

## Assignment 4 Code review: Tanvir Shergill and Jordan Ko

### Mechanics Package

1. paintComponents() within Game.java was too long.

A solution was to Create individual functions to be called to paint each component (ie. interactables, bonus interactable, player, enemy, and background). *Commit ID: 8f75ec1 Apr 9, 2025.*

2. generateBarrier() within Map.java had conditional variables whose parameter was long and duplicative.

To fix this, I used a functional interface Predicate<Cell> to generalize the condition for checking neighbouring tiles. Furthermore, the checks surrounding the special tiles were put as one return statement utilizing the Predicate<Cell> interface. *Commit ID: 41b2125 & dc7c0f6 on Apr 9, 2025.*

### GameObjects.Interactables Package

3. The interactables classes had one too many layers of abstraction originally.

The removal of unnecessary classes such as Rewards and Punishment cleaned up the code base and led to less confusion and function calls. *Commit ID: 0c9d3df on Mar 27, 2025.*

### UI Package

4. PauseMenu and MainMenu called the method initializeUI() to set up the button and JPanel layout for these menus. Both methods had duplicated code.

The solution was to extract this method to its higher class; Menu. Now both can call the same method, with string parameters for naming the buttons and menu titles. *Commit id: 660b12a on March 27, 2025.*

5. The initializeUI() method in the Menu class was too long.

The solution was to separate the panel layout into its own method called `layoutUIComponents()`. Which was called within `initializeUI()`, resulting in cleaner code. Commit id: 92bf99b on April 8, 2025.

6. PlayerHUD contained the timer for our game. The timer was declared and implemented inside of this class. This block of code made the PlayerHUD class large, poorly structured and caused data clumps.

The solution was to refactor the timer out of PlayerHUD to make a new Time class. Then an object of this new Time class was instantiated in PlayerHUD. Commit id: 1ac3cfa on March 25, 2025.

7. PlayerHUD contained a data clump. All dimensions required for formatting the PlayerHUD including text colour, JPanel dimensions, Button colours and other relevant dimensions were grouped.

The solution was to extract these clumps into a new class called PlayerHUDDimensions which was then instantiated in the PlayerHUD. Commit id: 3fa8ee3 on April 8, 2025.

8. GameOverMenu class had similar code with Menu regarding button creation.

The solution was to refactor the button production by calling `initBtns` from the Menu to set up the button used in GameOverMenu. This also required a slight refactoring of the `initBtns` to allow for just one parameter, as GameOverMenu only required one button. Commit id: *f65aad9* on April 8, 2025.

9. There were unnecessary if statements in PlayerHUD, GameOverMenu, PauseMenu, and MainMenu. It was never possible for these statements to be false as they would check for a null controller. If these methods were ever called the controller was already declared and could not be null.

The solution was to remove these unnecessary if statements. These changes were committed on March 28, 2025.