
PLANTS VS. ZOMBIES
PRESENTATION PROJECT
LAB OOP GR1 – L2
--
CHICKEN TEAM
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# MEMBER


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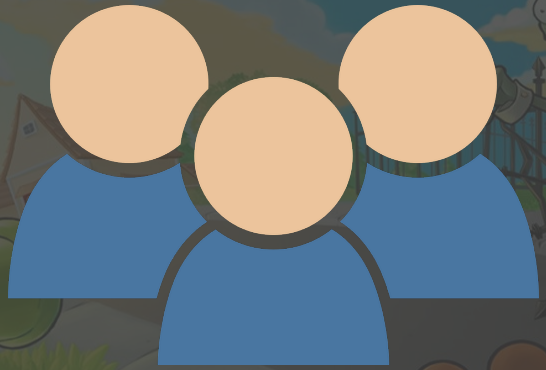

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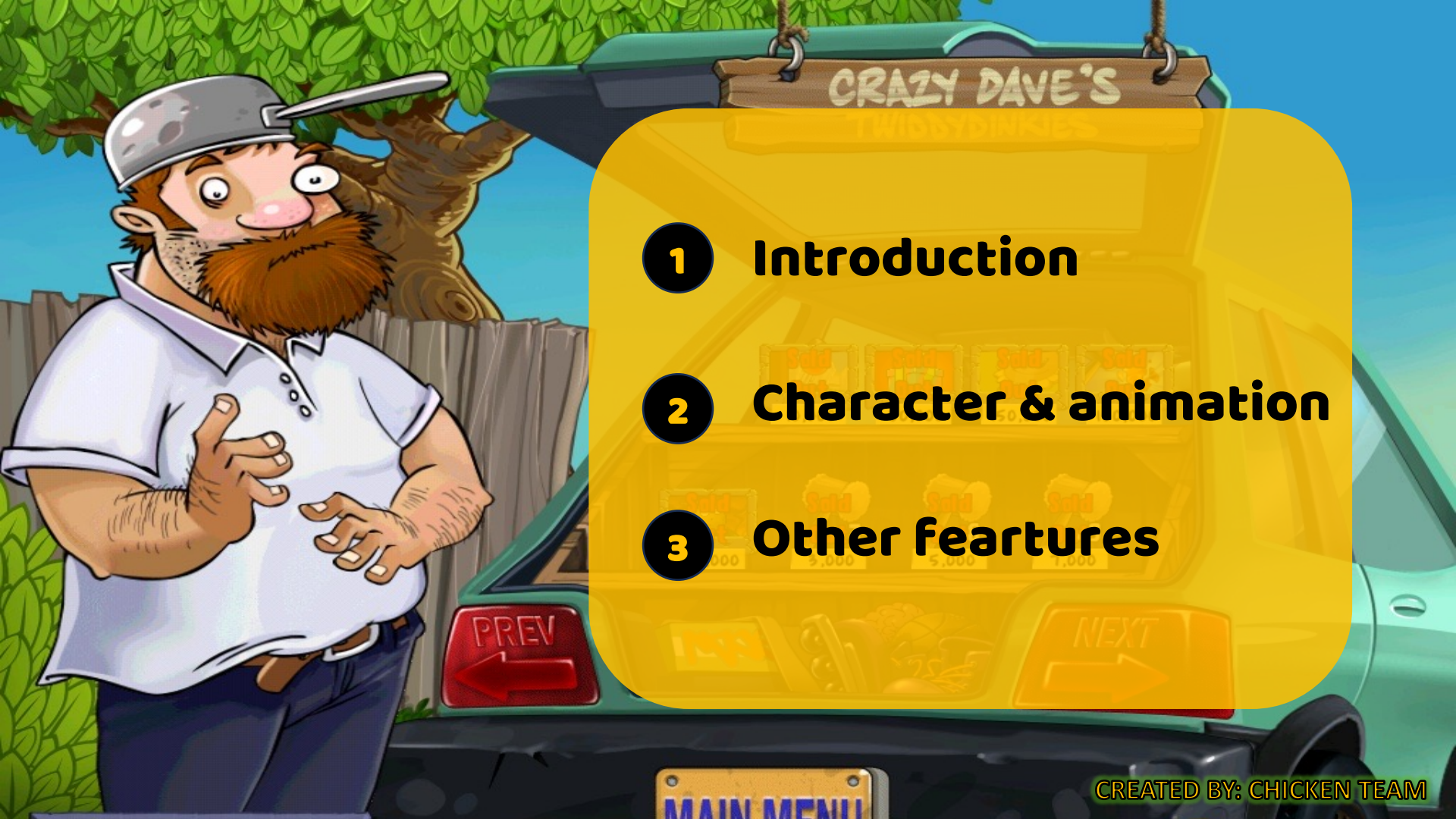


1. Introduction
2. Character & animation
3. Other feartures

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# Introduction

## Plants vs Zombies

The farmer faces a zombie epidemic that is invading his family. The farmer will join the plants with special abilities to kill the zombies.

