

Café Conundrum

XBCGD7312 – PORTFOLIO OF EVIDENCE

Katleho Machobane ST10198600,
Ayden Shaw ST10027262,
Corbin Mercuur ST10039845,
Wikho ST10029463,
Dylan De Jong ST10108303

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GROUP MEMBERS AND RESPONSIBILITIES.

Ayden Shaw: *Lead Game designer, Lead programmer:*

Ayden was the project lead, he created the game idea, managed its development by assigning roles and deadlines, assigning tasks to members and stepping in for corrections when necessary. His role as the lead programmer had him creating a structure for all other programmers to follow and assigning different development projects to other developers. He also made scripts within the game to govern its basic function and made the foundational functions that would later be built upon by the supporting developers.

Dylan De Jong: *Lead UI designer:*

Dylan's role was to create all the UI designs that would be used in the game. These designs would be iterated on and carefully constructed to give the game a consistent look and feel that did not break the player's immersion in the game. He was also tasked with giving the UI a cohesive and intuitive feel for the player as to not impede on their progress throughout the game as the game does depend on how the player uses their time.

Katleho Machobane: *Lead Sound designer, Lead Narrative writer, supporting Programmer, supporting Game designer, supporting artist:*

Katleho's role as a sound designer was to pick sounds that would play in the game. This ranged from ambient sounds like the traffic outside to the background music. His role as the narrative writer had him construct the world the game would take place in and all the characters within it. The world, story and characters all had to be based in the South African context and consistent between each other as to provide a believable story. His role as a developer had him make mechanics that were assigned to him by Ayden such as managing all the sounds in the game and implementing the dialogue script for the tutorial section. His role as a game designer had him complete tasks assigned to him by Ayden such as putting the project document together. His role as a supporting artist was to make the food items and currency 3D models that appear in the game.

Corbin Mercuur: *Lead Artist:*

Corbin's role as the lead artist was to create the art style the game would follow. He had to carefully decide what visual style to use and how it would affect the overall message of the game when taking the player audience into account. He had to create and iterate on various models such as the characters, POS model, barista machine and many more.

Wikho Doman: *Lead Level designer, Supporting Developer, Supporting artist:*

Wikho's role as the lead level designer was to create the level the game would take place in. Many things had to be taken into consideration such as spacing between objects, the size of the level relative to other objects and placements of various elements within the scene. His role as the supporting developer had him creating crucial and important scripts that optimised the game and gave it a lot of its functionality. His role as a supporting artist had him make many 3D models such as the tables, chairs, plants and the level area itself.

TITLE OF GAME.

CAFÉ CONUNDRUM

THE ISSUE THE GAME AIMS TO ADDRESS

Addressing the Problem

In order to make players aware of how poor service delivery affects a business, two factors will be considered to create empathy for business owners and workers. The first factor to create empathy is to create a story around the game, focusing on a restaurant business owner that needs to keep their business running, provide for their workers and go home and provide for their family, and how poor service delivery affect others' lives. To show relevancy to the player, the game will focus on the main problems that poor service delivery causes for most individuals in South Africa. Problems caused by poor service delivery showcased in the game will include power cuts, water cuts and financial distress.

Reasons for Poor Service Delivery

Lack of skills

The lack of competency and capacity in terms of skills is mentioned as one of the main reasons behind poor service delivery. 16,4% of all local metros and municipality positions were vacant in 2019 (Business Tech, 2021). in comparison to intermediate city municipalities, the high vacancy rate is particularly high as 24% of positions were vacant. One in five positions were vacant at the level of section 56 manager in intermediate city municipalities, and the same in local municipalities (Business Tech, 2021).

Migration

Migration is another factor that affects the quality-of-service delivery (Business Tech, 2021). Migration to urban areas provides individuals and families with better opportunities to better their lives, however this also presents problems for the areas. When people migrate, that city needs to buy land, developing housing and the installation of services. All of which takes time to do (Business Tech, 2021). Those that tend to leave the rural municipalities are also those who are economically active and entrepreneurial. This causes these rural municipalities to lose a good number of its taxpayer base (Business Tech, 2021).

