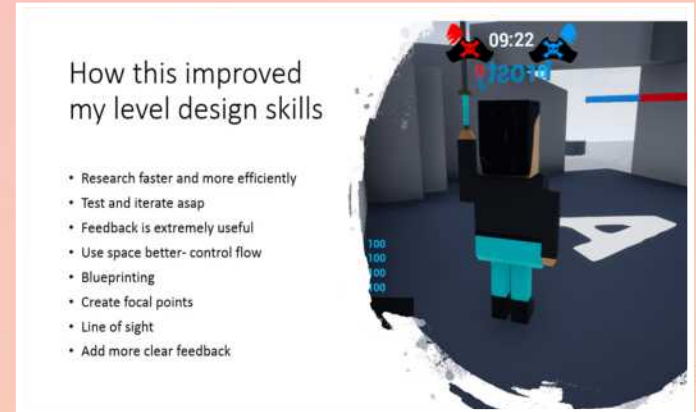
Fundamentals: Max Hergren (Mojang)
I used Max as a reference to discuss key Level Design principles I follow.



Map breakdown
This showed my design decisions and key map locations. This is the 2D sketch in 3D.



Year 2 Specialism mood board
I showed the research and mood board which I completed in Year 2 Specialism.



How this improved my L.D. skills
I discussed what I learned and how this will help in this year's projects.

PROTOTYPES

Heads 'N' Tails

For the Chaotic themed game, we created the game Heads 'N' Tails. In this prototypes, players had to balance serving customers and caring for pets in a pet shop. The player could see the progression of the pet's mood, hunger and cleanliness and would have to take food over and click on the pet to clean them, as well as clicking on an item and carrying it over to customers. My role for this involved creating a placeholder level, working on the game flow and mood progression, deciding the win/lose conditions, adding the models and cleaning up the level design. In terms of research, I created the mood boards below looking into real store layouts, blueprints, assets, areas and considerations.

THE X

A TOP-DOWN PET SHOP SIMULATION/MANAGEMENT GAME FOR PC, VR AND MOBILE PLATFORMS. MANAGE A BANGKY GROOMING PET SHOP, SINGLE HANDED AND COOPERATIVELY WITH FRIENDS AND CONTROL THE CHAOTIC WAVES OF CUSTOMERS AND PETS. BEFORE CUSTOMISING AND EXPANDING YOUR BUSINESS.

GOALS

COMPLETING TASKS AND DEAL WITH CUSTOMER REQUESTS TO HIT SET ANNUAL TO DO'S

RATING SYSTEM

END OF DAY RATING AS PER PERFORMANCE

UNLOCKABLES

EARNINGS CAN BE USED ON STORE UPGRADES TO GENERATE MORE INCOME

WIN?

THE MORE INCOME GENERATED AND THE BETTER THE RATINGS PER DAY, THE MORE SUCCESSFUL THE COMPANY ACCORDS AND THE LESS LIKELY THE SHOP WILL BE SHUT.

PROTOTYPE I ('HEADS N TAILS' TBC) (PET SHOP GAME)

THEME

STYLIZED PET SHOP EXPERIENCE, CARE FOR CUTE ANIMALS, CUTE APPEAL, AND A CUTE STORE HOME/HEALTHLESS. CONTINUE TO EARN CURRENCY FOR EVEN CUTER UNLOCKABLES.

THE 4 PILLARS

MINI-GAME
PERSONALIZED CARE FOR CUSTOMERS AND CARE FOR PETS THROUGH SIMILAR AND NEW GAMES

CUSTOMER THE WORLD
GROW YOUR STORE SURVIVE THE DAY FROM CUSTOMERS, SPEND YOUR CURRENCY AT NIGHT AND CREATE YOUR PERFECT STORE

SHOW YOUR BUSINESS
LEVELUP YOUR HANG AND LOCK YOUR EARNINGS TO BANK NEW UNLOCKS AND UPGRADES

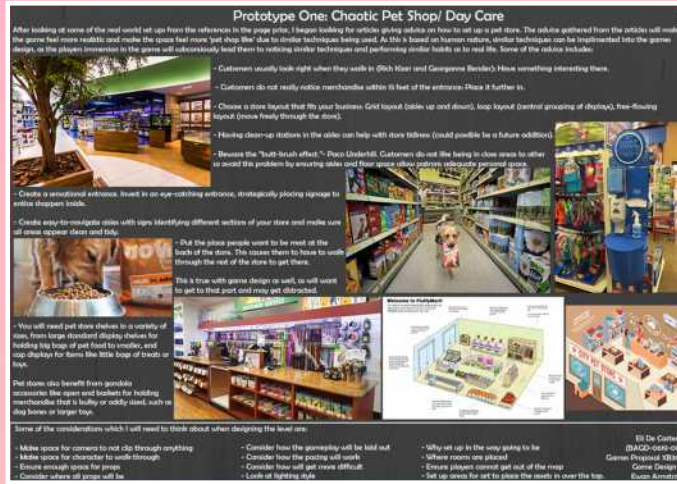
RATING SYSTEM
WITH SAVED GOALS TO ACHIEVE, THESE WILL AFFECT YOUR DAILY RATING AND CAREER AS A PET SHOP OWNER



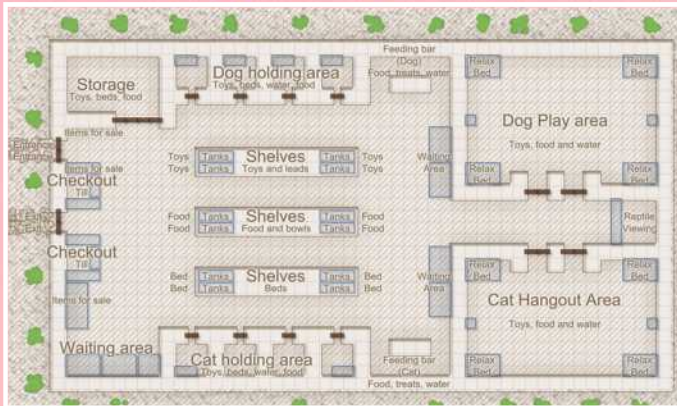
THE PLAYER

YOU WORK AT HEADS 'N' TAILS, A PET SHOP BUSINESS, TO CARING FOR ANIMALS AND SERVING CUSTOMERS, WITH DREAMS OF HAVING YOUR OWN STORE.

MOOD BOARDS



2D DESIGN AND STAGES



I feel this game went well, as it had a nice level flow, deep mechanics such as the inventory system and a lot of art assets, making this prototype feel more like a greyboxed game, which I feel was mostly thanks to the conducted research, which influenced aspects such as the cleanliness of the level design, in store assets and gameplay style (from the initial research), as well as the high energy of the team. On a personal level, I feel that the level layout felt sleek, which contributed to the smoothness of the gameplay, again, the research into the store layouts, gameplay style (initial research) and the 2D design contributing heavily. In terms of improving, I feel that the gameplay should have been more chaotic (possibly through more customers/ tighter spacing).

PROTOTYPES

'Gami'

Despite having the themes, Alan created an interesting mechanic he wanted to try: colour changing, where the player colours a world with coloured paintballs and trade up until they gathered the colour needed in order to slice through the final wall and complete the level. As we required a purely white world to colour, we decided a world made of paper would fit with this theme and also be an interesting concept. My role for this involved designing the layout, pacing, adding the puzzle progression (trading system of colours), setting up the camera cinematics for guidance, adding the art and polishing. I looked at puzzle and relaxed games, colour psychology, lighting and forest environments.

Prototype 2

The X
A first person puzzle game, figure out riddles and unique puzzles to escape the forest

The Player
The player has awoken in a magical forest made out of paper, They can use paint to colour the world around them and slice their way through the paper

Goal States
Complete the puzzle to exit the level before going to the next level.
No lose state.

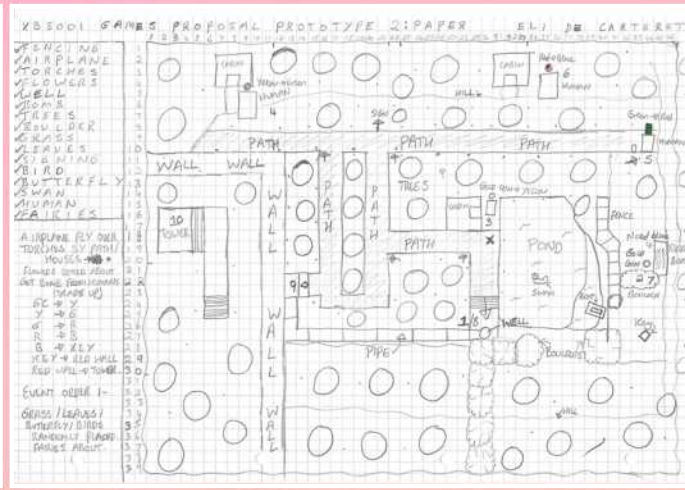
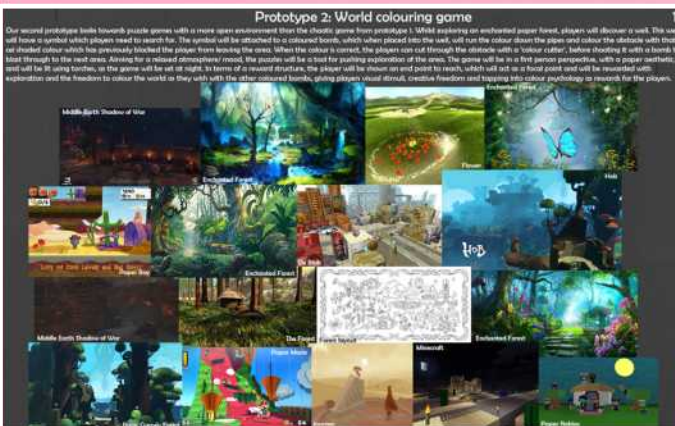
The pillars

1. Can only do one thing at a time
2. Change the environment with paint
3. Multiple puzzles per level
4. Slicing tool is only unlocked at end of the level

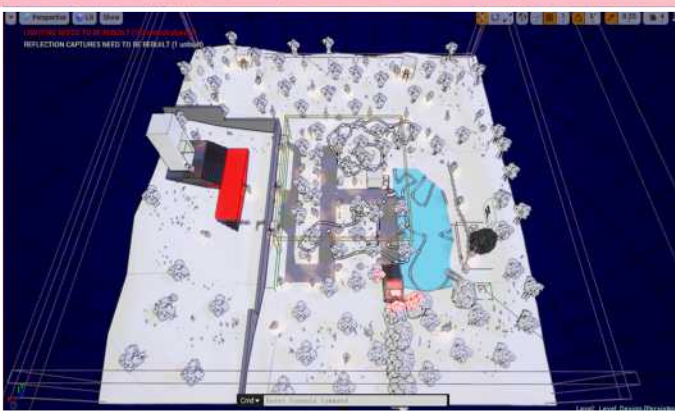
The NPC
The world has quest givers that give you paints to colour your forest, complete the they give you to unlock new colours.

The Theme
A magical forest that is made out of paper, paint the forest to your style while you try to escape.

MOOD BOARD, 2D DESIGN AND DAY 1 IMAGE



FINAL LEVEL IMAGES




I feel this game was very successful in terms of aesthetic, as the cel-shaded world really blended well with the lighting. In turn, this allowed key areas to be visually highlighted and used as guidance for the player. Along with this, I feel the layout was easy to navigate and the progression was clear and quickly implemented, which I feel was mainly down to the 2D design of the level map. On a personal level, I feel that the placement of the assets allowed the game to feel fuller, whilst providing a vibrant experience. However, as I spent a lot of time on the level design aspects, I feel that the puzzle was not as strong as it could have been, however, this would have been improved if taken further. The calm nature of this game was an inspiration for decor mode.

PROTOTYPES

'Elephant'

For the Survival themed game, I pitched the idea of 'Elephant'. In this prototype, players take control of a female elephant, who's job is to take her herd on a 60 mile migration journey across Zimbabwe, having to find food, water and muddy areas to stay cool, as well as avoiding predators. My role for this involved creating the level design using a Zimbabwe heightmap using Terrain.party to create a more realistic level, smoothed this with the landscape smooth tool, use the foliage tool to add grass, used the spline tool learned in 'Gami' to create the spline rivers and added in the assets. For research, I looked at African landscapes, asset placement/ style, atmosphere and terrain.

PROTOTYPE 3- ELEPHANT



THE X
A third person role-play adventure game in which players undertake migration as an elephant.

THE PLAYER
You are Elsa, the lead female elephant, taking your herd on a 60 mile journey across Zimbabwe to a new migration spot.

GOAL STATES
MAINTENANCE
Find food, water and places to bath to avoid becoming ill or dying.
PREDATORS
Avoid predators such as other animals and poachers who will attempt to stop you.
NEW HOME
Reach the final migration spot to win the game and finally be safe with your herd.

THE NPC
Other elephants in your herd will aid you in your fight for survival and protect you from the dangers you will face throughout the game.

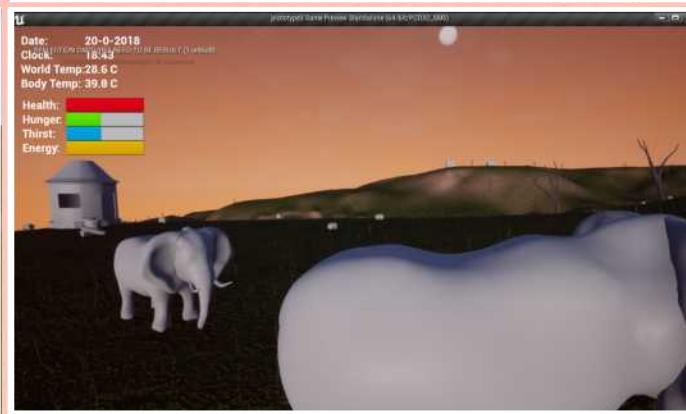
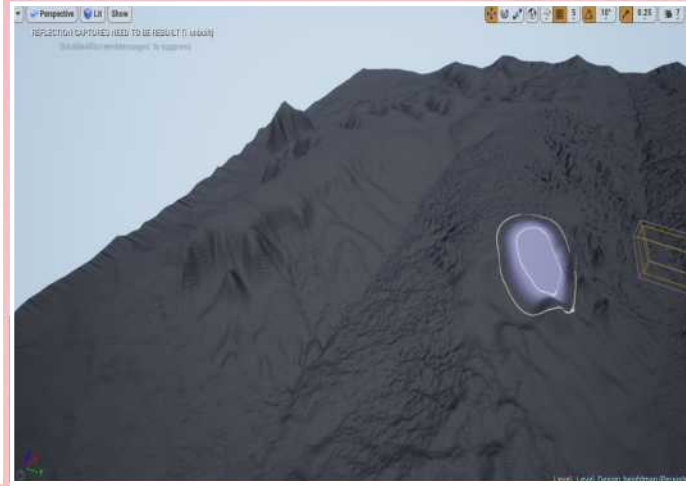
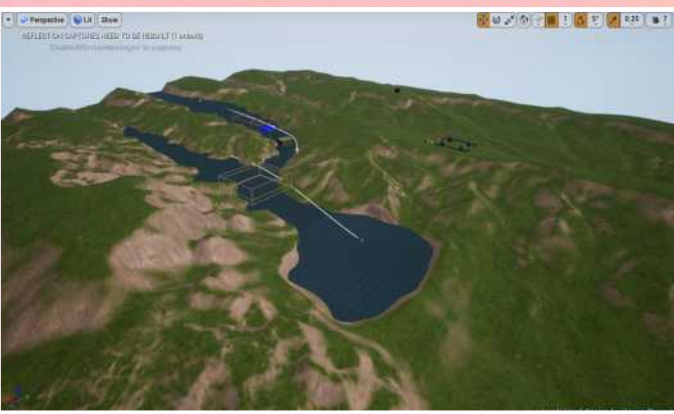
THE PILLARS
1) Play as a strong and dominant female lead elephant.
2) Explore vast Zimbabwean terrain.
3) Protect your herd from predators and natural dangers.
4) Communicate with your herd over long distances through underground vibrations.

