

# Phantom Lord

## *Game Design Document*

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# Game Design

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## Summary

You are Phantom Lord, a gentlemanly gentleman. Phantom Lord is on a quest to retrieve the dignified Phantom Tea Pot (the best in all the land), which was stolen during tea time by his horribly dressed rival Sir Feather Bonnet. Sir Feather Bonnet is going around the world visiting accomplices in bad fashion and making an ungentlemanly ruckus. Phantom Lord must get back his Phantom Tea Pot and restore orderly tea time in the Phantom World!

## Gameplay

*Phantom Lord* is an old-school 2D platformer, where the goal of the game is for the main character, Phantom Lord to find his missing Phantom Tea Pot by exploring the Phantom World, which in gameplay terms means having Phantom Lord go through a variety of levels and reach the end of the level. Obstacles such as the main enemy (Sir Feather Bonnet's) minions will be trying to harm the player, and the environment itself will be a platforming challenge on its own. If Phantom Lord gets hurt by enemies and is on low health, or falls off a platform, Phantom Lord will lose a life, and when Phantom Lord loses all lives, its game over, and the player must start the game from the beginning. Phantom Lord will also need to face Sir Feather Bonnet himself in a boss battle to finally get back his Phantom Tea Pot.

Phantom Lord has a variety of tools at his disposal, being able to move left and right and being able to jump high into the air, and defeat normal enemies by stomping (land on top of them) on them, or avoid them altogether. Phantom Lord can hit certain 'Candle Blocks' in the game to receive power ups, such as a Candy Corn to get health, a Ghost Mask to give him the ability to hurl his cane like a boomerang, and eat a spooky treat for an additional life. The player will have to use all of Phantom Lord's tools to reach the end of the level and eventually fight Sir Feather Bonnet. Collecting Candles scattered in Candle Blocks and also throughout he world will boost Phantom Lord's score, and collecting 50 of them will give him an additional life.

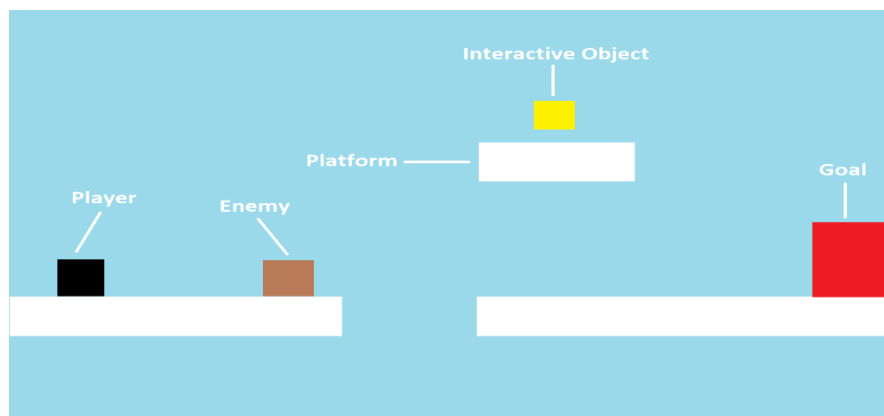


Figure 1: 2D Platformer Basics

## Mindset

Phantom Lord is a gentlemanly gentleman, he is a calm and collective character who needs to complete each level in a manner of 300 seconds, as tea time will not wait! Thus levels will be designed with a sense of urgency, but not to overwhelm the player, but rather to push them forward. Phantom Lord is just a mortal though, and the sense of precaution will be a prevalent feeling conveyed in the game, as player will want to have a cautious mindset when going through a level, as “surprises” may show up. The theme should also help convey this mindset.



Figure 2: General Look/Mindset of *Phantom Lord*

# Technical

## Screens

1. Title Screen
  - a. Start
  - b. Info
  - c. Exit
2. Level Info/Start Screen
3. Game
  - a. Pause
    - i. Unpause
    - ii. Exit Game
4. Game Over
5. Game Complete/End Credits



