Design document for SpaceFighters

1. Introduction

This is a game in which you will control a spaceship to fight against the monsters. The game comprises of 2 different levels, easy and medium. Apart from this, there will be an instruction page to tell you the features of each monster in the game.

1. How to use

When you start the program, the main menu will be displayed. On the page, there are 3 options for you to choose: one is to play the easy mode, one for the medium mode and last one will direct you to the instruction page. When the instruction page is clicked, a window will print out all the descriptions of the monster as well as their image in the game. In this instruction page, you only have one option which is to go back to the main menu. When the easy or medium page is clicked, you will be directed to the game page when you control the spaceship. Use the left right up and down button on your keyboard to control the spaceship and use space to shoot bullets.

You will encounter the chickens first, and then the planet, the star, the black hole and finally the galaxy. Each monster has its unique feature. If you lose the game, (get the HP down to 0 or get hit by the monster), you will go back to the main menu. And if you win, you will be directed to a victory page that will have 2 options for you to choose: play the medium mode or go back to the main menu.

1. Program description

The main function will call the GameManager object which is a singleton class. The currentPage property of the class will be MainMenu at first but will change to EasyGame, MediumGame or InstructionPage depends on which buttons you press. The EasyGame and the MediumGame will initialize its variables not directly but through another object initialize\_page, which itself uses the factory to create the items, the monsters and the spaceship. initialize\_page, this object is used to reduce the code duplication in the game page.

The Spaceship will know about its bullet, its image and know how to draw itself, how to move when player controls it and how to shoot bullet. It also can draw its HP.

The Monster will have its inventory where it can store any type of GameObject inside it, and the Inventory will take the responsibilities for all of its member including drawing and check dead status.

The item (heart and bomb) will know how to draw itself and its effect on the entities (either the player or the monster).

Note that all the GameObject described above cannot know about the collision with other GameObjects. It is managed in a different object called CollisionHandler.

The game allows you to turn to the instruction page again to read all the instructions and come back to where you were. To be able to do this, a saving manager is used to store all the game objects to a txt file and later on read it and “restart” all the game again but with updated entities variables.

There is an integer in the GamePage that will tell whether you have won the game. Whenever a monster dies and another is created, this integer will increase itself by 1. And when it reaches 5 and the galaxy monster is killed, the Boolean endgame will be true and you will be directed to the VictoryPage. In the VictoryPage there are 2 buttons that you can click on. One allows you to play the medium game page, the other will drive you to the main menu again.