A logo for a company

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**Design Document for:**

# Buccaneer’s Bounty

**Alpha Build Edition**

“What the Bucc?”™

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Written by Group 40

Version # 1.00

Sunday, October 08, 2023

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# Game Overview

## Common Questions

### What is the game?

Buccaneer’s Bounty is a playful and cartoon-inspired 3D game. You play as a pirate ship with the goal of defeating the Buccaneer and taking his bounty. Along the way you will encounter smaller and increasingly difficult enemies that you can eliminate to earn gold which lets you upgrade your ship to give you the best chance at beating the Buccaneer because, trust me, you’ll need it.

### What is the objective?

Buccaneer’s Bounty is a pirate themed action and adventure game which provides players with an enjoyable and rewarding experience. Players will steer the ship and defeat enemy pirate ships to obtain loot. Additionally, players will be able to use acquired loot to upgrade their ship, allowing them to defeat stronger enemies leading up to a final boss. It is imperative that the gameplay is easy to pick up but increases in difficulty to provide the player with a challenge. It is also crucial that all menus - specifically the upgrade shop - are simple and informative for the player.

### What is the genre?

The game includes components from both the action and adventure genres; namely, it features player versus environment combat in an open and explorable world.

### What is the target audience?

This game is targeted at casual gamers seeking a less complicated and less competitive experience. Its cartoony design and casual nature entice players of all ages to enjoy the game. The simple narrative and game design may appeal to the ‘speed-running’ audience as well. Buccaneer’s Bounty is not bound by age restrictions in that it will not feature any gore or adult content, allowing for a larger target audience. The game will naturally attract casual gamers, being easy to understand and for its noncompetitive nature.

### Why create this game?

This game was designed to provide users with a relaxed and satisfying experience. It combines the features of 3D adventure and first-person shooters without the seriousness of other games in the genres. It’s a game that remains challenging and allows the user to utilize their personal gameplay styles.

### Where does the game take place?

The environment for this game is set a long stretch of ocean with islands and enemies scattered throughout. The world represents a long rectangle in which each section, split into thirds, represents deeper waters which forewarns for the increased difficulty in the section.

### What do I control?

The user will control a pirate ship with the ability to traverse forwards and backwards, rotate left to right, and access the cannon view to be able to aim and fire at enemy players. You will be able to upgrade characteristics, repair the boat, or even upgrade to an entirely new model with better features.

### What is the main focus?

The user’s primary focus is to defeat the Buccaneer to claim their bounty. There will be obstacles along the way which make this increasingly difficult; however, smart selection of upgrades with gold earned from defeating the lower tier enemies gives the user an advantage in this final boss battle.

### What’s different?

This game is an addition to the single player, player versus environment market. With a clear goal for the player with a sufficient level of challenge. This game is engaging, intuitively designed, and satisfying to play until completion – which can be achieved within a smaller time frame. The game provides players with an opportunity to experience a 3D adventure game within a smaller time frame than most other games.

# Feature Set

## General Features

This game incorporated a variety of features. These features include:

* A large and custom-made map.
* Custom made assets.
* Various enemy AI ships which the player can battle.
* Islands as obstacles which the player can navigate around.
* A monetary reward upgrade system.
* Ability to shoot at and damage enemy ships.
* Can be shot at and damaged by enemy ships.
* Can see own stamina which reduces when boosting.
* Can track own and enemy ship health.
* Various shops around the map to upgrade the ship’s properties.
* A final battle against the most difficult AI ends the game.
* 3D design with a 2D art style.
* 32-bit color for a realistic feel to a game with a cartoon art style.
* Sound effects and particles when performing specific actions.
* Soundtracks for different scenes or battles.