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# Introduction

## Game rule

The player controls the plants with special skills into the squares on the lawn to kill the zombies

Each type of zombie will have a different amount of health

Victory: when killing all zombies of the level
Defeat: zombies pass through the yard and enter the house

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# Menu screen


Start new game

Save player name

Features coming out in the future

Exit game quickly

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# Menu screen


Jlabel

Jtextfiel

Jlabel

Jlabel

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# Menu screen


## Code

```
JLabel lblNewLabel = new JLabel("Graph");
textField_1 = new JTextField();
textField_1.setFont(new Font("Times New Roman", Font.PLAIN, 11));
textField_1.setBounds(59, 52, 231, 25);
lblNewLabel.setBounds(0, 0, 776, 531);
lblNewLabel.setIcon(new ImageIcon("lib/image/Captureoldmode.png"));
panel.add(lblNewLabel);
```

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# Game Background

**Code**

```
public void setBackGround(Graphics g) {
    backGround = new ImageIcon("lib/image/GameBackground.png").getImage();
    g.drawImage(backGround, 0, 0, null);
}
```

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# Plant

## Pea Shooter

Attack on zombie: 15 HP
Cool Down: 1 second
Effect by attack: - 0.01s

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# Plant

## Freeze Pea

Attack on zombie: 25 HP
Cool Down: 0.5 second
Effect by attack: - 0.1s

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# Plant

## Code

```
public static float getStartCoolDown(int plantType) {
    switch (plantType) {
        case sunFlower:
            return 0f;
        case peaShooter:
            return 100f;
        case freezePea:
            return 50f;
    }
    return 0;
}

public static float getAffectOnZombie(int plantType) {
    switch (plantType) {
        case sunFlower:
            return 0f;
        case peaShooter:
            return 10f;
        case freezePea:
            return 100f;
    }
    return 0;
}
```

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# Plant

## Code

```
public static float getStartRange(int plantType) {
    switch (plantType) {
        case sunFlower:
            return 0f;
        case peaShooter:
            return 1000f;
        case freezePea:
            return 1000f;
    }
    return 0;
}
```

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# Plant

## Code

```
public void attack(Plant plant, Zombie zombie) {
    if (zombie.getAlive()) {
        if (plant.isCoolDownOver()) {
            if (checkX(plant, zombie) && checkY(plant, zombie)) {
                gamePanel.shootZombie(plant, zombie);
                zombie.setHealth((int) (zombie.getHealth() - plant.getDmg()));
                int affectZombieSpeed = (int)
                model.Helper.Constant.Plants.getAffectOnZombie(plant.getPlantType());
                zombie.setSpeed(zombie.getSpeed() - affectZombieSpeed);
                System.out.println(zombie.getHealth());
                zombie.checkAlive();
                plant.resetCoolDown();
            }
        }
    }
}
```

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## Zombie

### Normal zombie

Health: 150 HP
Speed: 4

## Zombie

### Cone zombie

Health: 250 HP
Speed: 3

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# Zombie

## Boss zombie

Health: 300 HP
Speed: 2

**Code**

```
public static float getSpeed(int zombieType) {
    switch (zombieType) {
        case normalZombie:
            return -0.25f;
        case coneZombie:
            return -0.2f;
        case finalZombie:
            return -0.3f;
        case bossZombie:
            return -0.14f;
    }
    return 0;
}
```

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# Zombie

## Code

```
public static int getStartHealth(int zombieType) {
    switch (zombieType) {
        case normalZombie:
            return 150;
        case coneZombie:
            return 250;
        case finalZombie:
            return 300;
        case bossZombie:
            return 300;
    }
    return 0;
}
```

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# Code

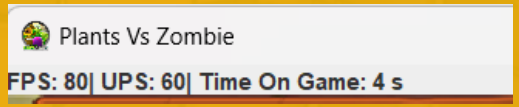
```
while (true) {

    now = System.nanoTime();
    countTime = System.currentTimeMillis();
    // Render
    if (now - lastTimeFPS >= timePerFrame) {
        frame++;
        lastTimeFPS = System.nanoTime();
        repaint();
    }
    // Update
    if (now - lastTimeUPS >= timePerUpdate) {
        updateGame++;
        updateGame();
        lastTimeUPS = System.nanoTime();
    }
    // FPS Counter & UPS Counter
    if (System.currentTimeMillis() - lastTimeCheck >= 1000) {
        String rs = "FPS: " + frame + "| UPS: " + updateGame + "| Time On Game: "
                + (int) (countTime - startTime) / 1000 + " s";
        jLabel.setText(rs);
        updateGame = reset;
        frame = reset;
        lastTimeCheck = System.currentTimeMillis();
    }
}
}
```

