

# Plants vs Zombies

Prepared By: Gaurav Khurana and Anjali Sharma (Team: 126)

# DESIGN & IMPLEMENTATION

- > The project has 21 classes which includes all the static components, event handlers and UI creators.
- > Concepts of OOD like inheritance, abstract classes, encapsulation and polymorphism has been used.
- > For each and every screens we have different classes.
- > Used TimerTask which updates the positions of all the static components every 1 millisecond.
- > JavaFX components used:- StackPane, Button, Text, Label, Group, ProgressBar, FileChooser, Event, BorderPane, Stage, Image, ImageView, and Scene.
- > Event Handlers created:- Drag, DragOver and Drop for planting the plants and MouseClick for collecting sun currency.
- > Animations: Shooters shooting, Zombies Moving, LawnMower moving, sun currency dropping in and buttons.

# DESIGN & IMPLEMENTATION

- > We need to run the MainMenu class to run this game. From there if we click start game button, it will redirect you to create profile screen which creates a player object with your name and level (=1) and pass it on to the yard class which will set up the lawn and instantiate the Gameplay class which is responsible for running the fight.
- > If from main menu you click on Load Game you will have to choose your save game file. The program will read the player's object from the file and will pass it to the yard class which will set up the lawn and start the gameplay.
- > For saving the game we serialise the player class which has attributes name,level,list of plants,list of zombies and a list of mowers.
- > Plant class is made abstract because each type of plant has its own move. Same is the case with Zombie class.
- > Yard class has a Group instance variable which is shared with all the static components (plants,zombies,lawnmowers,pea,sun and snowpea). These components will add their respective stackpanes containing their respective images to this Group type object and we will be able to see them in the lawn UI.
- > The plant cards are stackpanes. Drag and Drop events are created which helps us to drag the plant seeds from the sidebar and plant it on our lawn. Sun currency generated by the sunflowers are stackpanes too and mouseclick event is created which helps us to collect them.

# INDIVIDUAL CONTRIBUTION

## **Gaurav(2018142)**

> Prepared the GUI (screens), Event Handlers(Drag and Drop, MouseClick) and Gameplay class.

## **Anjali(2018380)**

> Prepared the static components of the game (Plants, Zombies, Player, Sun, Pea, Snow Pea, LawnMowers)

# BONUS CONTENT

- > In Level 1 you need to defend only the middle lane of the lawn. After clearing Level 1, two more lanes will be unlocked and after clear Level 3 you're supposed to defend the entire lawn.
- > After clearing level 4 you'll get another shooter plant i.e Freeze Pea Shooter which will not only inflict damage on the zombies but will also slow them down.
- > Designed Buttons using CSS.
- > Never used JavaFX Scene builder. :P