A Lack of Spending

Lack of capital spending is one of the greatest causes behind the lack of service. Between 2005 and 2009, capital spending was increased, however since 2010 there has not been an increase in the

capital spending of municipalities (Business Tech, 2021). This lack of spending heavily limits the ability of a municipality to expand the reach and quality of basic services such as water and electricity (Business Tech, 2021).

Supply Chain Management

In a multitude of ways, poor supply chain management contributes to the delivery of poor services. Procurement processes have been found to be inefficient and problematic by the National Development Plan in 2012 (Business Tech, 2021). These systems do not focus on value for money, but rather procedural compliance. This overburdens weak support functions (Business Tech, 2021). The system's implementation severely hampers the provision of services such as water, electricity, sewage systems, waste management and roads. This prevents business from investing in a municipality and provides opportunities for new economic development (Business Tech, 2021).

Municipal Audits

Similarly, to supply chain management, municipal audits focus on compliance as opposed to the performance of the municipality. The reason behind this is that staff members could be held personally responsible for any irregularity in expenditure. This is threatened to be recovered through that staff member's salary (Business Tech, 2021). As a result, a lot of time is spent responding to irregularities and recovering funds. This then makes managers afraid of working on more complex plans that involve other sectors of government or any private sector entities, in favour of the clearly defined and narrow mandates that are safer to work with (Business Tech, 2021).

Revenue Management

Revenue management when done poorly as is currently the case, causes a large financial distress in the economic sustainability of municipalities. In the AG's Consolidated report in 2019-20, out of 257 municipalities 199 submitted their audits. Of these 199 only 38 were deemed to be in good financial health (Business Tech, 2021).

Irregular, Fruitless and Unauthorised Expenditure

A very serious concern in the lack of service delivery is the irregular, fruitless and unauthorised expenditure of funds. In 2019 – 2020, 26 billion rands was spent across all three of these expenditures (Business Tech, 2021). Even in metro municipalities, irregular spending is a very large problem.

Repairs and Maintenance

Poor repair and maintenance causes interruptions and breakdowns in the supply chain. This is caused by underspending on repairs and maintenance of municipalities (Business Tech, 2021). Only 8% of what should normally be spent on repairs and maintenance is used. Anything less than that would go even farther to increase the impairment of assets within municipalities (Business Tech, 2021). This causes great technical loss to in the delivery of services such as electricity and water. This degradation of municipality assets used to provide services also hampers the flow of money and the viability of municipalities (Business Tech, 2021).

GENRE OF THE GAME.

Arcade, with elements of resource management elements.

AGE GROUP.

Young adults (14 - 17) looking for a fun, casual experience.

ASSETS AND CHARACTERS OF THE GAME.

POS System

Players will be required to go to the POS System to enter the customers' orders manually. This will cause the kitchen to start cooking the meal.

Hotplate

Once orders are completed, they will be placed on the hotplate, where the player will collect it in the order that the order was entered.

Fridge

As an order is being prepared, the player can take a cold drink from the fridge and deliver it to the customer.

Money and XP

Money is earned through tips from the customers, based on their experience. Money can be used to purchase various unlockables. In order to gain access to the unlockables, players will also need to gain the required experience points (XP) to unlock it.

Unlockables

Unlockables can be accessed through the telephone of the café. Unlockables are split into temporary and permanent upgrades. Temporary fixes are once-off purchases that either fix an existing problem for that day or unlocks an upgrade that only lasts that day. Permanent upgrades last the entirety of that current playthrough of the game.

The temporary fixes/upgrades include:

- Generator – supplies power to the café when it experiences a power-outage (loadshedding). Allows meals to be prepared during a power-outage.
- Water Dispenser – supplies a limited amount of water to the café if it experiences water cuts. Allows various drinks to still be prepared during a water cut.
- Bodyguard – Protects the café from thieves.
- Sewerage Fix – Fixes the sewerage problem, therefore slows down the customers' satisfaction diminishing rate.
- Road Maintenance – Fixes the access to the café, resulting in more customers entering the café.
- Refuse Removal – Removes the refuse from the front of the café. This slows down the customers' satisfaction diminishing rate.
- Permanent Upgrades include the following:
 - Upgraded Shoes – Allows the player to move quicker.
 - Professional Chef – Meals are prepared 50% faster.
 - Upgraded Barista Machine – Hot drinks are quicker to prepare.