THE THEME
An extensive open world terrain, simulating the daily life of an elephant throughout a migration journey.

MOOD BOARDS AND EARLY STAGES



LATER STAGES AND FINAL SHOT



I feel that this prototype was not as successful as the other 2 due to the game being way too overscoped. The size of the level and the demands on all areas of the team were too high for a fast prototype, however, I feel that it showed promise in the amount the team could create in such a short space of time. After creating a hand made version, I looked back at my research and with advice from Alan, created a more realistic looking terrain, which in the end felt a lot more open. I feel that, for my first time using a terrain heightmap and properly using the smoothing tool, the landscape fit well with the models which were created. Despite possibly inspiring the cuteness for the animals, this project was too ambitious and would've been difficult to get right.

PRE-PRODUCTION

Schedule and Documentation

As we had begun researching, we had a group discussion about where we wanted to go with the project. We decided that we wanted to merge together the chaotic nature of prototype 1, with a management style game such as Theme Hospital and the Sims. This is where the hybrid of these 2 game types started being planned.

I began looking at key game design conventions which I would require for this game. These conventions are outlined in the mood boards (previous page), in the GDD and throughout this document, but include areas like pacing, economy, rewards, mechanics, lighting and UI. Researching these elements and starting to figure them

out really helped with the design process and aided the creation of both the tutorial and main gameplay, both of which I had the most control over.

Week	Goals	Done?	Details
1 13/09-20/09 Role presentations	Art: Props		
	Art: Characters		
	Art: Environment		
	Pitch and idea generation		Present role pitch/ Get prototype ideas
	Technical Design		
	Form group. Generate ideas.		
2 20/09-27/09 Group forming	Art: Props		
	Art: Characters		
	Art: Environment		
	Prototype ideas research		Generate research for the different ideas
	Technical Design		
	Discuss prototype ideas		Generate some prototype ideas to create
3 27/09-04/10 Prototype 1 started	Art: Props		
	Art: Characters		
	Art: Environment		
	Prototype 1 Level Design		Create the level design for prototype 1
	Technical Design		
	Create prototype 1		Create 'HeadsNTails' prototype and pitch
4 04/10-11/10 Prototype 1 presentation Prototype 2 started	Art: Props		
	Art: Characters		
	Art: Environment		
	Prototype 2 Level Design		Create the level design for prototype 2
	Technical Design		
	Create prototype 2		Create 'Gamy' prototype and pitch
5 11/10-18/10 Prototype 2 presentation Prototype 3 started	Art: Props		
	Art: Characters		
	Art: Environment		
	Prototype 3 Level Design		Create the level design for prototype 3
	Technical Design		

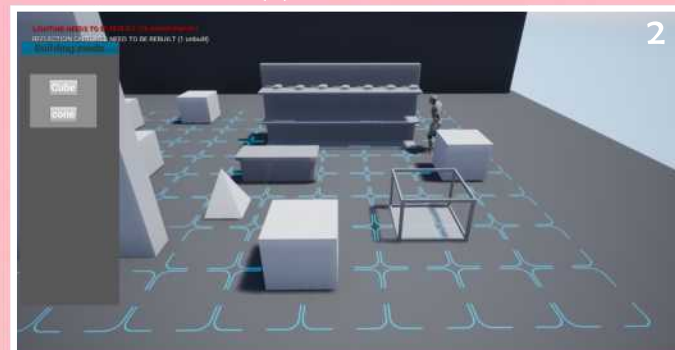
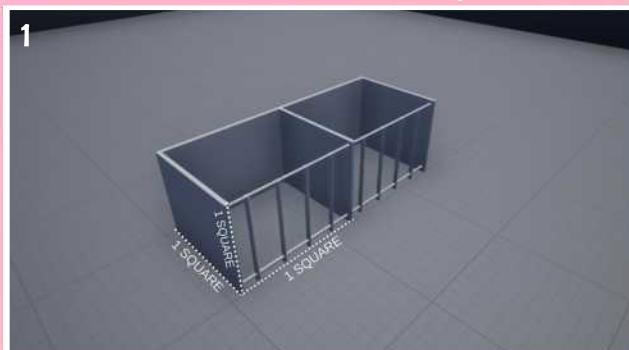
1	Task	Completion Time in Days	#####	01/11/2018	08/11/2018	15/11/2018	#####	29/11/2018
2	Charater mechanics	4	4	4	4	4	4	2
3	Build mode - Camera	4	1	1	1	1	1	1
4	Build mode - Grid	5	1	1	1	1	1	1
5	Build mode - Object placements	7	7	4	3	3	3	3
6	Build mode - sub menus	7	7	7	5	3	3	3
7	Game Time & Date	7	7	7	7	5	1	1
8	Interaction	7	7	7	7	7	7	7
9	Quick Time Events	12	12	12	12	12	11	11
10	Ai	14	14	14	14	14	14	14
11	Mood Bars	4	4	4	4	4	4	4
12	Economy	14	14	13	13	13	13	13
13	UI - Design / mechanics	10	10	10	10	10	10	10
14	Star rating system	4	4	4	4	4	4	4
15	Animation	14	14	14	14	14	14	14
16	Tutorial	14	14	14	14	14	14	14
17	Master item / Datatable / Assets implcation	10	10	10	10	8	8	8
18	Task List	6	6	6	6	6	6	6
19	Audio	10	10	10	10	10	10	10
20	Remaining work days	112	108	104	100	96	92	88
21	Remaining days worth of work	153	146	142	139	133	128	126

With the idea more developed, I created a schedule for everyone to update, so we could keep ourselves organised throughout the process and ensure we all kept on track and could monitor each others progress, so that no deadlines or milestones were missed. From there, I pooled my research with Alan and we began theorising ideas for mechanics which would work both for the build mode and play mode of the game and created a BurnDown Chart. At the same time, the group put together our ideas and came up with a One Sheet to keep everybody on the same page. As I was already looking into the areas documented throughout this journal to implimented as gameplay, I started to update my section of the GDD for others to analyse.

PRE-PRODUCTION

Asset list and Scaling

With the grid system in it's early stages, I began creating an asset list for the art team, based on the assets in the prototype and items which I found in my research. As I knew that the grid system used a measurement of 128cm by 128cm as 1 square by 1 square, I took a reference of the size (1) and began researching sizes of each asset I had put on the asset list for the art team to make in CM. After I had an average size of each asset, I converted these sizes into squares (or approximate squares where the game demanded it, e.g. cages for the pets to be in needed to be 1x1 with the pets being a smaller size) and started testing some of these sizes on the grid system to get a more accurate and visual idea of how they will look in the store. As the display shelves and cages were going to be 1x1 square, with another item either on or inside it, these measurements needed to be compared with each other after gaining an average size to ensure they were true to real life, otherwise players would be taken out of the immersion of the game as they see something unfamiliar in the scaling of an asset and become drawn to it, taking them out of the game. Later, I transferred this list to the more professional looking Excel sheet, (3), with more information.



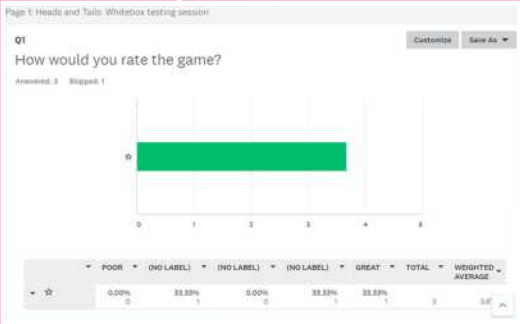
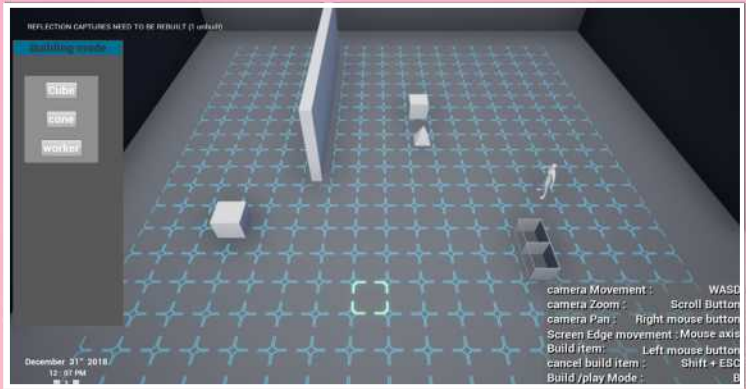
Model	Description (Placement in store)	Priority? (1-5)	Real World scale	Game scale (LxWxH)	ModelID?	UVed?	Variations (Num to create)	Assigned To	Revision Notes	Complete? (Mod, UV, Text)	Implemented?	File Name	File Location / Folder Name	Made By	Due
Modelling- Props															
Shelvers	Soft shelvers for animals to sleep on (Shelver/Cage)	5	20 x 22 x 8 cm (80 x 85 cm)	0.33 x 0.33 sq			2 Ground	CV		N	N	SM_Shelv_01 File_01_Shelver_01	Asseto-Prago		11
Shelvers (Shelvers)	Follows for predominantly cats and dogs to relax and sleep on (Shelver/Cage)	5	10 x 45 x 8 cm	0.33 x 0.33 sq			1	CV		N	N	SM_Shelver_01	Asseto-Prago		11
Shelvers (Shelvers) 01-02-03-04	Animal care cleaning product in a bottle (Shelver/Grooming and)	5	5 x 1 x 20cm	0.25 x 0.25 sq			1	CV		N	N	SM_Shampoo_01	Asseto-Prago	CV	11
Shelvers	Dog and cat hair brushes (Shelver/grooming)	5	20 x 4 x 4 cm	0.25 x 0.25 sq			1	CV		N	N	SM_Brushes_01	Asseto-Prago		11
Prop (Toys balls)	A range of toys for animals to play with (Shelver/Play area/cages)	5	8 x 8 x 8 cm	0.22 sq			1	CV		N	N	SM_Toy_Tug_01 SM_Rabbit_Tug_01	Asseto-Prago		11
Shelver (Shelver)	Soft shelvers for animals to sleep on (Shelver/Cage)	5	20 x 22 x 8 cm	0.33 x 0.33 sq			2	CV		N	N	SM_Shelv_01	Asseto-Prago		11
Shelvers	Rope and standard leads for dogs to be walk with (Shelvers)	5	10 x 5 x 10 cm	0.22 sq			1	CV		N	N	SM_Lead_01	Asseto-Prago		11
Fish food	Cartons of fish food (Shelvers, around the fish tank)	5	10 x 10 x 10 cm	0.22 sq			1	CV		N	N	SM_Fish_Food_01	Asseto-Prago		11
Fish food	Bags of food for animals to eat (Shelver/cage/food, shelves)	5	21 x 1 x 70 cm	0.22 sq			2	CV		N	N	SM_Dog_Food_01 SM_Cat_Food_01	Asseto-Prago	CV	11
Shelvers	Dog and cat beds for animals to sleep on (Cages, shelves)	5	10 x 45 x 8 cm	0.22 sq			1	CV		N	N	SM_Bed_01	Asseto-Prago		11
Shelvers	Food and water bowls for animals (Shelver/cage/food area)	5	10 x 10 x 10 cm	0.22 sq			2	CV		N	N	SM_Bowl_01	Asseto-Prago	CV	11
Shelvers (Shelvers) and Shelvers	Bottles of liquid food for young animals (Shelvers)	5	20 x 10 x 10 cm	0.22 sq			1	CV		N	N	SM_Formula_01	Asseto-Prago		11
Shelver (Shelver)	Bags of hay/shavings but also able for cages (Cages/shelvers)	5	50 x 40 x 30 cm	0.22 sq			1	CV		N	N	SM_Bag_01	Asseto-Prago		11
Shelvers (Shelvers)	Balls to roll around in cages being cleaned (Shelvers, cages)	5	10 x 10 x 10 cm	0.22 sq			1	CV		N	N	SM_Ball_01	Asseto-Prago		11
Shelvers	Camp cages for animals to travel in (Shelver/Play area)	5	20 x 22 x 40 cm	0.22 sq			1	CV		N	N	SM_Crate_01	Asseto-Prago	CV	11
Shelver (Shelvers)	Primarily for cats. Litter in cheap floor area (Play area, cages, shelves)	5	40 x 20 x 10 cm	0.22 sq			1	CV		N	N	SM_Litter_Tray_01	Asseto-Prago	CV	11
Shelvers	Placed for customers to sit and wait for their pets (Show floor)	5	40 x 40 x 40 cm	0.22 sq			1	CV		N	N	SM_Seat_01	Asseto-Prago		11
Shelvers	Tables for customers to sit at (Shelver/Play area)	5	100 x 100 x 10 cm	0.22 sq			1	CV		N	N	SM_Table_01	Asseto-Prago		11
Shelvers (Shelvers)	Tables for the staff to sit at (Shelver/Play area)	5	100 x 100 x 10 cm	0.22 sq			1	CV		N	N	SM_Table_01	Asseto-Prago		11
Shelvers (Shelvers)	Tables for the staff to sit at (Shelver, show floor)	5	80 x 20 x 10 cm	1 x 0.22 sq			1	CV		N	N	SM_Table_01	Asseto-Prago		11
Shelvers (Shelvers)	Reading items for customers waiting for their pets (Waiting area)	5	20 cm x 20 cm	0.22 sq			1	CV		N	N	SM_Magazine_01	Asseto-Prago		11

