

CMPT 276 Project  
**Phase 1: Requirements Engineering and Design**

Group 12

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| Rose Epstein  | #301420365 |
| Connor Tung   | #301396872 |
| Hayato Koyama | #301423217 |
| Joshua Luo    | #301465627 |

October 14th, 2022

## **1. Game Description**

Our 2D single player game will feature a small computer monitor as our main character. He will find himself escaping from the mysterious lab that he was created in. Stopping his escape will be open fires and tools like a screwdriver designed to chase him relentlessly and ensure that he gets taken apart. He will need to collect batteries scattered throughout the lab to stay alive and as well as key cards to progress to the next level and hopefully escape.

We intend to have multiple levels for the lab that progressively get harder, for example, more enemies and harder enemies. We envisioned dynamic and animated backgrounds for our laboratory setting. Think moving conveyor belts, beeping machines and bubbling chemical vials. Rather than having a health bar, he will have an energy bar which depletes slowly as the game progresses, and he will need to collect batteries to keep himself charged up and moving. To move on to the next level, the player needs to collect the key card, which he will use to open the door and escape to the next level. As far as graphical design goes, we will use original pixel art that we draw ourselves that follows a cute and simple style.

We will include some art by our team to help visualize our ideas:



Battery Power Up



Our Main Character

## **2. Use cases**

### **Use case: Start game**

Primary actor: Player

Goal in context: To start playing the game

Precondition: Game must be installed on machine and open on menu

Trigger: Player decides to start the game

Scenario:

1. Player opens the game on a computer.
2. Player clicks "start" button.
3. System displays the window and all the initial objects are displayed
4. Time starts and all objects start moving and the player can move the main character.

Exceptions: None

Priority: Top priority, basic functionality

When Available: At the beginning of opening the game

### **Use case: Lose game**

Primary actor: Player

Goal in context: To lose the game

Precondition: Player must be playing game

Trigger: Main character dies or time runs out

Scenario 1:

1. Player is playing the game
2. Main character collides with punishment
3. Health Main character goes to zero
4. Pop up dialog letting player know they lost game

Scenario 2:

1. Player is playing the game
2. Remaining time runs out
3. Pop up dialog telling player time is up and they lost the game

Exceptions: Player exits the game during playing

Priority: Top priority, basic functionality

When Available: At the end of the game

### **Use case: Win game**

Primary actor: Player

Goal in context: To win the game

Precondition: Player must be playing game and has not lost (positive remaining time and health)

Trigger: Player decides to reach the goal in the game

Scenario:

1. Player is playing the game
2. Main character hits the goal when the time has not been up and the health is positive
3. Pop up dialog telling they won the game

Exceptions: Player exits the game during playing

Priority: Top priority, basic functionality

When Available: At the end of the game

**Use case : Pause game**

Primary actor: Player

Goal in context: Pause game

Precondition: Player must be playing game and has not lost (positive remaining time and health)

Trigger: Player decides to pose the game

Scenario:

1. Player is playing the game
2. Player clicks pause button
3. Time paused, main window and objects paused

Exceptions: Player exits game during playing

Priority: Semi-Top priority, added functionality

When Available: After game has started, throughout the game play duration

**Use case : Exit game after playing**

Primary actor: Player

Goal in context: To exit the game

Precondition: Player must be done playing a session and has not lost the game (positive remaining time and health)

Trigger: The player decides to exit game

Scenario:

1. Player is playing the game
2. Player wins/loses the game and the session is done
3. Display pop up dialog asking player to play again or exit
4. Player clicks "exit" and the app closes

Exceptions: Player exits the game during playing

Priority: Semi-Top priority, added functionality

When Available: After game has ended

**Use case : Exiting the game during playing**

Primary actor: Player

Goal in context: To exit the game during a session

Precondition: Player must be playing a session and has not won or lost the game

Trigger: Player decides to exit the game when playing the game

Scenario:

1. Player is playing the game
2. Player clicks "exit" button
3. Display pop up dialog asking player if they want to exit while playing
4. Player clicks "exit" and the app closes

Exceptions: Player exits the game before start playing

Priority: Semi-Top priority, added functionality

When Available: After game has started, throughout the game play duration

### **Use case : Move Main Character**

Primary actor: Player

Goal in context: To move the main character

Precondition: Player has started game and map is initialized and ready for user input

Trigger: Player presses controls

Scenario:

1. Player is playing the game
2. Player clicks specified control keys to move character
3. Game reads user input
4. Game sets x and y coordinate for position
5. Game updates Main character position

Exceptions: Player clicks other keys not being used to move Main character

Priority: Top priority, basic functionality

When Available: After game has started, throughout the game play duration

### **3. User interface Mockup**

Here is our user interface mockup.



## 4. UML Class Diagram

