



GAME DEVELOPMENT (COMP3540 / COMP6540)

GAME PROPOSAL – ANALYSIS TEMPLATE

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All word limits are maximums – do not exceed them. Only write what you need.

Part 1: Game Design Analysis (15%)

Core Gameplay (maximum 100 words)

Describe the core gameplay – the actions that a player repeats most often while striving to achieve the game's overall goal (see Lecture 2).

The game starts with a late passenger who must arrive at the boarding gate in 15 minutes. The player controls them to walk, run, jump, and interact with objects/NPC to complete a set of boarding steps, e.g., check-in, customs, border force, and finding the boarding gate. In each step, players may

- encounter some problems, e.g., forget the airline and check in counter.
- gather information through the interaction with NPCs and objects, e.g., asking questions.
- Use the information clues plus some thinking to solve problems to complete each stage of boarding, e.g., deducing the right airlines from the NPCs' implicit answers.

Formal Elements (maximum 800 words for table total)

Describe the formal elements for your prototype and explain why key decisions were made (see Lecture 1). All prototypes must be single-player – no need to include this below.

Element	Description	Explanation
Players	The role of the player is a late passenger. The interact pattern is player vs. the game itself, including time limit, NPCs, items, and the airport map.	As the background of the game is about catching a plane, the late passenger is the one who can witness the whole story of boarding. Therefore, the passenger is selected as the player rather than other people in the airport. It is better to be single-player because other characters, such as the check-in staff, have much less critical roles than the passenger and can be controlled by computer.
Objectives	The main objective is to get to the boarding gate in 15 minutes, which is further split into several sub-objectives or checkpoints, including "get to the airport", "finish their baggage organisation", "check-in", "pass the customs", "pass the border force".	These objectives are aligned with the context of the game because everyone in real life should also finish these objectives when they board a plane. The additional time-limited set up a nervous tone for the games, which makes players value every second and unwilling to stop once they start playing. The sub-objectives help players achieve the main objectives and regularly give them a sense of achievement as they go through.
Procedures	Players need to "avoid cars to get to the airport", "organise their baggage to avoid being overweight", "find the right check-in counter", "memorise sensitive items they are carrying and answer the customs questions", "find the right documents to hand over to the border force", "find the right path to the boarding gate in a maze-like terminal".	The game's procedures are similar to taking a plane in real life but simpler and more enjoyable. For example, "Organising baggage" become a 2D puzzle in which players drag all item in different shape into one of the three bags so that all items fit in, and no bag is overweight. The crossing roads procedure challenges players' reactions and passing customs challenges players' memorisation.
Rules	Players can walk, run, jump, turn and interact with objects and NPCs with the [F] key. Interaction allows the player to gain information or complete an objective, such as interacting with the check-in staff. Players can only proceed to the next part of the airport after the current objective is finished, i.e., they cannot go to customs before	The walk, run, jump, and turn movements provided by the game give enough freedom for the player to explore the world map and create immersion. The rule of finishing objectives in order is aligned with the real-life experience, which players can quickly make sense of.

	<p>checking in. Players learn these rules from the real-life experience of taking a plane and further understand detailed rules from the menu or trying. The rules will be enforced by the game logic when developing the game.</p>	
Resources	<p>Time: Allow players to continue to play</p> <p>Money: Allow players to buy a boost-up item</p> <p>Boost up item: make players finish the game easier, i.e., running faster.</p>	<p>There will be a time limit for almost everyone who takes a plane, so it is necessary to have it. Money allows people to apply strategies and make appropriate choices when buying different items.</p>
Conflict	<p>The conflict of moving cars (obstacles) on the road prevents play from getting to the airport (an objective). The conflict of forgetting which check-in counter forces players to walk around on the map to find tips. The conflict of time limit makes people spend their time carefully. The maze in the final step creates dilemmas for players when they choose a different path.</p>	<p>The creation of conflicts makes the game fresh and enjoyable because taking a plane is no longer as smooth as in daily life, leading to a sense of achievement when players solve it. Conflicts may also resonate with the player if they have similar late experiences before.</p>
Boundaries	<p>Physical Boundary: Play can only walk around inside the airport and limited places outside the airport.</p> <p>The boundary of maximum time the player can have.</p> <p>Information Boundary limits how much information the player can know, e.g., where is the right check-in counter, and the right path to the boarding gate.</p>	<p>Setting physical boundary stop player from going to irrelevant places and being distracted. It also reduces developing overheads. Beyond the time and information boundary, the game will become less challenging and enjoyable.</p>
Outcome	<p>Players can either win (get to the boarding gate) or lose (run out of time or crash into a car). A score is given to the winner based on how much time is left. Finishing the main goal gains the player one star, and there are two optional tasks for players who want to achieve a higher rank.</p>	<p>Creating different outcomes, even for a winning state, attracts players to play again for achieving a higher score or rank.</p>

Engagement (maximum 200 words)

How do you engage the player in your game? (e.g., play, challenge, choice, pleasure, etc). Provide specific examples with reference to the theories discussed (see Lecture 3).

The game engages players through challenges. The challenge of boarding a plane in 15 minutes seems very difficult in real life. However, once players gradually finish each partial objective and see there is still hope, a great sense of accomplishment is created, i.e. "I have even finished something that seems impossible! I am so great!". The enjoyment created by challenge, as discussed in the lecture, prompts players to keep playing and seek other challenges in the game.

The game engages players through player choices. The game allows players to make various choices. For example, which boost-up item they would like to buy and which path they should take to get to a required destination in the airport. As discussed in the lecture, choice can create anticipation. Players may only know the consequence of their choice once further progress has been made. This attracts players to keep playing the game to see the results, i.e., "if I am heading to the wrong path."

