OBJECT-ORIENTED PROGRAMMING

Final Project Report

Lecturer: Jude Joseph Lamug Martinez D4017

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Andrew Tanuwijaya

Class L2BC

2602158216

Faculty of Computing and Media

Computer Science

Binus International University

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Table of Contents

1. Project Specification

1.1. The Objective

Sometimes, despite our modern entertainment, many people of today would still get bored often. This is simply because our minds are set to consume and complete tasks given to us. We often wander this world, going through many different experiences and emotions, to find out what our true purpose in life is. For those who have found it, they live their lives peacefully, and content. For those who have not, maybe they simply have not realized it, and will continue roaming on. While it may be subjective, sometimes, we can accept that this “meaning” may not exist, and only exists within everyone’s mind. That is a truth that many can accept.

With that in mind, there is a rather entertaining game called Honkai: Star Rail. This is a game that, at the time of writing, recently came out. It can be described as a turn-based action-adventure game that allows you to go through the story and play different mini-games. Additionally, the same developers worked on another open-world role-playing game that released in 2020, called Genshin Impact. This game is meant to be a fan-game, using characters from Genshin Impact to fight a boss from Honkai: Star Rail.

1.2 Concept and Usage

Simple is truly the best. When the user launches the application, they will be able to see the “Disclaimer”, or just directly “Start” the game. This, in turn, leads the user to the character selection menu, where they can simply “click” on the character they want to use, and start the game.

Enemy actions and any other detail will appear in the log of the game, which the user can see. This allows them to see their skill duration, enemy movement, and any detail that could assist them in their strategy. As an object-oriented project, the characters have a parent file, and respective child files.

