

Celestial Harmony



Game Design Document

Written by **Studio Synth**

Alex Cortes	Deana Galbraith
Angel Rodriguez	Francisco Tous II
Anthony Lloyd	Joseph Hazera
Ciante McLemore	Joshua Knipstein
Christian Ocampo	Lily Nghi
Clarissa Diaz-Silva	Matthew Becchio

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1. Concept

a. High Concept and Summary

“A spiritual being with elemental abilities expresses itself through music and restores a dying solar system.”

[Celestial Harmony](#) is about Do-Rae-Mi and Ta-Re-Na, elemental creatures who have the ability to restore life to dying planets through the power of music.

b. Design Goals

- **Simple:** To create an intuitive player experience that results in an average time of 20-30 minutes for players of diverse skill levels.
- **Fun:** Utilizing the keyboard to play and discover new melodies that affect the environment.
- **Educational:** Using the unique input of a keyboard as a controller to teach players basic piano chords, and melodies.

c. Features

- A fixed 3D perspective
- Colorful cartoon look that presents itself as visually engaging, and unique
- A planet progression that is tied to gameplay
- Text-light HUD
- Interactive on screen keyboard
- Full support for MIDI keyboard on Windows and OSX
- A two handed control scheme that helps give a fundamental understanding of the piano as a control system

d. Target Audience

Celestial Harmony is geared towards players who enjoy solving puzzles and experimental games.

2. Narrative

a. Story Overview

- **Set Up:** Kae-lanni are wandering space beings with elemental abilities. Ta-Re-Na is teaching Do-Rae-Mi how to use their powers to restore a dying solar system.
- **Overview:** Ta-Re-Na comes upon a dying solar system and teaches Do-Rae-Mi, how to use music to control their elemental abilities, and restore life to the solar system.
- **Finale:** Ta-Re-Na finishes teaching Do-Rae-Mi. The solar system is brought back to life, now thriving with beautiful lively planets.

b. Characters

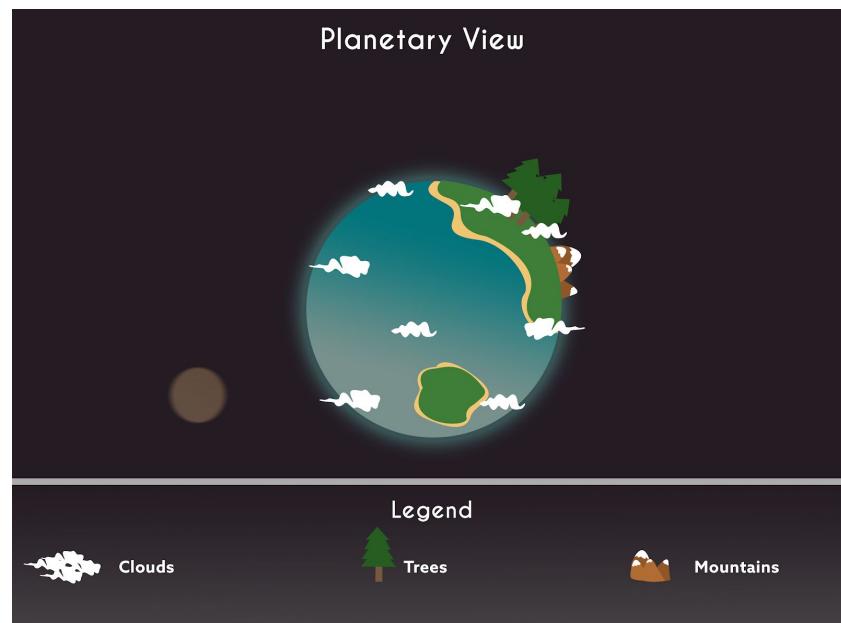
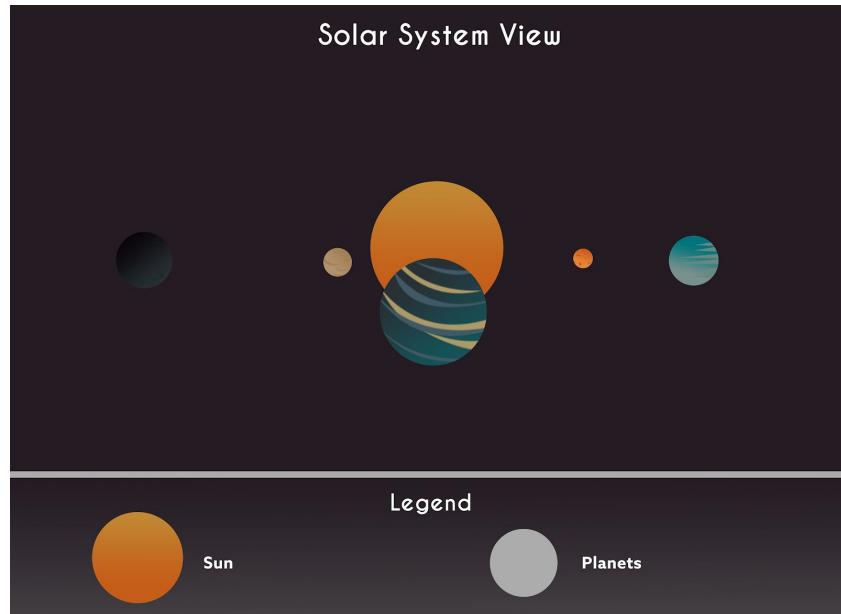
- **Ta-Re-Na:** an elder Kae-lanni. They are a planetary elemental who is in the form of a floating rock formation. She is composed of black and white colors.
- **Do-Rae-Mi:** a young Kae-lanni who is learning how to use their elemental abilities. They are not depicted to the player, but the player controls this character throughout the game.