## Gameplay

Gameplay within Buccaneers Bounty is seemingly simple, making for an easy learning curve. Elements contributing to this include:

* Manually designed free-roam world with islands and sharp rocks scattered across which inflict damage to the player on collision.
* Ability to move the ship transversely with lateral rotation. The player can also boost to activate a speed boost. This boost has a limited use/stamina effect.
* A cannon-based camera to allow for aiming and firing of ship mounted weaponry.
* Successfully impacting an enemy ship will inflict damage on the enemy.
* If an enemy ship fires at and hits the player ship, the player will be damaged.
* The enemy ship will disappear on death, while the player sees a death screen.
* Enemy AI ships of increasing difficulty to defeat as you progress through the map.
* An upgrade-based reward system based on gold earned from defeating enemy ships.
* A final boss to defeat which will win the game and bring the credits.

## Flowcharts

Figure 1 is a flowchart which accurately depicts how the game is expected to function on an internal level. It contains all the features and processes as can be expected within the game for a holistic understanding of its functionality.

A diagram of a flight system

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Figure 1 - Flowchart

## Storyboards

|  |  |
| --- | --- |
| **A close-up of a logo  Description automatically generated**  Figure 2 - Home Screen | **A close-up of a board  Description automatically generated**  Figure 3 - Leaderboard |
| **A drawing of a ship and a boat  Description automatically generated**  Figure 4 - Combat Mechanics | **A drawing of a house with a sign  Description automatically generated**  Figure 5 - Upgrade Menu |

The game’s scenes and actions can be visually represented by a sequence of drawings and illustrations as can be seen below. Each scene contains a different aspect of the game, displaying its consistent design style.

## Controls

The player moves their ship using the typical WASD movement framework. The entire controls can be seen below:

|  |  |
| --- | --- |
| Move forwards | **W** |
| Move backwards | **S** |
| Turn left | **A** |
| Turn right | **D** |
| Boost speed | **SHIFT** |
| Enter/Exit cannon camera | **V** |
| Main Menu | **ESC** |
| Enter/Exit Shop (If within range) | **E** |
| Fire | **SPACE BAR** |

# The Game

## Overview

This game is a player versus environment style single player game where the key objective is to defeat the enemy ships, and eventually defeat the boss. This includes additional features such as the reward system to enable the player to upgrade their ship as well as freedom to the player to win the game however they want as long as they defeat the final enemy. This is to say there is no specific number of lower tier enemies or minimum upgrade required before being able to face the boss. This opens the door to many playstyles including speed running or a completionist playstyle, which is the playstyle in which a player will work to upgrade their ship to the highest level before progressing to ensure all battles are as easy as possible.

## Victory Conditions

The player can win the game by defeating the final boss, the Buccaneer, in battle. Once the boss’s health reaches zero, the game will display a victory screen. This is the only condition for victory to truly ensure each player can customize their experience. The player can also lose the game by having their own health reach zero, so this urges any player to seriously consider upgrading their ship for the best chance at victory.

# The Game World

## Overview

The physical world features a three-dimensional layout with various assets and obstacles inserted into the map to increase the complexity of the world. The terrain, obstacles, and assets were selected specifically to further improve the player experience.

## The Map

The terrain was manually created using the Unity terrain tool to create the water and terraform the islands and map-boarder. The terrain has been painted so that the first section of the map is a shallower sea with a brighter color scheme for the water, which darkens as the map progresses to more difficult stages. The islands are painted with a grainy yellow to reflect sand as well as green to reflect grass. The islands also have huts, jetties, and shops which have all been custom made to the specific game, some of which are interactable to enable the shop feature – specifically any islands with a jetty and a larger hut. The final boss exists within a cove which features the above as well as a large treasure chest which is unmistakably the bounty the player is trying to obtain.

## Obstacles

The player, as a boat, will instinctively try to remain in the water, away from the islands and enemies as obstacles. The scripts are in place to damage the player ship and push them away from the island in case of any collision to mimic a real collision with an island. This also occurs on impact with the map edges to ensure the player remains within the confines of the map. Enemy ships of varying difficulties are also scattered throughout the map to not only challenge the player but to provide an opportunity to earn more money to upgrade their ship.

# Game Characters

## Overview

There are three different player model designs, each indicative of a better ship and can be acquired in the upgrade shop. Each new ship has more cannons, more health, and reflects an obviously better ship in comparison to the last.