Additional Systems

AI CUSTOMERS

Spawning

Customers will randomly be spawned outside of the café and walk in. The spawning rate will be determined by number of empty tables in the café as well as the road's maintenance. Customers can spawn in groups between 1 and 4 characters, they will all sit at the same table.

Satisfaction/Patience

Each individual customers will have a satisfaction and patience meter. The satisfaction meter will determine the tip that the player will receive at the end of their meal and is influenced by the quality of the café (Sewerage and Refuse). The patience meter will cause the customer to leave if it reaches zero, and they have not received their meal. It can be slightly increased by serving them drinks.

Tips and XP

The player will receive XP for every meal and drink served. The amount is constant throughout the game.

Tips are the primary and only source of income for the player. After a customer has finished their meal, they will leave a tip on the table for the player. The tip will be determined by the satisfaction and the patience of the customer.

GAME RULES, GAME SPECS AND INSTRUCTIONS FOR PLAYERS.

Core Gameplay

The core gameplay revolves around the following elements:

- Collecting orders from customers.
- Processing orders received.
- Delivering orders.
- Collecting tips.

Game Flow

The game will comprise of multiple days, representing the levels. At the start of the level, players are given a set amount of time (2 – 5 minutes) as preparation time. During this preparation time, players will be able to read the daily newspaper, start preparing meals and purchasing additional items. By reading the daily newspaper, players can be informed of the possible challenges they may face throughout that day. If players are made aware of possible electricity cuts, they can start pre-preparing meals. Finally, players can use this time to purchase items that may help them with that specific level.

After the preparation time, the café is opened, and customers start to enter. At random intervals of the day, customers will enter (in groups, or alone) and take a seat at a table. Players will then be required to approach a table, where they will then take the order of the customers. Then players will

enter all of the food into the POS (point-of-sales) system, which will then begin to be prepared by the kitchen. While this is happening, the player will go on to prepare/collect the drinks ordered. Once all elements of the order are complete the player will give it over to the customer, where they will enjoy it and leave. When customers leave, they will leave money on the table, and it is the responsibility of the player to collect it before the end of the day (or before something happens to it). This cycle repeats until the day ends.

In addition to the main gameplay players will also need to deal with challenges thrown at them throughout the day.

In addition to the main gameplay players will also need to deal with challenges thrown at them throughout the day.

Once the day is complete, the number of customers served, XP gained, and current level is calculated together to add to the current score of the player. Then the entire cycle repeats on a new day.

Challenges

The number 1 challenge that players will face, is ensuring customer satisfaction. This will require players to deliver the proper orders to their respective customers in a timely manner. Failing to so, will result in the café's reputation lowering. If the café's reputation reaches 0, the game will end.

In addition to this, the following challenges will influence what players do to reach their objectives:

Loadshedding Players will be notified at the start of the day (through reading the daily newspaper) if they will have a power cut, and when. During this time the kitchen will completely stop working. Therefore, players must pre-order food, enough to satisfy customers.

Lack of Clean Water

Players will also be notified if their water will be unavailable. This will prevent players from preparing hot drinks. They will need to come up with a different plan for hot drinks.

Sewerage Problem

At any point in the day sewerage problems can arise. While it is in progress, the customers' satisfaction meter will decrease faster.

Road Maintenance

At any point throughout the game, the roads can become damaged. This will eventually cause less customers to enter the café, resulting in less tips.

Crime

If a player leaves their tip on the customers table for too long, thieves may enter the café and steal it.

Refuse Removal

Players will be made aware if their refuse is not collected, this will result in the faster decay of the customers satisfaction meter.

Target Platform

The game will be primarily targeted to PC but could be ported to consoles depending on overall success.

Game Specs

Processor: I5 or equivalent

Memory: 8 GB RAM

Graphics: Intel HD graphics 530 or equivalent

Storage: 155MB

PLAY TEST REPORT - DOCUMENT LISTING ANY BUGS RECEIVED FROM PEER TESTING

MINIMUM SYSTEM REQUIREMENTS.