Figure 3: Title Screen Prototype



Figure 4: Info Screen Prototype

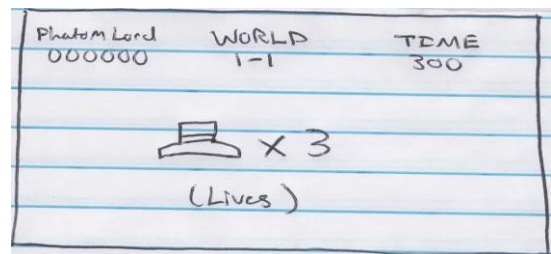


Figure 5: Level Info Screen Prototype

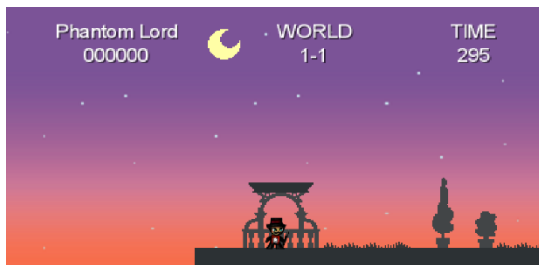


Figure 6: Game Screen

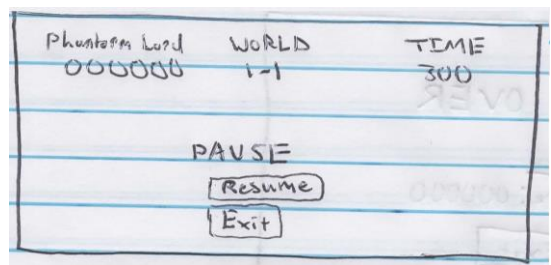


Figure 7: Pause Screen

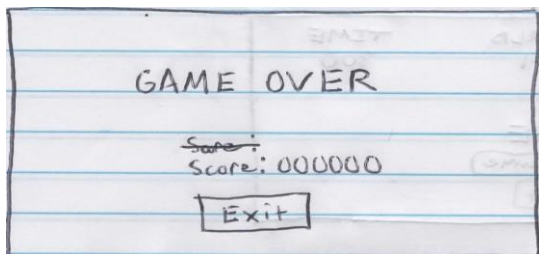


Figure 8: Game Over Screen

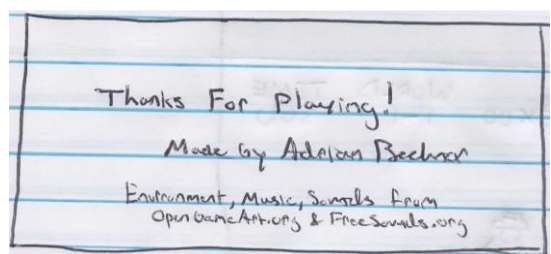


Figure 9: End Credits Screen

## Controls

The player will interact with the game by controlling Phantom Lord, Phantom Lord can run, jump, and when he collects a power up, throw his cane like a boomerang. Controls will be pre-defined, but there will be an “Info” screen to provide the player with tips/basic info on how to control Phantom Lord. The in-game events that Phantom Lord will be that Phantom Lord can jump on top of enemies to defeat them, throw a cane as well. Phantom Lord can hit “Candle Block”(s) to get items and power-ups, or just candles to increase the score, and he also can hit “Crumble Stone”(s) to break/remove platforms made of “Crumble Stone”. Phantom Lord will have to fight Sir Feather Bonnet by hitting/stomping on a switch in the boss level zone to defeat him. Finally, Phantom Lord can trigger when enemies begin to move on screen (by getting close enough to them), and completing the level, thus control will be taken away from the player and Phantom Lord will manually walk to the end of the stage.

Arrow Left	Move Left
Arrow Right	Move Right
Space	Jump
Right Alt	Throw Cane (When Powered Up)



Figure 10: Phantom Lord’s Various Movements

## Mechanics

### Enemy Types

#### Pumpkins

The Pumpkin Enemy type just moves left to right, depending on if they hit a wall or another enemy. They can be defeated by Phantom Lord by jumping on them. They are done by box2D, collision detection, a state system, and a spawn system. There is an abstract enemy class that houses various properties about enemies that the Pumpkin enemy class utilizes, making sure their collision detection and box2D bodies are correct.



Figure 11: Pumpkin Enemy (Movements)

## Bat

the bat enemy type will function just like the Pumpkin enemy, just with y-axis velocity as well.

## Hat Ghost

The other interesting mechanic that are utilized in *Phantom Lord* is the Hat Ghost enemy type, when jumping on a Hat Ghost, and having the ghost hide inside the hat, the hat can then be jumped on to make to move around very fast and hurt other enemies or Phantom Lord, this is also accomplished by box2D physics. They are also done by collision detection, a state system, and a spawn system. There is an abstract enemy class that houses various properties about enemies that the Pumpkin enemy class utilizes, making sure their collision detection and box2D bodies are correct.