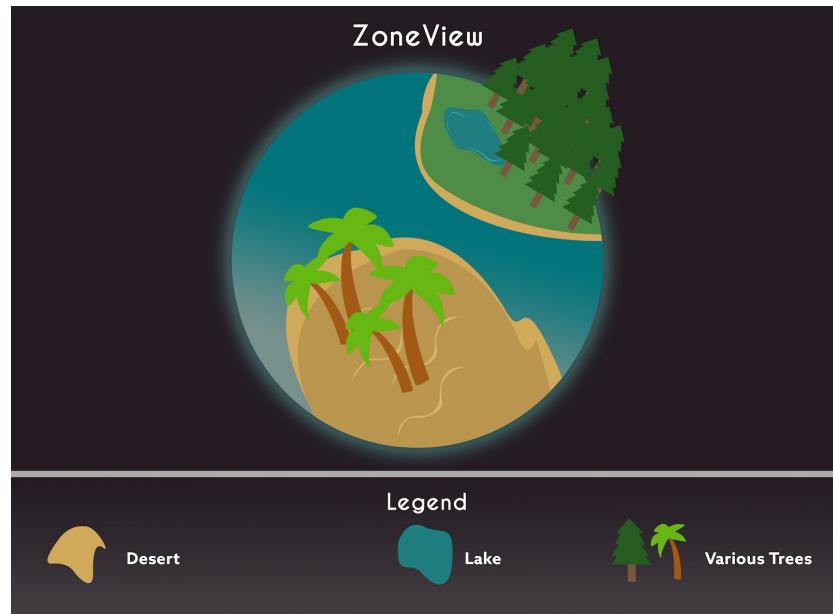
c. Background Story

Two elemental space beings known as Kae-lanni arrive at a dying solar system. Life has been stolen from its planets, and a dimming sun is the only trace of life that remains. Kae-lanni have the unique ability to control elements through music. A young Kae-lanni known as Do-Rae-Mi has just started learning how to use their elemental abilities. Ta-Re-Na, an elder Kae-lanni, is teaching Do-Rae-Mi how to use music to focus their abilities. Through music, Kae-lanni are able combine their elemental abilities together and restore life. Ta-Re-Na is tasked with teaching Do-Rae-Mi how to bring the dying solar system back to life through the use of their musical abilities.

