

# Design and Implementation

The implementation is as follow:-

- We created different controller classes for all the fxml files, for more independent approach.
- A timeline for animation created in each instance of sprites(Character) for better multithreading.
- Multiple user by using wrapper class over the game class.
- Dynamically allocating controller for more dynamic program.
- One Parent class for all the characters and zombies, plants and lawn mover inheriting them for more generic programming.
- Storing the essential information when serialising the class, so that it consumes less space and works faster.

# Design and Implementation

- We Strictly adhered to the OOP Concepts taught.
- We used data encapsulation, data abstraction and inheritance, polymorphism and many Design patterns.
- In Design Pattern, we used factory with to create instance of character, state instance for changing behaviour.
- Template design patterns for particular order of algorithm.
- Multithreading by using different timeline for different animations.
- Exception Handling for more flawless design.
- Decorator with Character class to add functionality to the Timeline and image view.

# Individual efforts

Both of us had put equal effort in making the game. We did our best to create a flawless game as possible in the given amount of time.

## Manan

- Serialisation.
- Collision b/w plant and zombies
- User Flow.
- Level Difficulty algorithm.
- Inter Classes Interaction
- Level Choosing and plants in different levels

## Sandeep

- Interaction of lawn Movers and zombies
- Sun counting methodology
- Collision b/w pea and zombies
- Drag-Drop Utility.
- Inter Classes interaction
- InGame Menu
- Game Ending

# Bonus Component

We tried to implement as much as we can other than the basic requirement.

- Almanac: A guide for the user about all the plants and zombies, their abilities and a funny little description.
- Sound: Playing the original music from the nostalgic game to give a similar feel about the game.
- Overview: Giving a overview about what the game is about.
- Help: A help from our dear zombies
- Support for multiple users: Create many ids on the game and play. All ids are mutually exclusive from each other, and work independently.
- An enhanced and simple UI for the user
- An easy to use Drag and Drop utility.