2. Solution Design

2.1 The UML Diagram

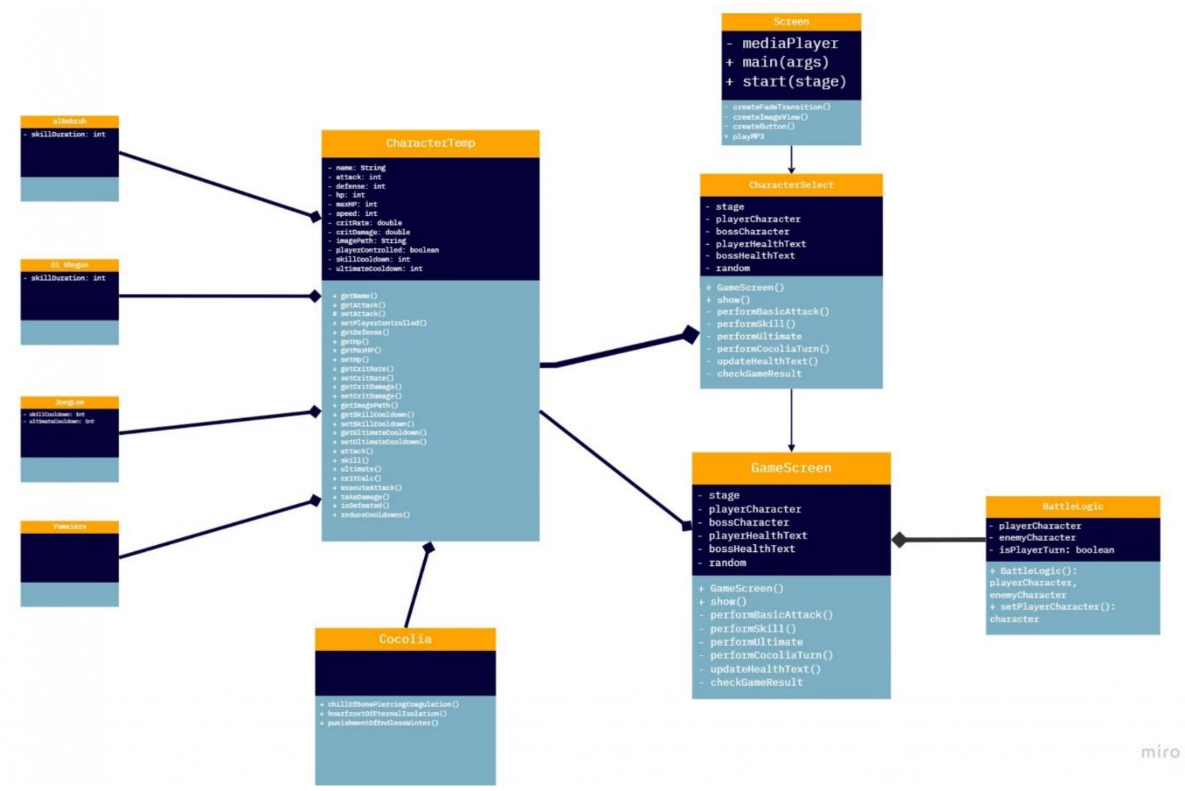


Fig 2.1: UML Diagram

2.2 Implementation of the code

As the code has different parts, it will be introduced by its functions, as that is the subjectively simplest way to approach this category.

a.) [Screen.java], [CharacterSelect.java], [GameScreen.java]

These control the screens, or what the player can see. The first file that would go into effect is Screen.java. It initializes the stage and sets up the first screen. A new “scene” is created, and the mp3 file is played.

Transitions play to inform the player of disclaimers and the title screen. They then can press the Disclaimer button, which brings them to the disclaimer for the game.

The CharacterSelect.java file is called when the player clicks play. Four images from the resources file are retrieved, and the size of the images set. Each character button is created, configured, and set so that the game begins when the character is chosen. A final function closes the scene, the character is passed on, and the next file starts.

GameScreen.java essentially starts the game. It is the screen that players interact with to properly play the game. An instance of the enemy character, “Cocolia”, is initialized, and the background along with her. The menu music stops playing, and the battle song begins.

The buttons for player actions are initialized, and connected to the respective player’s class so that the correct skills are inputted into the algorithm for the system to make the correct calculations to subtract health, boost attack, heal, and so on. Different HBoxes and VBoxes are also initialized to store the buttons in the right place, as a clean UI is an important factor in the player having fun with the game.

The GameScreen.java file has a couple methods. One being show(), which, as one would expect, shows the stage for the player to see. The three actions the player takes are performBasicAttack(), performSkill(), and performUltimate(), which allows the player to do as each method suggests. The game is moved along by performCocoliaTurn(), which checks the game first to see if anyone’s HP is dropped to 0. Then, a random attack is chosen for Cocolia to do. The HP text is updated, and the HP of each character is checked once more to see if any change is necessary. The cooldowns of the player’s characters are reduced, and this is how the game will run.

BattleLogic.java is a class just to initialize the characters into the game, ensuring that it runs well enough.