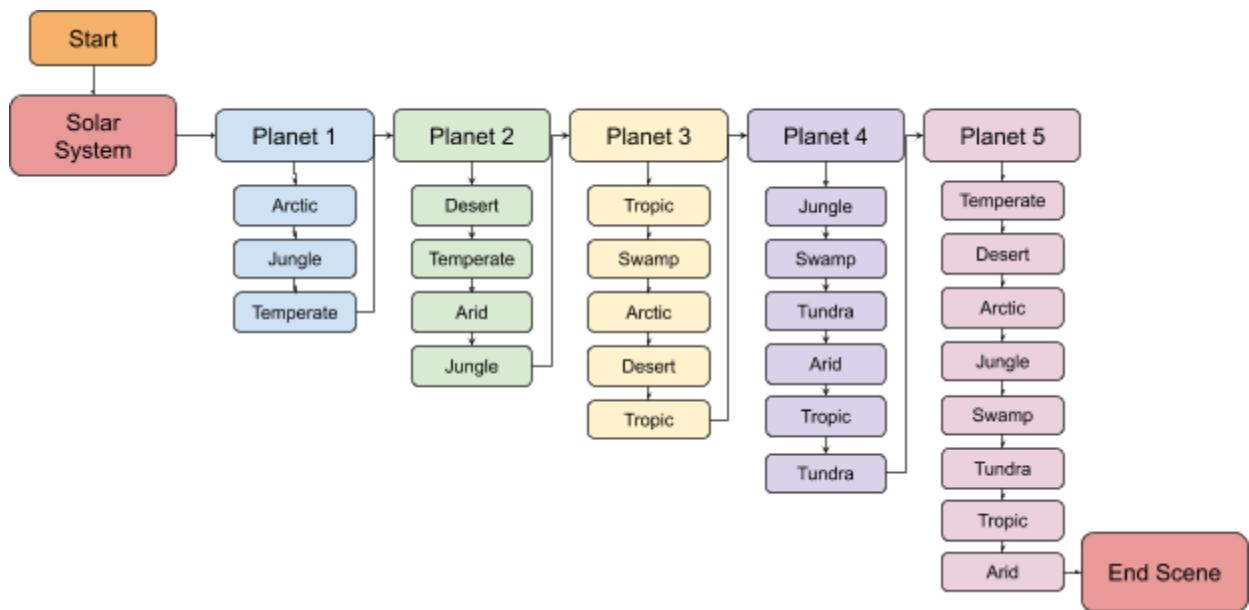
3. Level

a. Game Views





b. Progression Chart



c. Level Overview

Level	Biome Zones	Planet Description
Planet 1	3	1x Arctic biome 1x Temperate biome 1x Jungle biome
Planet 2	4	1x Desert biome 1x Temperate biome 1x Arid biome 1x Jungle biome
Planet 3	5	2x Tropic biomes 1x Arctic biome 1x Swamp biome 1x Desert biome
Planet 4	6	2x Tundra biomes 1x Arid biome 1x Jungle biome 1x Swamp biome 1x Tropic biome
Planet 5	8	1x Temperate biome 1x Desert biome 1x Arctic biome 1x Jungle biome 1x Swamp biome 1x Tundra biome 1x Tropic biome 1x Arid biome

d. Level Descriptions

Tutorial Planet

Objective: Teach the player the basic game mechanics.

A full solar system is in the camera view. The camera focuses on the tutorial planet and proceeds to the first zone, a dead Arctic biome. The player is taught how to play chords and spells via tooltips that pop up. The player is instructed to play a chord. After playing a chord, the player is instructed to play a spell. After playing a spell, the player is informed of the Spell History at the top right of the screen and how it holds spells that have been played. The player is taught that playing the correct three spells will bring a biome back to life. Once the player has completed a combination of spells, three tooltips will appear that informs the player about several HUD elements. This includes Ta-Re-Na's Feedback, the Spell History, and Resource Meter. Once the player has properly restored the first biome, the player is informed that restoring biomes replenishes their Resource Meter, and that restoring all biomes on a planet will bring the planet back to life. The player is then taken to the other biomes on the planet, which are Jungle and Temperate (in order). After the last biome is completed, the camera zooms out to an orbital view of the planet and waits for player input before transitioning to Planet 2.