Figure 12: Hat Ghost (Movements)

## Boss (Sir Feather Bonnet)

The Boss in *Phantom Lord* follows the same principle as the enemy types, just with more states, and more complex actions. So similar features such as collision detections, box2D, and other items are needed once again (see the enemy types above for more info).



Figure 13: Concept Art for Sir Feather Bonnet

## Power-Ups

### Ghost Mask (Cane Boomerang Power)

The cane boomerang is one of the main interesting mechanic it is from the ghost mask power-up, as the boomerang can go through only one enemy, thus Phantom Lord has to wait for the cane to come back to him to use the cane throw again. This increase the risk of multiple enemies and using the power up, and makes sure the move isn't overpowered. This will be accomplished by using the box2D library in libGDX, by reversing the x-axis linear velocity when the cane hits an enemy, and Phantom Lord actually having the power-up will be from item collision detection and a state system on Phantom Lord.



Figure 14: Ghost Mask Power-Up



Figure 15: Phantom Lord Performing Cane Throw

## Candy Corn

The Candy Corn power-up gives Phantom Lord an additional hit point, as well as allowing Phantom Lord to be able to break Crumble Stone in the environment. This will be accomplished by keeping track of Phantom Lord's state and using collision detection to see if he makes contact with the specific item of Candy Corn and decide what to do next. Oddly colored neon Candy Corn will actually give Phantom Lord an additional life instead.



Figure 16: Candy Corn Power-Up

## Environment

Phantom Lord can interact with Environment by jump on vegetation and removing from the environment, making the levels a little more interactive, this is further done with Phantom Lord being able to destroy Crumbly Stone platforms when he is powered up with Average Health, this is all done by simple object tracking in x and y coordinates in the level by using Tiled library functions to find the x and y coordinates and replace the current square with a new drawn square in the level (aka the disappearing stone/vegetation).

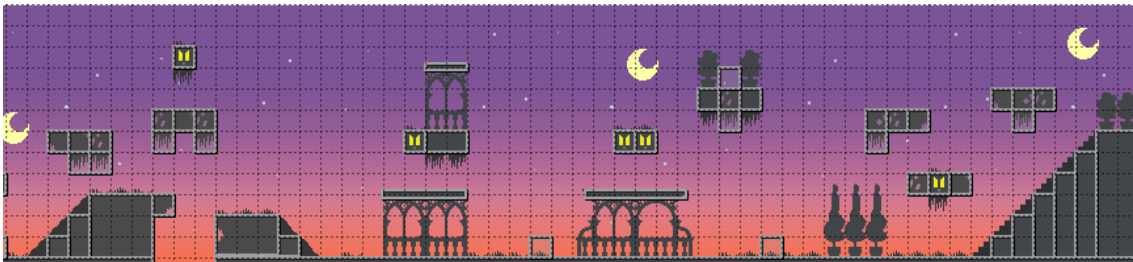


Figure 17: *Phantom Lord* Level 3 Environment

## HUD/Scoring System/Other

### Health

Phantom Lord' health is depicted by his appearance, rather than by an HUD, this adds some more interactivity/visual cues to understand what state of danger Phantom Lord is in, this is easily done by just swapping the current sprite and its animations with the one corresponding to Phantom Lord's state (is he powered up, average, or powered down).



Figure 18: Health of Phantom Lord  
(Left to Right: Low, Average, Power-Up)



## HUD

*Phantom Lord* uses a basic HUD that displays the score, the world/level, the number of candles collected, and the time left to complete the level. This is a simplistic and unobtrusive approach to the HUD, trying to minimize the amount of items the HUD takes up. The HUD is accomplished by utilizing libGDX's scene2DUI library, and making a simplistic table that has its own orthographic (2D) camera that overlays on top of the main game camera.



Figure 19: HUD

## Scoring System

Scoring will be accounted by three items, hitting a candle in a "Candle Block" or collecting a candle will provide the player with 100 points, stomping on an enemy, getting a power up, will give the player 300 points, and finally, defeating an enemy with the cane power up attack, having the Hat Ghost's hat attack other enemies will give the player 500 points. Defeating Sir Feather Bonnet at the end of the game automatically gives the player an additional 1000 points. Lastly, to encourage speedy play sessions, the time left at the end of a level, will be multiplied by 25 then added to the point score. So, for example if the player finishes the level with 200 seconds left, 5,000 points will be added to their score at the end of the level. This can all be easily done with some variable that holds the time during a current level, and once finishing a level, stopping the timer, multiplying that time left the variable has, and adding that value to the variable holding the score for the current game session.