## The Player

The player ships, as discussed, exist in three levels, and can be upgraded to the next level in the upgrade shops. Each will grant the player more cannons for a higher burst shot count and more health. This provides the player with a better chance in combat as well as a better-looking ship. The player ships are designed with a blue sail for contrast against the enemy ships with red sails. The player ship also represents Griffith University with the logo applied to each ship on the mast.

## Enemies

Like the player ships, the enemy ships also change in appearance as they become more difficult with four stages. The enemy ships have increased burst shot counts and health as they upgrade. Each defeated enemy provides the player with a monetary reward for upgrades. The enemy ships become more difficult the closer the player gets to the final boss who is a very large and difficult opponent. Fittingly, defeating the boss ends the game and initiates the victory scene. Enemy ships all have health bars so the player can better track their progress in defeating each enemy.

# Artificial Intelligence

## Finite State Machine

All enemy AI ships use the same FSM algorithm for determining their behavior at any point throughout the game. Below is a visual representation of the FSM algorithm:

A diagram of a game

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Figure 6 - FSM Map

Figure 6 clearly indicates the conditions for switching between states for the AI entities. The enemy ships are by default in a patrol state, which includes travelling to and from pre-determined waypoints. Should the player, for whatever reason, enter a specified radius from the enemy ship, the enemy ship will enter a chase state. The chase state uses the player’s location as the destination for the enemy ship to enable the AI to ‘chase’ the player. If the player is able to escape the chase range, the enemy ship will revert to the default patrol state and continue its journey to the waypoints. If the player enters the attack range, the enemy ship will continue chasing the player whilst also attacking the player. The enemy ships will stop before colliding with the player to mimic the expected distance between two ships in battle. It should be noted if the enemy ship’s health reaches or passes zero at any point throughout the game and during any state, the enemy ship will be destroyed, give the player a reward, and de-spawn.

## AI Algorithms

What AI algorithms are employed in this game.

# Logs

# Credits

Soundtracks and effects for the game were acquired from multiple online sources and are referenced below:

Background Music – “Pirate Music” by Kamalesh Siddu  
<https://pixabay.com/music/main-title-pirate-music-14288/>

Victory Music – “Seven Seas – Sea Shanty” by Julius H  
<https://pixabay.com/music/modern-classical-sad-violin-150146/>

Menu Music – “Sail” by Unknown Instrumentalz  
<https://www.youtube.com/watch?v=3aQDzHkG_kg>

Game Over Music – “Sad Violin” by Oreg Kirilkov  
<https://pixabay.com/music/modern-classical-sad-violin-150146/>

Boss Fight Music – “The Buccaneer’s Haul” by Shane Ivers  
<https://www.silvermansound.com/free-music/the-buccaneers-haul>

Cannon Fire Sound Effect – by user Rmh156  
<https://www.myinstants.com/en/instant/cannon-fire-56654/?utm_source=copy&utm_medium=share>

# Author Page

The entire team as provided below held a critical role in the design of the game. Each member’s roles and responsibilities were delegated according to individual strengths to ensure a quality product. Shared responsibilities still included script refinements, bug correction, and testing of new features.

|  |  |
| --- | --- |
| profile image | **Barend De Lange | S5276006 barend.delange@griffithuni.edu.au Game Developer** Barend was a crucial part of the team, focusing on the front-end, specifically GUI such as the pause menu functions, the multiple scenes and was the primary UAT champion throughout the game. |
| A person with long hair smiling  Description automatically generated | **Sam Lee | S5264706 samuel.lee4@griffithuni.edu.au Game Developer** Sam heavily influenced the outcome of the game by creating the terrain and reward system. This included the design of the world map, creating the player upgrade shop and implementing the currency system. |
|  | **Christiaan Small | S5255201 christiaan.small@griffithuni.edu.au Game Developer**  Christiaan was a key developer, focusing on the enemy AI behaviours and player ability. He also implemented the victory conditions and led the artistic direction of the game, creating a large portion of the game's assets, textures, and UI sprites. |