	A	B	C
1	Item	Real world Scale (LxWxH) (cm)	In Game Scale (LxWxH) (sq)
2	Character		
3	Dog	91cm x 58cm x 66cm	1/2 x 1/4 sq
4	Cat	60cm x 20cm x 30cm	1/2 x 1/4 sq
5	Rabbit	40cm x 25cm x 40cm	1/3 x 1/3 sq
6	Snake	200cm x 10cm x 10cm	2 sq x 1/3 sq
7	Fish	10cm x 5cm x 5cm	1/3 x 1/4 sq
8	Hamster	9cm x 6cm x 6cm	1/4 x 1/4 sq
9	Customers	46.5cm x 36 cm x 174cm	1 x 1 sq
10	Staff	46.5cm x 36 cm x 174cm	1 x 1 sq
11	2D pop up image of boss	N/A	N/A
12	Clothing options	N/A	N/A
13	Bird (Budgies)	20cm x 10cm x 20cm	1/3 x 1/4 x 1/3 sq
14			
15	Prop		
16	Blankets	28 x 22 x 8 cm (130 x150 cm)	1/3 x 1/3 sq
17	Pillows	70 x 45 x 8 cm	1/2 x 1/3 sq
18	Shampoo	5 x 5 x 22cm	1/4 x 1/4 x 1/2 sq
19	Brushes	26 x 4 x 4 cm	1/3 x 1/3 sq
20	Toys (Tennis balls)	6 x 6 x 6 cm	1/4 sq
21	Teddy bear	20.8cm x 9.8 x 25.2 cm	1/3 sq
22	Leads	19.6 x 3.7 x 19.8 cm	1/3 sq
23	Fish food cartons	10.4 x 10.4 x 0.7 cm	1/4 sq
24	Cat, dog, rabbit food bags	37 x 15 x 76 cm	1/2 sq
25	Beds	112 x 69.4 x 9 cm	1 sq
26	Bowls	15 x 15 x 10 cm	1/4 sq
27	Young milk and formula	20.8 x 15.6 x 13.6 cm	1/4 sq
28	Hay and shavings	52 x 48 x 33 cm	1/2 sq
29	Hamster balls	18 x 18 x 18 cm	1/3 sq
30	Carriers	32 x 32 x 47.4cm	1 sq
31	Litter boxes	48.5 x 38 x 30.5 cm	1/2 sq
32	Shelves	183 cm x 17.2 cm x 63.3 cm	3 x 1 sq
33	Benches	63 x 146 x 88 cm	2 sq x 1 sq
34	Tables	120 cm x 60 cm x 75 cm	1 x 1 sq
35	Feeding station biscuit	3cm x 1cm x 1cm	1/4 x 1/4 sq
36	Fish tanks	60 x 30 x 33.5 cm	1 x 1/2
37	Magazines	29.7cm x 21cm	1/3 sq
38	Hamster wheel	17.5 x 17.5 x 17.5 cm	1/3 x 1/3 sq
39			
40	Environment		
41	AREAS		
42	Play area (Dog, cat, rabbit)	548cm x 365cm (Each animal)	4 sq x 3 sq (Each play area)
43	Animals for sale: Cages	61 x 46 x 48 cm	1 sq x 1 sq (Snake: 2sq x 1sq)
44	Entrance (doors)	76cm x 20cm x 200cm	1 x 1/2 x 2sq
45	Waiting area	275cm x 182cm	3 sq x 2 sq
46	Shower area	125cm x 58cm x 130cm	1 sq x 1 sq (Per shower)
47	Storage	152 cm x 304cm	2sq x 2 sq
48	Animal nap area (Beds etc)	61 x 46 x 48 cm	1 sq x 1 sq (Per animal)
49	Outdoor space/ field	N/A	6 sq x 6 sq
50	Bird cages	41cm x 37cm x 118cm	1/2 x 1/2 x 1 sq
51			
52	STALLS/ STATIONS		
53	Clothing stall	N/A	4sq x 4 sq
54	Treat/ feeding/ biscuit bar	N/A (prototype measures)	2sq x 1 sq
55	Clean-up/ grooming station	N/A	3sq x 3sq (To fit showers in)
56	Tutoring station	N/A	2 sq x 2sq
57	Register/ checkout	N/A (prototype measures)	2sq x 1sq
58	Holding pens per animal	61 x 46 x 48 cm	1 sq x 1 sq

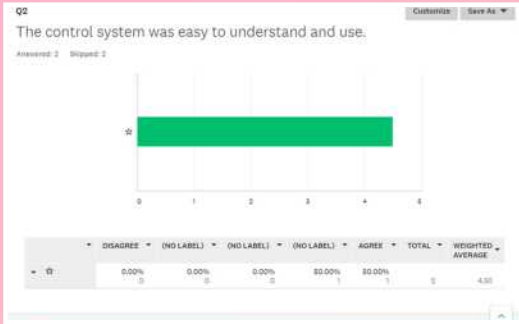
PRODUCTION

Milestone 2: Whitebox Testing

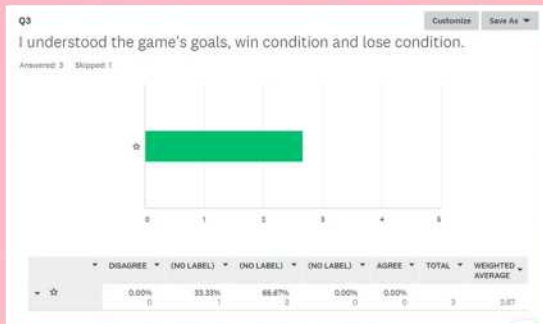
Towards the end of November came Whitebox Testing. At this stage, we still only had the grid system working, with the ability to place blocks onto the grid and move the camera, before being able to go into the store and looking at the item from a different perspective. I created a questionnaire for the group to test with in order to gather feedback from testers after they had finished playing the very early version of the game, as I felt this was a reliable way in order to gather feedback and understand the areas we need to work on.



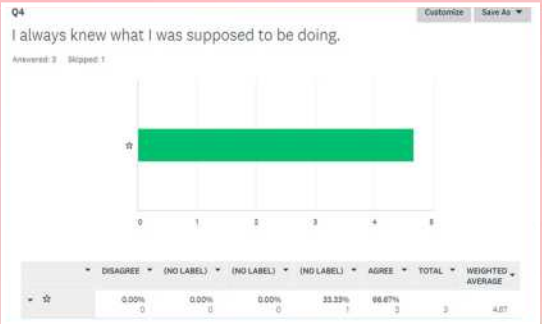
How would you rate the game?
3.67/ 5



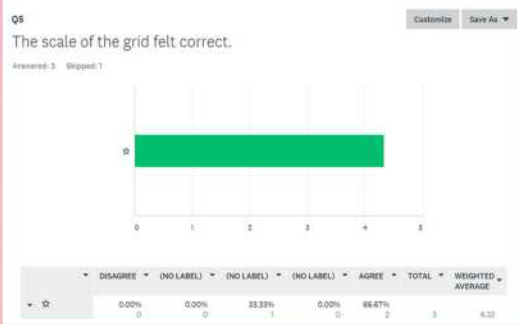
The control system was easy to understand and use?
4.50/ 5



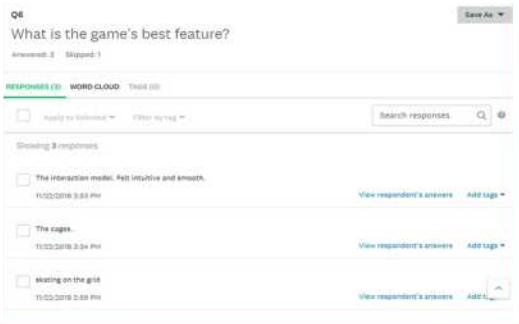
I understood the game's goals, win and lose conditions?
2.67/ 5



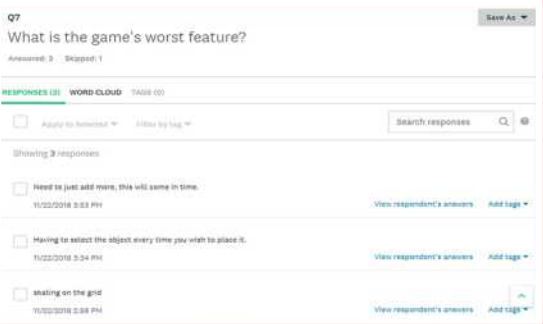
I always knew what I was supposed to be doing?
4.67/ 5



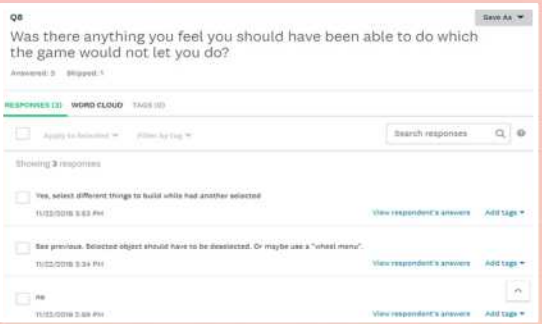
The scale of the grid felt correct?
4.33/ 5



What is the game's best feature?
Interaction model, cages, skating on the grid (bug)



What is the game's worst feature?
Need to add more, selecting the items every time want to place it, skating on the grid



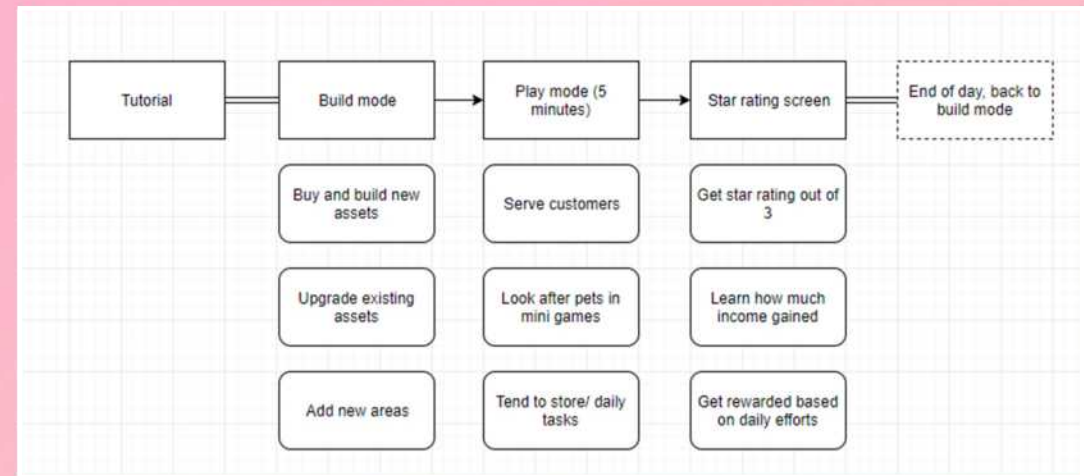
Anything you feel you should be able to do?
Select different things to build while another selected/ deselect first when choose another

Despite still having a long way to go, we felt that we recieved some good feedback from this whitebox testing session. Firstly, achieving a 3.67 for the game's overall rating based on the grid system made us feel as though we were doing a lot of the tested elements correctly, especially when crossed over with the 4.5 and 4.67 for the control system and knew what to do categories. In terms of level design, the grid scaling being rated at 4.33 was surprising considering the grid size, however, I feel it worked for this test with the limited amount of actual gameplay. As there was not really any gameplay to go off or instructions other than the controls, the win/ lose condition rating was expected. In terms of level design going forward, I knew I would need to really work on portraying the game's goals to the player to ensure they could play it.

PRODUCTION

Core gameplay loop and Mechanics

With the mechanics outlined, I began to create the core gameplay loop, consisting of the tutorial, build mode, play mode, star rating then reset at build mode. The reason for this loop was so firstly, the player knew exactly what to do through the tutorial, which would teach the player how to use both sides of the game, then upon completion, allow the player to begin decorating their store and adding assets, then playing in their store with daily tasks, in turn providing the player with their star rating.

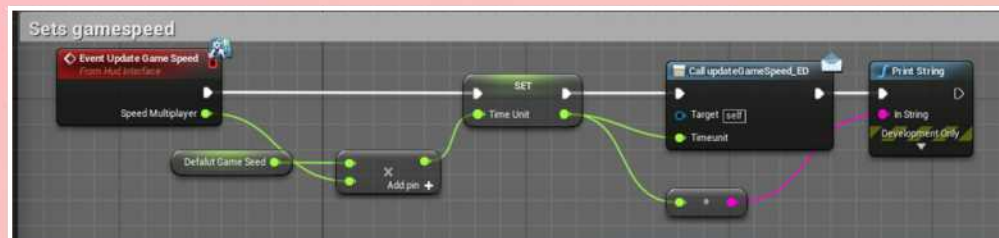


Changes to this idea included adding a Character Customisation screen prior to the tutorial, to gather the players name and appearance. Another change throughout production was the length of the day, as I felt 5 minutes was too long and felt as though it became a little tedious, allowing the player to achieve their goals with a long time to spare. In order to overcome this, I looked at Overcooked, where I found that their stages only last 3-4 minutes. In turn, I iterated the amount of play time to 3 minutes and this amount of time felt a lot faster, creating more of the intended tension moments I wanted to evoke.

Core gameplay mechanics list

- Character mechanics
 - Movement
 - Inputs
 - Camera
- Building Mode
 - Camera Movement
 - Grid based
 - Object placing
 - Object placement menu
 - Object Cancelling
 - Object Rotating
 - Object selection menu
 - Object replacing
 - Object rotating
 - Object cancelling
 - Object validation
- Game time
 - Custom date and time
 - Game speed
 - Day and night cycle
- Interaction
 - Object pick up/replace
 - Outlines of object
 - Animal interaction
 - Feeding
 - Cleaning
 - Health
 - Customer
 - Sell Stock
- Mood Bar
 - Animal happiness, cleanliness, hunger levels
- Mini games
 - Feeding mini games
 - Cleaning mini games
 - Health mini games
- AI
 - Customer AI
 - Walking and looking / Moods
 - Request items
 - Animal AI
 - Animal behaviours based on moods
- Economics
 - Item upgrades (build mode)
 - Score system
 - Star rating system
 - Currency

The tutorial's purpose is to guide the player through the first 2 days and show the player exactly what their goals are, along with actively completing these goals and discovering what the rewards are. This allows the player to complete the main gameplay at a slower pace to learn the game prior to being thrown into the middle of the chaoticness.



Changing the value of the default Game Speed will set the pacing of the game.

I feel that this gameplay loop is simple but effective, as the players get a mix of high intensity moments when in play mode, as well as adopting a more relaxed play style when in build mode, where they can take their time and build the store in the way they want. This is effective, as the player will strategise more about the following day through the placement of their assets, in order to achieve maximum potential, as they aim towards receiving the highest reward.

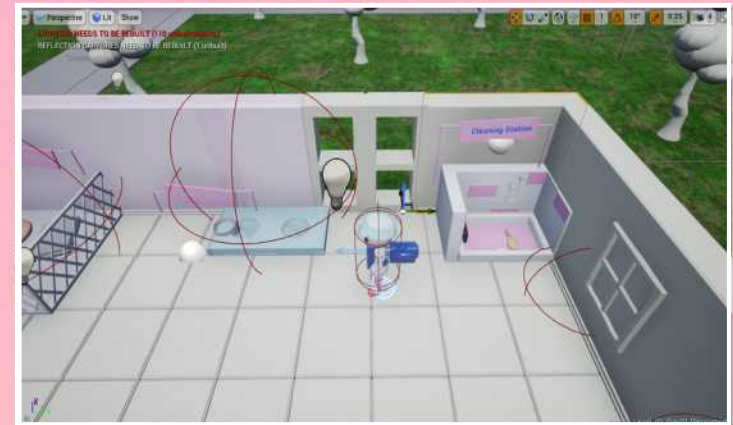


PRODUCTION

Interaction and QTEs

One of the core features about Heads 'N' Tails is the interactions, as players must pick up items ranging from sellable items to pets in order to complete the required tasks.

In the original plan, there were going to be 18 mini games, one based around cleaning, feeding and healing each pet (there were 6 pets at the time). As can be seen in the bottom right document, I spent some time reseaching different mini games and customising them to fit with our game, based around the areas just mentioned. Over Christmas, me and Alan began implimenting these mini games. One of the mini game examples can be seen at 2, where the player had to throw a ball for a dog to chase. The win condition for this game was if the player hit the green section of the progress bar, they would throw the ball further and achieve a bigger score.



After discussing the mini games with Ben and Pete on the project planning and adjustment week, we decided that 18 mini games would be too much and would take the player out of the flow of the chaoticness of the store, which would mean we would not get the intended pacing I was aiming for. To replace this, we decided to keep the stations, however, have 1 set Quick Time Event per station that all the pets use. With this in mind, me and Alan decided that the cleaning station should be cleaning the pet in a similar way to Nintendogs, which in turn was changed to just clicking floating bubbles with the new (all LMB) control system, the feeding station would be letter presses, which in turn changed into hitting a progress bar like the dog fetching mini game was originally and the Vet station to be clicking on fleas to remove them, which stayed the same through the control system changing process.