Planet 2

Objective: Test the player's ability to identify 2 old and 2 new biomes.

The camera focuses in on Planet 2, then zooms into the first zone. The biomes on this planet, in order, are Desert, Temperate, Arid, and Jungle. The new biomes are Desert and Arid. Upon completion of the last zone, the camera zooms out to an orbital view of Planet 2, and waits for player input before transitioning to Planet 3.

Planet 3

Objective: Test the player's ability to identify 3 old and 2 new biomes.

The camera focuses in on Planet 3, then zooms into the first zone. The biomes on this planet, in order, are Tropic, Swamp, Arctic, Desert, and Tropic. The new biomes are Tropic and Swamp. Upon completion of the last zone, the camera zooms out to an orbital view of Planet 3, and waits for player input before transitioning to Planet 4.

Planet 4

Objective: Test the player's ability to identify 4 old and 1 new biome.

The camera focuses in on Planet 4, then zooms into the first zone. The biomes on this planet, in order, are Jungle, Swamp, Tundra, arid, Tropic, and Tundra. The new biome is Tundra. Upon completion of the last zone, the camera zooms out to an orbital view of Planet 4, and waits for player input before transitioning to Planet 5.

Planet 5

Objective: Test the player's ability to identify all 8 biome types.

The player arrives at the final planet. The camera focuses in on Planet 4, then zooms into the first zone. The biomes on this planet, in order, are Temperate, Desert, Arctic, Jungle, Swamp, Tundra, Tropic, and Arid. After the player has restored the 8 biomes on the planet, they will be taken off the planet to the planet view, and then the solar system view.