The game creates pleasure, especially for competitors who want to finish the game in the shortest time, explorers who like to explore the airport and find secret items, and achievers who enjoy the achievement after overcoming the impossible.

Mechanics (maximum 200 words)

What are the core mechanics in your game and why?

What system dynamics and information structures are used?

What will be the key challenges in balancing your game and why?

Provide specific examples with reference to the theories discussed (see Lecture 4).

The game allow player to walk, run, jump in the airport. Their objective is to get to the boarding gate within the time limit. The main rules are player have to finish each stage of preparation in order before boarding, e.g., check-in, and a time limit is set to the player, mirroring real-life boarding urgency. Without time limit, players can try a lot to achieve objectives, rather than think carefully about tricks.

About system dynamic, object, including cars, check-in staff, customs, border force, are opponent in the game that stop player from proceeding. They create challenges for the player to overcome. Others such as, boost up item, signboard, provide clues for players to overcome challenges.

The game has open information structure through the UI, directly telling the main objectives. The hidden information is procedures that gradually reveals through the game progress, e.g., the right paths to the boarding gate.

The key challenges in balancing include the balancing of game resources (time limit), powers (how fast the passenger can run), gateway (the condition of proceeding to the next area in the airport). Letting players run very fast or giving too much time could make the game too easy and boring.

Interface (maximum 200 words)

What interface design choices did you make and why?

How does the interface support your gameplay?

Provide specific examples with reference to the theories discussed (see Lecture 5).

My game interface will be simple and transparent. The interface includes a timer at the middle top, a "Pause" icon "| |" at the top left, and a task icon with an "[I]", telling the player to use [I] to open the tasks menu.

The timer can constantly and explicitly tell players the time resource so they can make different strategies, e.g., "Am I still able to finish optional tasks." The word "timer" will not show explicitly but just a number decrease with time. However, players can still easily understand through its metaphor, similar to the pause icon, which keeps the interface straightforward. Players can enjoy the game content more than learning the controls.

The control scheme is to be as standard as possible, e.g., WASD to move, shift to run, space to jump. As before, this also reduces players' learning costs.

The camera view is third-person and is turnable, which creates freedom for the player to explore the airport thoughtfully, like in the real world, while letting players see the main character's reaction.

Sound feedback is given when players take some actions or finish a task, which can let players notice while not disturbing players visually.

Part 2: Prototyping Process Analysis (8%)

Prototyping Process (maximum 800 words)

Describe your workshop and personal prototyping activities and your associated reflections.

Keep activity descriptions brief and focus on reflections. What changed through your prototyping process? What did you discover or learn during your process? (see Lecture 2 and Workshops)

Week 2-3

Activities

- Set up the central theme (boarding a plane)
- Brainstorm what (places) the player might need to go through and what (challenges) the player may meet (Figures 1 and 2) when boarding a plane.
- Turn ideas into formal elements (Figure 3)

Reflections

The first two weeks is about gathering as many new ideas as possible without considering the detailed feature and implementation. I imagined myself as the player, the late passenger, walking through the procedures of boarding a plane to seek any possible areas and challenges that could be included in my game and how to make them fun. For example, brainstorming reminds me of having overweight baggage in a

boarding experience and having to reorganise it to avoid extra charges, which can turn into a challenge for players.

Overall, brainstorming on paper prevents me from losing valuable ideas, and I can easily share them with others to discover more possibilities.

Turning ideas into formal elements helped me structure the game. For example, my game only had finish and fail conditions before. After considering the importance of unbalanced outcomes, I decided to introduce scores and ranking for finished game states to attract players to play again and obtain a higher score.

Week 4

Activities

- Formalise ideas into core gameplay (Figure 4)
 - Define system and dynamics (Figure 5)
 - Build a physical prototype.
1. Partial game map and the first challenge: crossing roads and avoiding cars to get to the airport (Figure 6)
 2. The second challenge is filling all items into bags and avoiding being overweight (Figure 7).
 3. Figure 6 and Figure 7 later turned into the digital prototypes shown in Figures 11 and 12.

Reflections

Summarising ideas into core gameplay provides a clear vision of what the game should be. As they are the actions that the player repeats most, I should ensure they are the most enjoyable parts.

Defining systems and dynamics lets me know what specific objects should be included in the game and their relation. This is essential when designing the game logic and classes during the later digital prototyping. For example, a car object should have a moving script because of its behaviours. Due to its property and relationship to the player, the script should also function, which makes the game fail when the car collides with the player.

The physical prototyping allows me to build the game scene quickly and play around. Creating the two physical prototypes requires far less effort than making digital prototypes and can be changed easily and refined a lot before the digital prototype process.

Week 5

Activities

- Prototyping UI on papers (Figure 8),
- Viewpoint
- Control Scheme
- Straightforward goal and use of metaphor.
- Information channel

Reflections

A good interface is crucial as it establishes the communication between the player and the game world. Prototyping UI on paper allows me to quickly define what information/icons should be on the screen to make players understand the game in the shortest time. It also determines if there is any empty space for more icons/information; if there is too much information/icons that may distract players. For example, after setting up all the necessary icons, I found that the bottom left is still empty. I then decided to add a control guide to this place. However, since it is not unnecessary once the player masters the controls, I then decided to disappear after 5 seconds.

Week 6 and Holiday

Activities

- Build a blocky map (Figure 9).
- Allow player to walk, run, and jump (Figure 10)
- Create the mechanics for the first three challenges.
 1. Crossing roads to get to the airport (Figure 11)
 2. Ensuring the baggage is not overweight (Figure 12)
 3. Find the correct check-in counter (Figure 13).
- Create the main UI (Figure 14), task menu (Figure 15), and title screen (Figure 16).
- Add more sound and particle effects from online and the course library.

