Game Design & Programming I

CMPT 414 / MSCS 565 – Fall 2023

Game #3 – Variation on Thomas Was Late – 100 points

Goals

To develop C++/SFML game programming skills by creating a side-scrolling platformer.

Preparation

You must already have a Git repository named *{YourLastname}-work*. In Visual Studio, add to your existing *GameProg1* solution a new C++ *Empty Project*. This project will house the *Thomas Was Late* clone that you will create and customize as described below.

Requirements

Follow along in Chapters 14 through 18 of our textbook to build a game in the style of *Thomas Was Alone*. Build and distinguish your version from the base game as described below. Your customizations must include three (3) prescribed changes together with four out of six (4 of 6) discretionary changes listed below.

★ *Configuration, Correctness, & Style* **20pts**
  ◦ Project organization and settings.
  ◦ Project resides in the same solution as your other games.
  ◦ Program does not fail to compile or run due to improper config.
  ◦ Program must not fail to compile or run due to syntax or logic errors.
  ◦ Program compiles and runs without error.
  ◦ Program demonstrates consistent, readable coding style and follows best practices for C++ including, but is not limited to, indentation/spacing; naming of variables/functions/classes; architecture/organization; use of STL features.

★ *Prescribed Change #1 - Refactoring* **20pts**
  ◦ Refactor the code to make effective use of the *observer* and *state* design patterns.

★ *Discretionary Change #1 – New tile type* **10pts**
  ◦ Add a new tile type that can be placed in the levels. Choose one of the following:
    ▪ *Ice* – upon hitting the tile a player keeps sliding and cannot move in the other direction (but can still jump).
    ▪ *Rubber* – falling/jumping onto a rubber tile bounces the player higher than they can normally jump.
    ▪ *Sand* – movement is slowed since the sand disperses the player's energy.
    ▪ *Glass* – if these tiles "break" then they are "removed" from the level.

★ *Discretionary Change #2 – New character option* **10pts**
  ◦ Add a new playable character to the game and give this character a special ability complementary to your new tile (e.g., break glass, grips on ice, etc.).
  ◦ Vary the two characters that play each level. For example, maybe Thomas and Bob play level one, but Thomas and "Sara" play level two, etc.

★ *Prescribed Change #2 – New level designs* **20pts**
  ◦ File format must support your new tiles as well as a start location for the level.
  ◦ Redesign the four existing levels to make them more interesting/challenging, make use of your new tiles, and complement a specific pair of characters.

★ *Discretionary Change – Your choice of <u>one</u> the options below.*   **20pts**

    a) **New Shader** – add new shader effects for the hazard tiles (water, fire, *new*).

    b) **Narrator** – add narration audio clips that are triggered at specific moments in the game. <u>Tip</u>: Consider how you can encode the trigger points into your levels!

    c) **Original Idea!** – come up with your own idea and clear it with your instructor!

Advice

You should break up your work over multiple days and commits. Your commit history should show your process, not just the final product. Push any local work to your remote GitHub repository regularly. Don't forget to write short but meaningful messages for every commit. (<u>Tip</u>: Consider using wording from these instructions as your commit messages.)

Test, test, test... and test again. Then test some more. When you think you've tested enough, go back and test yet again. Then get someone else to test for you while you test theirs. Etc.

Submitting

You must <u>push</u> your changes to GitHub before the due date.

<u>Note</u>: Pushing regularly will reduce the risk of losing your work, so do not wait until after you have made all changes and commits before pushing.