
PLANTS vs ZOMBIES
Garden Version 11.0

IMPLEMENTATION & DESIGN

- This is a tower-protection based game where each Zombie advances towards the house and is killed by plants inserted by the user on the garden layout.

- With increasing level of difficulty, the number of Zombie waves increase and so does the attacking power and variety of Plants. Sun tokens are used as currencies to buy and position each plant on the lawn.

- The GUI components are created using SceneBuilder and each fxml file thus generated is assigned a Controller.java file which controls all its action.

- The code implements Observer and Prototype design patterns.
  Observer : Each plant is notified whenever a Zombie present in its lane is killed or reaches the tile where plant is present. The user object is notified whenever a new plant is inserted in the layout or when sun tokens are collected.
  Prototype : The program makes use of Design Pattern to create clones of Zombies during waves and clones of Plants whenever they are bought from the Plant Menu.

- The program implements OOPs concepts of data encapsulation and modularity. Each type of plant - PeaShooter, Rock, etc. - inherits an abstract Plant class which contains the common features and functions of each plant. Similarly, each type of Zombie has a common abstract parent - Zombie.

- The Load Game/Save Game functions are implemented by serialising User object which contains a unique Garden Layout and its saved state for all different users.

Game State : Level 2

INDIVIDUAL EFFORTS

- Garvita Jain
  1. UML Diagram
  2. Added animations in static GUI
  3. Implemented classes to ensure modularity
  4. Added User Login Info
  5. Implemented Load Game/ Save Game functions
  6. Debugging
  7. Contributed in overall planning of the code structure

- Larika Seghal
  1. Use Case Diagram
  2. Static GUI Components
  3. Added functionality in various classes
  4. Implemented Garden Layout structures
  5. Implemented updation in various properties of characters (Plants, Zombies, Sun Tokens)
  6. Debugging
  7. Contributed in overall planning of the code structure

BONUS FEATURE

- A special type of level in which the zombies do not move in a single lane. Instead they keep changing lanes and positions, thus making it difficult for the user to decide where the plants should be positioned.

- This extra game is of a shorter duration and excites the user with its pace and uniqueness.