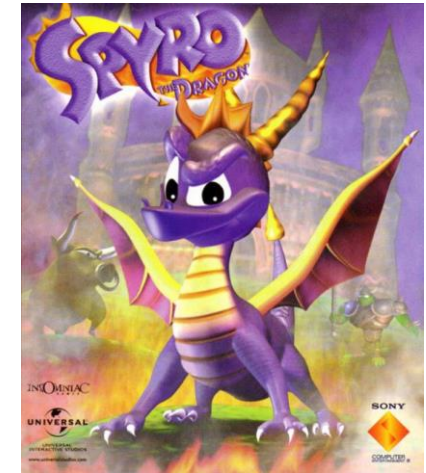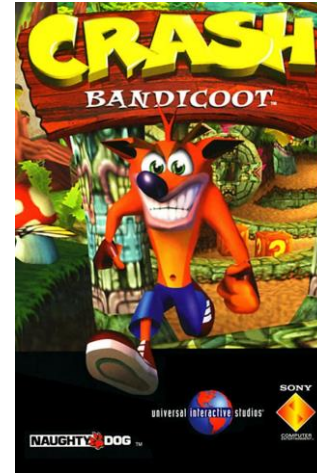By James Grist

What is Kai N Tonga?

Kai N Tonga is a love letter to classic platforming games. Inspired by games such as Banjo Kazooie, Crash Bandicoot and Spyro. Kai N Tonga is an action-adventure, puzzle, and platforming collect-a-thon game blending classic platformer aesthetics with modern game design, controlling two characters at once.
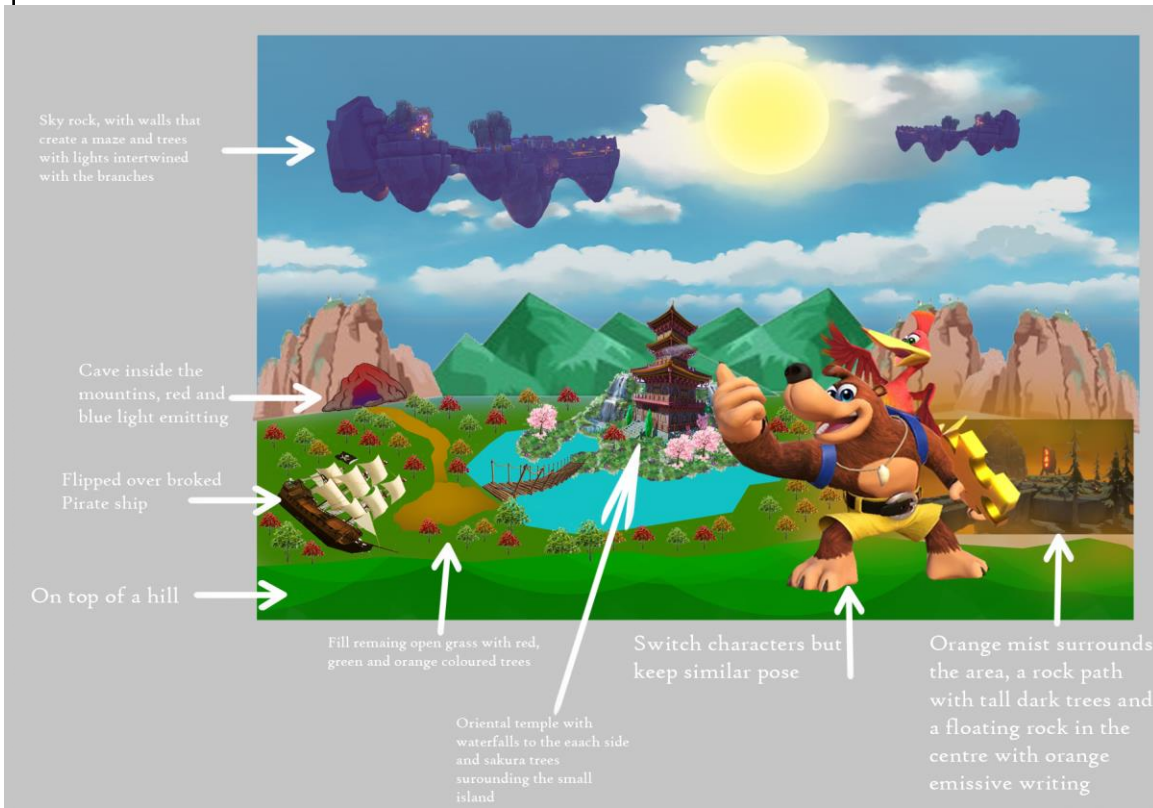
The original concept for Kai N Tonga apparated whilst playing Banjo Kazooie and wondering if we expand on the characters, making Kazooie its own separate player character with different mechanics from Banjo.