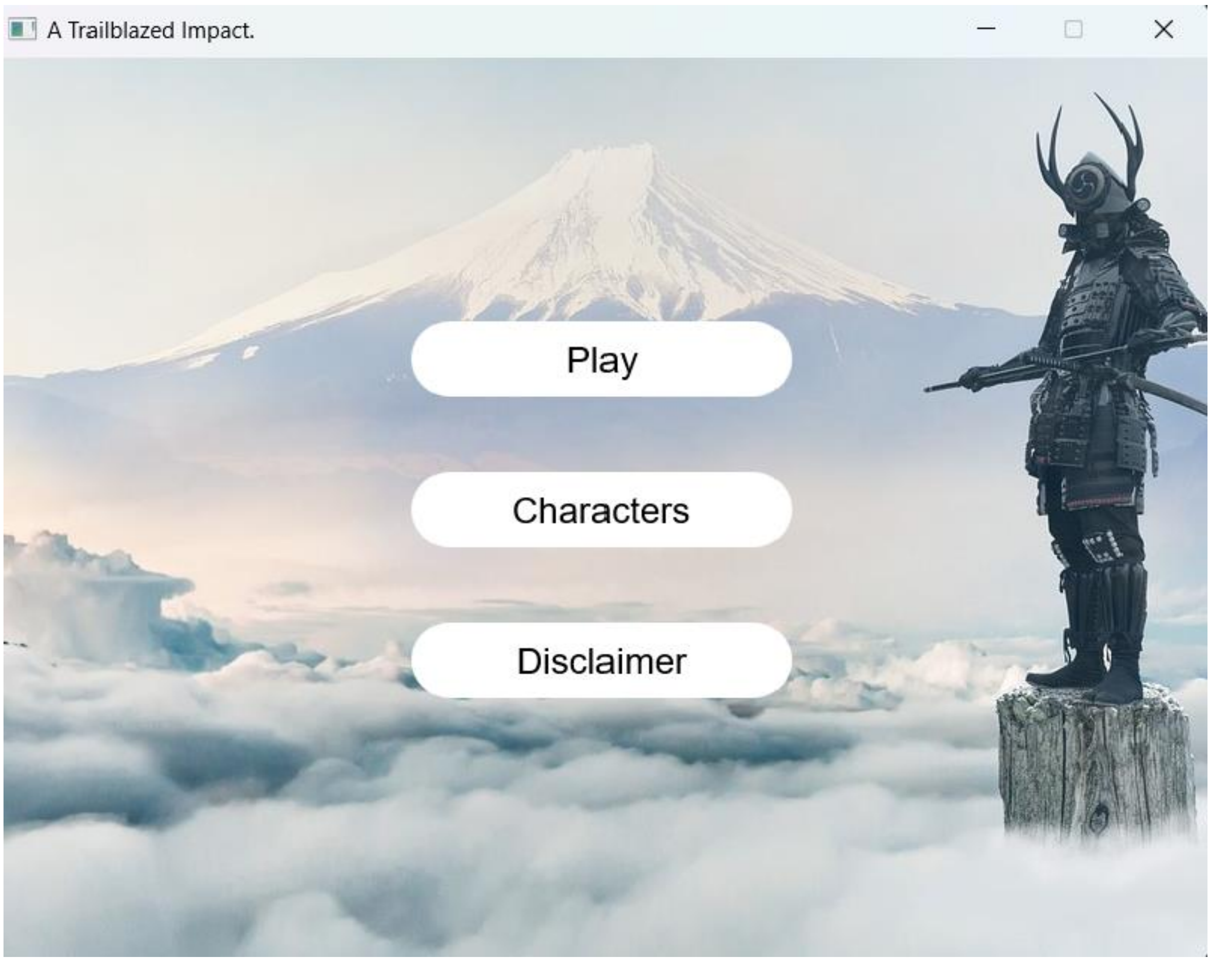
Lastly is the CharacterTemp.java, which would simply be the character templates. This includes a placeholder for a character’s base HP, attack, defence, critical rate, critical damage, cooldowns, and skills. This also attaches an image to the character for the CharacterSelect class to use as their icons. The skill and ultimate methods are just to make sure they are not on cooldown before use, and to set a cooldown if it is used.

The more important functions would be critCalc(), which determines whether a character does a critical calculation or not. It returns a Boolean value. The executeAttack() method takes the base damage of a character, the critical multiplier, and the previously inputted Boolean value of whether a character does a critical hit or not. If it does, it prints an extra statement, alongside do critical damage, of course. The takeDamage() method simply reduces the character's health and sets it.

