# Game Design Document Template

Course: GAME 360 - Development with Game Engines

Semester: Fall 2025

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Submission Date: Nov 7

# 1. GAME OVERVIEW (1 page)

## Game Title

Caecilian Ascent

Make it memorable and reflective of your game's theme or core mechanic.

## Genre

2d Platformer

## Target Audience

Casual players ages 16+ who enjoy puzzle-platformers with light combat mechanics

## Estimated Playtime

5-10 minutes (single complete playthrough)

## Elevator Pitch

You are a frog that must navigate a maze of spikes and parkour your way through the level in order to reach the goal. You must reach the goal before you run out of time or else you fail.

## Core Gameplay Loop

The player explores the environment → encounters an obstacle/enemy → jumps or shoots → progresses forward → collects cherries → faces increasingly challenging obstacles → reaches a goal/checkpoint.

## Unique Selling Points

• Bit artstyle
• Chiptune music
• Challenging platforming mixed with combat

# 2. GAMEPLAY DESIGN (1 page)

## Core Mechanics

**Primary Mechanic 1:** Wall cling

  • **Description:** The player can cling to a wall by pressing the move key in the direction of the wall.

- **Purpose:** This is to enable the player to platform to new locations.

**Primary Mechanic 2:** Wall jump
- **Description:** The player can jump from a wall cling position
- **Purpose:** This is to enable more difficult platforming

**Primary Mechanic 3:** Air Dash
- **Description:** The player can dash in the air
- **Purpose:** This is so the player can reach places that would be out of reach by just jumping

These should be the 3 main things players DO in your game. Keep them focused and achievable within your timeline.

## Player Controls

List all player inputs and their corresponding actions:

- Movement: WASD  - Move character in 4 directions
- Jump: Spacebar - Vertical movement
- Shoot: Arrow keys (Arrow direction changes shoot direction)  - Interact/Attack
- Dash: Lshift - Special ability
- Pause: ESC - Pause game

 Win Condition

Win condition is if you kill the target at the end of the level within the time limit. If you collect the cherries you get a better score. (Score is calculated by (time remaining*3) * (cherries collected*2) * enemies killed). Add something at the end of the level that tallies the final score. Try to add a local scoreboard.

## Lose Condition

Time expires before reaching exit results in a level fail. Falls into hazardous zones and the game returns to the last checkpoint.

## Progression & Difficulty

- **Early Game:** Easy platforming and minimal enemies
- **Mid Game:** More challenging platforming, more enemies, and introduction of cherries
- **Late Game:** Hardest platforming, numerous enemies, and lots of cherries that take the player away from the optimal path.

# 3. TECHNICAL PLAN (1 page)

## Pattern Integration & Expansion

<u>Singleton Pattern Usage:</u>

GameManager:

- **Current (Task 3):** Manages game states: Menu, Playing, Paused, GameOver
- **Expansion (Final):** Add score tracking, checkpoints

AudioManager:

- **Current (Task 3):** Plays background music and basic sound effects
- **Expansion (Final):** Add volume controls

<u>Observer Pattern Events:</u>

Current Events (Task 3):

- OnPlayerHealthChanged - Updates UI health display
- OnEnemyDefeated - Triggers score increase

New Events Needed:

- OnLevelComplete - Trigger victory screen and save progress
- OnTimerExpired - Trigger game over sequence

<u>State Machine Implementation:</u>

Player State Machine:

- **Current States (Task 3):** Idle, Moving, Jumping
- **New States (Final):** Attacking, TakingDamage

Enemy State Machine:

- **Current States (Task 3):** Patrol
- **New States (Final):** Death

Game State Machine:

- **States:** MainMenu, Playing, Paused, GameOver, Victory, Settings

## Features to Add (Weeks 11-16)

Map each feature to a week and specify which pattern(s) it uses:

Week 11: Player Systems & Core Mechanics

- ☐ Implement complete player controller with all states
- ☐ Add combat/interaction system (Pattern: State Machine + Observer)

Week 12: AI Systems & Game Logic

- ☐ Complete enemy AI with full FSM (Pattern: State Machine)
- ☐ Implement scoring and win/lose detection (Pattern: Singleton + Observer)

## Week 13: Audio & Visual Systems

☐ Complete audio system with all SFX (Pattern: Singleton + Observer)

## Week 14: Content Creation & Testing

☐ Build complete level(s) with all mechanics

☐ Playtest and balance difficulty

## Week 15: Final Polish & Documentation

☐ Bug fixes and optimization

☐ Complete technical documentation

## Week 16: Presentation Preparation

☐ Create presentation materials

☐ Practice demo and Q&A

# 4. SCOPE & TIMELINE (1 page)

## Core Features (Must Have)

These are essential features that MUST be completed for a functional game.

□ Feature 1: Player movement and basic controls

□ Feature 2: Enemy with patrol

□ Feature 3: Win/lose conditions

□ Feature 4: UI (health, score)

□ Feature 5: Audio system (music + SFX)

□ Feature 6: Spikes (level hazards)

  Maximum 5-7 core features. Each should directly support course learning objectives.