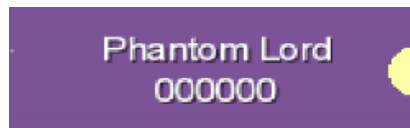


Figure 20: Score Area

## Other

Other mechanics generally follow 2D platformer staples, such as jumping, acquiring power ups, getting to the end of the level, fighting a boss, collecting collectables, having a score, a life system, a health system, enemies, enemy types, platforming, and a set timer.

# Level Design

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## Themes/Levels

1. Day-Time Garden
  - a. Mood
    - i. Calm, Slow, Relaxing
  - b. Objects
    - i. *Ambient*
      1. Sun
      2. Trees
      3. Grass
      4. Garden Architecture
    - ii. *Interactive*
      1. Pumpkins
      2. Candle Blocks
      3. Crumble Stone
2. Evening Graveyard
  - a. Mood
    - i. Unnerving, Mellow, Solemn
  - b. Objects
    - i. *Ambient*
      1. Tomb Stones
      2. Warm Yellow Background
      3. Grass
      4. Garden Architecture
    - ii. *Interactive*
      1. Vegetation
      2. Pumpkins
      3. Hat Ghosts
      4. Candles
      5. Candle Blocks
      6. Crumble Stone
3. Twilight Garden
  - a. Mood
    - i. Dark, calm, foreboding
  - b. Objects
    - i. *Ambient*
      1. Grass
      2. Moon
      3. Twilight Background

- 4. Garden Architecture
- 5. Trees
- 6. Bushes
- ii. *Interactive*
  - 1. Candles
  - 2. Pumpkins
  - 3. Hat Ghosts
  - 4. Bats
  - 5. Vegetation
  - 6. Candle Blocks
  - 7. Crumble Stone

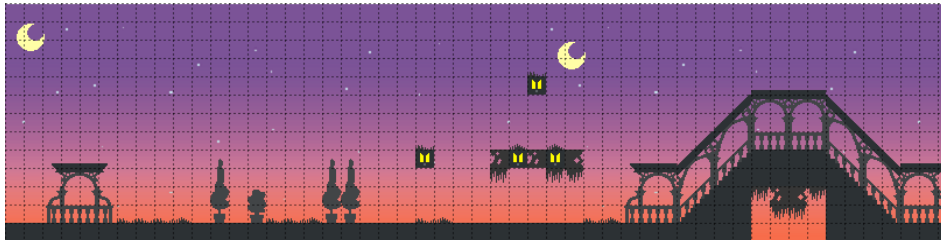


Figure 21: Twilight Garden Level

- 4. Dark Manor
  - a. Mood
    - i. Dangerous, tense, active
  - b. Objects
    - i. *Ambient*
      - 1. Pitch-Black
      - 2. Torches
      - 3. Bushes
      - 4. Indoor Manor (Made of Stone)
      - 5. Garden Architecture
    - ii. *Interactive*
      - 1. Candles
      - 2. Pumpkins
      - 3. Hat Ghosts
      - 4. Bats
      - 5. Sir Feather Bonnet (Boss)
      - 6. Switches (To defeat boss)
      - 7. Vegetation
      - 8. Candle Blocks
      - 9. Crumble Stone

## Game Flow

1. Player starts Day-Time Garden (where Phantom Lord had his tea pot stolen)
2. No Ground to the left, must move right
3. Enemy Pumpkin will eventually come towards player (enemy damage taught)
4. Player will encounter hill/steps, must jump over them to maneuver (jump is taught)
5. Player will see blocks, likely will try to jump to hit them (due to visual interest), will teach them that interacting with Candle Blocks yields rewards.
6. Player navigates throughout level, understanding the basics, and eventually player sees Tomb Stone that is encased between two pillars, payer will notice only way to continue on, and then control will be taken away from player, and level will be complete, thus player is taught that this is end of level goal.
7. Level Info screen will appear and Phantom Lord will be inserted into new level.
8. Player will navigate through levels 1-3 in similar fashion, but level 4 will end with a boss fight, then a final scene/credits.