Reflections

The digital prototyping process groups all ideas generated and refined in the previous process, turning them into a playable game. This process comes later because coding is more complex than scratching on the paper. However, it is not final and new ideas can still be implemented in the game. One of the reasons is that the art is kept as simple as possible to allow significant changes. Digital prototyping and play testing give dynamic feedback, which cannot be easily generated from static paper prototyping. For example, when I control the character to run, I realise that the game cannot let the player run forever, which is unrealistic and makes the walk action useless. I then introduce the stamina mechanics that decrease stamina when running and increase stamina when walking and standing. Therefore, players need to have some rest after running.

Prototyping Evidence (images only, no additional words)

Provide images of physical/digital prototypes as supporting evidence of your prototyping process. Any images added here should be numbered and referenced in the table above.

What changed through your prototyping process?

What did you discover or learn during your process?

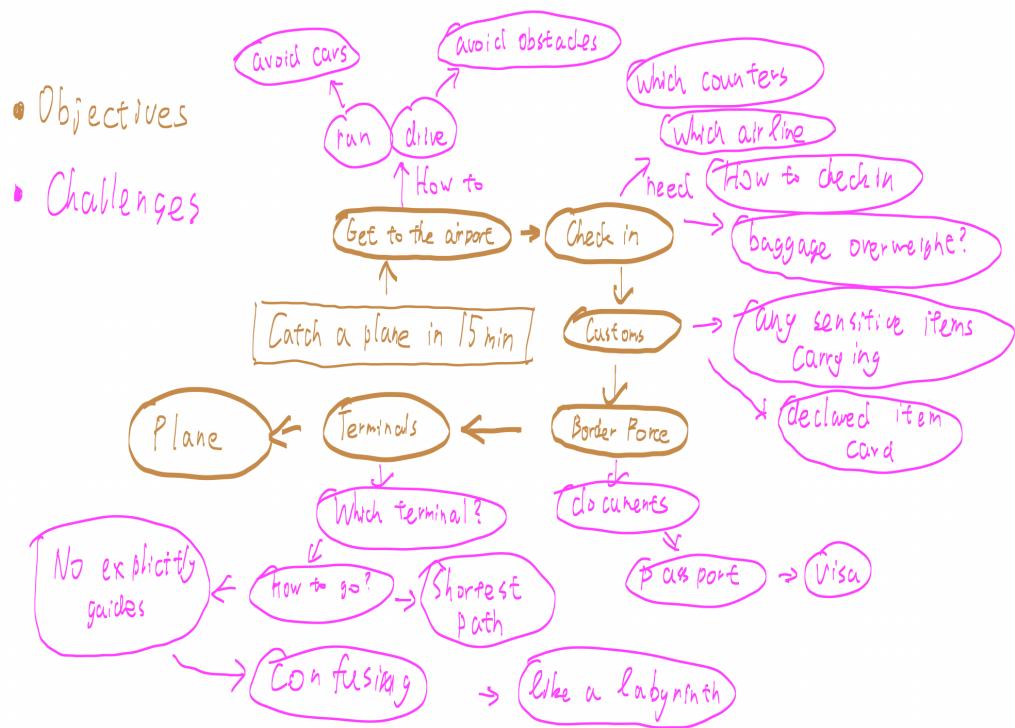


Figure 1

