### Milestone 3 Required Features

**Splash Screen**

* There is a splash screen when the game starts (requires reopening the project).
* The splash screen contains buttons for: Start Game, Load Game, Tutorial, and Exit.
* Clicking "Start Game" begins a new game session.
* Clicking "Tutorial" takes the player to the tutorial map.
* Clicking "Exit" closes the game.

**UI Display**

* The FPS counter is visible on screen and updates in real-time.
* The current enemy count is displayed and updates correctly.
* The current plant count is displayed and updates correctly.
* The inventory displays the correct seed count.
* The seed count updates when the player gains or uses seeds.

**Map**

* The map layout is logical and playable.
* Different terrain types (farmland, scorched earth, etc.) are clearly distinguishable.
* All map elements render correctly.

**Enemy Variety**

* There are multiple types of enemies with visually distinct appearances.
* Each enemy type has different health values that affect damage resistance.
* Each enemy type moves at a different speed.
* Each enemy type has a different attack pattern or damage value.
* All enemy types animate and behave correctly.

**Game Optimization**

* The game maintains a higher frame rate compared to previous versions.
* Frame rate remains stable during gameplay with multiple enemies.
* Frame rate remains stable with particle effects active.
* No visual artifacts or rendering issues appear due to optimization.

### Milestone 3 Creative Features

**Story Elements**

* A background story is displayed when the game starts.
* A cutscene plays when the player's first planted seed matures.
* A cutscene plays when the player reaches their first level up.
* All cutscenes can be exited or skipped.
* Cutscenes do not cause game crashes or freezes.

**Save/Load System**

* Pressing "=" saves the current game state.
* Pressing "-" loads the last saved game state.
* The "Load Game" button on the splash screen works correctly.
* Loading a saved game restores: player position, health, experience, level, seed count, enemy positions, and plant positions.
* The save function is disabled during cutscenes.
* The save function is disabled when the chicken is summoned.
* Save files persist between game sessions.

**Particle System**

* Blood particles appear when the player hits enemies.
* Growth particles appear when seeds mature into plants.
* Level-up particles appear when the player gains a level.
* Particles render at an acceptable frame rate.
* Particles do not cause game crashes or freezes.
* Particle effects work with both custom textures and default shapes.

### Tutorial

**Map**

* There is a tutorial map.
* Player will enter the tutorial map first when they start the game
* There are 4 instruction boards and 2 tutorial enemies in the map
* When player finished all tutorial, player can start playing by pressing “R”
* Player can enter tutorial map by pressing “T”

### Render

**Map**

* There is a map.
* There is scorched earth on the border.
* There is farmland in the centre of the map.

**Camera**

* The camera remains centered on the player.
* The camera does not move outside the map boundaries.

**UI**

* There is the player's health bar. It updates when the player’s health changes.
* There is the player’s experience bar. It updates when the player’s experience changes (kills an enemy).
* The FPS is displayed on the window and updates in real-time.
* The player's level is displayed on the window and updates correctly.
* The player's seed count is displayed on the window and updates correctly.
* The player's inventory contains a seed only if the seed count is greater than zero.

**Score**

* The number of zombies killed appears in the console.

**Player**

* The player has:  
   - Idle (Animation)  
   - Move (Animation)  
   - Attack (Animation)
* When the player takes damage the sprite flashes.

**Player Damage**

* When the player takes damage:  
   - The player sprite flashes.

**Enemy**

* When an enemy takes damage from the player they are knocked back and their sprite flashes.
* When an enemy is killed they fade out.
* The Zombie has:  
   - Move (Animation)
* The Skeleton has:  
   - Idle (Animation)  
   - Move (Animation)  
   - Attack (Animation)

**Seed**

* Asset

- Idle (Sprite)

**Plant**

* Asset

- Idle (Sprite)

- Attack (Animation)

**Enemy Death**

* When an enemy is killed:  
   - The enemy is knocked back while fading out.

**Enemy Damage**

* When an enemy takes damage:  
   - The enemy sprite flashes.

### Player

**Death**

* When the player’s health reaches 0:  
   - The player is destroyed and game over is triggered.

**Attack**

* Pressing 'left-click' triggers an attack, reducing the health of all enemies in range.
* After use, the weapon enters cooldown and cannot be used until it resets.

**Attack Cooldown**

* The weapon enters cooldown when used.
* The weapon cannot be used while on cooldown.

**Move**

* Single Input  
   - Holding “w” moves the player up based on its speed.  
   - Holding “a” moves the player left based on its speed.  
   - Holding “s” moves the player down based on its speed.  
   - Holding “d” moves the player right based on its speed.
* Multi Input  
   - Holding “w+d” moves the player up-right based on its speed.  
   - Holding “w+a” moves the player up-left based on its speed.  
   - Holding “s+d” moves the player down-right based on its speed.  
   - Holding “s+a” moves the player down-left based on its speed.
* Other  
   - Holding opposite keys (“w+s” or “a+d”) results in no movement.  
   - The player cannot move on scorched earth (map edges).

**Level Up**

* When the player kills an enemy, their experience increases. Once it reaches the maximum, it resets, and the player levels up, gaining a seed.

**Chicken**

* Press ‘c’ to summon a giant chicken.
* The giant chicken acts as a projectile, moving to the right.
* It is destroyed when it moves off-screen.
* Upon a mesh-collision with an enemy, it instantly defeats them.
* The chicken is auto-summoned when the player's health falls below 1/4.

### Enemy

**Death**

* When the enemy’s health reaches 0:
  + The enemy is destroyed and player experience is updated.

**Attack**

* When an enemy touches the player it triggers an attack. The health of the player is reduced.

**Attack Cooldown**

* The enemy enters cooldown after attacking.
* The enemy cannot attack while on cooldown.

**Move**

* Enemies move to the player.

**Spawn**

* Enemies spawn at random locations on the border over time.
* The key “g” spawns the next wave of enemies.

**Skeleton**

* The skeleton fires a projectile at a player or plant within range. After attacking, the enemy enters cooldown and cannot attack again until it resets.

### Game Over

**Screen**

* When the player is killed:  
   - The game over screen appears then fades out.  
   - All systems are disabled (including player input).

**Retry**

* In the game over screen:  
   - Press "r" restarts the game.

**Score**

* The number of zombies killed appears in the window.

### Audio

**Music**

* There is background music.

**SFX**

* There is SFX during:  
   - Player Attack  
   - Enemy Attack  
   - Player Death