Now with a concept developed, some goals were made to help produce this project.

- Design player and level mechanics to produce the same feeling and challenge as classic platformers

- Construct one tutorial level, teaching the player both level and player mechanics throughout the level whilst challenging the player as they move forward.

- Create a distinctive experience for the player, giving them nostalgia for classic platforming games whilst giving them a new adventure with a unique twist

Rough concept:

Final concept art:

Sky rock, with walls that create a maze and trees with lights intertwined with the branches

Cave inside the mountins, red and blue light emitting

Flipped over broked Pirate ship

On top of a hill

Fill remaing open grass with red, green and orange coloured trees

Oriental temple with waterfalls to the each side and sakura trees surounding the small island

Switch characters but keep similar pose

Orange mist surrounds the area, a rock path with tall dark trees and a floating rock in the centre with orange emissive writing

Final concept by Anastaiaanim

With this concept in mind, a commissioned was made as an experiment to discover if this project could potentially visually work and give the aesthetic of a classic platformer game. Using what inspired the project in the first place, poses from Banjo Kazooie with environments inspired by Yooka Laylee, Costa Rica and Japan. The decision to have these real-life locations as inspiration was due to lack of these beautiful landscapes in games. This gives a distinctive look to Kai N Tonga, blending both mystical and reality into one.

END PRODUCT

From Concept to completion

A plan was needed to be put in place to help put the project into fruition. An R and D report was made to assist plan the steps ahead, such as setting the work in each semester.
Semester one is focused on gameplay and game feel. Semester two is focused on level design, level mechanics and polishing.

To understand the project's demographic and what should the project be aiming towards, player typology was used. Utilizing Jason Vandenberghe's Taste maps, this design aspect allows the project to fully understand what type of player would play this game and what the project should be aiming for.
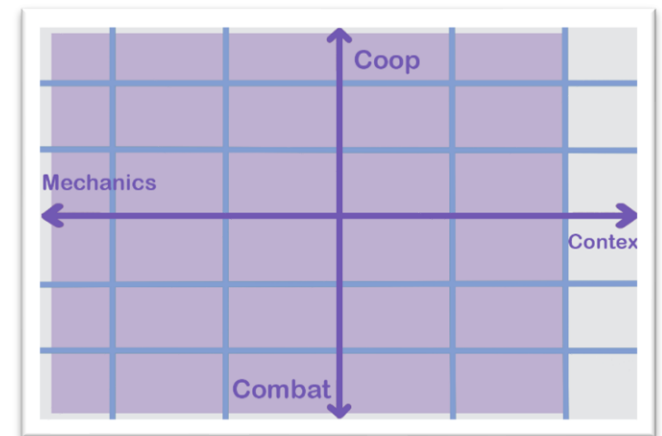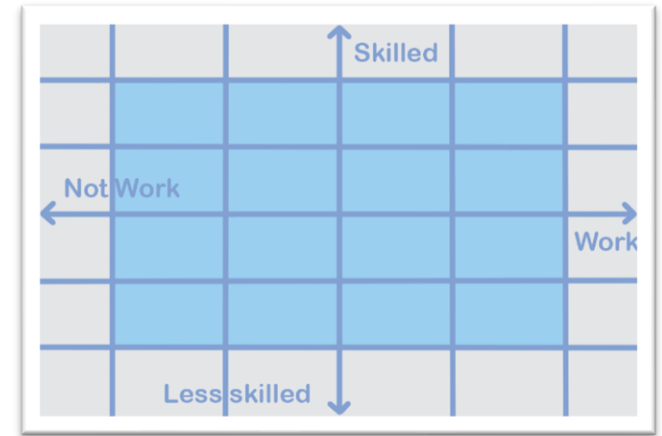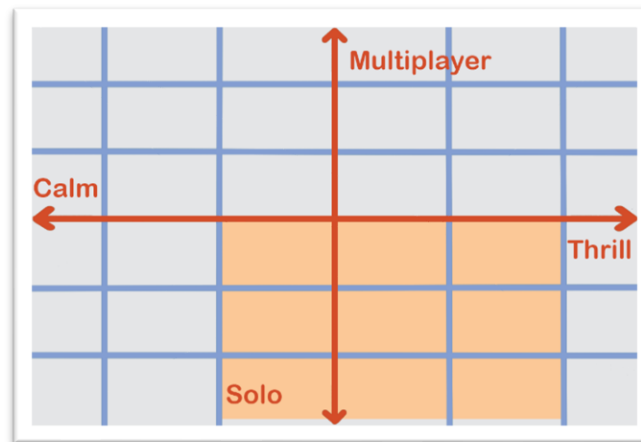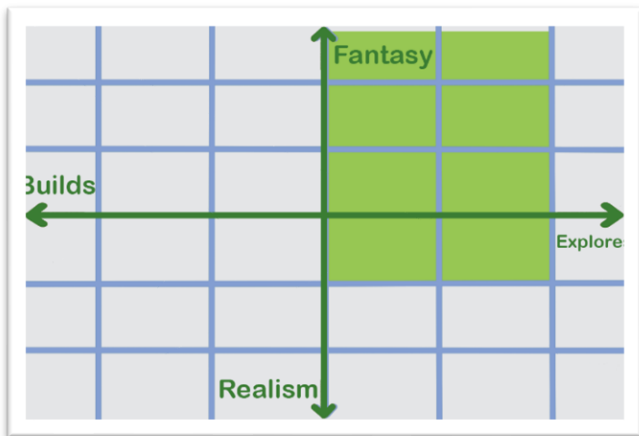
Development process
Semester 1, Mechanics