If players do not interact with the QTEs or items in store (giving items to customers), they cannot complete their daily tasks and will only recieve their end of day bonus, as well as ill pets being taken for being mistreated and customers storming out.

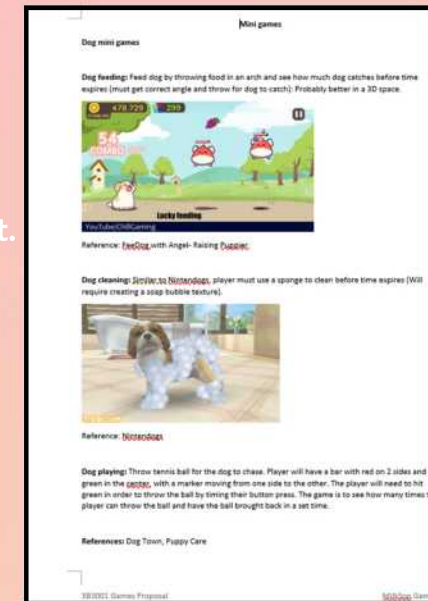


Interactions

Within the game the player will be able to interact with the environment and pickup objects that they can interact with, as well as interact with AI. The objects that the player can interact with will be clearly visible by a post processing material that shows when the user is in a close enough proximity to the item. The interactions will be led by the AI as they will be demanding for items / interactions.

The interaction system will be run of a blueprint interface and a line trace that looks for objects that has the interface and will only register if this is a match.

Animals	Props	Environment
All Dogs	Blankets	Shelves
All Cat	Pillows	Doors
Budgies (cage)	Shampoo	Play pens
Rabbit (carry case)	Brushes	Washing / grooming area
Snake (carrying device)	All Toys	Vets area
All Fishes (in plastic bag)	Leads	Till area
Hamster (hamster ball)	All foods	Outside space
	All beds	Cages
	All bowls	
	Hay and straw (plus other cage floorings)	
	Hamster accessories	
	Fish accessories	
	Raptle accessories	
	Carriers	
	Litter boxes	

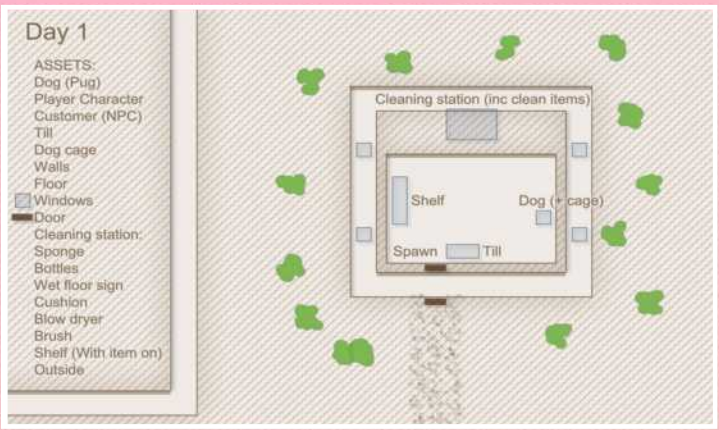


I feel the research conducted into different mini games helped with the Quick Time Events in the long run, as the players can not complete 3 different QTEs and understand what they are representing. However, I do not feel that they are as close to the cuteness style as the other mini games were, such as watching the dog run back with the tennis ball and that the fact that they are the same for each animal can look a little strange at times, especially when a budgie is eating from a huge bowl of food. In future, this could be fixed by swapping out the bowl static mesh on the feeding station to a different bowl, which is smaller and fits the needs of the smaller animals such as the budgies or the hamster etc.

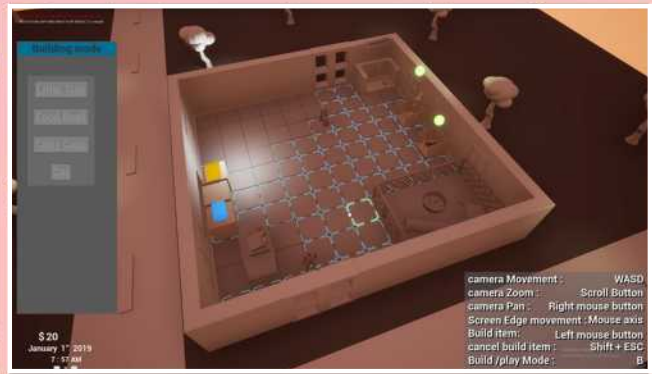
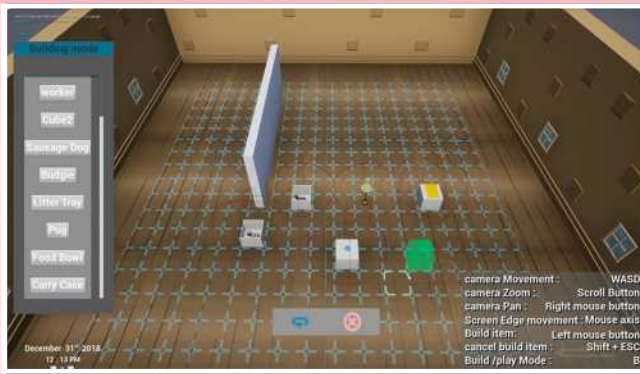
PRODUCTION

Spacing and Level Layout

In terms of the level layout and spacing, I did a lot of experimenting and changes in order to get it to where it is today. To start off, we had a grid which was far too large, causing the store to be huge. I felt that this would be too difficult to manage with the amount of interactions and movement the player would have to commit, so I decided the store needed to be made smaller, which is how it is designed in the second image below. Another reason for this was when researching Overcooked, I saw that one of the main reasons why it is so chaotic, is due to the limited amount of space which the player has to work within, so reducing the grid and store size felt like a good move. As well as this, one of the long-term goals for the player is to save up enough currency in order to extend the store, so they can hold and sell more items, which can be seen in the third image below, where the picture of the house is outside of the store.



For this version, we decided that 2 extensions would be enough, as the cut off point for this vertical slice is after the third day and thus, players would not be likely to need any more than 2 extensions, as they cost \$500 each. The store also underwent changes once the assets were delivered in January, with the new walls either being slightly shorter or longer than the original and as I did not wish to scale them in engine, as this could cause texture stretches or other issues, I modified the store to be slightly larger, I feel this expansion was a good move however, as it allowed slightly more space for items to be placed and more space to move around, which was very useful when the control system was changed to mouse click, as this extra space ensured that items were spaced further apart and thus, less frequently pressed accidentally. I also added an environment to the store using the landscape tool to make the store seem more alive and in a real world space. Along with this, I modified the grid positions to enable maximum grid space potential for the player when they extend their store. Also, as the player is laying out their own store asset wise, they can build as they wish.



I feel that despite not actually having full control of the level layout, as the player has the biggest say, I have given the player enough space to be able to build what and how they wish, making them feel as though their store is more personal. I also feel that the store which the player is given to start out with has been designed in a way to allow the player maximum amount of freedom, with only the most important environmental assets being placed in beforehand, such as the walls, windows, rug, till, doors, stations and one play pen (for decoration), allowing the rest of the store to be decorated by the player. One top of this, changing the grid size to 10x10 has worked a lot more efficiently with the tutorial and starting point, as to not overwhelm players.

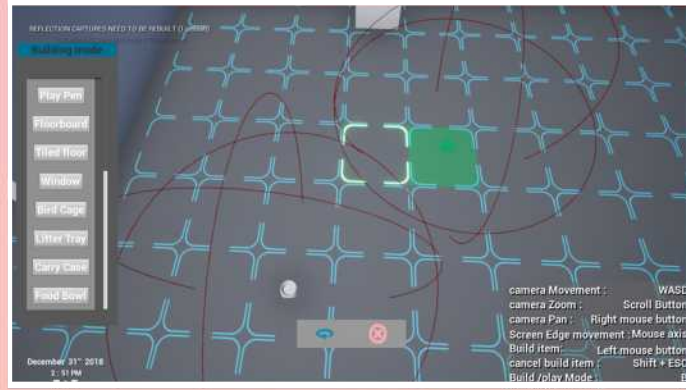
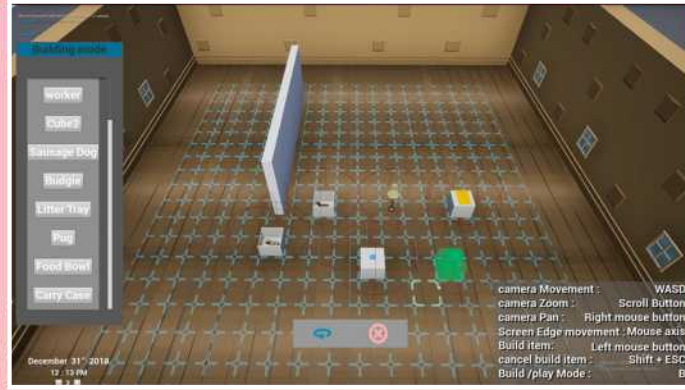
PRODUCTION

Level Design (Placement)

As stated in the Game Design Document, any item can be placed onto any part of the grid, as long as there is not another item within that square and as long as there is a blue grid square on that part of the store floor, allowing the player to customise the store around their preferences, which in turn will lead to more play time, higher aims and a more fun play experience.

As the features AI, specific sections of the grid have been blocked off so the AI can walk past uninterrupted; starting from the entrance, as if players place assets directly in front of the door, this could cause issues with customers not being able to enter the store, leading to the playability of the game being hindered, which could lead players to become frustrated when they receive a lower star rating, so to counteract this, the doors have been placed in set positions, with blocking volumes placed in front of these doors, featuring collision with the grid stop a grid space from spawning and the player being able to place onto it.

Around the outside of the store, up to the walls, are blocking volumes for the camera, meaning the player cannot move their camera outside of the store whilst playing, ultimately missing customers or important actions within the gameplay. The player does however have more freedom of this in build mode, as the atmosphere is a lot more relaxed. These blocking volumes also block the player from being able to place an item beyond the walls and out in the world space, which the player cannot reach or use in play mode. These volumes are shown in yellow in the right image (1).



After cleaning up a couple of bugs found in testing, where the player could place items into the wall, I feel that the blocking volumes work well and will ensure the player is confined to the grid inside of the store only, as this is the only space in which they should be able to build in. On top of this, I feel that these constraints allow the player to feel more freedom when they can extend their store, as it grants them new areas to explore and keep track of, as well as increasing the gameplay difficulty, as there is more space to manage and more moving parts to keep an eye on. I feel restricting the player of being able to build wherever they want (e.g. where the till is) will also keep the flow of the game and always provide a pathway for the player/ NPCs.

PRODUCTION

Asset Importing and Datatable



Another one of my roles was to import all of the assets from the art team into the project, then into the game. The first stage of this process was ensuring that the scale and rotation was correct, as a number of times the assets imported too small or on it's side, which was mainly down to export factors in Maya.

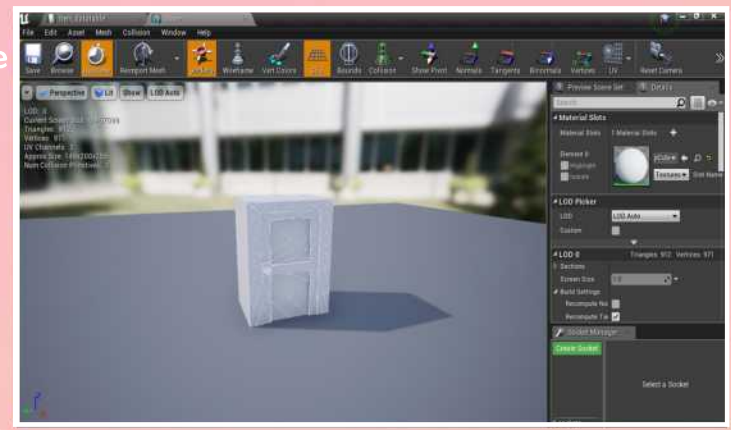
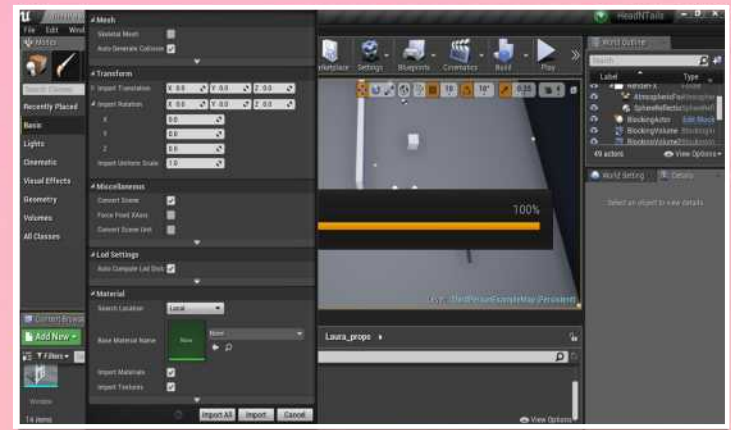
From there, I had to ensure that the pivot point was at 0,0, as when the model was being placed into the datatable, anything outside of 0,0 would adjust the interaction model, causing the asset to be picked up on the side of the character

or out of the character's hands, which did not look realistic and caused issues when attempting to place the item as well. A lot of the time, me and Alan had to take the model into Maya, change the pivot and then reimport the asset into UE4. We attempted a number of ways to fix this issue, but ultimately a lot of the props imported in this fashion and repivoting did not take too long for us.

With these all correct, I would check through the UV and poly count. As the goal for this game is for it to be placed onto a mobile platform, assets ned to be optimised, therefore, a couple of models were replaced later in development to account for this, e.g. the budgie for M3 had 76k tris, which now, Robyn has managed to reduce to just under 2k, these extra tris saving on performance. The reason I would check the UVs is due to the fact that some of the textures which were sent would not fit with the models I had, due to the fact that the models were old ones with the wrong UV on them.

From here, I would look at the functionality of the asset and ensure that if it was a prop or pet, that it would fit onto a display table or into a cage (1x1 sq), as I listed in the asset list at the start. With this in mind, I would add collision to each asset so players could not walk through the models and so the grid recognised that a different object was placed.

Finally, these assets would be placed into the datatable (right). I would have to run down each of the rows and make sure that each one is filled in correctly so that the asset would be placed in correctly in terms of aspects such as transform, interaction scale and texture. When I recieved the textures, I then placed these into the project as a texture, before creating them into a material instance so they could be used in the datatable, as using materials would also drain performance as the material instances run off one texture stream, rather than multiple.