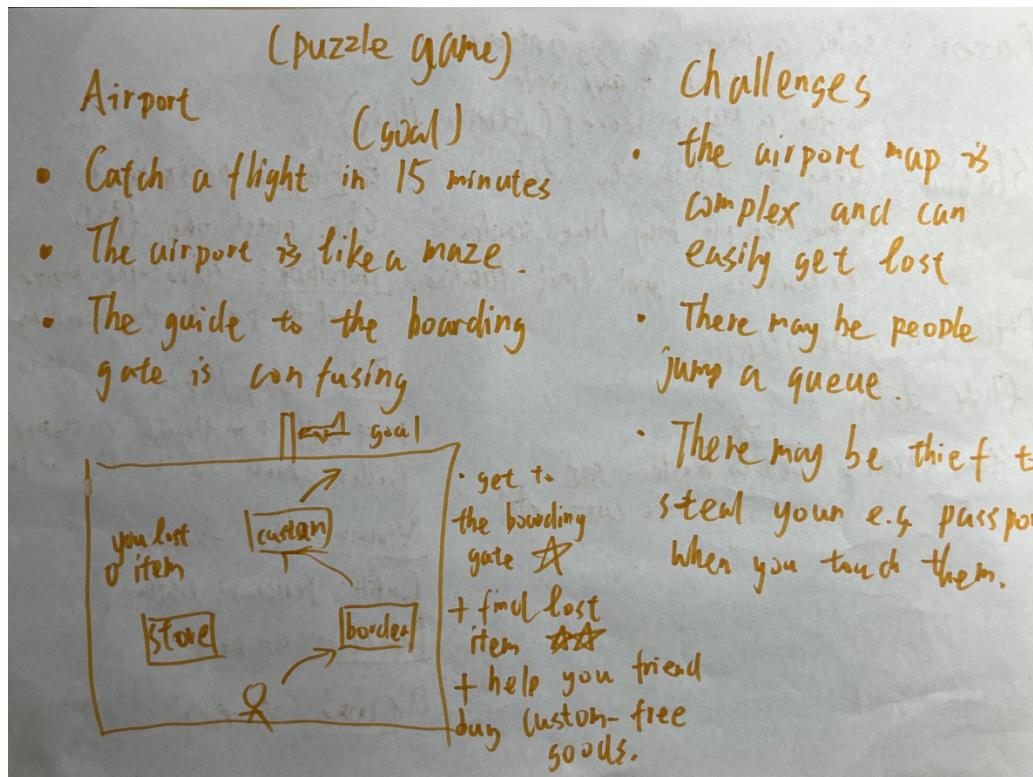


Figure 2

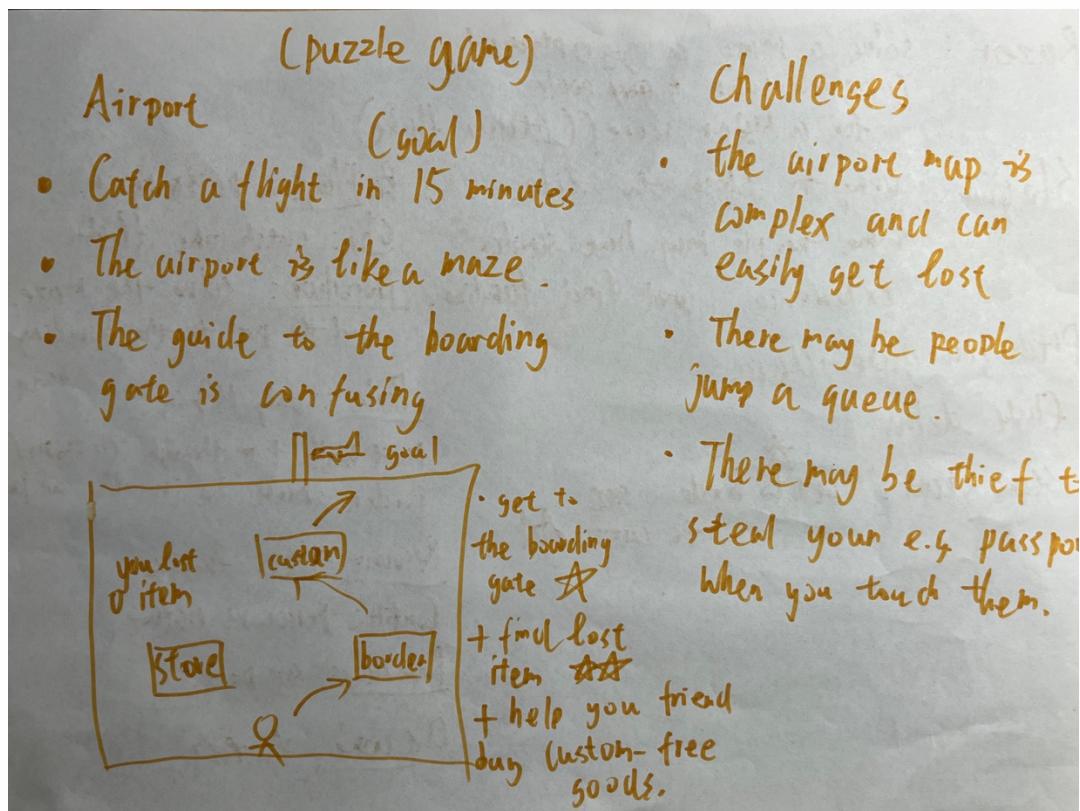


Figure 3

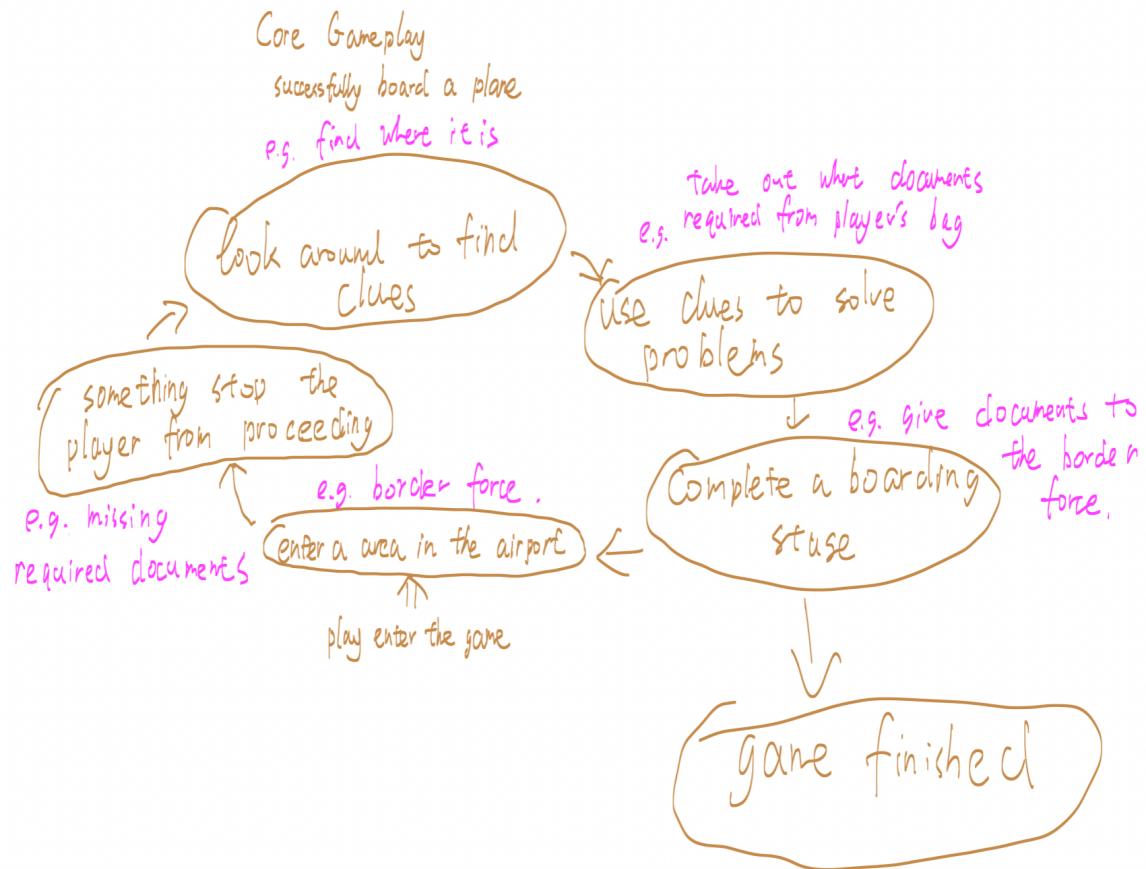


Figure 4

Game System

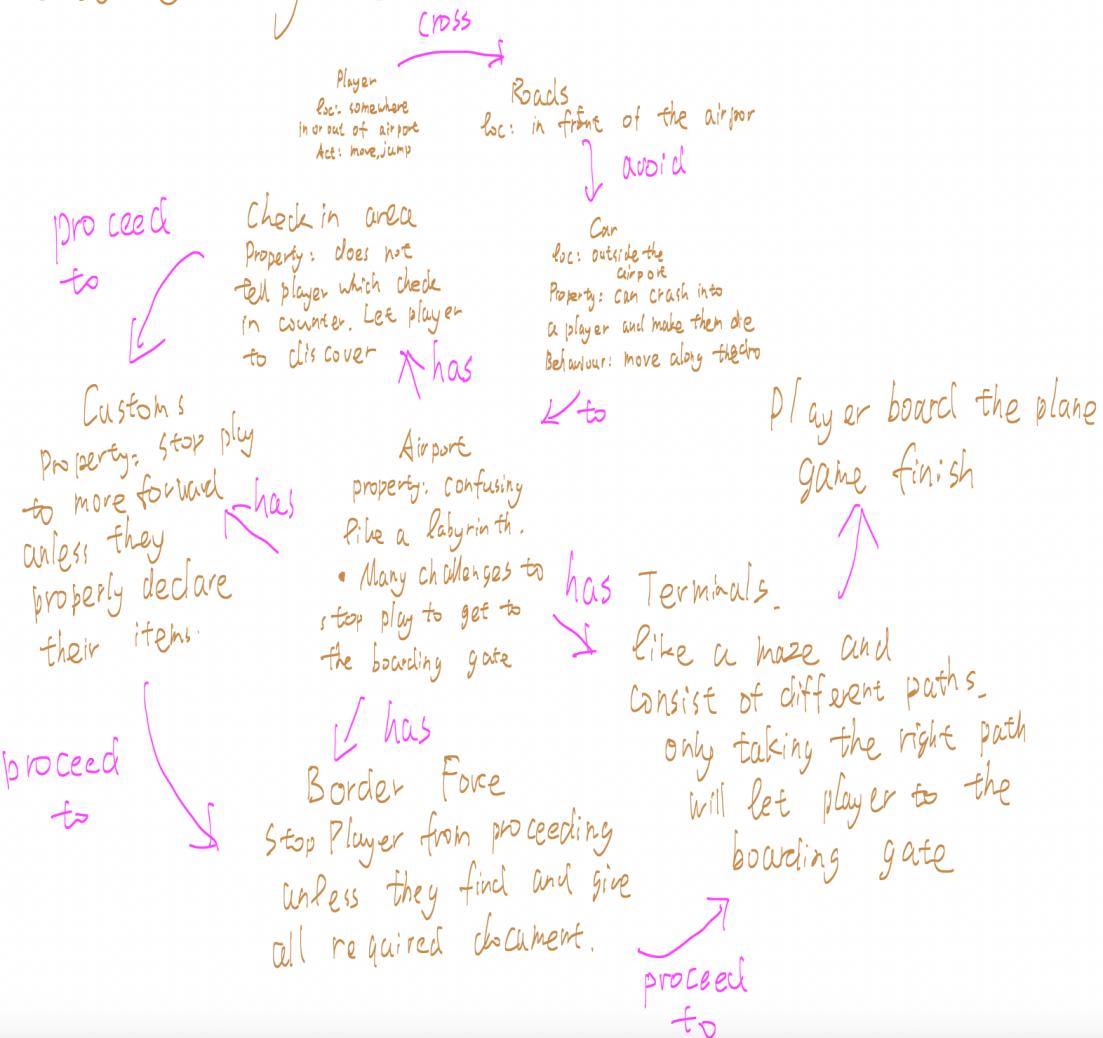


Figure 5

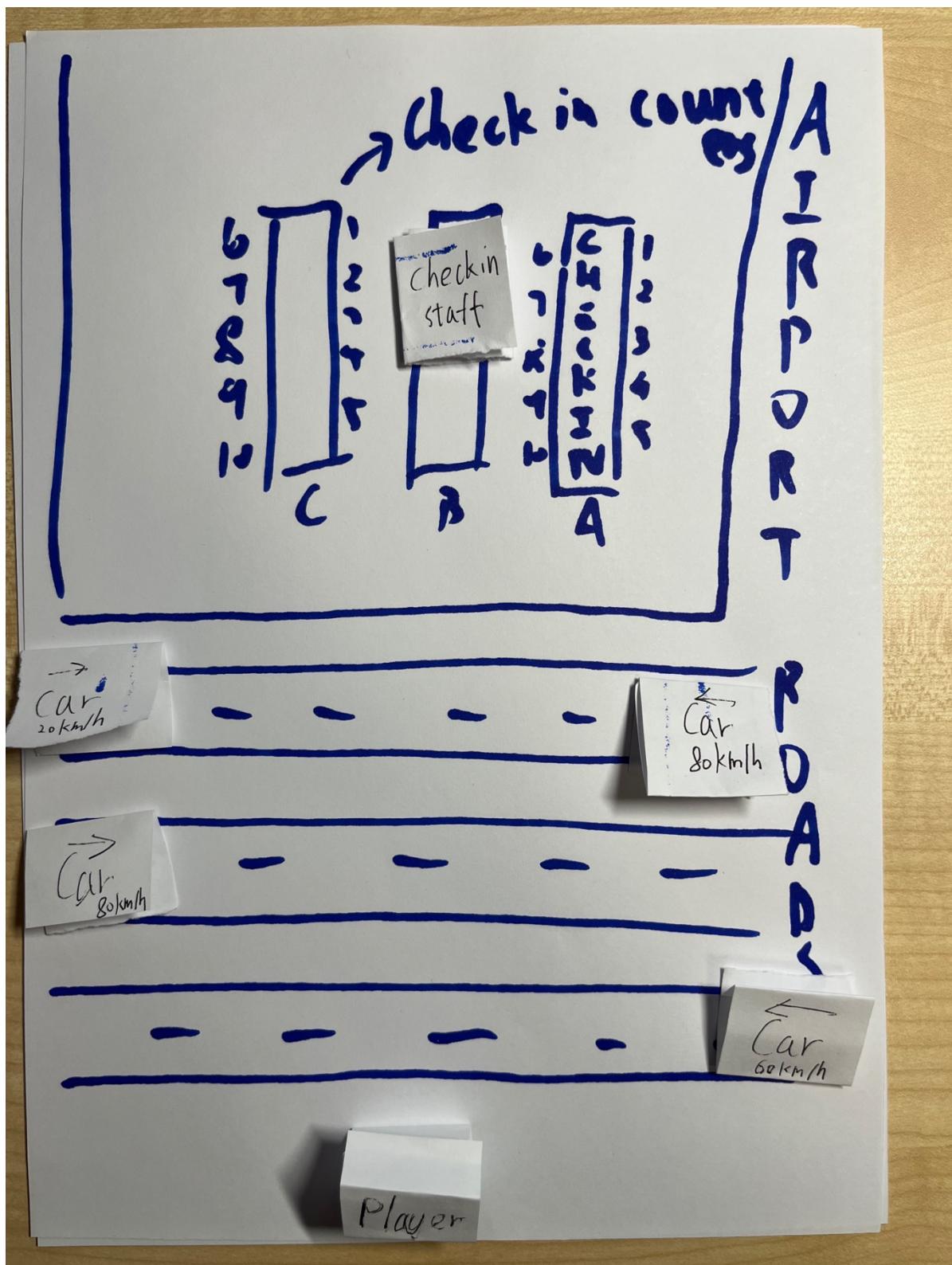


Figure 6

Fill in item in your check-in
baggage so that they are $< 20\text{kg}$

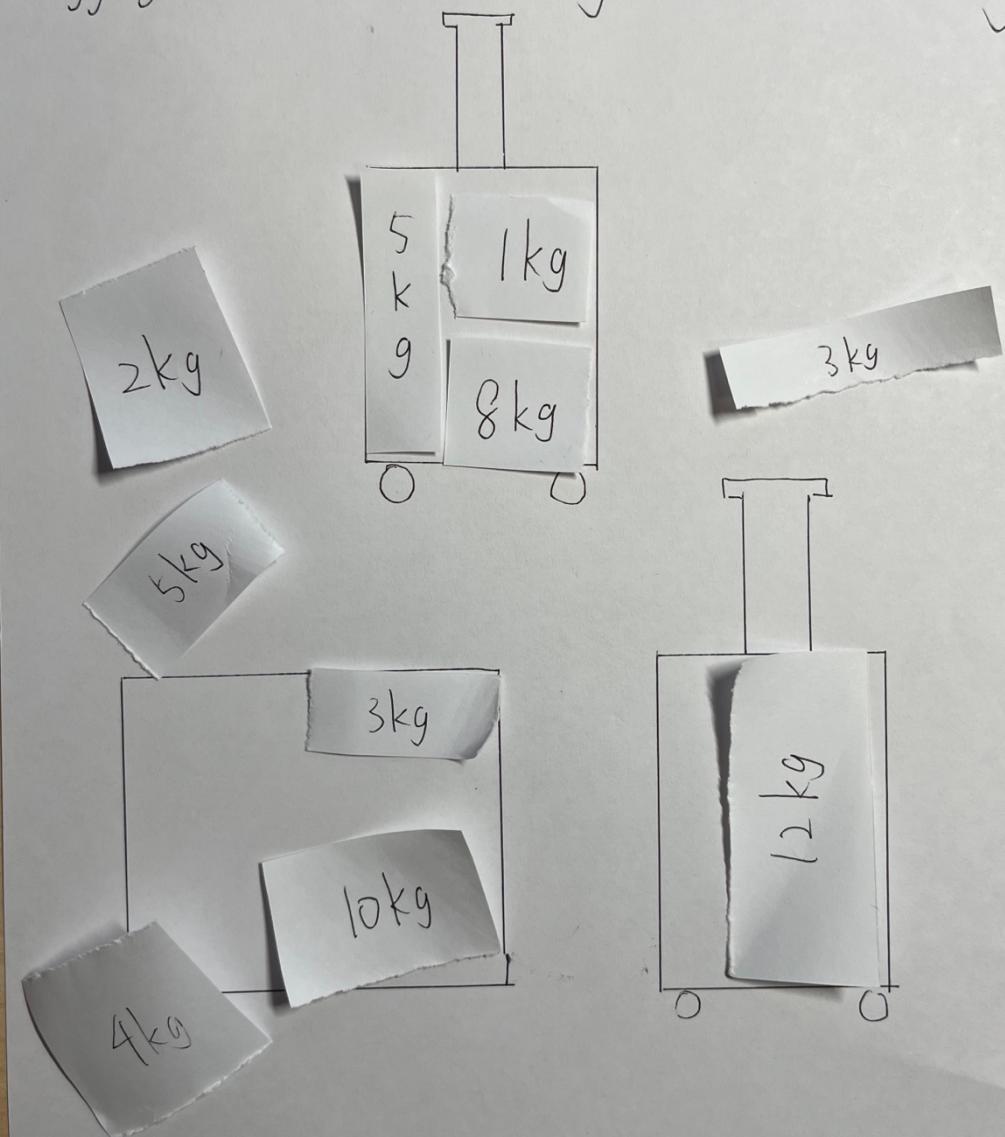
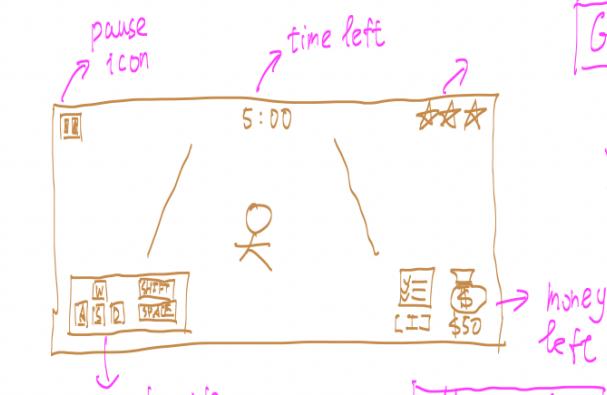