The first semester was focused strictly on gameplay, making sure the game feel was satisfying whilst creating multiple functional player and level mechanics to decide in semester two what would be included in the tutorial level.

Creating a toy box map featuring all the mechanics made In semester one to test. Player mechanics was designed based on the player characters design, Tonga is a Gecko and Chameleon combined, meaning the character shoot it's tongue out or climb on walls.

A list of all the mechanics made in the first semester:
- Grappling
- Attacking (Punching with Tonga and Shooting with Kai)
- Grabbing objects (Cut)
- Interactable objects and vehicles (Cut)
- Golem enemy (Cut)
- Jump pad
- Grinding rails (Cut)
- Collectables
- Health pick up (Cut)
- Disintegrating platforms (Cut)

Grapple Range = 700

If grapple target is Inside circle grapple distance then can graple
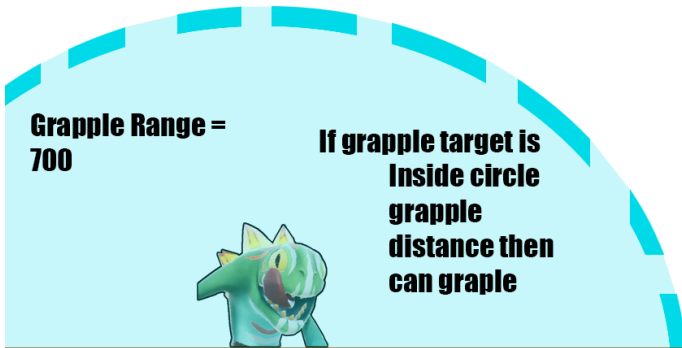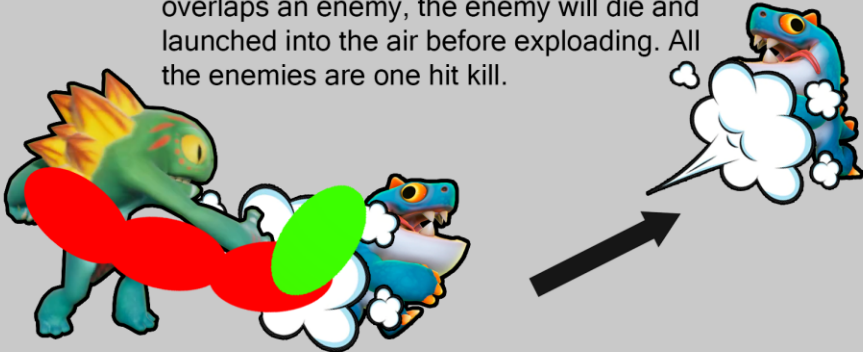
Grapple target