Search	DatatableID_Postion	Name	Item	GridItem
	7	Hamster	StaticMesh'/Game/Assets/Cage_temp.Cage_temp'	StaticMesh'/Game/Blueprints/Building/Grid/grid-Plane_128.grid-Plan MaterialInstance
	8	Rabbit	StaticMesh'/Game/Assets/Cage_temp.Cage_temp'	StaticMesh'/Game/Blueprints/Building/Grid/grid-Plane_128.grid-Plan MaterialInstance
	9	Siamese Cat	StaticMesh'/Game/Assets/Cage_temp.Cage_temp'	StaticMesh'/Game/Blueprints/Building/Grid/grid-Plane_128.grid-Plan MaterialInstance
	10	Blanket_Pile	StaticMesh'/Game/Assets/Laure_props/NewFolder/Geometry/Display	StaticMesh'/Game/Blueprints/Building/Grid/grid-Plane_128.grid-Plan MaterialInstance
	11	Hay Bale	StaticMesh'/Game/Blueprints/Building/Grid/testcube.testcube'	StaticMesh'/Game/Blueprints/Building/Grid/grid-Plane_128.grid-Plan MaterialInstance
	12	Hamster Wheel	StaticMesh'/Game/Blueprints/Building/Grid/testcube.testcube'	StaticMesh'/Game/Blueprints/Building/Grid/grid-Plane_128.grid-Plan MaterialInstance
	13	Tennis Ball Basket	StaticMesh'/Game/Blueprints/Building/Grid/testcube.testcube'	StaticMesh'/Game/Blueprints/Building/Grid/grid-Plane_128.grid-Plan MaterialInstance
	14	Feeding Station	StaticMesh'/Game/Blueprints/Building/Grid/testcube.testcube'	StaticMesh'/Game/Blueprints/Building/Grid/grid-Plane_256.grid-Plan MaterialInstance

Item	GridItem	PlacingMaterial	ItemGameMaterial
Display_Table	grid-Plane_128	M_green	M_DisplayTable

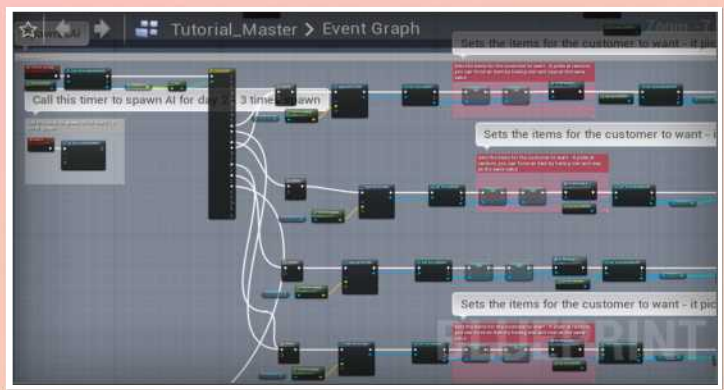
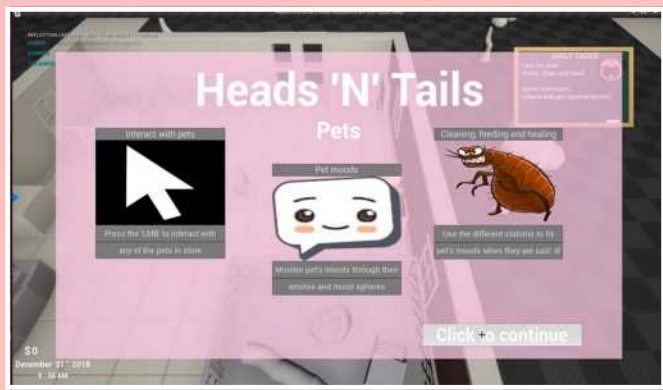
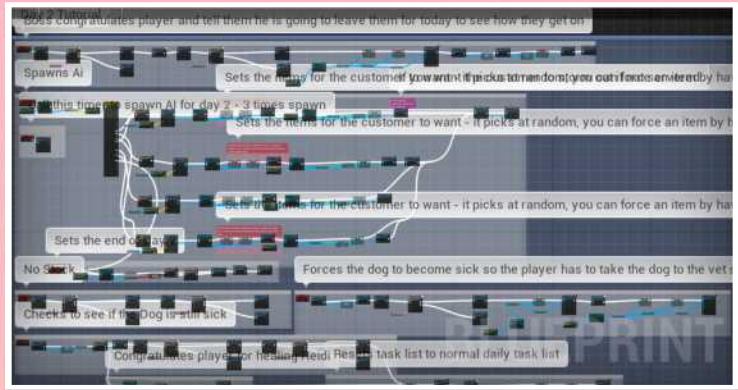
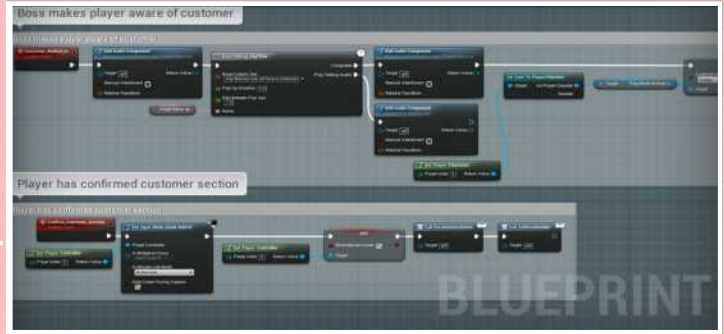
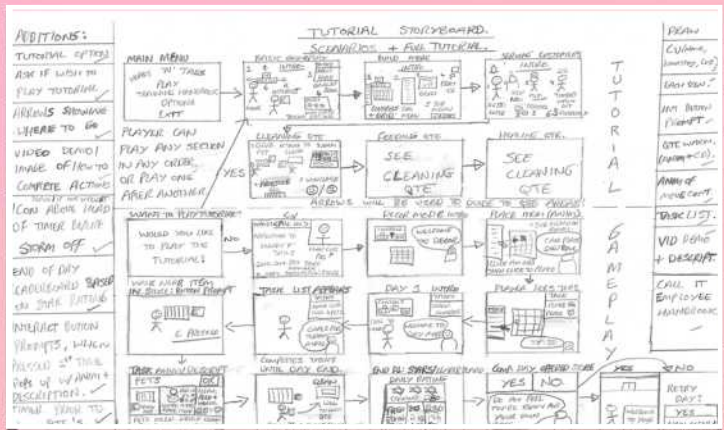
PRODUCTION Tutorial



As stated, the tutorial as it stands is currently 7 minutes long. I feel that this is a successful transition from the 15 minutes it was previously.

Trying to avoid text dumps, I needed a way to get the information across to the player in a smart way, causing the player to not feel overwhelmed by the amount of text but not get bored waiting for the instructions either. This took a couple of attempts to get correct, however, I feel that this version has achieved that. The use of the boss character not only allowed for the instructions to be put across, but also incorporated narrative aspects of the game, which otherwise would not have been put across to the player.

The major stages of the tutorial include showing the player how to move, how to interact with pets, what their daily goals are (shown through the task list), what the stations are used for and why they are there, how to serve customers and interact with items, how to place items in build mode and how to change them once placed, how to control the build mode UI and controls, then leaving the player to their own devices in order to serve customers and look after pets in their own way throughout Day 2. Day 2 has also been implemented to allow the player to get to grips with the gameplay, but allowing for mistakes.



I feel that creating the tutorial put my Blueprinting skills to the test, as I had to create all the dialogue for the boss character (including dynamic narrative, e.g. different dialogue pop ups depending on if the player served the customer correctly or not, leading to a more personalised tutorial), design and script all the events which would occur, create the flow of the tutorial and figure out exactly what information was key to be put across to the player, in a way to not overwhelm them and that was always clear. Another reason why the tutorial is faster is that in an early version, the player would lose control of their movement input before entering their name. I did extra research and discovered I should always ensure players can interact with the game.

PRODUCTION

Pacing and Progression

A lot of my time has been spent balancing the progression and pacing of different aspects so they can all work together in unison and all progress at the same speed. Some of these elements include the pacing of the upgrades, day length, mechanics, challenges and player goals (see task list), item deterioration, sale progression (how often a customer enters), when certain skills are required, how to make the players progress and spend money, what the core gameplay loop consists of, the cost of each item (see economy) and the pet mood speed, which will be the highlight of this page. The rest of the information for the listed categories can be seen throughout this document and in the GDD.

One of the most difficult jobs was to get the mood speed correct for all the pets. For this, I went online and researched how often each animal required feeding and cleaning, before changing this amount of time into in game time, as 1 day is 3 minutes (180 seconds). From there I had to figure out what this amount would be in the datatable, as the speed of deterioration ran off a value of 100, with a higher number being a faster speed of progression. What I learned from my research is that the bigger animals require feeding and cleaning more regularly.

Animal	Hunger/ Feed speed (Seconds/ speed)	Cleaning speed (inc. cage)- Mood (Seconds)/ 2	Maintenance difficulty
Fat Cat	2 times per day (90s/ 100)	1 time every 2 days (360s/ 25)	Hard= 65
Sausage Dog	2 times per day (90s/ 100)	1 time every 2 days (360s= 25)	Hard= 65
Budgie	1 time per 2 days (360s/ 25)	1 time per week (1,260= 10)	Easy= 20
Pug dog	2 times per day (90s/ 100)	1 time every 2 days (360s= 25)	Hard= 65
Hamster	1 time per day (180s/ 50)	1 time every 3 days (540s= 15)	Medium= 35
Rabbit	2 times per day (90s/ 100)	1 time every 3 days (540s= 15)	Medium= 50
Siamese Cat	1 time per day (180s/ 50)	1 time every 2 days (360s= 25)	Medium= 50
Fish	1 time per day (180s/ 50)	1 time per week (1,260s= 10)	Easy= 30
Frog	1 time per 3 days (540s/ 15)	1 time per week (1,260s= 10)	Easy= 15
Big Dog	1 time per day (180s/ 50)	1 time every 2 days (360s= 25)	Medium= 50

Guide: Hunger

More than once a day: **Hard**

One time per day: **Medium**

Less than once a day: **Easy**

Guide: Cleaning

More than

1 time every 1 day: **Hard**

1 time every 2-6 days: **Medium**

1 time per week: **Easy**

2 days = 6 minutes (360)

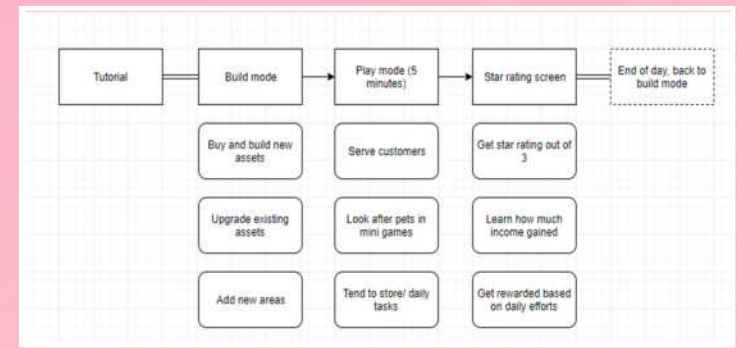
1 day = 3 minutes (180)

6 minutes (360 seconds) = 24 hours

3 minutes (180 seconds) = 12 hours

1.5 minutes (90 seconds) = 6 hours

45 seconds = 3 hours



I feel that using real world hunger and mood systems kept the game consistent, as I used real world pricing and scaling in order to create the early parts of the design. The research affected the entirety of the mood system, as each value has been created from the values of websites, listed in the bibliography. I feel that with the range of different pets available, all with separate mood deterioration speeds, this will keep the player engaged and actively watching the pets happiness rates, as they will quickly realise that some drop a lot faster than others, so will have to balance their attention due to these certain pets so they are not taken, meaning task priority will be an important skill for players.

PRODUCTION

Economy

One of my other key roles as Game/ Level Designer was to create the economy for all of the items and area upgrades, before using this to translate into the star rating system. For this, I again used real world pricing as research, in order to create the cost prices for each individual item and area upgrade, all of which, were added into the datatable.

One of the crucial things which I realised would be important about the economy would be for the player to make a profit in order to buy more items. With this in mind, I found out what the average price of each item was to buy as a consumer, set this as the price for the NPCs to buy the product/ sell cost for the player at half the price, making this the buy cost for the player when they are placing it into their store in build mode, meaning they

Dogs	
Small: up to Westie size	£15.00 per day
Medium: up to Spaniel size	£16.00 per day
Large: up to Labrador size	£17.00 per day
Giant: St. Bernards, Wollhounds, Gt. Danes etc.	£18.00 per day
10% off two dogs sharing.	
Cats	
1 Cat	£9.00 per day
2 Cats sharing	£15.00 per day
3 Cats sharing	£19.00 per day
4 Cats sharing	£22.00 per day
Rabbits	
1 Rabbit	£3.50 per day

would always receive a 50% profit, which they can use to expand/ build.

#	A	B	C	D	E	F	G
	Item	Real world Scale (LxWxH) (cm)	In Game Scale (LxWxH) (sq)	Real world Pricing	In game price (to buy)	In game price (to sell)	In game price (customer rent)
2	Character						
3	Dog	91cm x 58cm x 66cm	1/2 x 1/4 sq	£250	125	125	N/A
4	Cat	60cm x 20cm x 30cm	1/2 x 1/4 sq	£200	100	100	N/A
5	Rabbit	40cm x 25cm x 40cm	1/3 x 1/3 sq	£30	15	30	N/A
6	Snake	200cm x 10cm x 10cm	2 sq x 1/3 sq	£30	15	30	N/A
7	Fish	10cm x 5cm x 5cm	1/3 x 1/4 sq	£5	2.5	5	N/A
8	Hamster	9cm x 6cm x 6cm	1/4 x 1/4 sq	£10	5	10	N/A
9	Customers	46.5cm x 36 cm x 174cm	1 x 1 sq	N/A	N/A	N/A	N/A
10	Staff	46.5cm x 36 cm x 174cm	1 x 1 sq	N/A	£8 (per hour)	£8 (per hour)	N/A
11	3D pop up image of boss	N/A	N/A	N/A	N/A	N/A	N/A
12	Clothing options	N/A	N/A	£10-15	5-7.50	10.00-15.00	N/A
13	Bird (Budgies)	20cm x 10cm x 20cm	1/3 x 1/4 x 1/3 sq	£10	5	10	N/A
14							
15	Prop						
16	Blankets	28 x 22 x 8 cm (30 x150 cm)	1/3 x 1/3 sq	£12	6	12	N/A
17	Pillows	70 x 45 x 8 cm	1/2 x 1/3 sq	£10	5	10	N/A
18	Shampoo	5 x 5 x 22cm	1/4 x 1/4 x 1/2 sq	£5	2.5	5	N/A
19	Brushes	26 x 4 x 4 cm	1/3 x 1/3 sq	£12	6	12	N/A
20	Toys (Tennis balls)	6 x 6 x 6 cm	1/4 sq	£1	0.5	1	N/A
21	Teddy bear	20.9cm x 9.9 x 25.2 cm	1/3 sq	£10	5	10	N/A
22	Leads	19.6 x 3.7 x 19.8 cm	1/3 sq	£7	3.5	7	N/A
23	Fish food cartons	10.4 x 10.4 x 0.7 cm	1/4 sq	£6	2	4	N/A
24	Cat, dog, rabbit food bags	37 x 15 x 76 cm	1/2 sq	£10	5	10	N/A
25	Beds	112 x 69.4 x 9 cm	1 sq	£20	10	20	N/A
26	Bowls	15 x 15 x 10 cm	1/4 sq	£10	5	10	N/A
27	Young milk and formula	20.8 x 15.6 x 13.6 cm	1/4 sq	£8	4	8	N/A
28	Hay and shavings	52 x 48 x 33 cm	1/2 sq	£8	4	8	N/A
29	Hamster balls	18 x 18 x 18 cm	1/3 sq	£6	3	6	N/A
30	Carriers	32 x 32 x 47.4cm	1 sq	£25	12.5	25	N/A
31	Litter boxes	48.5 x 38 x 30.5 cm	1/2 sq	£12	6	12	N/A
32	Shelves	183 cm x 17.2 cm x 63.3 cm	3 x 1 sq	£60	45	N/A	N/A
33	Benches	63 x 146 x 88 cm	2 sq x 1 sq	£70	50	N/A	N/A
34	Tables	120 cm x 60 cm x 75 cm	1 x 1 sq	£40	20	40	N/A
35	Feeding station biscuit	3cm x 1cm x 1cm	1/4 x 1/4 sq	£0.50- £1	0.25-0.5	1	N/A
36	Fish tanks	60 x 30 x 33.5 cm	1 x 1/2	£35	17.5	35	N/A
37	Magazines	29.7cm x 21cm	1/3 sq	£1	0.5	1	N/A
38	Hamster wheel	17.5 x 17.5 x 17.5 cm	1/3 x 1/3 sq	£10	5	10	N/A
39							
40	Environment						
41	AREAS						
42	Play area (Dog, cat, rabbit)	548cm x 365cm (Each animal)	4 sq x 3 sq (Each play area)	N/A (Cost to build area)	N/A	N/A	£20 per day or £13 half day
43	Animals for sale: Cages	61 x 46 x 48 cm	1 sq x 1 sq (Snake: 2sq x 1sq)	N/A (Cost to build area)	N/A	N/A	N/A
44	Entrance (doors)	76cm x 20cm x 200cm	1 x 1/2 x 2sq	N/A (Part of start build area)	N/A	N/A	N/A
45	Waiting area	275cm x 182cm	3 sq x 2 sq	N/A (Cost to build area)	N/A	N/A	0
46	Shower area	130cm x 58cm x 130cm	1 sq x 1 sq (Per shower)	£80 (shower) (cost to build)	£40	N/A	£16 full (shampoo, condition, dry)
47	Storage	153 cm x 304cm	2sq x 2 sq	N/A (Cost to build area)	N/A	N/A	N/A
48	Animal nap area (Beds etc)	61 x 46 x 48 cm	1 sq x 1 sq (Per animal)	N/A (Cost to build area)	N/A	N/A	Dog- 17, Cat- 9, Rabba- 3.50, Hamster- 2.50, bird-2
49	Outdoor space/ field	N/A	6 sq x 6 sq	N/A (Cost to build area)	N/A	N/A	£20 per day or £13 half day (line, play area)
50	Bird cages	41cm x 37cm x 118cm	1/2 x 1/2 x 1 sq	£30	15	30	£2 (per day/ night)
51							
52	STALLS/ STATIONS						
53	Clothing stall	N/A	4sq x 4 sq	N/A (Cost to build area)	N/A	10-15 to buy clothes	N/A
54	Treat/ feeding/ biscuit bar	N/A (prototype measures)	2sq x 1 sq	N/A (Cost to build area)	N/A	0.50- 1 to buy biscuits	N/A
55	Clean-up/ grooming station	N/A	3sq x 3sq (To fit showers in)	N/A (Cost to build area)	N/A	RENT SERVICE -->	£16 full (shampoo, condition, dry)
56	Tutoring/ training station	N/A	2 sq x 2sq	N/A (Cost to build area)	N/A	RENT SERVICE -->	£10 per lesson (full course 5 lessons)
57	Register/ checkout	N/A (prototype measures)	2sq x 1sq	N/A (Part of start build area)	N/A	N/A	N/A
58	Holding pens per animal	61 x 46 x 48 cm	1 sq x 1 sq	N/A (Cost to build area)	N/A	RENT SERVICE -->	Dog- 17, Cat- 9, Rabba- 3.50, Hamster- 2.50, Bird- 2