Raw Playtest Notes

- Some players were unsure about the game's losing and/or ending conditions.
- Some players were confused on how to use the kitchen equipment. One player suggested to have a similar mechanic in the game to how the table ordering system works. Something along the line of "Press E to interact" as a player approaches kitchen equipment.
- Players found it easy to remember and place multiple orders and did not need a UI component to remember active orders.
- A player suggested to only serve a single table during the tutorial to not make the tutorial feel overwhelming.

- Most players found it difficult to navigate. The complains included that the character object snaps to the environment and that the overall feel is not smooth. A player suggested that the camera can rotate in the direction that the player moves in.
- Some players experienced the controls of some kitchen equipment to be non-responsive at times.
- Players suggested that the order indicator of the tables to be visible from a distance and not close to the table.
- Players found the POS system to be suitable and simple enough. Some made suggestions to improve the system with an exit button to the POS system instead of pressing ESC to exit the menu. A bug in the POS system were also spotted where the player could move with the POS system still active.
- A Player suggested that the conundrums should cause the game to make the gameplay experience negative. For loadshedding, the player suggested that the player will only have a flashlight available in a dark scene. This forces the players to give attention to the conundrums of the game.
- Background noise should be added to make the game more immersive.

OBJECTIVES OF THE GAME, THE CHARACTERS, THE ASSETS, THE GAME WORLD, THE INTERFACE DESIGN, THE STORY/NARRATIVE, AND LEVEL PROGRESSION.

Objectives

The overall objectives for Café Conundrum are:

Last as Long as Possible

A wave survival system is implemented in Café Conundrum, rewarding players with a high score for the longer they “survive”. Each day will be counted and when the player eventually loses, this will be their “max wave survived”.

Maintain Café’s Reputation

The café’s reputation will be a bar, visible at all times, indicating how customers see the experience of the café. Once this bar reaches zero, the game ends. Factors like not serving customers, too much wait time and wrong order all influence this bar negatively.

Gain Money and XP

Throughout the level players will obtain money and experience points (XP), which can be used to unlock/purchase different items, upgrades and more.

Game Progression

Café Conundrum features various elements that contribute to the overall progression of the game.

Day Count

Each day survived, represents one part of your score. The day count will be kept track of for the entire playthrough and will only stop counting once you lose.

Money and XP

Money and XP also serve as a way to track your progression and will also be represented in your high score, once the game is completed. XP allows players to unlock certain items later in the game, this also serves as a method to track progression.

Difficulty Scaling

The more days that the player survives, the difficult the game will become. Factors like customer spawning, complex orders, customer patience and satisfaction, and more challenges will all be altered for difficulty.

Background

The year is 2024 in Johannesburg, South Africa. Due to the economic downturn, many government services have begun to break down and cause issues in the daily lives of citizens. These issues ranging from load shedding, bad road infrastructure and water shortages, cause interruptions and in worse cases can negatively affect the livelihood of people. This lack of basic services mostly ends up impacting business owners as they struggle against these issues to keep their business afloat, especially smaller businesses.

The story takes place after the untimely death of Erwin's uncle, after Erwin had been working there for 3 months. Through his uncle's will, has been given the coffee shop to own and run. Erwin applies his knowledge gained from his degree, but he struggles to work around the bad government services. This leads to him losing money and customers. With no other option, he turns to a friend of his, Mbali, who studied the same degree but was fortunate enough to find a job after graduating. Erwin asks Mbali for advice since she has work experience. Mbali helps Erwin strategize ways that he can work around the issues his coffee shop faces. Erwin now must use this new strategy to make the coffee shop the success his uncle always dreamed it to be.

Characters

PROTAGONIST

You play as Erwin. Erwin had graduated in 2023 with a degree in business from university. He like many youths struggled to find employment and ended up doing odd jobs every here and there while

still living at home with his parents. A year later, his uncle Thabo calls him to offer him a job at his coffee shop. Erwin is an eager young man who has a lot to prove and the willingness to try, but also to learn. He works hard but struggles when it comes to leadership. He knows how to create and follow processes, but due to a lack of experience, he lacks the capability to apply that ability on a small business scale. He nevertheless always gives his best effort. He enjoys engrossing himself within whatever task he sets his mind to completing even going as far as doing research. His determination and willingness to try despite his shortcomings will be useful in making his uncle's coffee shop the best it can possibly be.