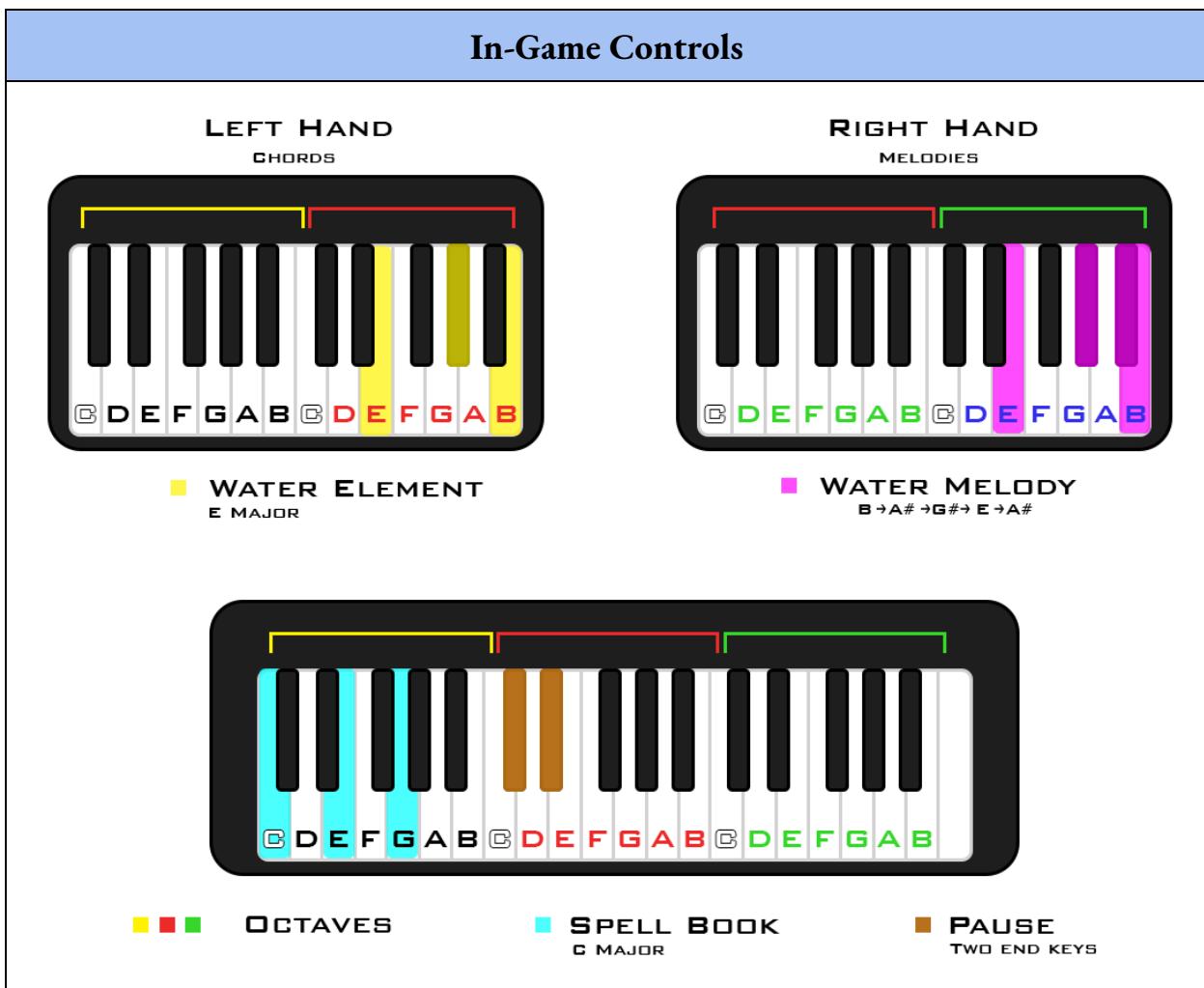
The Sun

Objective: Play melodies to gain resources.

The camera turns the player to the Sun after their Resource Meter empties. Upon their first visit to the Sun, the player is informed that this is where resources can be restored. The player is told that by playing the notes to the corresponding melody that appears, they will regain resources. Upon completion, the player is informed that the Sun only has a certain amount of energy that it will give off before dying. The camera then rotates back towards the planet and biome they originally left from. If the player has already been to the Sun 3 times, the game will end.

4. Gameplay

a. Controls



Spell-Types	Chords/Notes	Octave	Melodies
Fire	DMaj (D, Gb/F#, A)	3	
Dry		5	E, Gb, G, Gb, D
Heat		5	D, Gb, F, E, D
Water	EMaj (E, Ab/G#, B)	3	
Rain		5	Ab, E, Eb, Db, B
Chill		5	B, Ab, Gb, E, Ab
Flood		5	A, Ab, B, Ab, A, Ab, E
Earth	FMaj (F, A ,C)	3	
Raise		5	Db, Eb, F, Eb -> Gb+Db(Chord)
Level		5	C, D, E, C, G
Plants		5	D, E, D, C, A
Others			
Spell Book	CMaj (C, E, G)	3	NONE
Pause	C# + D#	4	NONE

Main Menu Controls		
Actions	Octave	Notes
Play	5	C#
How To Play	5	D#
Options	5	F#
Credits	5	G#
Quit	5	A#

How to Play Controls

Actions	Octave	Notes
Return to Main Menu	4	C# + D#
Forward	5	D#
Backward	5	C#

Options Controls

Actions	Octave	Notes
Audio	4	F#
Video	4	G#
Return to Main Menu	4	C# + D#

Credit Controls

Actions	Octave	Notes
Return to Menu	4	C# + D#

Audio Controls

Actions	Octave	Notes
Music Up	3	C#
Music Down	3	D#
Return to Options	4	C# + D#
Play Keyboard Audio in Game	4	F#
SFX Up	5	C#
SFX Down	5	D#

Element Type			
Biomes	Water	Earth	Fire
Temperate	Rain	Plants + Level	
Desert		Level	Dry + Heat
Arctic	Chill + Rain	Level	
Tropic	Rain	Raise	Heat
Arid		Raise	Dry + Heat
Jungle	Rain	Plant	Heat
Swamp	Flood	Plant	Heat
Tundra	Chill + Rain	Plant	

b. Mechanics

Spell and Biome Mechanics

Player uses a Piano to interact with the game. The player plays chords and melodies to restore dead biomes and bring planets back to life.

