Team Cross-Over: Project 3 Documentation

Team

- Chase Stump
- Marco Borth
- Jack McClure
- Rachel Elting
- Jarod Davis
- Haleigh Hunt

WORKS CITED

Battleship was developed in the Unity engine, utilizing provided libraries. Libraries cited:

- All UI.Buttons, Dropdowns, and UI Panels set to GameObject variables derive from the UnityEngine.UI Library.
- UnityEngine.SceneManagement library was used for the Sceen Manager to reload the game scene.
- UnityEngine library uses the default Start and Update methods created in every .cs file.

Unity3D.com: Unity Documentation Web Page for Object properties and scripting examples.

- Unity User Manual: https://docs.unity3d.com/Manual/index.htmlls
- Unity Scripting Reference: https://docs.unity3d.com/ScriptReference/index.html

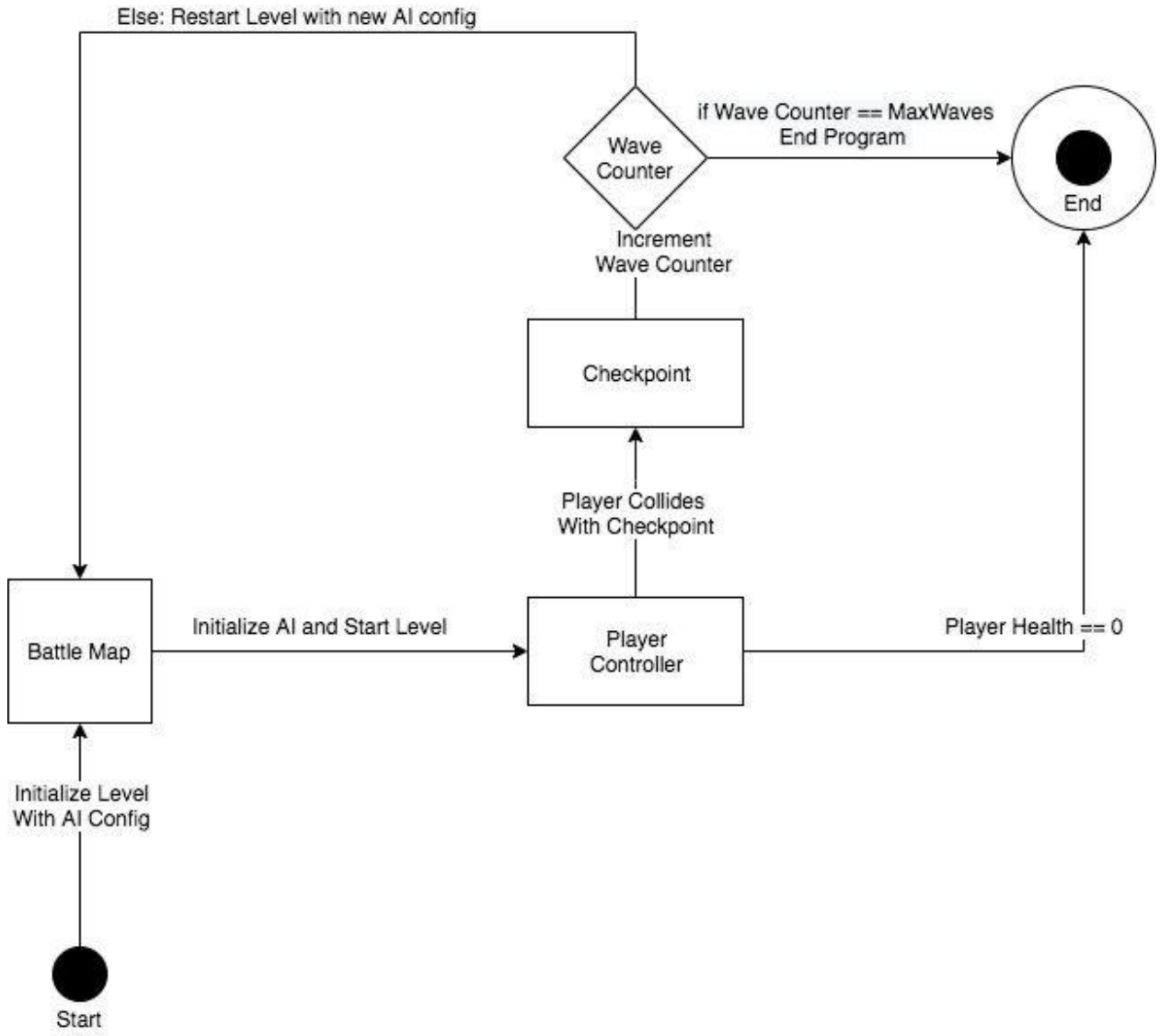
Documentation instructions and config files were provided by the official Doxygen website: http://www.doxygen.nl/manual/starting.html