SUPPORTING CHARACTER

Mbali is Erwin's friend who studied business with him in university. She was fortunate enough to find a job as business strategist at a restaurant chain in Johannesburg. By the time Erwin contacts her for work, she has been working there and has gained a year's worth of experience. Within the game, Mbali acts as a tutorial guide that helps Erwin understand more about how to manage the coffee shop and plan around the bad government services. After showing Erwin the ropes, she sources him his initial clientele and lets him manage the business on his own.

Game Style

OVERVIEW

The overall style of Café Conundrum will consist of a simple stylized look to appeal to the target audience of 14 to 17. The use of a hand-painterly style, with exaggerated proportions and features allows for more creative expression and contributes to the light-hearted feel.

WORLD STYLE

To properly represent the setting and feeling of the game, the inclusion of South African heritage is important. South African flags, traditional patterns, proteas and springboks are all examples of elements that will be included to represent the setting of the game.

Character Design

BODY TYPES

In Café Conundrum we want to represent a diverse range of characters that will accurately represent the diversity of South Africans. We want to represent the different body types such as muscular or slender, and body shapes (whether it is a triangle, rectangle, oval or an hourglass figure).

Figure X shows an example of the body types and shapes that can be present in Café Conundrum:

EXPRESSIONS

In addition to the characters body, we also want to represent facial features and expressions in our characters. This will be done through texture layering. Each character's expression will have a "drawn-on" style. This will allow us to dynamically change it during gameplay and will also save us time in the creation of the characters.

CLOTHING

To further experiment with the concept of diversity, Café Conundrum will feature a modular clothing system. Each character type will have multiple different types of clothing combinations.

Some examples of these combinations include:

Level Design

OVERVIEW

Café Conundrum will feature one static level. This level will consist of tables and chairs, the hotplate, beverage dispenser, refrigerator/storage, telephone and POS machine. We want to embrace South African style, while also optimizing the layout for gameplay purposes.

LAYOUT:



Figure 1: Shaw, A. 2024. Level Layout 1.



Figure 2: Shaw, A. 2024. Level Layout 2.



Figure 3: Shaw, A. 2024. Level Layout 3.

Figure X shows a basic layout of the café. The café is divided into two sections, the staff area and the customer area. The staff area will be the area the player uses to place orders, prepare drinks, retrieve orders, and activate upgrades. The customer area will gradually be filled with customers, where the player must obtain their orders, serve their orders and collect their tips. All the gameplay elements within this scene are strategically placed.

TABLES

All the tables are placed in such a way that allows the player to properly navigate through the level.

POS SYSTEM

The point of sales system is placed fairly central as this is a key component of the game, and players will be accessing it regularly.

HOT PLATE

The hotplate is positioned towards the back of the café. This is done for two reasons. Firstly, it implies that the kitchen is located near that area. Secondly, it allows players to make strategic decisions on their walking path, they may choose to first enter in another order before collecting an already made order.

BEVERAGE DISPENSER

The beverage dispenser is also located between the POS system and the hotplate to be easily accessible to the player.

WINDOWS

The windows present have a sole purpose to allow natural light into the café. This contributes to the overall aesthetic and completes the café look.

Interface

MAIN MENU

The main menu UI panel is the first UI panel that will appear when players start the game. This panel allows players to enter gameplay, change the game's settings to their preferences, as well as exit and close the application.

The main menu is vitally important not only for menu and scene navigation, but also serves as the perfect opportunity for positive first impressions, such as showcasing game art and the overall theme of the game.



Figure 4: De Jong, D. 2024. UI Layout 1.

1. Play Button: This button begins the game for the player.
2. Settings Button: This button enters the game settings.
3. Exit Button: This button exits the game.

SETTINGS

The settings menu allows players to fine tune the game to their personal preferences. The settings menu allows players to change how the game visually perform and presents and can change the resolution, frame rate and graphics quality settings to match their device and display.