Outside of grapple range > 700 then Gecko character cannot grapple

Tonga Attack:

When the player attack with Tonga, an attacking animation will play with 6-10 capsule tracers following the attack animation. When one of the capsules overlaps an enemy, the enemy will die and launched into the air before exploading. All the enemies are one hit kill.

Development process

Semester 2, level design

The second semester was focused on creating a tutorial level.

The first step was to decide on what mechanics should be taught to the player. As a result of the heavy learning curve for casual players using two characters at once. The decision was to teach the player the basics: movement with player characters, attacking with them and grappling once the basic movement was mastered.

The level design alternated a considerable number of times, this means removing previously designed sections to fit with the pacing of the level, changing the starting point of the level to allow the player more time to learn just to moving with two characters and adding more time to learn how to attack before getting on with more complex mechanics.
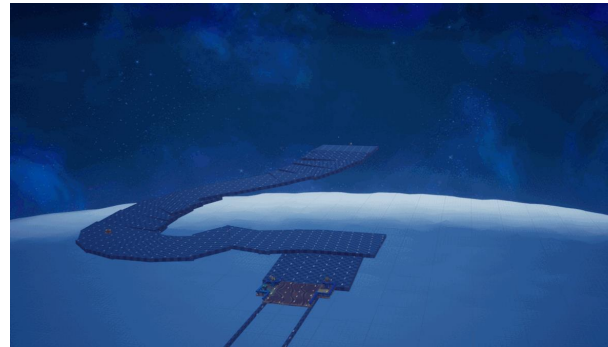
Core:
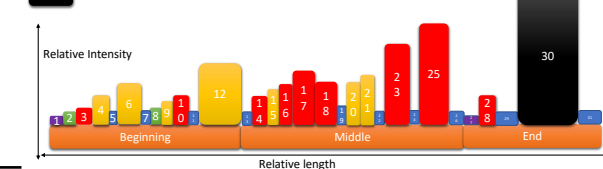1. Movement
2. Combat
3. Grappling

secondary:
1. Obtain key
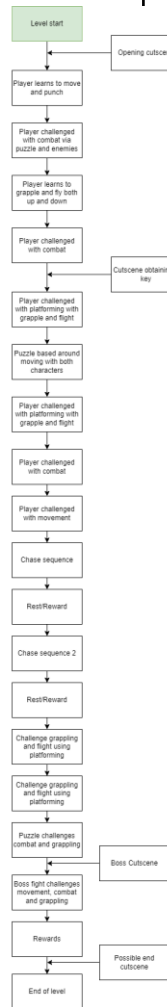2. Obtain fallen star
3. Destroy boss

Event:
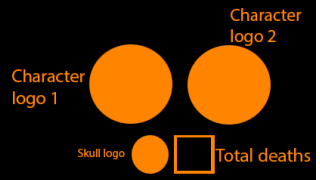1. Floating islands falling
2. Chase sequence
3. Paths destroyed

Level flow

perceived affordance   Light focal points   Leading lines

- Learning a mechanic
- Combat
- Puzzle/Platforming
- Cutscene
- Rewards/Break
- Boss

1: Opening Cutscene
2: Learning to use combat and collectables
3: Easy puzzle based around combat
4: Easy combat section
5: Reward section with Main Logo
6: Transportation Combat section
7: Rewards for surviving transportation Combat sequence
8: Teaching the player how to fly with Kai and Grapple
9: Small combat encounter with moving turtles
10: Grappling section with floating platforms
11: Rewards for getting across the floating platforms
12: Combat arena with three levels of difficulty
13: Door opens and rewards for beating the arena
14: Saw Blade platform, inspired by Crash Bandicoot
15: Combat section with three walking turtles
16: Puzzle about both characters moving away and buttons
17:
18:
19:
20: Shooting enemies blocking path
21: Walking turtles and lightning clouds on bridge
22: Rewards for getting across bridge
23: Chase sequence 1
24: Break from chase sequence 1
25: Chase sequence 2
26: Rewards from surviving chase sequence
27: Cutscene of characters looking at Castle
28: Platforming across moving platforms
29: Walk up to boss fight
30: Boss fight with all the mechanics learnt combined
31: Rewards for beating the level

