

This document outlines the design and development plan for a simplified Plants vs Zombies prototype built using Flutter and the Flame engine.

The goal is to demonstrate core game-programming concepts such as grid systems, entity behaviors, collisions, and state management, within a small and achievable scope. The plan provides a structured, time-based breakdown of the development phases required to build the project.

# Plants vs Zombies Simplified Version

Game Design & Development Plan

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# Plants vs Zombies

## Game Concept

This game is a **simplified 2D version of Plants vs Zombies**, built using the **Flutter + Flame engine**.

The player places plants on a small grid on the **left side**, and zombies spawn from the **right side** and walk toward the player.

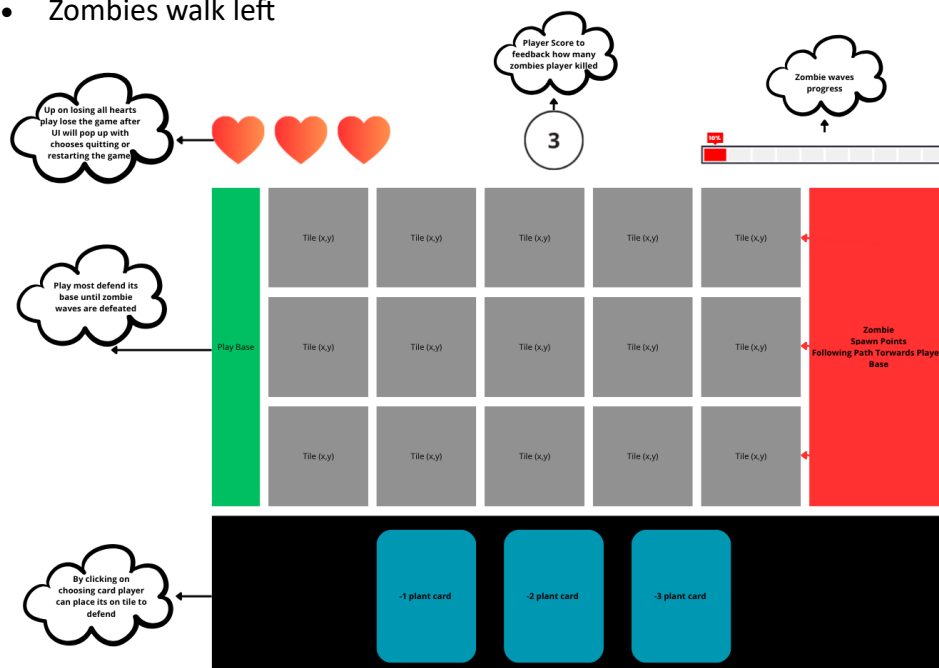
The goal is to defeat zombies before they reach the player's base.

The game focuses on core mechanics only:

- small 3×5 grid
- simple plant that shoots
- simple zombie walking
- basic collision & health
- no advanced menus, simple animations in this version

The photo is also added in git hub documentation file where you can also find GDD and TDD info to view it more clearly here is a small conceptual map:

- Left side Plant placement tiles
- Right side zombie entry
- Plants shoot horizontally towards right side at zombie
- Zombies walk left



## Milestones / Development Phases with Time Estimates

### Phase 1: Project Setup 1 hour

- Install Flutter & Flame
- Create project structure
- Setup Git & GitHub repository
- Add Flame test object (moving box)

### Phase 2: Grid System & Level Layout 3 hours

- Create the lawn grid
- Render tiles
- Add coordinates for placing plants
- Handle click/tap detection

### Phase 3: Plants System 4 hours

- Create base Plant class
- Add basic shooter plant
- Bullet component
- Shooting intervals
- Damage system

### Phase 4: Zombies System 4 hours

- Base zombie class
- Spawn logic
- Movement to the left
- Health & damage
- Death animation or simple removal

### **Phase 5: Game Manager & Balancing 2 hours**

- Wave system (simple: spawn every X seconds)
- Game win/lose detection
- Basic UI: score, restart button

### **Phase 6: Polish & Cleanup 1 hour**

- Code style improved using Effective Dart style
- Folder structure cleanup
- Comments + documentation
- Push to GitHub

**That was my plan for this assessment I hope you like it :)**