Additionally, players can change control sensitivity as well as the key binds assigned to different in-game actions to match their preferences in the controls tab of the settings menu.

In the sound tab, players can change the volume of various game sounds to be more audible or less audible to fit their personal preferences.

The final tab of the settings menu allows players with certain health conditions such as visual impairments, to fine tune how the game performs visually to help them play the game easier.

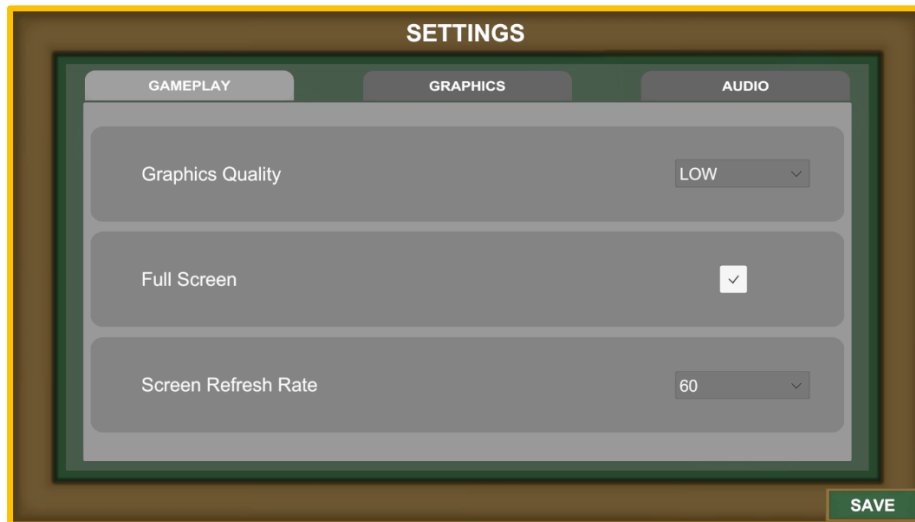


Figure 5: De Jong, D. 2024. UI Layout 2.

1. Apply: Button to apply selected settings.
2. Navigation: Prompts for menu navigation.

LOADING SCREEN

The loading screen UI panel give players feedback visually that the game loads the next scene. The loading screen presents a visual appealing background, presenting game art to entertain players while they wait for the game to finish loading the next scene.

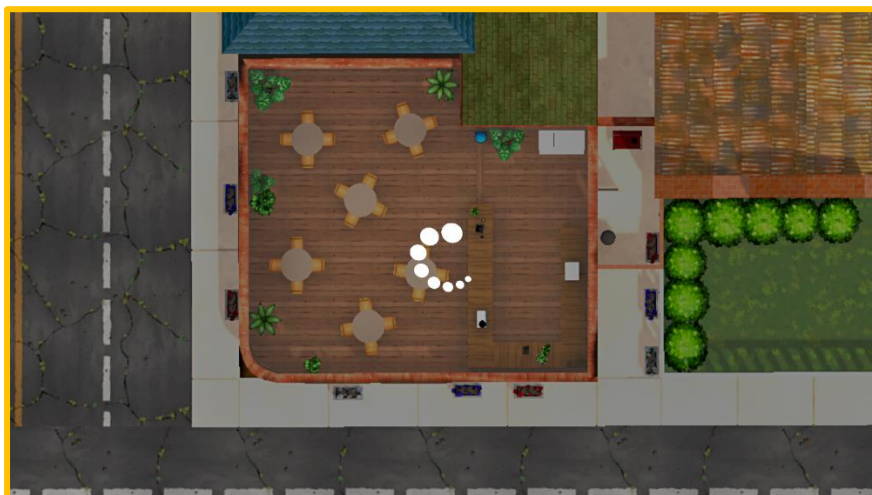


Figure 7: De Jong, D. 2024. UI Layout 4.

HUD

The heads-up display (HUD) UI panel is the most important UI panel to navigate during gameplay. This UI panel gives players visual feedback for game progression, allows players to navigate to different menus, as well as keep track of variables, such as the time of the business day, the current in-game day and currency amount.