Relative Intensity

Relative length

Beginning   Middle   End

UI

Wireframe

Crash bandicoot inspired AI

Crystal 3
Crystal 2
Crystal 1

Magic flask fills up

Chests
Total chests collected
Total chests in game

Character logo 2
Character logo 1
Skull logo
Total deaths
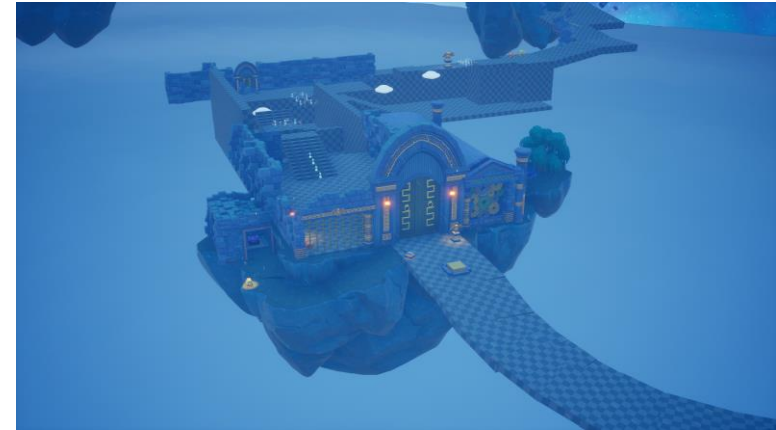
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Issues with the project

Level design issues

The main issue that occurred with level design was pacing and design issues.

Sections such as the Clock Tower originally taught the player that both character can separate, and the screen will split to showcase both perspectives. This is taught via a puzzle requiring Tonga to stand on a button to open a door whilst Kai goes into the tower to activate another button to keep the door open. The design that comes after this puzzle doesn't further challenge what the player has just learnt, but instead moves on to teaching them a new level mechanic, and no longer further expands on the newly learnt player mechanic.

To combat this issue, a re-design of that area was made to expand on the mechanic whilst challenging the player's knowledge of previous mechanics such as combat and flight movement.

This issue appears multiple times, this could be due to a pacing issue, not enough combat scenarios in the game or not enough challenges are being made to a certain mechanic.

Learning a mechanic

Combat

Puzzle/Platforming

Cutscene

Rewards/Break

1: Opening Cutscene
2: Learning to use combat and collectables
3: Easy puzzle based around combat
4: Easy combat section
5: Reward section with Main Logo
6: Transportation Combat section
7: Rewards for surviving transportation Combat sequence
8: Teaching the player how to fly with Kai and Grapple
9: Small combat encounter with moving turtles
10: Grappling section with floating platforms
11: Rewards for getting across the floating platforms
12: Combat arena with three levels of difficulty
13: Door opens and rewards for beating the arena
14: Saw Blade platform, inspired by Crash Bandicoot
15: Combat section with three walking turtles

