Coursework2 Report

‘*’ marks important features in my project.

Gitlab Notation

Because during the development, I create local child branches for different versions and merge them to the local master branch then push to the remote master branch, there is only one remote master branch online. In order that maintainers can check the assignment more conveniently, I create remote child branches corresponding to all the local child branches in the final days. The local merge and commit commands are also visible online that you can check.

More Pages

In addition to the game page, more pages are added to the project. A start page is initially showed for player to turn to setup page or choose the game mode to play. The setup page allows player to choose color of game board and walls. After choosing game mode the game starts with corresponding mode. After the game is finished, a high score page will show up showing the score and lifes in descending order of score. Player can close the page to restart playing with the same game mode. The high scores are not kept during different program runs but are kept during different replays.

Basic Functions & Additional Functions

Basic functions of setting images for ghosts and the pacman, building portals for them to teleport are achieved. More functions are achieved as the list:

1. When the pacman is moving towards one direction, direction of its image will be changed accordingly.
2. A ghost barrier is now generated filling the gap of the middle house for the pacman to pass as a door but not ghosts. Now the pacman is spawned in the middle house, the safe zone.
3. * A super cookie that can boost the pacman is spawned randomly (cool) on the board replacing a normal cookie.
4. * In infinite mode there are infinite levels to challenge. After the pacman clearing all the cookies, a level entry will appear on the right bottom corner of the board. The pacman needs to approach it to enter next level. In the next level, speed of ghosts will slightly increase but will not exceed the boosted speed of a pacman for fairness. The super cookie is randomly generated in each level and at the start of the level, speed of the pacman is rolled back.
5. The game now allows player to choose to play an infinite game or normal game and level of infinite mode is displayed.

Refactor & Design Patterns

The project now follows the MVC pattern, classes are divided into three packages. The model package only contains classes of models and game logics. The controller class only contains classes to interact with .fxml files in view package and update changes of the model to the view. To pass messages between model and controller, Observer pattern is adopted for the observed GameModel class to notify GameController class to change the view when certain events happens. Singleton pattern is adopted to the GameModel class because it is the only instance of the game board.

Now the pacman and ghosts are all actors in the game. Factory pattern is adopted and a factory class is create to produce instance of actors, which can make the structure of the project more modular.

See details in readme.md and Javadoc.