

In this assignment, The main focus was on refactoring classes in level, userInterface, gameStates package.

1 - Duplicated codes in level1, level2, and level3 constructors:

- Type of code smell : code duplication
- Commit: 97aef2b0 (commit SHA:97aef2b093b0547335113862cb383b5147880d97)

Calling addPlayer method was duplicated in constructors of Level 1, Level 2 and Level 3 classes. All Level 1, Level 2 and Level 3 are child classes of abstract Level class.

- Solution to code smell: Calling addPlayer method was moved to super class, Level class, constructor in order to fix code duplication.

2 - Duplicated methods in level1,level2 and level3 classes:

- Type of code smell : code duplication - confusing class hierarchy
- Commit: 6f2e75b3 (commit SHA:6f2e75b37e43485a3dbcce7b7d6ef482b1e65b29)

setLevelData is an abstract method in Level abstract class. This method was implemented in Level1,Level2 and Level3 classes which are extending Level class. setLevelData is responsible for preparing map sprites required for each level of the game. However the issue with this method was that it was almost duplicated in all Level1,Level2 and Level3 classes and the only difference was setLevelData were loading a different asset in different classes.

- Solution to code smell: Implementation of setLevelData were moved to abstract Level classes instead, and overridden setLevelData methods in child classes were removed. Also, setLevelData gets an integer as level number to solve loading different assets when it's called by different levels.

3 - Unused Static constant variables in AssetLoader:

- Type of code smell : unused or useless variables
- Commit: adecfc72 (commit SHA:adecfc7249e9a61196f4eb3a76ed951f38a841f0)

There were unused Static constant strings in the AssetLoader class, holding file names of assets such as sprite images which are not used in the final version.

- Solution to code smell: Unused static strings holding names of unused asset files were removed from AssetLoader class.

4 - Duplicated LoadFont method in user Interfaces classes:

- Type of code smell : code duplication - confusing class hierarchy
- Commit: 08548053 (commit SHA:085480533bd7803559b056abd04a53e1c5d8d2be)

LoadFont method is responsible for importing a custom font in order to be used to write text on game different menus. The LoadFont method was duplicated in classes such as UiDeathScreen (class responsible for death menu after player loses) and UiFinnishedGameMenu (class responsible for menu after player wins).

- Solution to code smell: Since both UiFinnishedGameMenu and UiDeathScreen are extending UiMenu class, LoadFont method was moved up to UiMenu classes instead and removed from UiFinnishedGameMenu and UiDeathScreen.

5 - Unused method in MainMenuState class:

- Type of code smell : Unused/dead code
- Commit: 73490bc4 (commit SHA:73490bc49088724d6ed2a28b33cf6eaa39ac0f20)

renderLoadingGameName method in MainMenuState class was responsible for rendering the name of the game in the main menu window, however this method was never called or used in the project.

- Solution to code smell: Since renderLoadingGameName was never used in the game, it was removed from MainMenuState class.

6 - Ambiguous overridden Update method in classes extending State class :

- Type of code smell : confusing class hierarchy - poorly structured code
- Commit: 73490bc4 (commit SHA:73490bc49088724d6ed2a28b33cf6eaa39ac0f20)

Update method was an abstract method in State class. InLevelState, MainMenuState, LevelSelectionState classes had to override update method since these classes are extending State class. However, MainMenuState and LevelSelectionState classes were not using update method and they only had empty update method due to confusing class hierarchy.

- Solution to code smell: Since only InLevelState were using update method out of all classes extending State class, update method was removed from super class, ie State class and child classes that were not using update method.

7 - Unused variables in MainMenuState class:

- Type of code smell : Unused or useless variables
- Commit: 73490bc4 (commit SHA:73490bc49088724d6ed2a28b33cf6eaa39ac0f20)

In MainMenuState class, there were three unused int variables: loadingIndex, loadingSpeed, loadingTick. They were intended to be used for the renderLoadingGameName method.

Since, renderLoadingGameName was never used in the project, these variables were left unused in the project.

- Solution to code smell: loadingIndex, loadingSpeed, loadingTick variables were removed from MainMenuState class.

8 - Dead code in UiMenu class:

- Type of code smell : Unused or dead code
- Commit: 7a3a01e9 (commit SHA:7a3a01e91f4feb1da3248e7055aeb7c5bcc5d6fc)

In the UiMenu class, there was an unused method, renderButtons, which was never called in the project.

- Solution to code smell: renderButtons method was removed from the UiMenu class.

9 - Unused variables in GraphicGrid and Game class:

- Type of code smell : Unused or useless variables
- Commit: 8537eeff (commit SHA:8537eeffa42b71637d5917d8c070d26c52bbcb1f)

In GraphicsGrid class unused variable graphicsPanel and in Game class unused variable graphicsGrid.

- Solution to code smell: In the GraphicsGrid class, removed unused variable GraphicsPanel from both the class as well as from the GraphicsGrid constructor parameters. In the Game class, replaced the old GraphicsGrid constructor with three parameters with the new constructor and removed the unused GraphicGrid graphicGrid variable.