Plants Vs Zombies

CSE201: Advanced Programming

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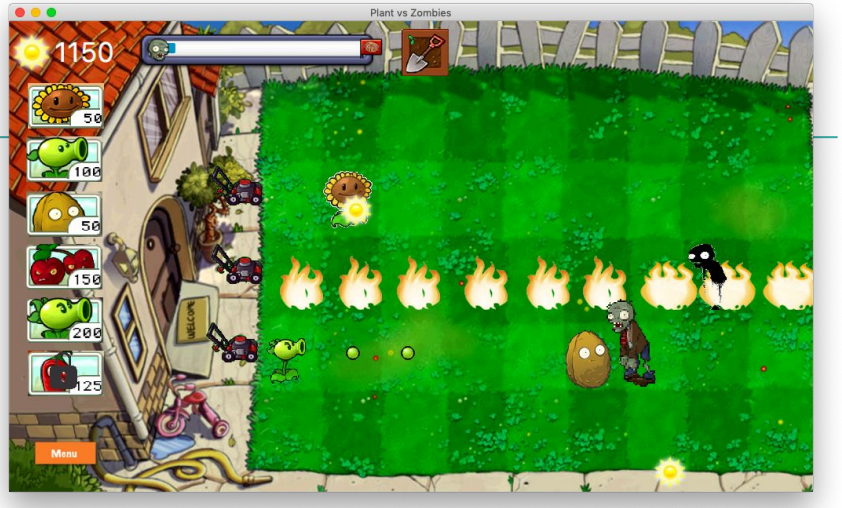
Implementation and features

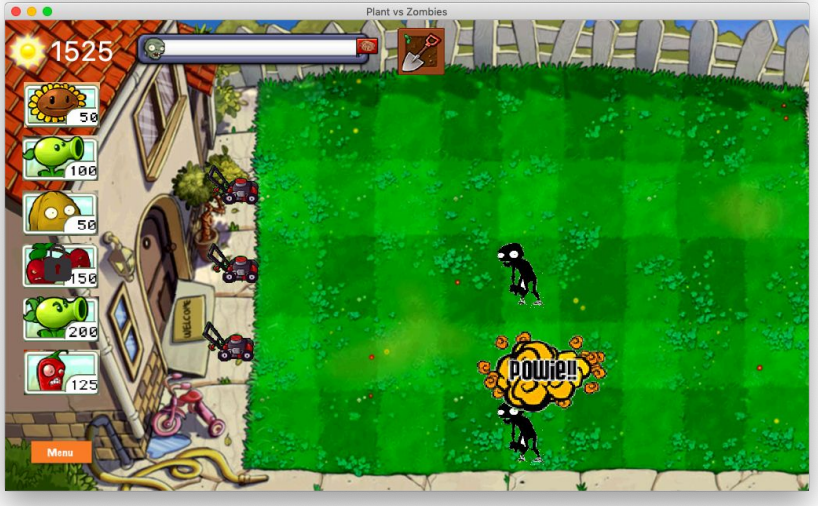
1. Navigation is happening using the FXML files
2. Load Game menu is used to load the states of the level. Everytime a user saves a new game, his game state is given an id, which is displayed as Game[i] along with the level on which the game was saved. Delete all progress removes all the saved states from the game.
3. Level Menu: is used for starting a new game from the unlocked levels. User cannot play a new level if he has not won the old levels at least once.
4. Exit game saves all the progress and exit games
5. In game menu: The options are available to save the game, restart the game a exit to main menu.
6. Levels become harder as the user progresses through the game. The cone and bucket zombies start appearing in subsequent levels, their frequency also increases.
7. Different menus on winning and losing a game. Winning tells the user about the new plant unlock and losing menu gives the message “Zombies ate your brains”
8. After placing a plant, a plant is locked for sometime

Design

Design Patterns:
1. Singleton: We do not want more than one instance of Database for the entire game and shovel for a particular level. Classes Database and Shovel
2. Iterator - To ensure that accessing the lists happens in a synchronized way. PlantIterator, ZombieIterator and, MowerIterator
3. Facade for menu based implementation

UI: Using Adobe Illustrator
Images source: Fandom
Threading: All the animations are done using animation timers, each of which is an individual thread in JVM. Wait times are set using explicit threading





Individual Contributions

Bhavya

1. FXML: Game play and load game
2. Interactions: (between zombies and plants, zombies and lawn mowers, pea and zombie, fire and zombie)
3. Animations: Zombie walking, LawnMower moving, pea moving
4. Enabling and stopping animations
5. Progress bar
6. Random zombies appearing in lanes
7. UML: Use Case diagram
8. Added background music

Sonali

1. FXML: Game ended, Level Menu, Main Page
2. GUI: All the buttons and backgrounds
3. Interactions: User placing plant on the lawn
3. Sidebar: Plant card selections
4. Shovel: Removing plant from lawn
5. Jalapeno burning, Cherry bomb blasting
6. Serialization Deserialization
7. UML: Class Diagram
8. Initializing classes and their attributes
9. Presentation
10. Almanac

Bonus Features

1. Shovel: Remove plants from lawn using shovel
2. Delete all the progress and start the game again from level 1
3. Added background music
4. 3 classes of zombies Cone zombie, bucket zombie and normal zombie.
5. It is possible to restart the game from the game menu
6. Almanac