Figure 7



control guide
chicken ss after the
game start)

Control

[W] [S] [A] [D] to move
[E] to interact
[SHIFT] to run
[SPACE] to jump

✓ easy and common
in many game.

Game view: Third person

- ✓ broader view
- ✓ can see character reaction
- ✗ less immersion

Metaphor

- [PAUSE] → Stop
- 4:30 → time left
- [\$] → money left
- [LIST] → task to complete

Information Channel

A task menu shows
tasks required to complete

→ main UI

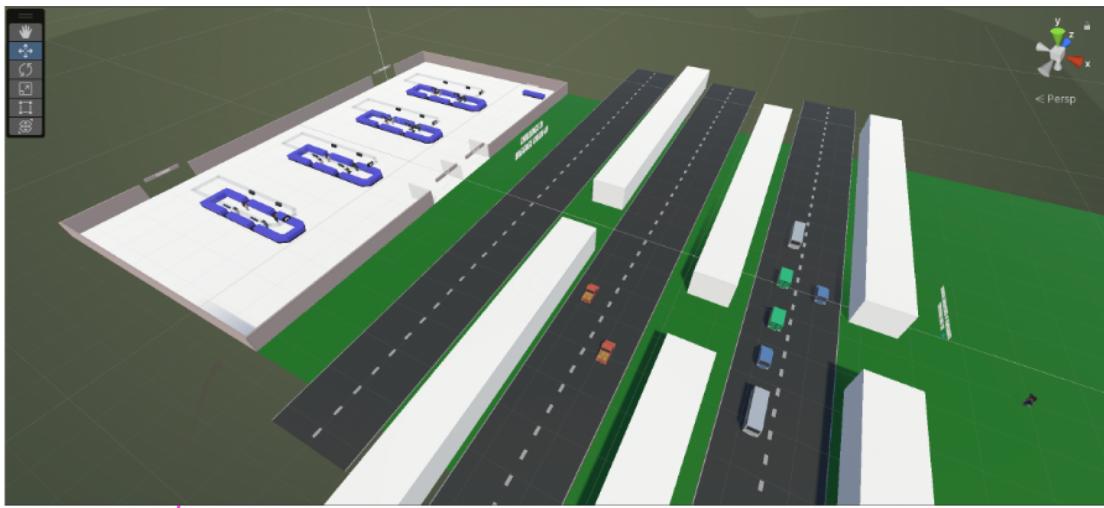
Notes:

- [Finished] Crossing roads to get to the airport
- [Incomplete] Organise your baggage.
- [Incomplete] Check in

→ What it looks like

When pressing [I]

Figure 8



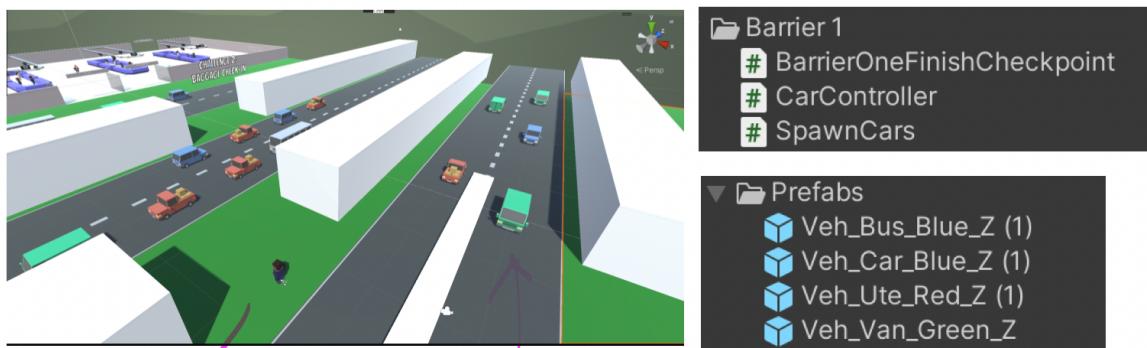
→ Built with cubes and asserts
• nothing can move or interact

