Plants Vs Zombies

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Design

We have incorporated various design patterns in our javafx based Plants Vs Zombies game including:

- Adapter design pattern is inclusive in the communication and interaction between the backend logic and the GUI of the game, controller functions help to communicate between the two.
- State Design pattern: The state of the game elements(Screen , backyard , zombie etc.) keep changing their behaviour in different situations.
- Factory Design pattern: Whenever a plant is dragged or a pea is shooted, or a zombie is created , an object creation mechanism takes place that develops new objects for each type
- Observer: There are many components in the game that are dependent on the state of other objects and their behaviour, for eg. the scoreboard that depends on how many zombies are being killed and other states of the backyard.

Implementation

We have implemented our game using javafx for communication with the GUI elements. Here's a brief runthrough.

- Main screen is started. 3 option buttons are provided for loading game, starting new , choosing level.
- As the user chooses the button an event handler is called for the respective button and the control is transferred to the next required screen.
- Saving is achieved through serialization of the PlantsVsZombies class object. Which is loaded into a file.
- Image view, labels, text boxes, Grid panes etc. are used to implement gui units in the game
- Sound effects are added
- 5 Different Levels are implemented with increasing difficulty.
- 4 different types of plant classes and three different zombies have been implemented.

Individual Efforts

Asmit Kumar Singh
- Deadline 1 : Constructing and partially designing Uml class diagram
- Deadline 2: Implementing lawn screen,scoreboard, level screen.
- Deadline 3: logging in and adding user, implementing levels, adding gui elements

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- Deadline 1: partially designing UML and constructing and designing Use case diagram.

- Deadline 2:Implementing animations in lawn screen, start game , end game,pause menu screens

- Deadline 3:Implementing the main logic, collisions, dragging, movement and saving the game, adding gui elements