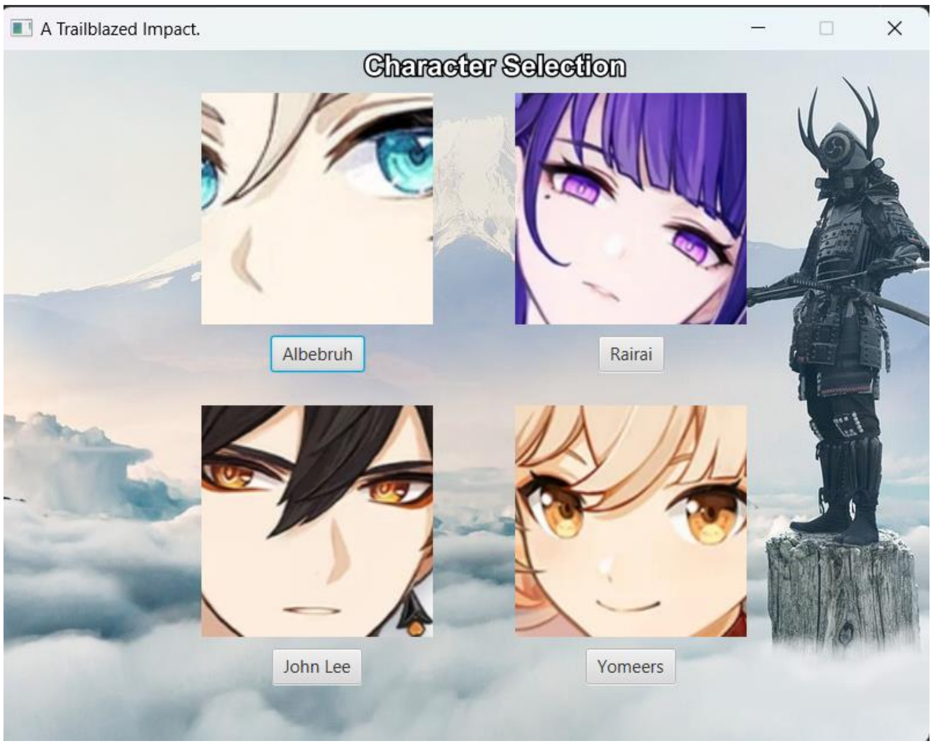
Lastly, each character class differentiates by their skills and ultimate abilities. Increasing their attack, healing, or dealing damage, they are all specified within their own respective classes.