Figure 9



- Player can walk, run, jump.
- Particle effect when running.
- Run decreases stamina
- Walk/stand increase stamina
- UI showing stamina

Figure 10



player ↪ spawning in different locations
moving at different speeds

Figure 11

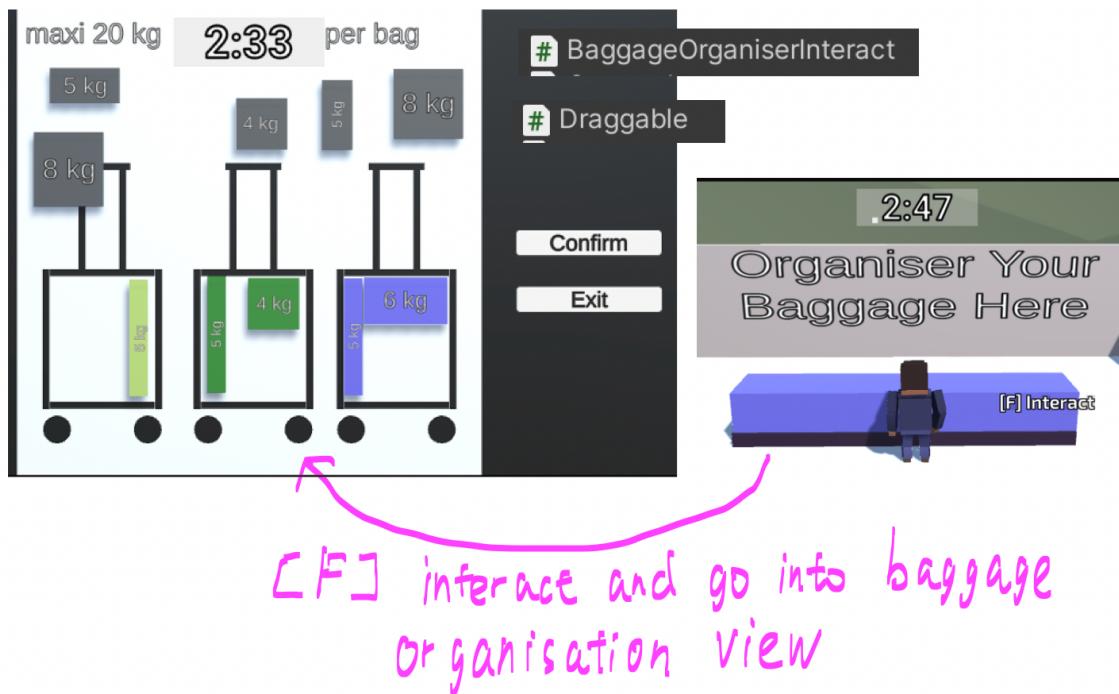


Figure 12



Figure 13



Figure 14

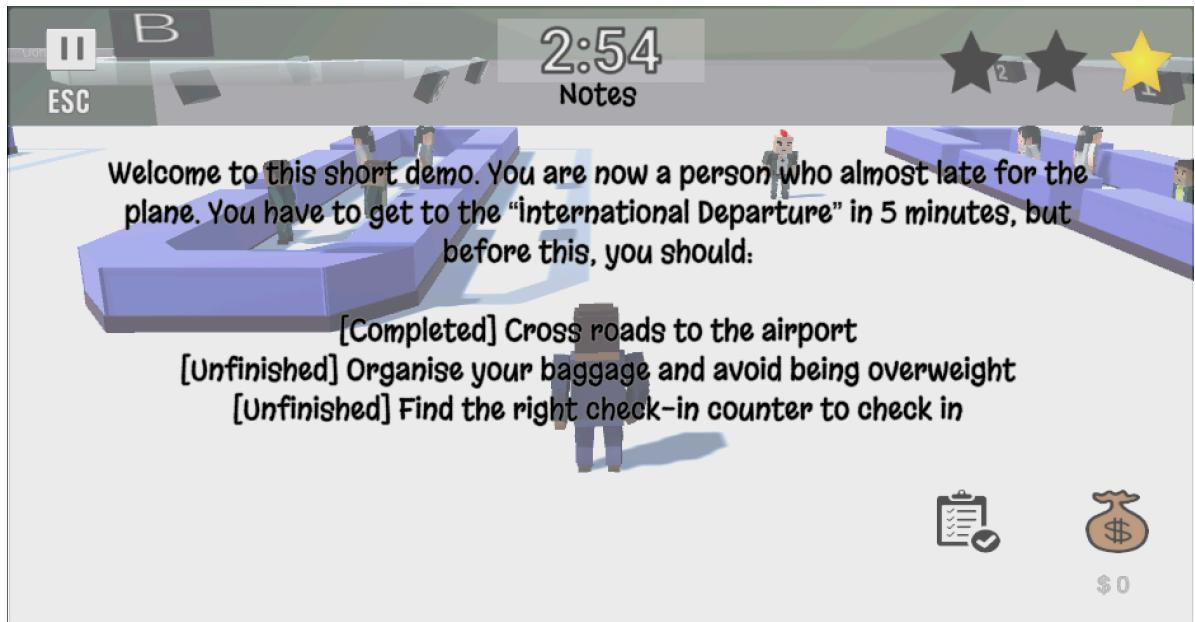


Figure 15



Figure 16