This UI panel overlays the main gameplay, giving context to the player to what is happening in the background of the gameplay.

The HUD also allows players to open other UI panels, such as the order menu, upgrade menu to ultimately progress in the game.

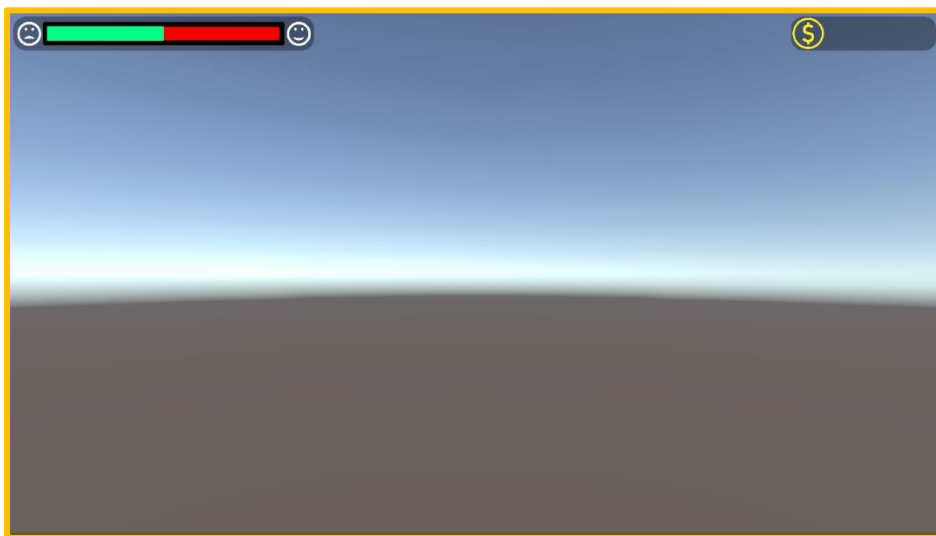


Figure 6: De Jong, D. 2024. UI Layout 3.

1. Day Timer: This timer indicates the current time of day and is also a visual indicator of how much time is left for that level.
2. Current Day Indicator: This indicates the current day (level) the player is currently on. Day of the week is purely aesthetic.
3. Money Counter: Shows the current amount of money the player has.
4. Orders Prompt: When opened, displays current progress of orders players have placed (with the kitchen).
5. Upgrades Prompt: When players are near the telephone, this will pop-up to show that they are able to purchase upgrades.

PAUSE

The pause menu UI panel allows players to stop the game at any time to take a break or navigate to different menus of the game. The pause menu allows players to pause and resume the game, enter

the settings menu to fine tune the game to their preferences, enter the help menu if they get stuck playing the game, as well as quit the game and return to the main menu of the game.

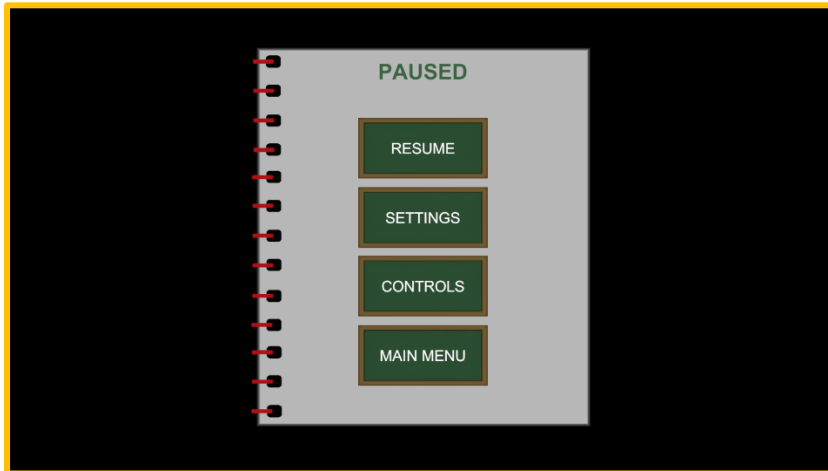


Figure 8: De Jong, D. 2024. UI Layout 5.