To start with, the player will be given \$50 to buy items which they want, as well as 4 free items. The reason for this is that they need a starting point, otherwise they would have nothing to sell and the game would not allow them to progress. The reason why I gave the player \$50 is due to the length of this vertical slice only being 3 days, meaning that the player has more of a chance to see the game in it's full gameplay state.

The player can choose which items they wish to place into the store, as long as they have the budget for it. They can also purchase extensions to their store, again, as long as they have the budget for it (each being \$500).

As this is the case, the player can place more than 1 of each item into the store if they wish. However, they can also restock the product for the same buy price in game, to ensure they have the available items which the customers equires about.

Star rating

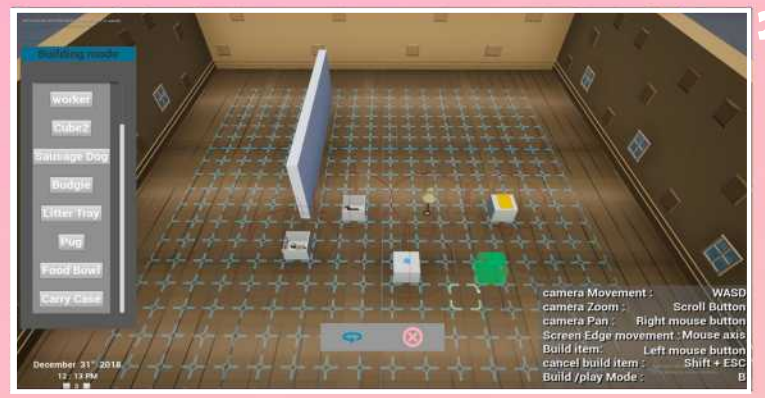
At the end of each day, the player will receive one of their star ratings on how much currency they have received. This is in more depth on P20.

In terms of the economy in the game, I feel that it works well and the player can, if they use their money correctly, expand their economical status very quickly, meaning they can buy a range of items, which in turn means that they will be able to expand their store and see more of the game's progression without having to grind for too long. I feel like this is beneficial for this game, as it is supposed to be chaotic, meaning that the more items which the player buys and placed into the store, converts to more items getting in the way, more pets to care for and more items for the customers to want.

PRODUCTION

Milestone 3: Presentation Session

Just before Christmas break, we had a Milestone presentation, where we had to outline the progress of the game and discuss what we were planning to do further down the road. We started by introducing ourselves, before elaborating on what the game is, showed the One Sheet and Design Document overviews, covered what we had been up to until this point, showed our individual slides of what we had done in more depth, before explaining how this vertical slice would fit into the larger game, showing gameplay and future plans.



Overview of the game/elevator pitch

A third person pet shop simulation and management game for PC, VR and mobile platforms. Manage a rapidly growing pet shop, single handed or cooperatively with friend in local multiplayer and control the chaotic waves of customers and pets on a daily basis, before customising and expanding your business.

One sheet rundown

What we have been up to?

Mechanics:

- Build mode
- Actor placement
- Validation bar (Editing placement)
- Interactions, Player character movement (Animation), Time and date (Night cycle system)

Level:

- Scaling of assets, Economy, Research, Data table (Implementing assets)

Art:

- Art/Workflow research
- Asset decisions and future developments for them
- Model creation and texturing
- Posing and lighting for beauty shots

Design document rundown/overview

We discussed the overview of the game through an elevator pitch

We discussed the One Sheet and the core gameplay principles

We talked about what each member of the team have been working on

We did a run down of each of the team's individual 10 pages

Level Design workflow

Where does this fit in the larger game?

- Prototype for the PC version of the game
- Will look into crossing over to Android, Switch, VR, iOS
- More content will be added through DLC
- Extra levels added
- Examples of final style
- Later stages will have vastly more art, wider colour palette
- More animals, skins and customers/playable character

OUR DISCLAIMER

Plans for future/Schedule

SCHEDULE OVERVIEW

MILESTONES

- Milestone 1: Prototype Selection: 25/10
- Milestone 2: Walkable testing: 22/11
- Milestone 3: Concept pitch: 11/12

CHRISTMAS BREAK

- Milestone 4: Gonybox Testing (Alpha): 21/01
- Milestone 5: Final Art Testing (Beta): 28/03

EASTER BREAK

- Milestone 6: Final presentation and submission

Next step: Technical/ level

- Getting progression bars working
- AI
- Economy
- Asset importing

Next step: Art

- All assets greyboxed
- Use hero asset as jumping off point for texturing
- Look into polycount
- Rigging capabilities for animals and human characters
- Look into UI, fonts, logo etc (stretch)

I discussed my personal Level Design workflow up to this point

We talked about future plans and where we wanted to go with this game

We did a disclaimer, referencing charities who care for pets, as a punishment for lack of care is a welfare officer taking the pet away in our game

We looked at our schedule and each spoke about what the next steps were for each discipline

The feedback we recieved from this presentation was very positive. Ewan told us that we were heading in the right direction and he was pretty excited about the product we were making and could see it selling. He also told us that our GDD was very good and well detailed. From here, we took this feedback as a green signal to continue in the way which we had been doing, following our schedule and attempting to carry on in the same manner from this stage. In my opinion, I feel we could have had more completed in engine at this point, however, the mechanics were quite complex for Alan to create and I was spending a lot of my time working in programs such as Microsoft Excel and Word, trying to get a solid base for the economy, scaling, tutorial, UI, asset lists and GDD, as well as testing these theories in Unreal Engine.

PRODUCTION

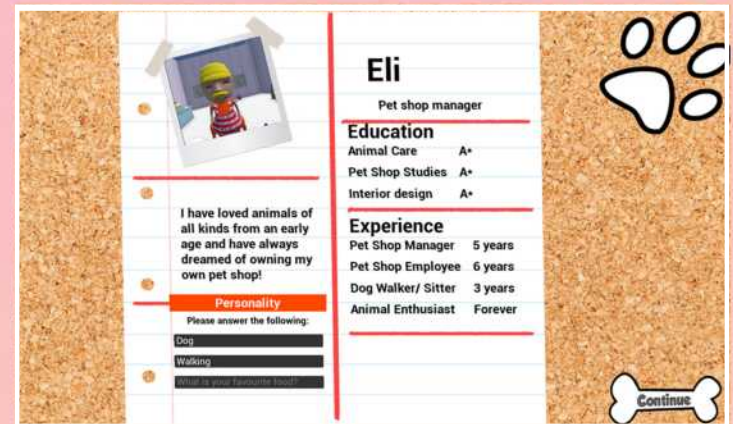
Narrative

Heads 'N' Tails is a declining pet store, in desperate need of some help. After losing a lot of money and going into debt, the company bosses decided to completely clear the store floor and recruit a new manager, in the hopes of turning the shop around and becoming a profitable company.

The main character is a successful manager of previous businesses of the same nature as this pet store and sends their CV into Heads 'N' tails, hoping to become the new manager. The player can choose whether to be male or female and due to an impressive experienced background, gains full support to arrange the pet shop however they wish, buy and upgrade whatever items they wish and within time, extend the shop in any way they wish; with the only constraint being income, which will be earned by the player and matched by the management.

In terms of the world narrative, this will be provided as soon as the player begins the game through the main menu visuals, however, when entering the game, the player will be able to see the world narrative first-hand through the store, customers, assets and animal visuals and through the sound effects.

The NPCs in the game include the boss character, pets and customers. The boss is a wealthy and trusting business person who cares for their companies and assets. They will give the player character all the backing they need and give them full freedom to do as they wish with the store.



I created all the narrative, above, in order to give the game world more clarity and a stronger feeling of life. As the player is guided through the game by Alex (boss), I felt that he and the player character should have a backstory and reason for existing. Without this, the game would feel emptier. Along with this, the pets also have names such as Clementine and Heidi, in order to try and get the player to connect with the pets and thus, with the game on a deeper level, as suggested in my research earlier in this document with Hachiko (1923). I also felt that adding a CV would be a clever way to link the main gameplay up to the character creation, whilst telling the player about the backstory.

PRODUCTION

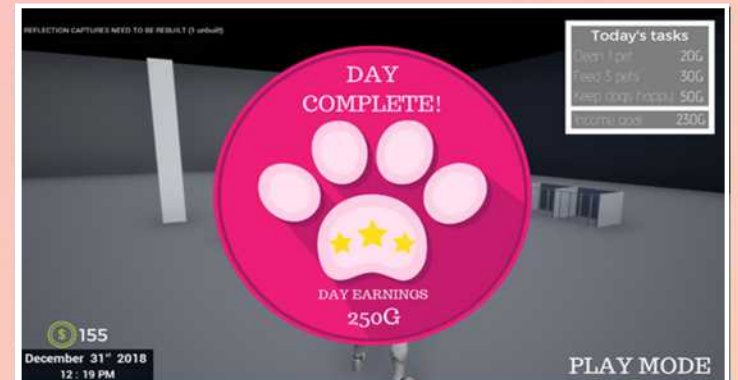
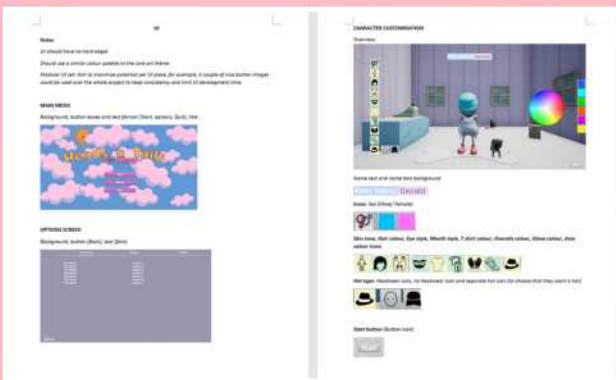
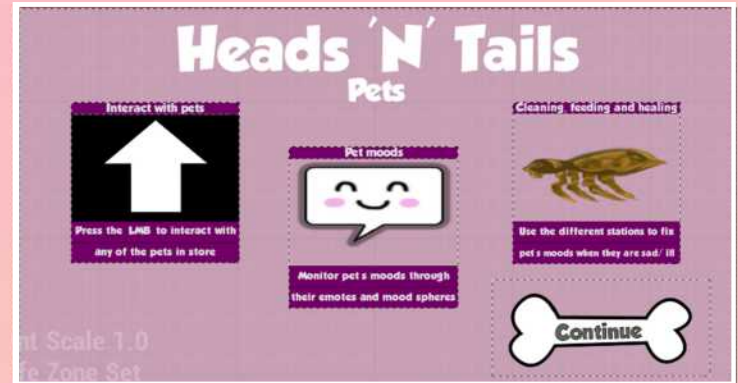
UI and Feedback



From an early stage in development, I have been involved with the UI. I created the list to the right in order to get an idea as to how much UI we would require later on in development. The reason this job fell on me was due to the fact that as I was designing the whole tutorial, had chosen which assets to place in and was designing the main gameplay, it would be my decision as to what UI would be required, however, I did discuss this UI with Robyn after Christmas to get more of an artistic viewpoint into how the art team would like the UI to be set out, as they would be the ones creating it in order to replace my placeholder UI. As can be seen in the bottom right image, I created some early stage references for the art team to gain an idea as to how I was planning on designing them and the functions this UI had to have involved in them when created fully.

UI element	Placement on screen	When does it appear?	Purpose of UI
Boss pop up screen	Top corner or bottom middle	Sporadically/ when players require them	Gives tips and updates which players require
Task list	Top right of screen	Throughout play mode	Gives players objectives
Customer requests	Over customer's head	Whilst customer in shop	Tells player what to find.
Animal/ customer mood progression bars	Over the head of animals/ customers	Whilst customers or animals are in the shop	Visual timer, tells players what requires attention.
State of animals/ moods	Animal itself	Whilst animal in shop	Tells players state of pet.
Day/ time cycle	Bottom left of the screen.	Throughout the game	Timer for how long of day/ night is left to play.
Build mode items	Left of the screen	Throughout build mode	Gives players items to place into the grid/ shop
Current currency amount	Bottom left of screen, above time and date	Throughout the game	Amount to spend on items/ current earnings.
Mini games UI	Centre, over play screen	When in game area	Let's players take on tasks
Items sub menus	Under selected item	Build mode: item selected	Manipulate item transform
Coloured grid feedback	On item trying to place	Placing item onto grid	Tells if item can be placed
Item interaction pop up	Below interacted item	Interacting with item in play mode	Reminds players how to interact with items
Upgrade menu	Under build mode menu	In build mode	Lists available upgrades
Customer leave warning	Above the customer	Prior to customer leaving	Player attends customer

Whilst creating the gameplay, I used placeholder art, which was then replaced later on by the art team, an example piece being for one of the pop ups menus which appears in the tutorial, showing the player how to care, interact with and monitor their pets. I also used their art later on to add more menus and screens, such as the 'Do you want to skip tutorial' and Credits screen with Alan. As can be seen in the top left, the first thing I did was get references and researched way in which other games portrayed their UI, this image inspiring the end of day star rating screen, which can be seen in the bottom right, with the comparison being through the layout and star portrayal.