## Game Flow Diagrams

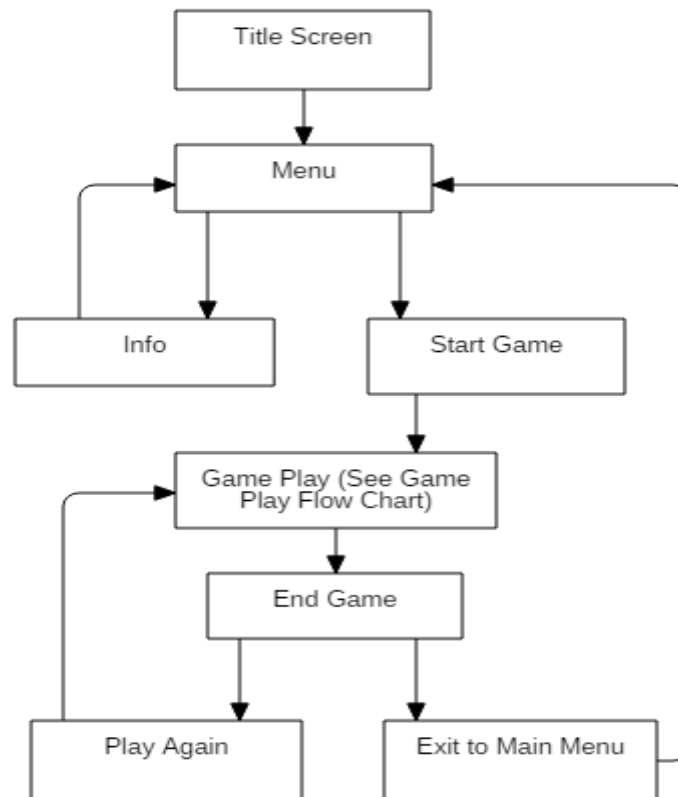


Figure 22: Game Flow Chart Diagram

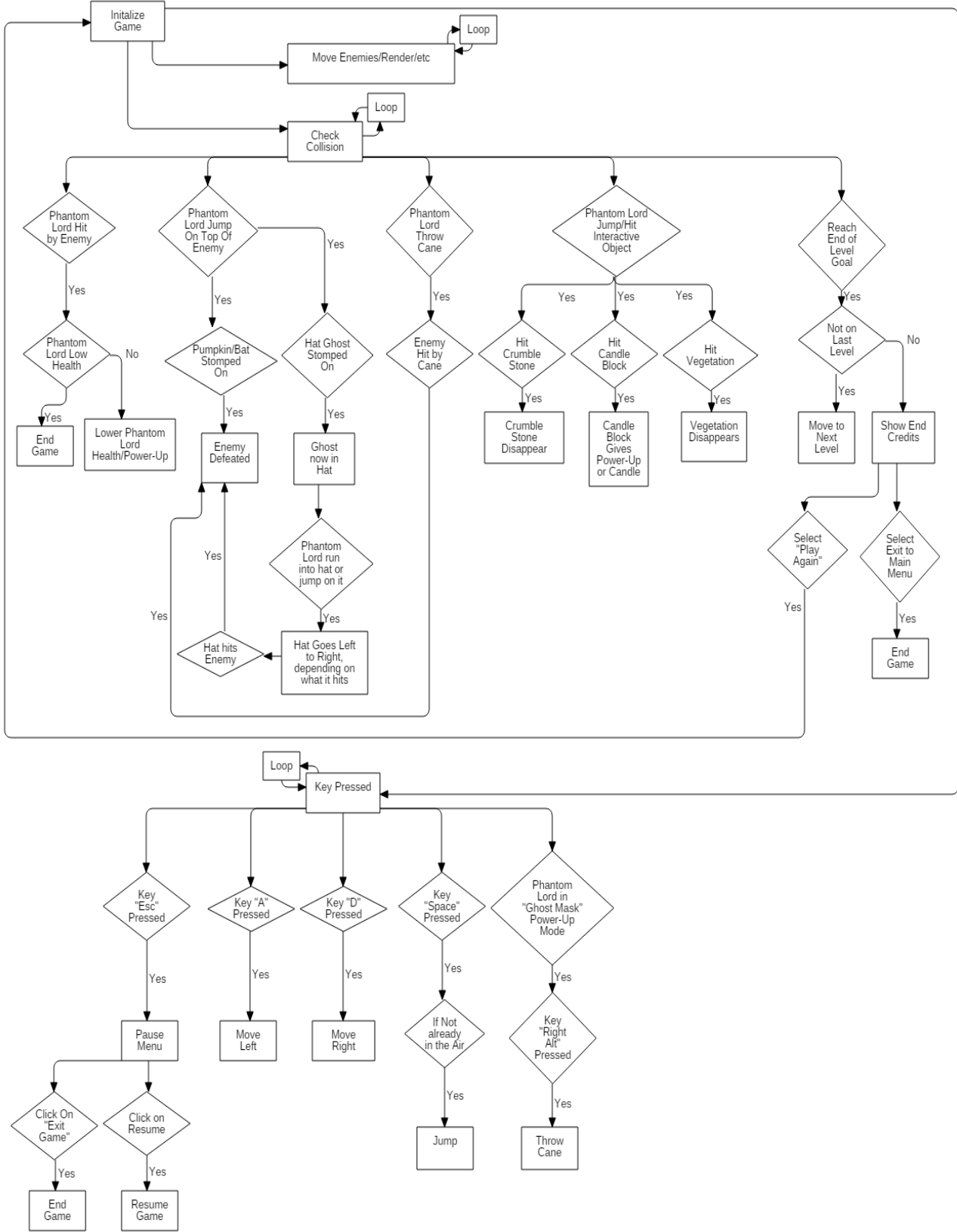


Figure 23: Game Play Flow Chart Diagram

# *Development*

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## **Abstract Classes / Components**

1. Enemy
  - a. Pumpkin
  - b. HatGhost
  - c. Bat
  - d. Boss
2. TileObject
  - a. CandleBlock
  - b. CrumbleStone
  - c. Object
  - d. VegetationOnCStone
3. EventArea
  - a. Goal
  - b. BossArea
4. Item
  - a. CandyCorn
  - b. GhostMask
  - c. CandyCornLifeUp
  - d. ItemDefinition

## Derived Classes / Component Compositions

1. PhantomLord
2. Events
  - a. EventArea
  - b. Goal
  - c. BossArea
3. Scenes
  - a. PLordHud
4. Screens
  - a. GameCompleteMenu
  - b. GameOverMenu
  - c. PauseMenu
  - d. InfoMenu
  - e. LevelTransitionScreen
  - f. PhantonLordMainMenu
  - g. PLordPlayScreen
5. Sprites
  - a. PhantomLordChar
  - b. Enemies
    - i. Enemy
    - ii. HatGhost
    - iii. Pumpkin
    - iv. Boss
  - c. Items
    - i. CandyCorn
    - ii. GhostMask
    - iii. CandyCornLifeUp
    - iv. Item
    - v. ItemDefinition
  - d. Objects
    - i. CandleBlock
    - ii. CrumbleStone
    - iii. Object
    - iv. TileObject
    - v. VegetationOnCStone
6. Tools
  - a. Box2DWorldCreator
  - b. PLordWorldContactListener

# Graphics

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## Style Attributes

Colors will generally be dark radiance of purple, gloomy gradients. This conveys mystery and suspense. A consistent color palette will be essential to maintain a steady theme throughout the game. Phantom Lord does in fact live in the Phantom World, which colors should reflect that. Darker colors will be used whenever possible, and avoiding any bright and vibrant colors that give off a sense of whimsy, *Phantom Lord's* look is going for dark, gloomy vibe (however this does not mean the game itself is that way, it's almost a satirical approach to it).



Figure 24: Desired Color Palette for *Phantom Lord*

The Main Environment will consist mainly of black and grey silhouettes, creating a bleak environmental look. The style for the characters is of the 32-bit style, which harkens back to video games of the early 90's. The style has some similar gothic inspiration as the *Castlevania* game series. Thus all characters will be of 32-bit style, with smooth curvatures, and few sharp angles for all characters/enemies. The interactive parts of the environment such as power-ups, candles, Candles Blocks, and so on, are following the style of thick outlines with flat hues, to make them quickly apparent during gameplay.