## Stretch Goals (If Time Permits)

These enhance the game but aren't critical for completion.

□ Goal 1: Air dash/double jump

□ Goal 2: Enemies refresh double jump/air dash

□ Goal 3: Leaderboard/high score system

## Will NOT Include

Explicitly state what you're cutting to maintain realistic scope.

❌ Multiple levels - focusing on one complete, polished level

❌ Cutscenes or narrative sequences - would require additional art/animation

❌ Inventory system - adds complexity beyond scope

❌ Boss fights - focusing on core enemy AI first

# 5. ARTISTIC STYLE AND DESIGN CHOICES (1 page)

## Visual Style & Inspiration

### Art Direction:

Clean, minimalist 2D art style with high contrast colors. Geometric shapes for environment elements, simple character sprites with readable silhouettes inspired by games like Thomas Was Alone and Celeste.

### Inspiration Examples:

• Game 1: Celeste - 2d puzzle platforming and bit graphics

• Game 2: Thomas Was Alone - color palette and crisp graphics

• Art Style: bit graphics - asset pack

### Color Palette:

• Primary Colors: Brown (B2674F), Blue (699CEE), Green (75A420), Green (36711C)

• Accent Colors: Grey (858D95), Red (AE234A), Brown (8D4B42)

• Purpose: High contrast for visibility, warm/cool balance for mood

### Asset Sources:

□ Unity Asset Store: Platformer Tileset - Pixelart Grasslands by BigManJD, Pixel Adventure 1 by Pixel Frog

□ Free Resources: 8Bit Music - 062022 by GWriterStudio, RPG Essentials Sound Effects - FREE! by leohpaz

□ Original Art: Simple shapes in Unity, basic particle effects

□ Placeholder Art: Colored rectangles/circles for prototype phase

Link to specific assets. Plan what's placeholder vs. final.

https://assetstore.unity.com/packages/2d/environments/platformer-tileset-pixelart-grasslands-248158

https://assetstore.unity.com/packages/audio/sound-fx/rpg-essentials-sound-effects-free-227708

https://assetstore.unity.com/packages/audio/music/8bit-music-062022-225623

https://assetstore.unity.com/packages/2d/characters/pixel-adventure-1-155360

## User Interface (UI) Design

### UI Elements Needed:

• Main Menu: Title, Play Button, Settings Button, Quit Button

• HUD (In-Game): Score (top-right), Timer (top-center)

• Pause Menu: Resume, Settings, Main Menu, Quit

• Game Over Screen: Final score, Retry button, Main Menu button

• Victory Screen: Congratulations, Final stats, Play Again

**UI Mockup/Layout:**



Score: 0     02:00     State: Idle          Cherries: 0

## Menu Systems (Map Out)

Menu Flow Diagram:

Main Menu → Play → Game

       → Settings → Volume Controls → Back

       → Quit

In-Game → ESC → Pause Menu → Resume

               → Settings

               → Main Menu

## Sound Design

**Music:**

  • Main Theme - Loop for menu and gameplay - 8bitmusic

  • Victory Music - Plays on win - 8bitmusic

**Sound Effects Priority:**

  • High Priority: Jump, Attack, Damage, Collect, Win, Lose

  • Medium Priority: Enemy sounds, Power-up, Footsteps

  • Low Priority: UI clicks, Ambient effects

## Icon Design

Maximum of 3 Proposed Icon Designs:

[Include sketches or descriptions of 3 potential app icons/game logos]

**Icon Option 1:**

  • Description: Image of the character in the level.

  • Colors: Green, blue, brown

  • Rationale: It is directly related to the game

**Icon Option 2:**

- Description: Image of the frog characters face against the background
- Colors: Green, blue[
- Rationale: It shows the character

## Accessibility Considerations

☐ Color-blind friendly palette (test with colorblind simulator)

☐ Readable text size (minimum 16pt for UI)

☐ Clear audio cues (don't rely solely on visuals)

☐ Adjustable volume controls

Good accessibility is good design for everyone.

# APPENDIX & RESOURCES

## References & Inspiration

• **Game 1:** Celeste - art style, platforming, puzzle mechanics

• **Game 2:** Thomas was alone - art style

• **Tutorial/Resource:** [Link/Name] - [What helped you understand X concept]

## GDD Examples & Templates Used

Professional GDD examples reviewed:

• Diablo Pitch: http://www.graybeardgames.com/download/diablo_pitch.pdf

• BioShock resources: gamedocs.org/documents/

• GDD Template Collection: github.com/mikewesthad/Game-Design-Document-Resources

• Unity GDD Template: Unity Connect Documentation

## Version History

• Version 1.0 | [Date] | Initial GDD submission for Project Setup

• Version 1.1 | [Date] | [Updates after playtesting feedback]

• Version 2.0 | [Date] | [Major feature additions or scope changes]

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**Total Page Count:** ~5 pages of core content

**Word Count Target:** 1,200-1,500 words