3. Showcase

3.1 Menu Screen

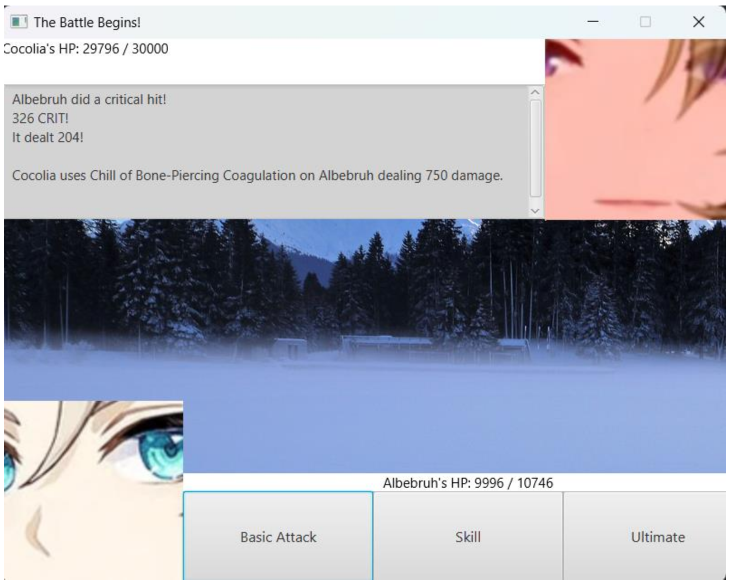


3.2 Selection Screen



3.3 Character Battle Screens

3.3.1 Albedo



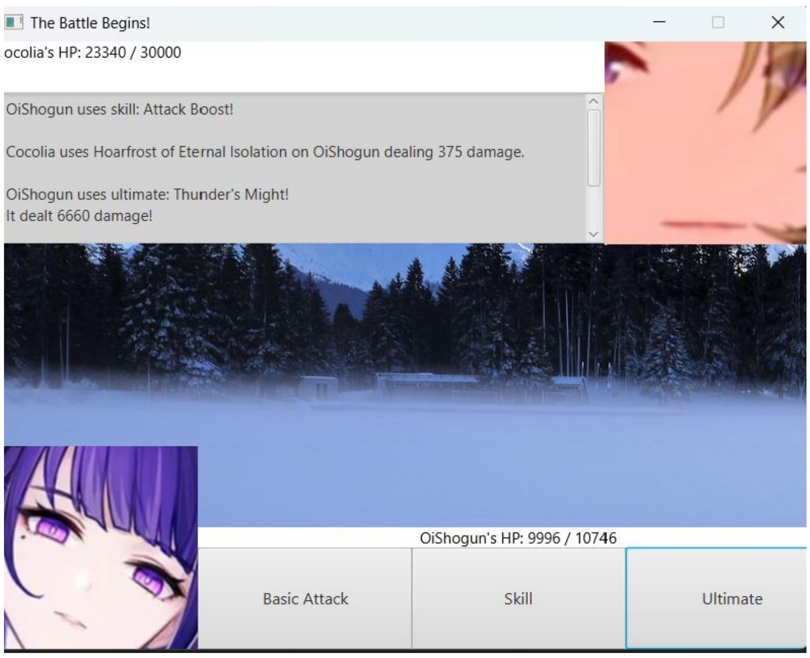
Cocolia's HP: 29796 / 30000

```
Albebruh did a critical hit!
326 CRIT!
It dealt 204!

Cocolia uses Chill of Bone-Piercing Coagulation on Albebruh dealing 750 damage.
```

Albebruh's HP: 9996 / 10746

3.3.2 Raiden



ocolia's HP: 23340 / 30000

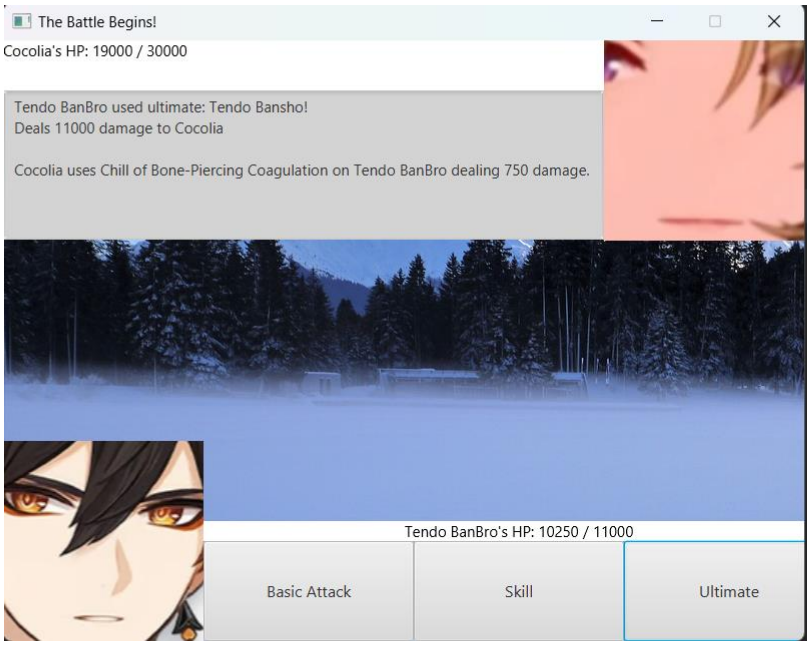
```
OiShogun uses skill: Attack Boost!

Cocolia uses Hoarfrost of Eternal Isolation on OiShogun dealing 375 damage.

OiShogun uses ultimate: Thunder's Might!
It dealt 6660 damage!
```