FPS counter

UPS counter

## Other features




Show the value of FPS
UPS and playing time

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## Code

```
public void update() {
    int zombieKilled = 0;
    int numZombie = this.zombies.size();
    for (Zombie zombie : zombies) {
        if (zombie.getAlive()) {
            zombie.move(getSpeed(zombie.getZombieType()), y:0f);
            this.exit(zombie);
        }
        if (!zombie.getAlive()) {
            zombieKilled++;
        }
        if (zombieKilled == numZombie) {
            this.winGame();
        }
    }
}
```

## Other features


Effect and rules to end the game when killing all zombies

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## Code

```
public void exit(Zombie zombie) {
    if (zombie.getX() <= 0) {
        this.gameOver = new GameOver();
        gamePanel.getGame().setVisible(false);
        gamePanel.getGame().getGameTheard().interrupt();
    }
}
```

## Other features


Effect and rules to end the game when zombies enter the house

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## Code

```java
public void initButtons() {
    int xButtonPause = 880;
    int yButtonPause = y-20;
    int widthButtonPause = 100;
    int heightButtonPause = 100;
    buttonsPause = new MyButton(text:"", xButtonPause, yButtonPause, widthButtonPause, heightButtonPause);
    plantButtons = new MyButton[3];
    int x = 10;
    int y = 10;
    int addOn = 10;
    int step = ((int) 1.9f * w) + addOn;

    for (int i = 0; i < plantButtons.length; i++) {
        plantButtons[i] = new MyButton(text:"", x + (step * i), y, w, h);
    }
}

public void draw(Graphics g) {
    drawButton(g);
    drawDisplayPlant(g);
    drawPauseGame(g);

}
```

## Other features

Pause game button


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## Code

```java
public void musicBackground(){
    String filePath="lib/sound/Grasswalk.wav";
    try {
        File file = new File(filePath);
        if(file.exists()){
            AudioInputStream ais = AudioSystem.getAudioInputStream(file);
            Clip clip = AudioSystem.getClip();
            clip.open(ais);
            clip.start();
        }
    } catch (Exception e) {
    }

}
```

## Other Features

Background Music

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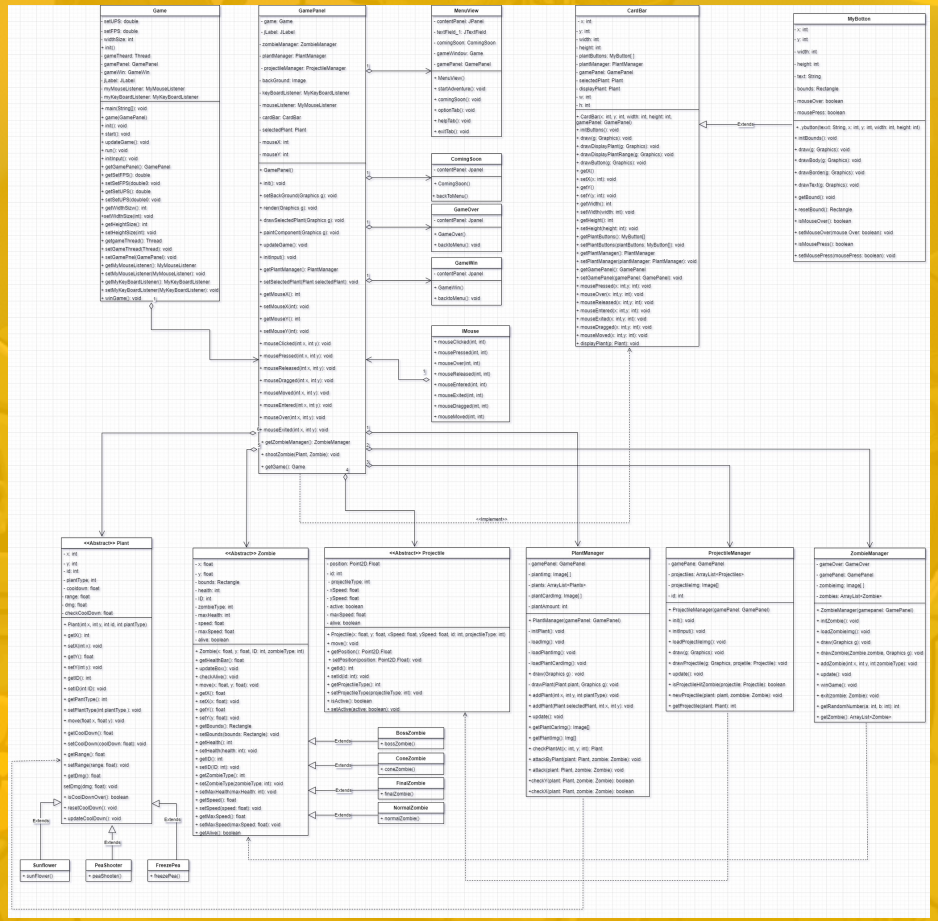
# UML DIAGRAM

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