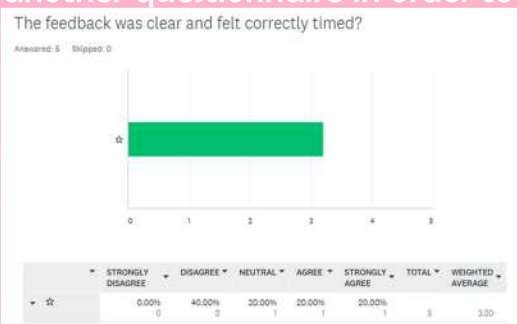


Towards the end of development, after all the assets and textures were complete and in the game, I did a full playthrough of the game and took screenshots of all the areas where the UI required changing, along with a note of this. This was then sent to the art team, who split up the work between them and sent it over for me and Alan to impliment. The reasons why the UI needed to be created by the art team was mostly due to copyright, as we wanted to put our game on Itch, we needed to ensure there were no images which we were not rightfully allowed to use. Another reason why we wanted the art team to change them was so it was more personal, as a lot of the images were stock icons and this would allow the visual feedback to be clearer.

PRODUCTION

Milestone 4: Greybox Testing (Alpha)

At the end of January, we completed a Greybox testing session of our game. At this stage, we received feedback on the tutorial and the assets which had been placed into the game. A lot of the core mechanics were also ready at this point to be tested too, such as the mood system, economy, build mode, regular play mode and the audio which we had found for both the boss dialogue sections and some general music to play over the top. I created another questionnaire in order to gather feedback from the people testing the game.



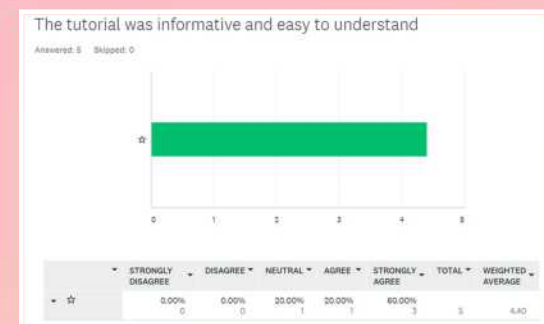
The feedback was clear and felt correctly timed?
3.20/ 5



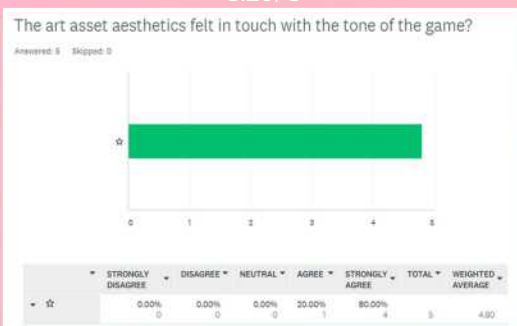
The control system was easy to use and understand and use? 3.80/ 5



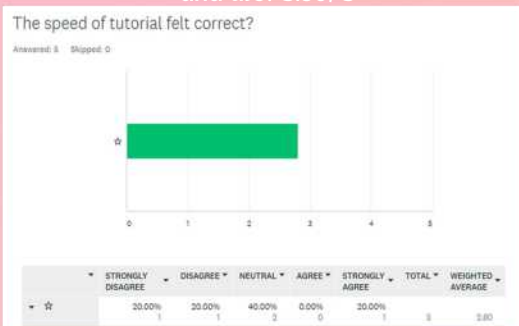
I understood the game's goals, win and lose conditions? 3.40/ 5



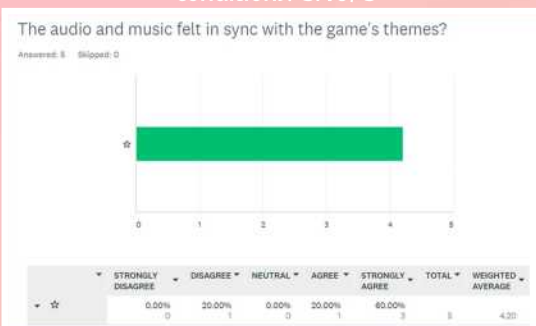
The tutorial was informative and easy to understand
4.40/ 5



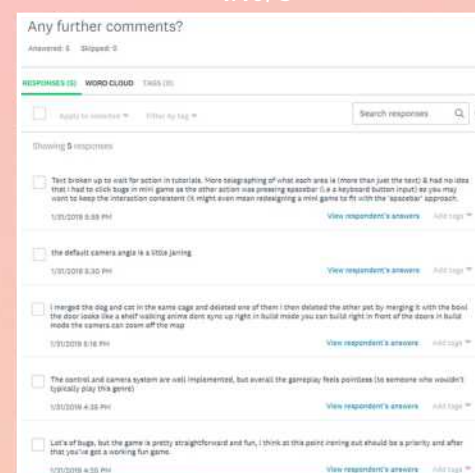
The art asset aesthetics felt in touch with the tone of the game? 4.80/ 5



The speed of the tutorial felt correct?
2.80/ 5



The audio and music felt in sync with the game's themes? 4.20/ 5



Any further comments?

Have to wait too long for action, stations need to be clearer of what they are, interaction on QTEs is inconsistent.

Camera is a little jarring
Dog and Cat merging (bug)

Control and camera system well implemented
Lots of bugs but straightforward and fun- iron bugs

Note: Other feedback about how to improve involved feedback such as being able to skip the tutorial and adding more pets.

The first thing which stood out to me was the people seemed to understand the game's goals quite well (nearly a full star rating higher than Whitebox) and thought that the tutorial was informative, fun and easy to understand, which were both big pluses gained from the feedback, as I had spent a lot of time fine tuning it to try and get it to be this way. However, more work was still to be done, as people felt it was very slow. One thing which did also catch our attention, was that in comparison to the Whitebox, the control system had fallen from 4.50 to 3.80, which discovered was most likely due to the addition of features and mechanics.

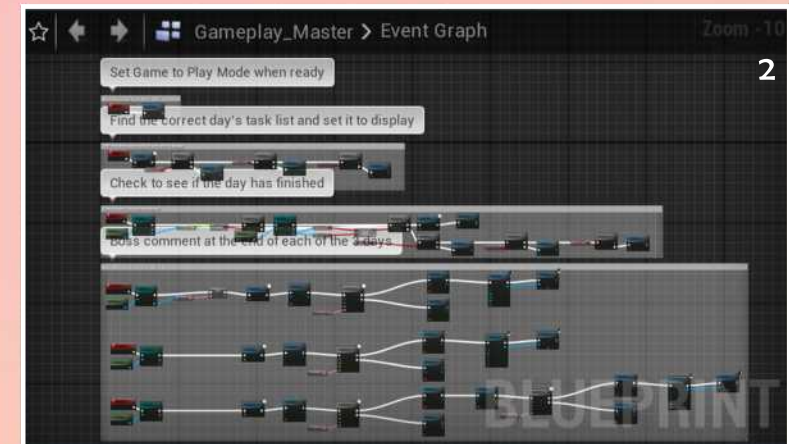
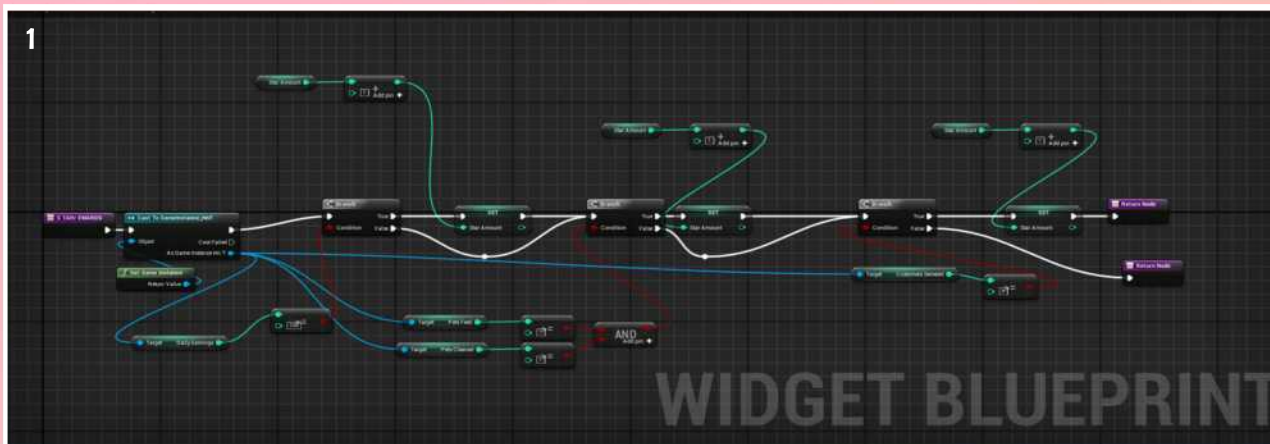
PRODUCTION

Task list and Gameplay Master

In order to get the main gameplay working, I had to create a new Blueprint Actor, which I called 'Gameplay Master'. This was simply a code set up to tell the game to set up a task list, which varied in difficulty over the course of 3 days, then when the end of the day hit (8PM), it would call the boss dialogue and end the day, taking the player to the star rating screen and giving them a rating out of 3, based on how many customers the player had served, how many animals had been cared for and how much currency the player has made. As can be seen in (2), this is how the game figures out which task list to display and when the day has ended. In order to figure out the amount of stars to give the player (3), the game will use the code in (1), in order to judge the player's performance.

In terms of the task list and difficulty curve, I had to ensure that the amounts the players had to achieve in each category was progressively greater each day, otherwise the cognitive flow would plateau, causing the player to get bored, as their skill level would not be being challenged enough. However, I also had to ensure that to keep in line with the Cognitive Flow Chart, that the difficulty did not raise too high when the player was not ready for it (Csikszentmihalyi, 1990).

At the end of each day, the player is rewarded an extra \$50 per star they earn, on top of their daily earnings and \$50 salary for that particular day, which can then be used to buy more assets.



I feel that the task list is an important feature, as it is a constant reminder to the player of their goals and what they should be aiming to achieve every day that they play. The amounts which the player requires is as follows:

Day 1: Serve 4 customers. Earn \$100, Clean and Feed 1 pet.

Day 2: Serve 6 customers, Earn \$200, Clean and Feed 2 pets.

Day 3: Serve 8 customers, Earn \$300, Clean and Feed 3 pets.

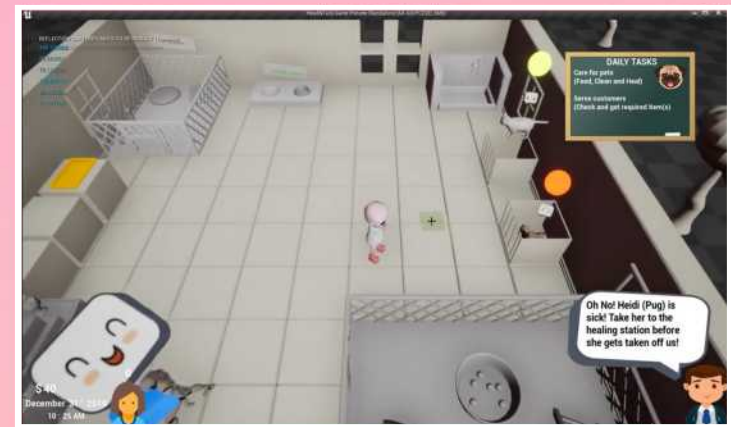
PRODUCTION

Gameplay aspects and Bug Fixes

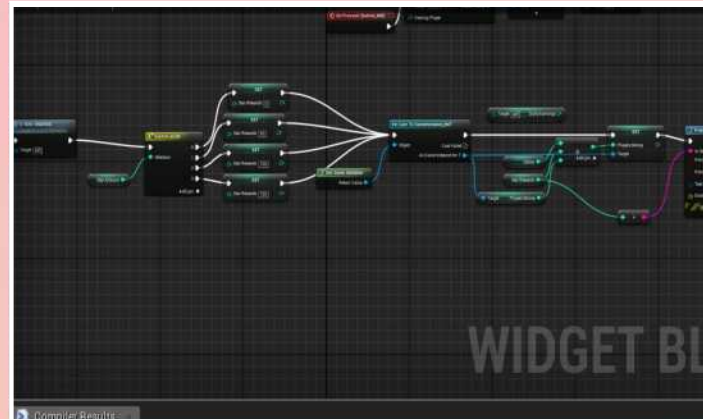
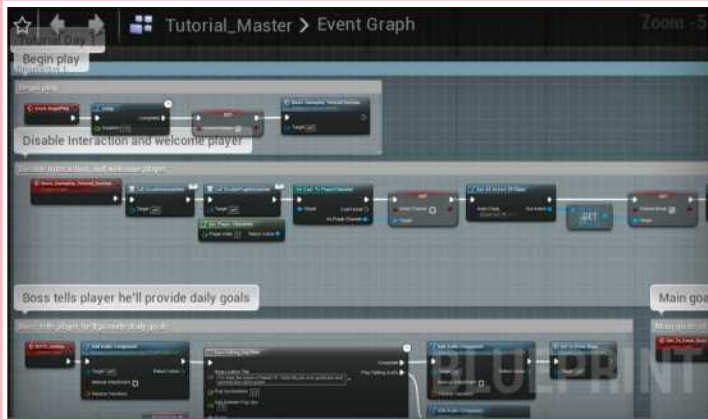


Whilst creating Heads 'N' Tails, we ran into a few bugs and there were a few aspects of the gameplay I wanted to try out and experiment with, some of which, made the final game.

In terms of bugs, we had a bit of an issue with scaling and pivoting, which caused a couple of errors in the datatable, such as the image above, where the hay block carried by the customer was a lot bigger than the size in the datatable. This was due to the imported asset being too big, however, was scaled down to fit on the shelf in the datatable, without the interaction model size following the same scale. The way we fixed this was by reimporting the mesh, to a much smaller size.



Another couple of issues we had were that if the player picked up the pug in the tutorial, then took it over to the bowl, the datatable assumed it was the same item and thus, would turn the dog into a bowl. This bug appeared in testing feedback on a couple of occasions, with the way of fixing it to stop players from being able to pick up the bowl and dog at the same time by calling a 'Disable Heidi Interaction' event when we wanted the interaction of the pug to be on or off. In the end, when we completed the final build of the game, even with this call event in place, the error returned, meaning we had to remove Heidi getting sick in Day 2, so there was no point where the 2 could ever cross over.