When a **Chord** is played with the left hand, the following occurs:

- An element is chosen based on chord that is played.
- Elements are Earth, Fire, Water.

When a **Melody** is played with the right hand, the following occurs:

- Player chooses a sub spell of the parent element.
- Once a spell is cast, it is locked as one of the three choices the player has to make.
- If a player fails to play a melody correctly, the spell will be cancelled and they will need to retry.

When three **Spells** are chosen, the following occurs:

- The system will check the three spells and compare it to a list of biome combinations.
- If the spell combination matches the biome the player is currently working on, that biome will be revived.
- If the spell combination does not match the biome the player is currently working on, the player will have to try inputting another combination.

Each **Biome** has a specific combo:

- Each biome will consist of three spells that are unique to that particular biome.
- As long as the player plays the three spells that correlate to a biome, the order in which the spells are played does not matter.

When both **Pause Keys** are pressed simultaneously, the following occurs:

- The game pauses and a menu is brought onto the screen.

When a player focuses in on a **Planet**, the following occurs:

- The player is presented with a biome that they are restoring.
- The player must restore all biomes before they are allowed to advance to the next planet.

When a player completes a **Biome/Planet**, the following occurs:

- The player is presented with a view of the biome/planet.
- The camera waits for player input before moving to the next biome/planet.

Mastermind System

Players are tasked with discovering unknown biome spell combinations. When the player inputs the spells for a biome, the following may occur:

- Correct spells in the combination will be displayed in Ta-Re-Na's Feedback bubble.
- Ta-Re-Na's Feedback bubble will display the correct spells of the most recent combination attempt.
- Failed combinations will be added to the Spell History in the top right corner of the screen, and will show up to five tries at a time, removing the oldest attempt if space runs out.
- Attempts can be made so long as the player has resources.

Resource System

The Resource System tracks the player's Resource Meter. Resources can be depleted and restored through gameplay. Resources are required in order for the player to be able to cast combinations.

- The player starts with eight Resources.
- If the player enters the correct combination for a dead biome, no Resource is lost.
- If the player is missing Resources upon revival of a biome, they regain one Resource.
- For each incorrect combination, one Resource is lost.
- When the player runs out of Resources, they are taken to the Sun.

Sun Mini-Game

The Sun Mini-Game tasks the players with practicing spells in order to regain Resources. Spell icons are spawned on screen and must be completed within an allotted time.

- When the player hits zero Resources, they are taken to the Sun.
- The player's camera will be rotated from the player's current biome to the Sun.
- An icon of a spell is displayed on the screen.
- The player has 10 seconds to play the melody that correlates to the onscreen spell icon.
- If the melody is completed before the 10 seconds are over, the player receives 1 Resource.
- Failure to complete the melody before the timer ends results in 0 Resources.
- There is a three second wait between the recently completed spell and the next spell.
- There will be a total of eight spell icons shown to the player.
- After the eighth icon, the camera rotates back to the biome they were last on.
- If the player fails all eight attempts, they will automatically begin their next Sun visit.
- The Sun has a finite amount of Resources that can be taken. The player is limited to three visits per playthrough, or 24 total charges.
- If the player needs to return to the Sun a fourth time, the Sun is exhausted, and they receive a game over.

Camera

The camera is centered on a focal point. The camera starts with the entire solar system in focus. When the game heads to a planet, the camera will focus in on a focal point within a zone on the planet's surface. The camera remains locked to this focal point until the biome is restored. The camera remains focused on the zone until the player presses a key to continue to next zone. Once every zone has been completed, it zooms out to planetary view and rotates around the newly revived planet. The game waits for player input before moving to the next planet.

c. Player State

There are two main player states: Active and Inactive.