Figure 25: Environment Style



Figure 26: Character Style



Figure 27: Objects Style



## Graphics Needed

1. Characters
  - a. Human-like
    - i. Phantom Lord (Moving, Jumping, Dying, Throwing Cane)
    - ii. Sir Feather Bonnet (Moving, Jumping, Attacking, Dying)
  - b. Other
    - i. Pumpkin (Moving, Dying)
    - ii. Bat (Moving, Dying)
    - iii. Hat Ghost (Moving, Hiding in Hat, Moving in Hat, Dying)
2. Blocks
  - a. Stone
  - b. Dark Dirt Ground
  - c. Rough Dark Ground
  - d. Rough Grass Ground
  - e. Crumble Stone (Multiple versions, for visual interest)
  - f. Candle Block
  - g. Hit Candle Block (To show it was hit)
  - h. Grass/Ground Block
  - i. Dark Cliffside blocks (Multiple versions, for visual interest)
  - j. Grass Cliffside blocks (Multiple versions, for visual interest)
3. Ambient
  - a. Grass
  - b. Trees
  - c. Bushes
  - d. Candles
  - e. Fire
  - f. Moon
  - g. Cloud
  - h. Sun
  - i. Tomb Stone
  - j. Lit Room (For Phantom Lord Walking through Open Door)
4. Other
  - a. Switch (For Boss)
  - b. Gothic/Garden Architecture (Multiple versions, for visual interest & interactivity)
  - c. Stone Steps
  - d. Stone Bridge
  - e. Candy Corn (For Power-Up)
  - f. Candy Corn-Life Up Version
  - g. Ghost Mask (For Power-Up)
  - h. Cane (For throwing the Cane Phantom Lord has)

# Sounds/Music

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## Style Attributes

Music will have a suspenseful tempo, while also following some whimsical sound, to help balance the music. The mood would be mystery mainly, trying to allude to the feeling of the world of *Phantom Lord*. Genre would probably just be video game music genre, my goal is not to have rap, alternative, rock, country, classical, etc. in my game. Thus mystery and whimsy will be the main mood/feelings to be conveyed in *Phantom Lord*, additional moods the player may experience will be unintended through the music.

Cartoony sound effects will be utilized to give audio cues for Phantom Lord. Exaggerated sounds like for jumping and defeating enemies will have this cartoony effect to help keep the exaggerated feel and attention-grabbing noises, which follows the conventional staples for 2D platformers and side scrollers of old. Music will be there to compliment the sound effects, and not purposely play over these important audio cues. Every action will have a cartoony sound effect (at least to some degree), to make sure the player always has both visual and audio cues when they do an action, or interact with an object.

## Sounds Needed

1. Effects
  - a. Cane Spinning
  - b. Power-Up Spawn
  - c. Acquire Power-Up
  - d. Boss Attack
2. Feedback
  - a. Jumping
  - b. Getting Hurt by Enemy
  - c. Acquire Candy Corn Life Up
  - d. Phantom Lord Death
  - e. Defeating Enemy
  - f. Level Complete

## Music Needed

1. Slow-paced, nerve-racking “intense” track (For Twilight Garden Level)
2. Exciting “Adventure” track (For Day-Time Level)
3. Whimsical, slow, eerie track (For Evening Graveyard Level)
4. Dangerous, intense, fast-paced track (For Dark Manor Level)
5. Happy, whimsical ending credits track
6. Whimsical, cheerful, playful title screen track (Also for pause menu, very quiet though)

# Schedule

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1. Further develop base classes
  - a. base entity
    - i. PhantomLordChar
      1. Refine Current Issues Phantom Lord character
    - ii. Enemy
      1. Refine/Fix Current Issues Pumpkin and HatGhost
    - iii. ObjectTile
      1. Refine/Add more Items
  - b. base game state
    - i. game world
      1. Pause Menu
      2. HUD
        - a. Add Candle Count
      3. Boss Encounter
    - ii. menu world
      1. Fix/Enhance Menu (Add Touch Input with buttons)
      2. Fix/Enhance Info/Tutorial Menu
2. Further Develop Player and Basic Block Classes (With Box2D)
  - a. Physics / Collisions
3. Fine Tune/Smooth Controls/Physics
4. Develop Other/New Derived Classes
  - a. ObjectTile
    - i. Switches (To defeat Boss)
  - b. Enemy
    - i. Bat (Implement States/actions/animations)
    - ii. Boss (Implement States/actions/animations)
  - c. Item
    - i. CandyCornLifeUp
    - ii. GhostMask
  - d. PhantomLordChar
    - i. CaneThrow
5. Design Three New Levels
  - a. Introduce the new Bat enemy
  - b. Introduce the new Ghost Mask Power-Up
  - c. Introduce the Boss at Final Level
6. Design/Reevaluate Effectiveness of Current Sounds, add new Sounds
7. Design/Reevaluate Effectiveness of Current Music, add new Music