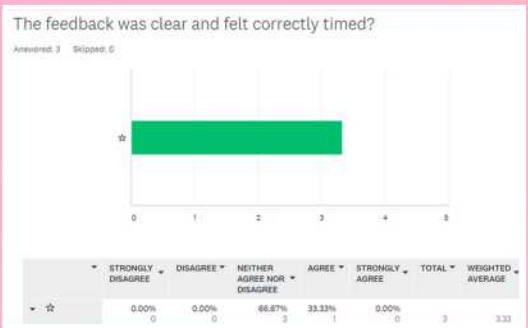


In terms of elements I experimented with which made the final game, I asked Alan if he could add tooltips for the different stations, as one of the feedback requests from testing was to make the stations more obvious outside of just the signs. I took reference from Astroneer, who uses a similar technique in their tutorial in order to get different objects across to the player. I feel this worked well, as it let players see how to complete the QTEs and what they were used for prior to actually using them. One other feature I thought might be nice was the zoom on the character's face when the player is customising the character's facial features. Games such as Oblivion use it, allowing players to see their character from a more detailed perspective.

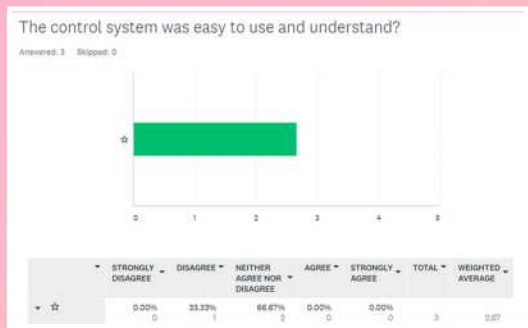
PRODUCTION

Milestone 5: Final Art Testing (Beta)

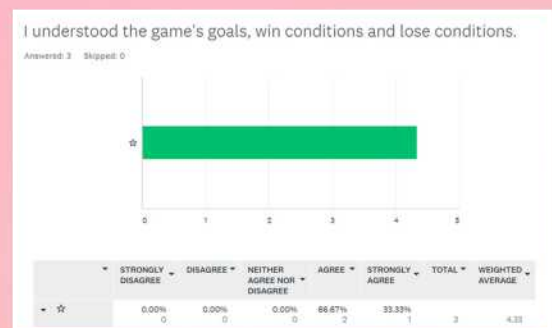
The final stage of Milestone testing came at the end of March with the Final Art (Beta) test session. At this point, the game was pretty much at a finished stage, only requiring more UI to be replaced and a final level of polish. We were pretty happy with how the game was looking and felt that we were very close to the end of development. Again, I created a questionnaire, in order to gain feedback from testers, in order to get a more honest opinion. This feedback session was a lot more structured than previous ones, which we felt was beneficial due to more people trying the game.



The feedback was clear and felt correctly timed? 3.33/ 5



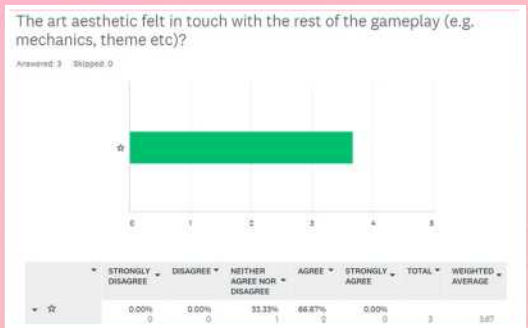
The control system was easy to understand? 2.67/ 5



I understood the game's goals, win and lose conditions? 4.33/ 5



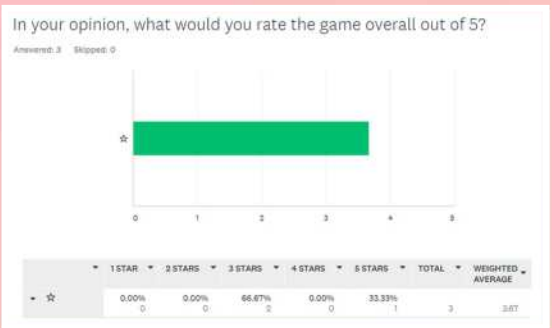
The tutorial was informative and easy to understand? 3.67/ 5



The art aesthetic felt in touch with the rest of the gameplay? 3.67/ 5



The gameplay was fun and interesting to play 4.00/ 5



What would you rate the game overall out of 5? 3.67/ 5

Is there anything you feel could be improved upon and why?

RESPONSES (3) WORD CLOUD TAGS (0)

Showing 3 responses

- Modify the quick time games so that each mini game is individual in mechanics. 3/26/2019 4:48 PM
- Make the trigger boxes for picking up and placing animals bigger, I couldn't click the bird. The mini games, were jarring, I wasn't too sure what was happening, maybe a splash screen before you play them - Marie Party style - The means to treat the pets being attached to the house made it hard to see. Maybe let me treat a pet while customers are in store by freezing the rest of the game - I feel as though I don't need to worry about that stuff unless the daily task asked me to. Maybe translate the happiness better. 3/26/2019 4:48 PM
- control scheme 3/26/2019 4:05 PM

Anything feel could be improved and why?

Modify the QTEs so each mini game is individual in mechanics

More feedback before QTEs, make interaction boxes bigger, translate the happiness better into which station the pet requires.

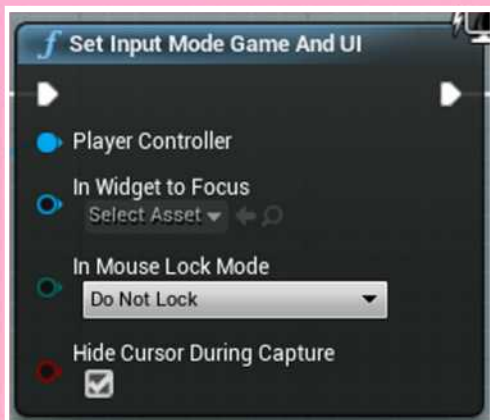
Control Scheme

Although there were still a few bugs to iron out, we were pretty happy with the overall feedback. For me personally, the level/ gameplay design recieved some of it's highest ratings, based on the goals and conditions, reaching 4.33/ 5, and the gameplays 'fun' factor being at a 4/5, with the pacing also getting positive reviews.

The most questionable and annoying elements from the testing were that despite changing the control system to one more fit for mobile later in development (changing everything to LMB), players found it very difficult to get used to. We feel that this is because they were playing the game on PC and just using the LMB is not default to the players, who are more used to using 'WASD'. Overall however, we were happy with the outcome of this testing.

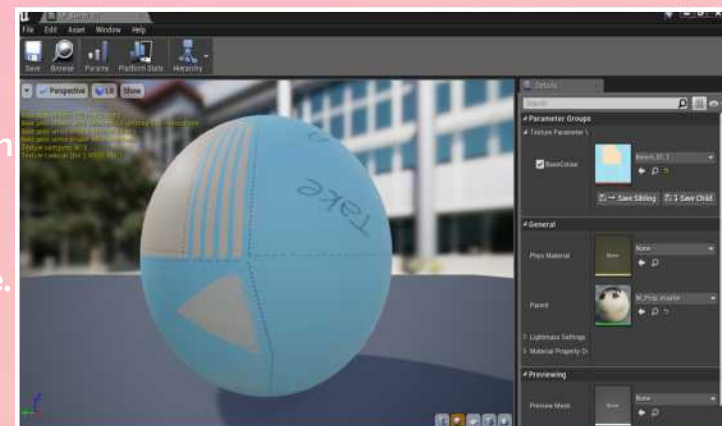
EVALUATION

Conclusion and What I Learned

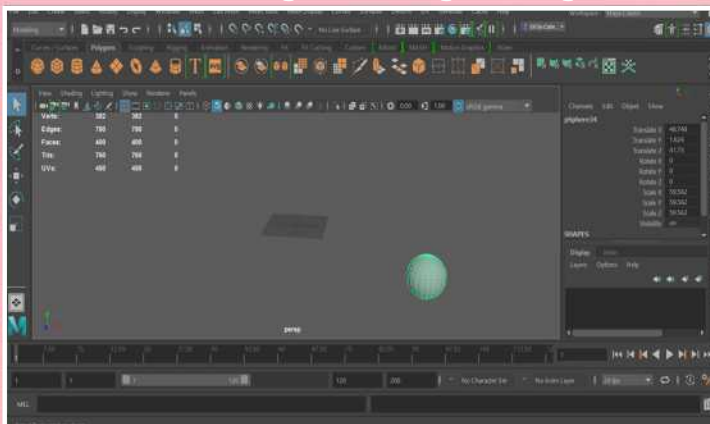


I learned a lot over the course of this project. Some of the main things which I learned were based on Unreal workflow and taught to me by my team. Throughout the process, I was taught about Macros for the dialogue, which is a cleaner way of adding code without continuously having to copy and paste it. As well as this, it keeps this code more consistent and is more optimised for the engine.

I also learned that when importing textures, they should then be used as a material instance, rather than a material for each individual texture, as this takes up a lot of the performance when loading the game, whereas using material instances allows the editor to run the materials from one texture stream, causing it to be more efficient. This will be an important technique to use if we move to mobile.



Another Blueprinting tip I was shown was 'Remove from parent'. Originally, when attempting to remove an old widget from the screen, I would connect the target back to where I had set it to become visible. However, I learned promoting the widget to a variable and using 'Remove from Parent', is a more professional technique, as it avoids the engine from grabbing old code, which caused errors in the editor, as it was not able to access this every time it was called.



With this project, I feel that I have learned a lot more and had a lot more freedom than I thought I would. I also feel that my techniques in editor and from a gameplay perspective have improved, through a combination of experimenting, iteration, working with my team and research. I feel that the project could have been improved by making the gameplay more chaotic, possibly by increasing the number of NPCs and possibly even making it split screen coop or adding more obstacles to the store, however, this would have made production more complex.

EVALUATION Research



Although I had a page at the beginning discussing the research which I covered, I feel like it is important to evaluate how that research affected the project.

Firstly, there were a lot of social research aspects in this game, as the different stages of testing really helped guide the project and give us elements to improve on each time we held a testing session.



Two more political references I looked into but did not mention earlier, is the Pet Animals Act 1951, which states certain rules for owning pets in a store. Some of these laws include guidelines for how to run the pet store and gives rules about cage sizes, how to care for the pets, food and drink regulations such as 'Animals must be supplied with adequate amounts of food and drink, appropriate to their needs and at suitable intervals' and what to do if a pet becomes ill. I feel we adhered to a lot of these rules when designing the pet shop, ensuring players are given opportunities to care for all their pets, otherwise we taken from them by Animal Welfare. The other piece of legislation is from the Animal Welfare Act (2006), where in Section 9 'Places a duty of care on people to ensure they take reasonable steps to meet the welfare needs of their animals to the extent required by good practice'. Again, we tried to adhere to this through the design/ mechanics of the game.



Pet Shop game: Role aspects research

UI FEEDBACK
Feedback is very important in all games, therefore, this section is looking at some techniques and considerations for the UI and feedback which players will receive when playing the game.

END GAME/ REWARDS
Some players like to feel like they've achieved something when they've finished a game, so it's important to have some rewards for the player when they've finished the game.

SPACING
The spacing in a game is important when designing the game, as it affects how the player feels when they're playing the game.

MECHANICS
The mechanics in a game are the rules and systems that govern how the game is played.

PACING/FLOW/PROGRESSION
The pacing, flow, and progression in a game are important for keeping the player engaged and motivated.

LIGHTING
Lighting in a game can be used to create a specific atmosphere and to guide the player through the game.

TUTORIAL
A tutorial in a game is used to teach the player the basic mechanics and controls of the game.

MINI GAMES
Mini games in a game are used to provide a break from the main game and to provide a challenge for the player.

TESTING
Testing a game is important to ensure that it is fun and enjoyable to play, and to identify any bugs or issues.

YOU WIN!

Pet Shop game: Role aspects research

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Doggy Play Barn

Full day - £20 per dog
£15 per other dogs from same household

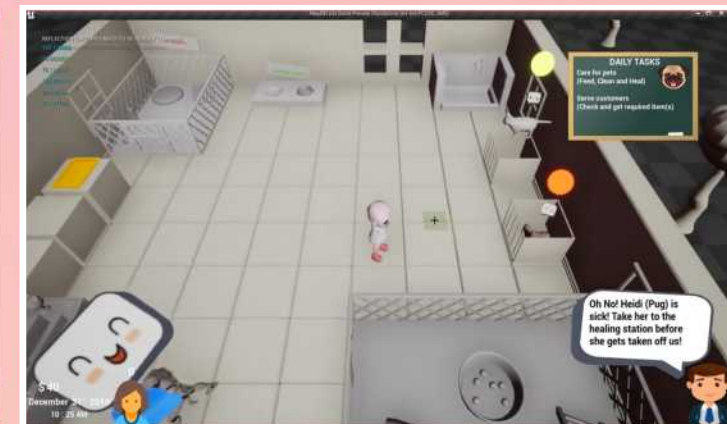
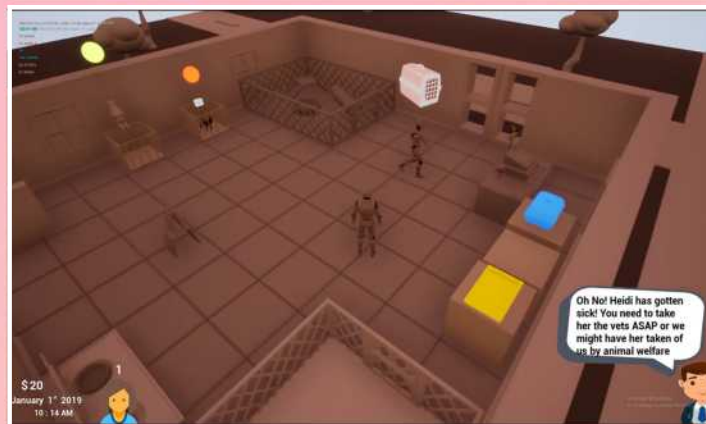
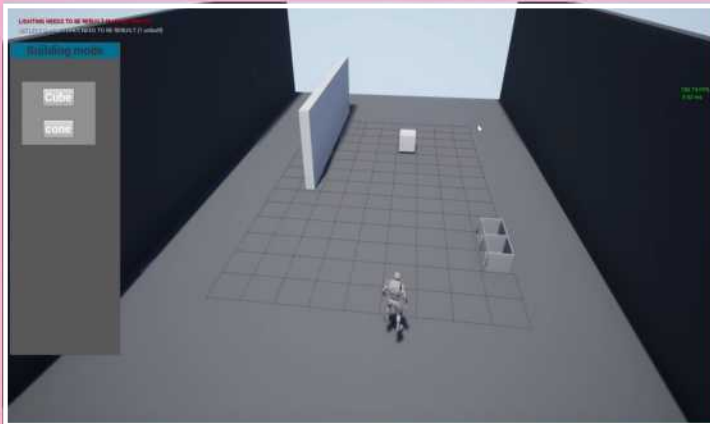
Half Day - £13 per dog
£10 per other dogs from same household

5 consecutive hours - available for AP only (lasted drop off) Barns. Anything over a half day will be charged as a full day.

As stated at the beginning, researching Level Design conventions were really important and I feel allowed me to provide much better designed gameplay than what it would have been without this research, as most of it, outlined in this document and the GDD, were important factors into making this game what it is currently. Finally, in comparison to the prototype, I feel we have created a more stronger game, as we spent a lot more time building the foundations to provide a more bug-free and enjoyable experience, however, this prototype was a vital step.

EVALUATION

Reflection



After over 6 months working on Heads 'N' Tails, I am very proud of what we managed to achieve. I feel that we managed to make a solid game, which covers a range of different and unique aspects, all of which compliment each other nicely.

This game was in no way as simple as we expected it to be when we chose it, however, the team pulled together extremely well to ensure that this game was as good as we could possibly make it with the direction we chose to go in the beginning.



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