OiShogun's HP: 9996 / 10746

3.3.3 Zhong Li



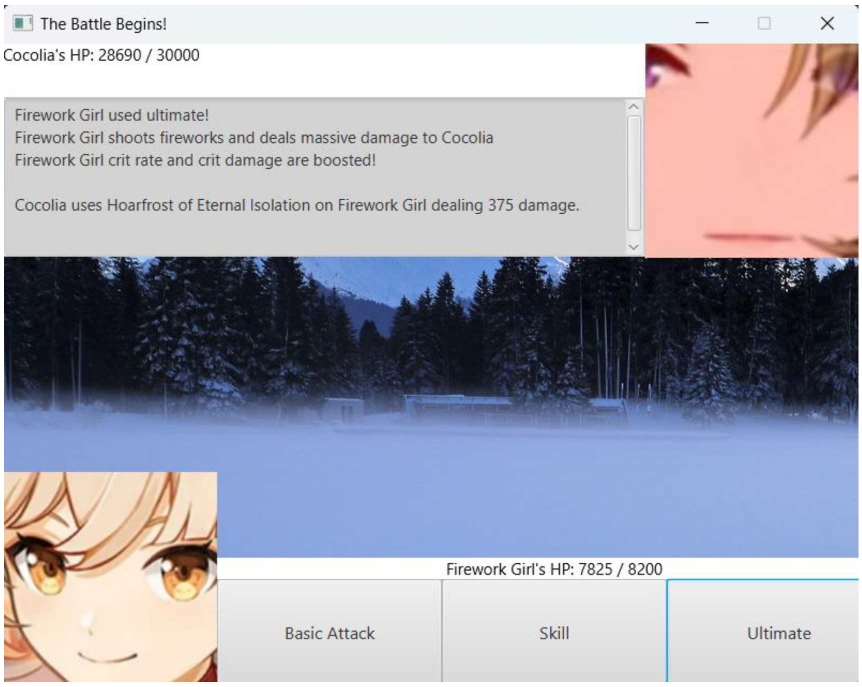
Cocolia's HP: 19000 / 30000

```
Tendo BanBro used ultimate: Tendo Bansho!
Deals 11000 damage to Cocolia

Cocolia uses Chill of Bone-Piercing Coagulation on Tendo BanBro dealing 750 damage.
```

Tendo BanBro's HP: 10250 / 11000

3.3.4 Yoimiya



Cocolia's HP: 28690 / 30000

Firework Girl used ultimate!
Firework Girl shoots fireworks and deals massive damage to Cocolia
Firework Girl crit rate and crit damage are boosted!

Cocolia uses Hoarfrost of Eternal Isolation on Firework Girl dealing 375 damage.

Firework Girl's HP: 7825 / 8200

4. Resources

The resources can be found in the resource folder in the source files, though for formality's sake, it will be listed here:

Battle BGM Credits:
Song: Tunetank - Valiant Warriors of our Lands (No Copyright Music)
Music provided by Tunetank.
Free Download: https://bit.ly/3pRmGF8
Video Link: https://www.youtube.com/watch?v=MGIt04kMV_g

albebruh.png: https://genshin-impact.fandom.com/wiki/Albedo
rairai.png: https://genshin-impact.fandom.com/wiki/Raiden_Shogun
john.png: https://genshin-impact.fandom.com/wiki/Zhongli
yomeer.png: https://genshin-impact.fandom.com/wiki/Yoimiya
cocowia.png: https://honkai-star-rail.fandom.com/wiki/Cocolia

DISCLAIMER

This is a fan-made battle game simulation based on the games.
'Honkai: Star Rail' and 'Genshin Impact'. This simulation will forever be free, and under no circumstances will it require any form of monetary payment to play.

I am not affiliated with Mihoyo or Hoyoverse in any way, shape, or form. The quality of the game does not reflect the quality of Mihoyo or Hoyoverse's original works and will never compare to the experience of the original games.

Support the original creators by playing the original games, HONKAI: STAR RAIL and GENSHIN IMPACT through legal means.

Game Links:

Genshin Impact: genshin.hoyoverse.com
Honkai Star Rail: hsr.hoyoverse.com