- **Active:** the player is able to play spells and restore the biome in the zone they are working on.
- **Inactive:** the player is moved between zones and planets. As the player has no control over movement, they are unable to do anything while the camera is in motion.

d. Win and Loss States

Win State

When the player has completed reviving the planet, the camera zooms out. The player is able to view the entire planet and watch it rotate to see the work they have completed. When the player presses any key, the next planet comes into view. Once the final planet is finished, a cutscene plays and displays the entire solar system the player has revived. Planets rotate around the sun. The game will load the Main Menu scene once the player presses any key.

Loss State

Once the sun has been exhausted of Resources, the player receives a game over. The Sun explodes in front of the player and the scene fades to white. In game text will fade in informing the player that they have failed to revive the solar system. The game will load the Main Menu scene once the player presses any key.

5. User Interface

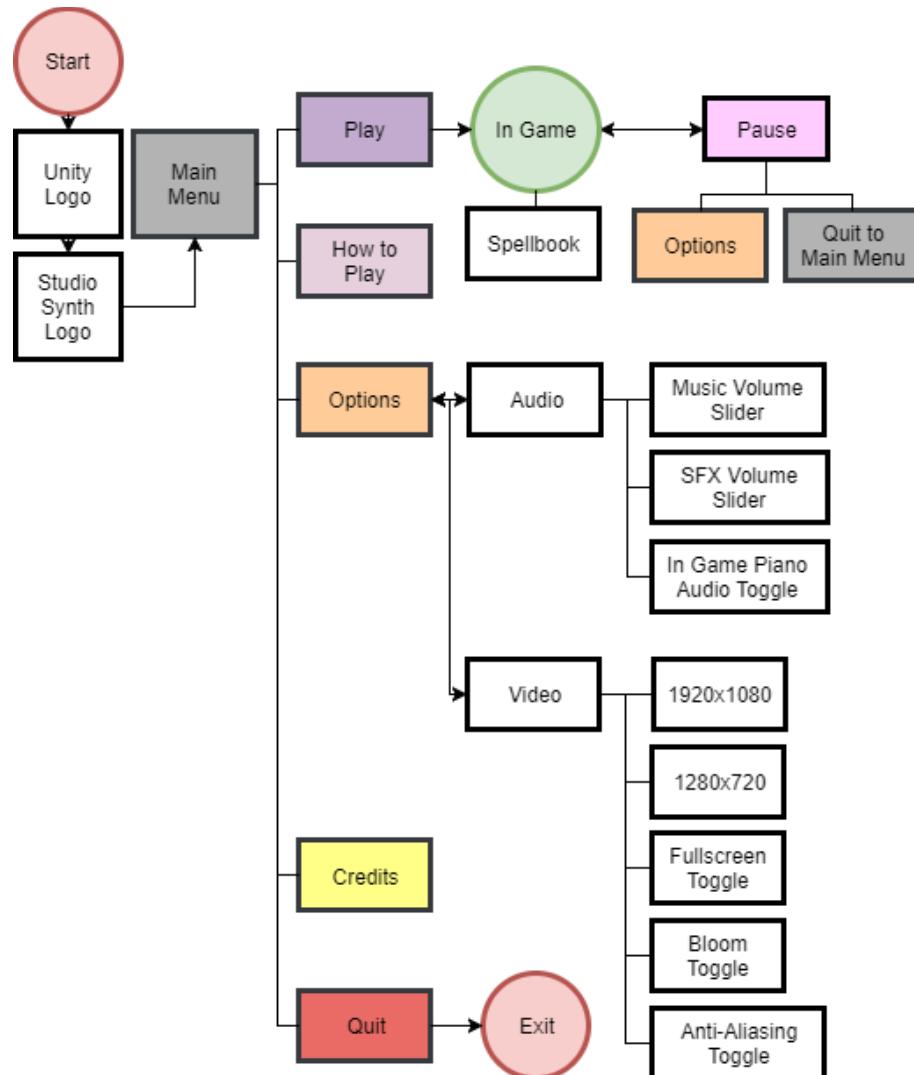
a. Menu Descriptions

Navigation in menus are mapped to the Black Keys on a piano.