HELP MENU

The help menu UI panel allows players to view the goal of the game, as well as the controls of the game if they get stuck playing the game. This panel informs players about these two aspects to help guide them to get unstuck during gameplay.

This menu can be accessed at any point of gameplay within the pause menu UI panel.

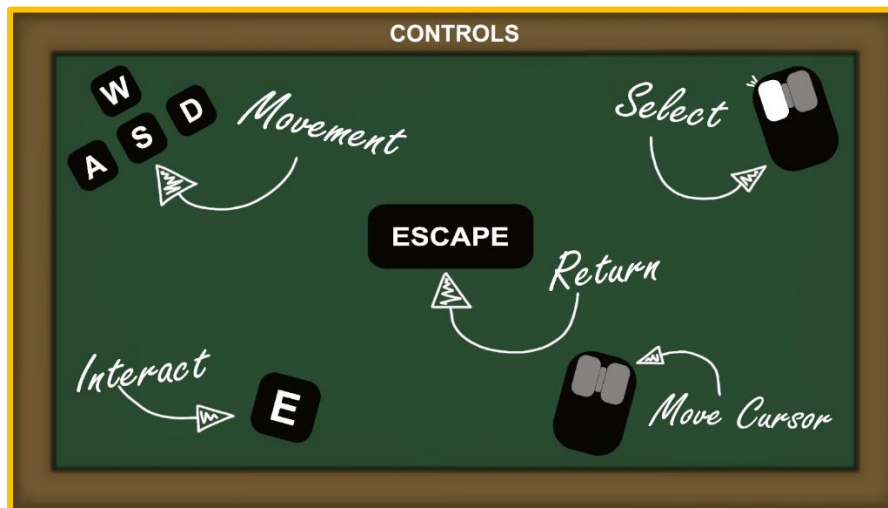


Figure 9: De Jong, D. 2024. UI Layout 6.

UPGRADES

The upgrades menu UI panel allows players to spend their in-game currency on various upgrades in order to improve their business and how it is running. This UI panel ultimately allows players to progress within the game and beating the game the more upgrades they perform.

This UI panel does not stop the gameplay from running in the background, it simply overlays the gameplay.

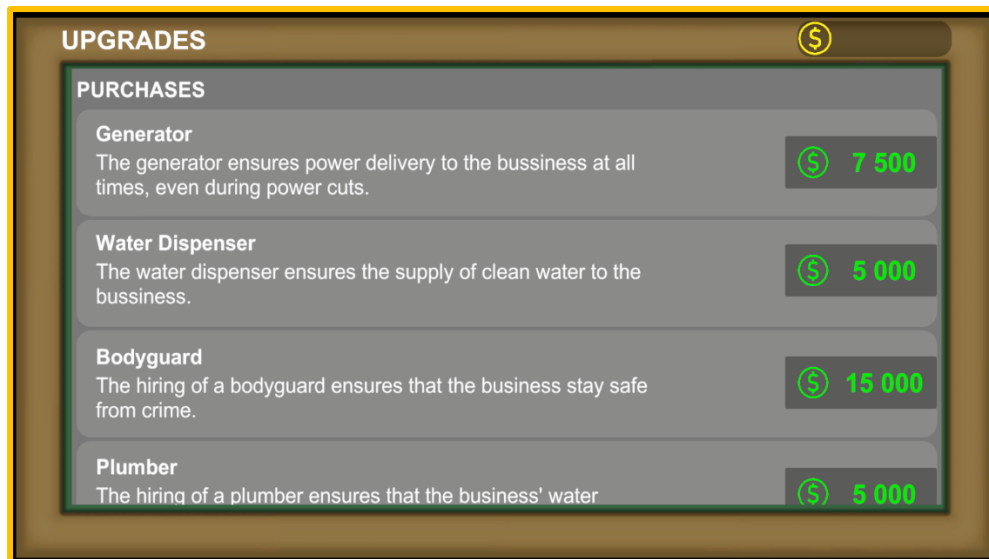


Figure 10: De Jong, D. 2024. UI Layout 7.

- Current Money: Indicator of player's current balance.
- Scroll bar: Used to navigate through menu.

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