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Course: COMP 3609, Game Programming

Game Name: Cindy's Adventures.

## Introduction

This final report outlines the game concept, the implementation details, the classes created, the object-oriented model, and the sources of images, sound clips, and code used in the development. This report also highlights the features of the game and provides information on how it functions.

## Game Concept

The game is a horizontal scrolling along with vertical scrolling platformer game. The player controls the character Cindy, who must avoid obstacles and collect cat treats. The game progresses through multiple levels with different objectives. The player must manage their character's movements, avoid collisions with enemies like Fiddle, and items used to damage the player. The player must also collect as many cat treats as possible to score points. This is incredibly useful because in level 3, you must survive for 20 seconds. When Menmon fires, it decreases your score. If your score reaches 0, you lose. The game's ultimate objective is to progress through all levels while managing lives and avoiding failure.

## Gameplay

- **Character Control:** The player controls Cindy using keyboard
  - Left - move left
  - Right- move right
  - Up - jump (only in level 1)
  - Down - go straight down (only in level 3)
- **Levels:** The game consists of multiple levels. Each level has unique challenges, such as obstacles and enemies.

**Level 1:** Cindy is chased by Fiddle across a horizontally scrolling world while collecting cat treats. She can't let fiddle catch her. Jumping slows her down, she will have to jump to catch the cat treats. Jump, then press right button. The two will not work simultaneously. Cat treats can be avoided to preserve speed and escape fiddle, but maximizing treats for level 3 is optimal.

**Level 2:** Cindy must dodge cannonballs fired by **Dimjack** while collecting scattered treats. She must avoid the cannonballs and also move left and right

**Level 3:** A vertical scrolling escape where Cindy evades beams fired by the wizard Menmon. She can use down, left and right Until she reaches the end. Avoid beams so that your score does not decrease to zero.

- **Lives:** The player starts with 3 lives. If Cindy collides with an enemy like Fiddle, or a cannon ball then one life is lost. The game ends when all lives are lost or score == 0 in level 3.
- **Cat Treats:** The player collects cat treats scattered across the screen for extra points. Each treat is worth 2 points.

- **Enemies:** The enemy **Fiddle** chases **Cindy** during the gameplay, and if they collide, the player loses a life. Dimjack fires cannonballs at Cindy, she loses a life if they hit her. In level 3, Menmon chases Cindy and she must avoid his beams so her score does not reach 0.
- **Background Music and Sound Effects:**
  1. Music for level 1 and level2
  2. Music for level 3
  3. Cannonball hit noise,
  4. Beam hit noise.
  5. Cat treat collection noise.

### 3. Classes Implemented

Class Name	Description
<b>GamePanel</b>	Manages the main game loop, rendering, input handling, and level transitions.
<b>Cindy</b>	Represents the player character with movement, jumping, and collision logic.
<b>Fiddle</b>	An enemy that chases Cindy in Level 1.

<b>Dimjack</b>	A boss who fires cannonballs at Cindy in Level 2.
<b>Menmon</b>	A wizard enemy who fires beams in Level 3.
<b>CatTreat</b>	Collectible objects that increase the player's score.
<b>Beam</b>	Projectiles fired by Menmon.
<b>Cannonball</b>	Projectiles fired by Dimjack.
<b>Level1, Level2, Level3</b>	Define specific behaviors, backgrounds, treat spawning, and enemy setups for each level.
<b>Background</b>	Handles scrolling background rendering and transitions.
<b>SoundManager</b>	Handles background music and sound effects during gameplay.

## Animation

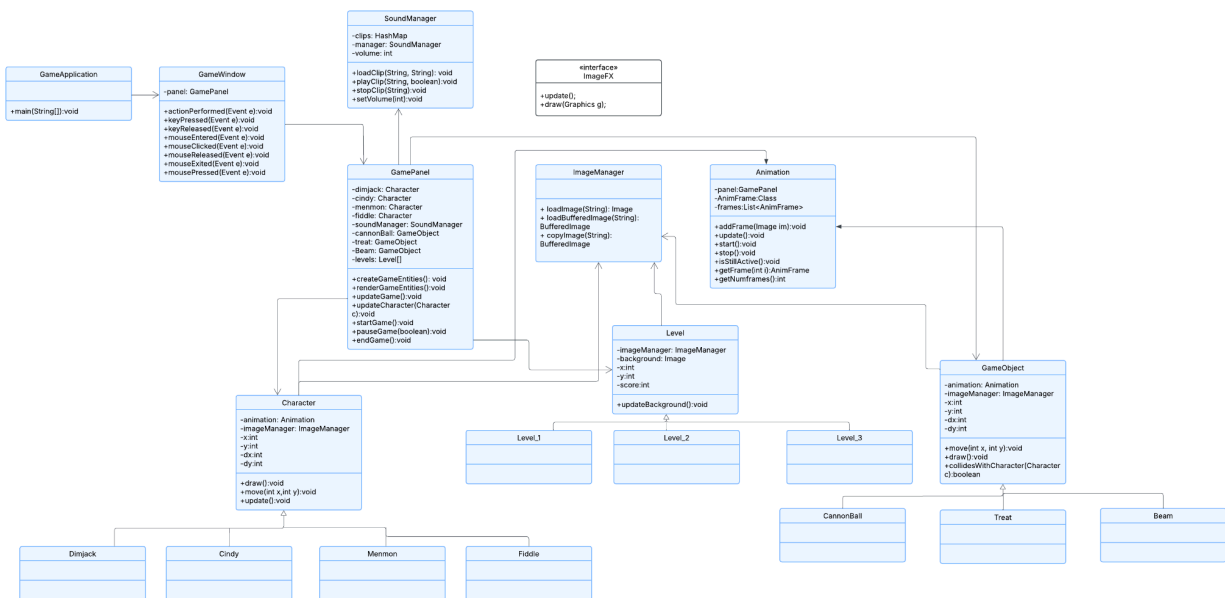
Manages character animations by cycling through images.