16: Puzzle about both characters moving away and buttons
17: Rewards for beating the puzzle
18: Combat sequence underneath waterfall
19: Combat with kai and Tonga targeted enemies
20: Shooting enemies blocking path
21: Walking turtles and lightning clouds on bridge
22: Rewards for getting across bridge
23: Chase sequence 1
24: Break from chase sequence 1
25: Chase sequence 2
26: Rewards from surviving chase sequence
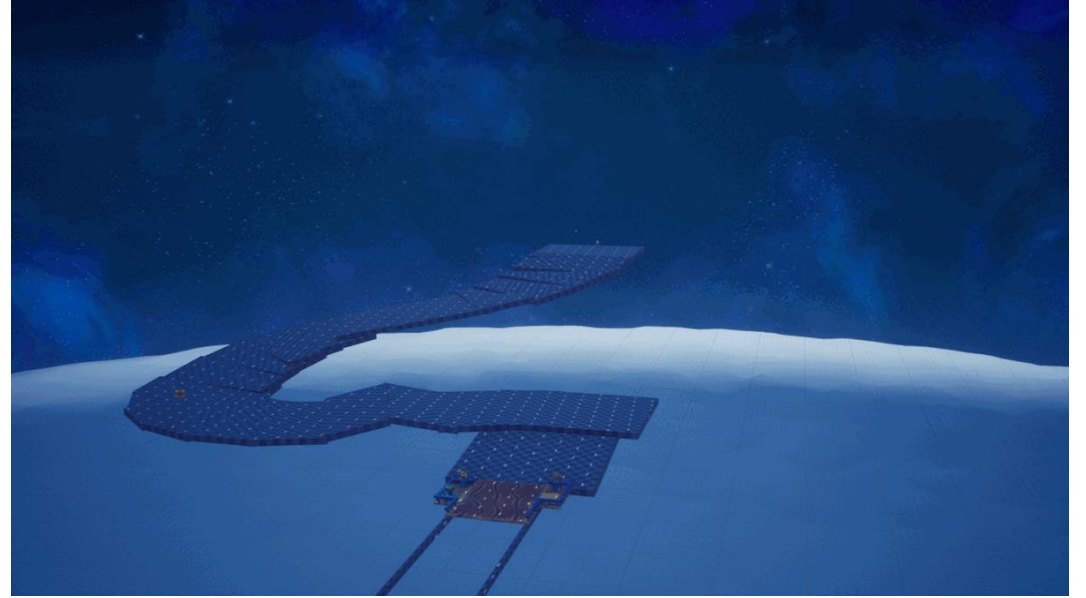27: Cutscene of characters collecting crystal

Relative Intensity

Relative length

Beginning   Middle   End
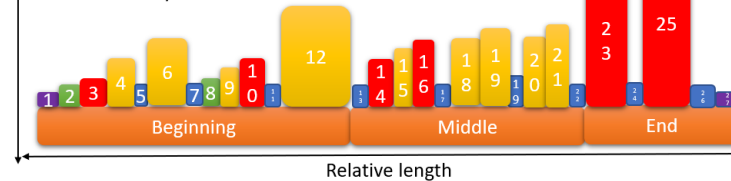
KAI N TONGA

KAI N TONGA

NORMAL CHESTS:
46

SECRET CHESTS:
5

KAI CHESTS:
46

MEGA CHESTS:
15

Mechanic issues

AI was the main issue to tackle in this project, both methods used to create a functional AI enemy system yield different results depending on the enemy character. For example, small enemies are the most functioning AI created, looking for the player character, when spotted, the enemy will run over and try to bite Tonga (Gecko character). Issues with this character still pop up throughout the level, this is due to the enemy stuck in a falling animation when spawned or the AI unable to find the nearest Nav mesh.

The AI character with the most issues was the Chase sequence Golem. The use of behavior trees, black board, AI tasks and Ai move to coding was used which all lead to unsuccessful results. The only method which work was the use of level sequencer. This was a last resort method as this method does not use any sort of AI besides the enemy using animations.

https://www.youtube.com/watch?v=xYyZxWXiFNk

Performance

The overall performance of the game has a low fps on an AMD Ryzen 5 2400G and prior processors. Maintaining around 10 to 20 fps whilst on currently gen computers, fps maintains around 35 to 45 fps.

This fps drop is due to the camera tracking the characters, the foilage the amount of assets using shadow casting and visibility commands which are now currently set to very low or turned off.

LODs has been utilized to decrease the amount of loading in the level depending on the screen size, this has increased the fps however the performance is still an issue to this day in the project.

https://youtu.be/u-PwMCnVdFs

Reflection

This project has guided and inspired me towards a career I previously gave up on (Level design). I learnt numerous new design philosophies, such as AI, combat design, the importance of game feel, UI and more.
 I continue to learn more and more, every time I interact or showcase this project with others. If this project was to be further developed, the next step would be to introduce the interact mechanic, such as holding objects, controlling cranes and more.