Navigation	Description
Main Menu	The main menu shows the title, Ta-Re-Na, and the different categories to choose from: Play, How to Play, Options, Credits, and Quit.
How to Play	This section explains the backstory, how to play with the piano, the UI/HUD, and gameplay. There are a total of 8 pages to go through to read all the information.
Options	There are two subcategories: Audio and Resolution. Audio section has volume sliders for Music and Sound Effects, as well as a toggle for playing keyboard audio in the game. Video section has radio buttons for 1920x1080 and 1280x720 resolutions, as well as a toggle for Fullscreen, Bloom, and Anti-aliasing.
Credits	This is a list of those who have worked on the game and the roles they had.
Quit	Exits the game. The player is only able to quit the whole game from the main menu.
Pause	Pause can be brought up during gameplay by simultaneously pressing the two black keys with pause symbols. It includes the Options menu and Quit to return to Main Menu.
UI/HUD	The spellbook can be brought up by pressing and holding the C Major chord. Otherwise, once a chord with corresponding elements is played, the first notes for the different spells are shown

to start off a melody. The combinations the player makes show up in the top middle of the screen, indicating which spells they have used. Ta-Re-Na has a speech bubble that shows the correct spells the player has inputted and a question mark for the incorrect spells. The Spell History is displayed on the top right for up to 5 combinations. There is also a Resource Meter above the moves, indicating how many more tries the player has before they either have to get more resources or get a game over.

b. Wireframe



c. Images



Audio Options selected from the Options menu. Shows the Music and Sound Effects sliders as well as the toggle for playing the keyboard audio in game. Lines extending from the black keys show which ones to press to affect the sliders and toggle. Two arrows are shown on the C# and D# black keys in middle C, which should be pressed to return to the Options menu.



The HUD and UI of the game.

Elements: Hold like icons simultaneously to bring up different spells or the spellbook. **Spells:** Displays inputted spells as a combination. **Feedback:** Ta-Re-Na explains which spells were correct in the latest input. **Spell History:** Displays up to 5 of the combinations attempted. **Resource Meter:** Displays how many tries there are left.

6. Sound and Music

a. SFX

The SFX used for our game depicts feedback to the player. By doing this, the player will know they played the spell correctly without having to see text prompts.

SFX Title/Other Screens	Situation	Additional Notes
Menus	Player is navigating through the menus	The SFX for navigation in the menus will consist of the piano keys played.
Biomes	Player attempts to restore the biome, and succeeds or fails.	Piano SFXs are played when the keyboard is pressed. When a player performs a spell correctly, they will hear a success input SFX. When the player hits the incorrect key, they hear a wrong key SFX. When they play a wrong combination, they hear a failed input SFX.

b. Music

The overall musical theme will be aimed towards a soft and elegant sound. The game's music will not be the focal point during gameplay. The music is only used as a compliment to the musical interaction that the player creates through the use of the piano.

Songs	Situation	Additional Notes
Menus	The player is navigating through the menus.	The music of the main menu will introduce a soft, mellifluous sound that is welcoming to the player.
In Game	Occurs during core gameplay.	The music is soft and allows the player to focus on gameplay.

7. Production Plan

a. HacknPlan

Our team's main method of keeping track of hours and tasks completed will be done through our HacknPlan, created specifically for the purposes of this project. HacknPlan is a tool created for game development and follows a kanban styled approach for task management. Tasks can be moved between these sections to signify progress, along with logged hours and commentary to better illustrate team workflow on a daily basis. Access to the team's HacknPlan can be provided to the professor upon request.

b. Discord

For our daily collaboration and communication. Discord allows for voice calls between individuals and the entire team. In addition, has a mobile, web, and desktop app, making it easy to keep up to date on current discussions. Access to the team's Discord has been provided to the professor.