## ImageManager

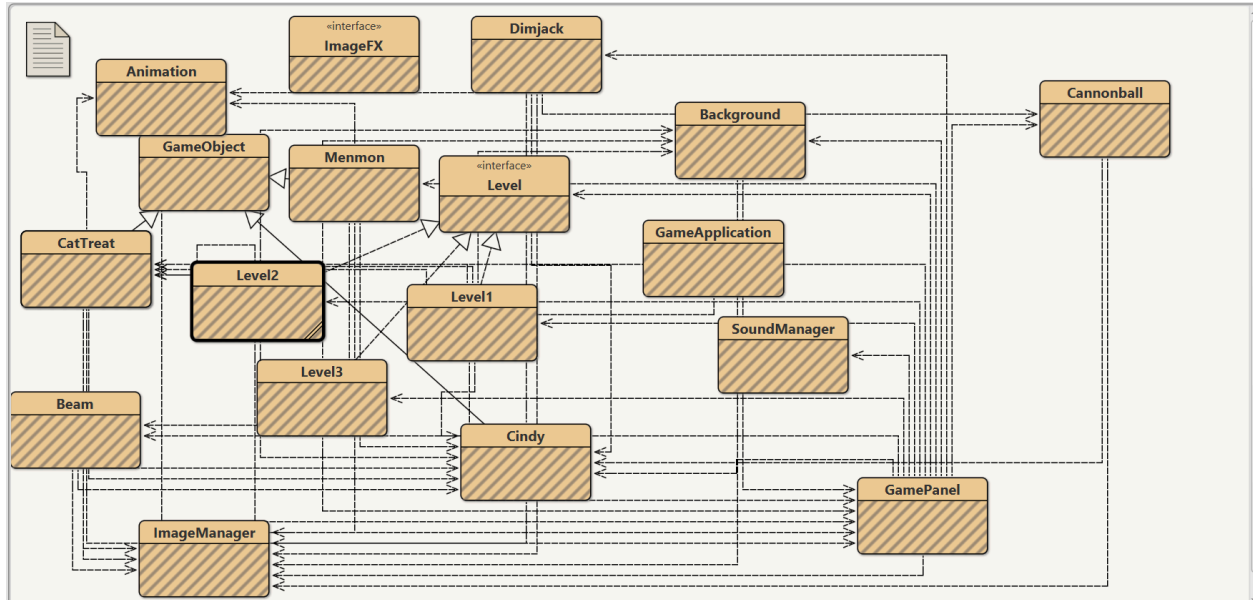
Loads and caches images for use throughout the game.

## 4.2 Class Diagram

Initial class Diagram:



BlueJ rep:



## 5. Sources of Media

The following sources were used for images and sound clips:

- **Images:**

**All scenes before levels were hand drawn or made on <https://canva.com>**

- Cindy: Hand Drawn
- Fiddle: Hand Drawn
- Menmon: Hand Drawn
- Dimjack: Hand Drawn
- **Backgrounds:** [images/level1\\_bg1.png](#) and [images/level1\\_bg2.png](#) (Background images for level 1).



<https://craftpix.com>

- **Cat Treats:** <images/cattreats.png> (Image for collectible cat treats).

google images

- **Hearts:** <images/heart.png> (Image for displaying lives).

google images

- **Sound Clips:**

All clips sourced from <https://pixabay.com>

## 6. Testing

During the testing phase, the game was extensively played to identify and fix bugs. Key areas tested include:

**Collision Detection:** Ensuring that Cindy, Fiddle and cannon balls collide correctly, and lives are decremented.

**Level Progression:** Verifying that levels transition correctly when conditions are met.

**Score and Lives:** Confirming that the player's score increases with the collection of treats and that lives decrease upon collision.

**Game Restart:** Ensuring that when lives reach zero, the game restarts.

**Video link:**

[https://drive.google.com/drive/folders/1VpoESRDSSATX9-snLt9Mt4UrmcNbsrOk?usp=drive link](https://drive.google.com/drive/folders/1VpoESRDSSATX9-snLt9Mt4UrmcNbsrOk?usp=drive_link)