Imported Assets:

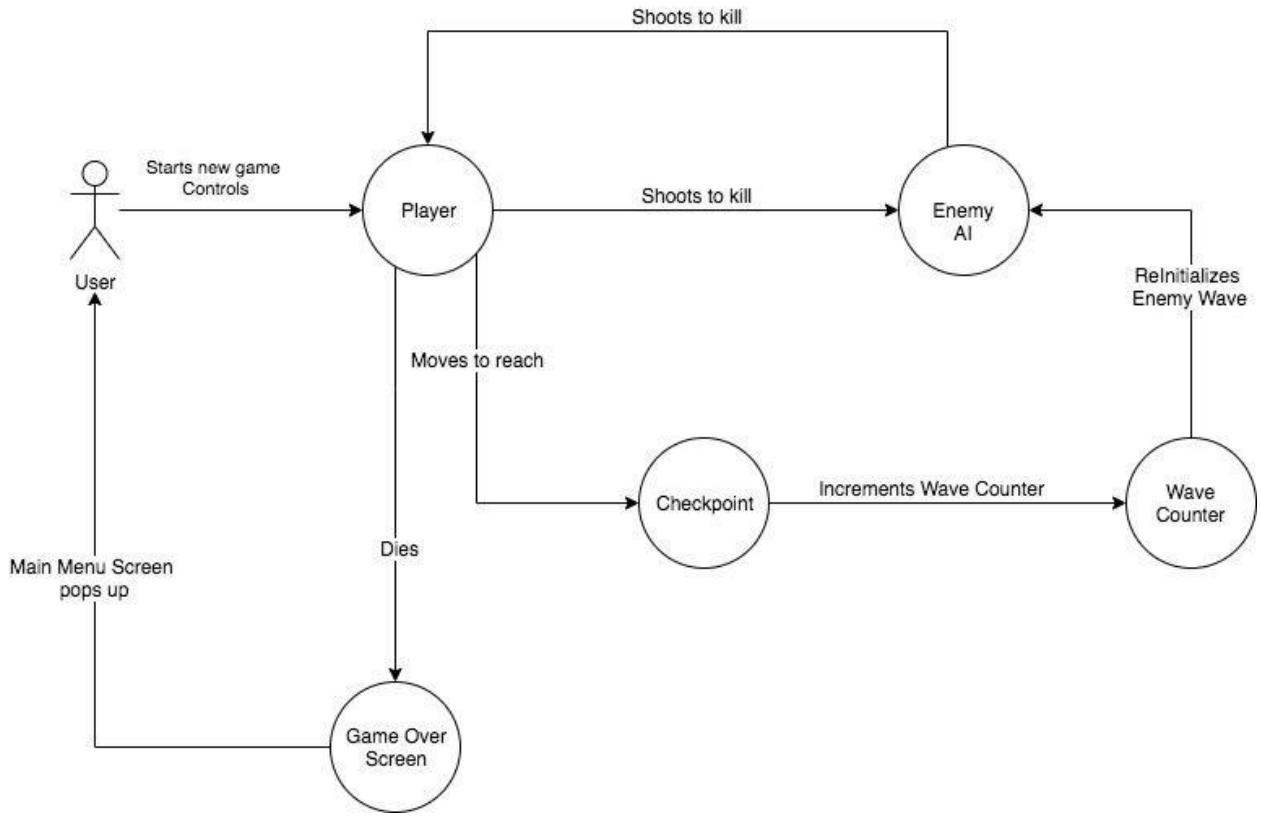
- Simple Health Bar Free: https://www.tankandhealerstudio.com/simple-health-bar-free.html
- Free Download includes Sprites, Scripts, Etc., and an Asteroids Example to demo asset.

UML

State Diagram



Use Case Diagram



Class Diagram

Class diagrams are too large to fit within this document and can be found in the Doxygen output for each class. The most notable class diagrams are within the GunPart, RifleScript, and PlayerController classes.

Scrum

Product Backlog: an ordered list of the work to be done in order to create, maintain and sustain a product. Managed by the Product Owner.

Character Controller: What it sounds like. Lets us control a character's actions either through automated scripts or user input. Likely will use one abstract class which then will have child classes. For testing though we only need one for the player. I have experience with this and will likely work on this

Weapon System: More or less the weapons will be a collection of parts objects for various things such as stocks. I am the one doing this and will gladly take another hand. For testing all we will attempt to do is produce a gun which then will roll for each of its slots and be usable by the player. Nothing fancy just getting the gun to roll different objects and use the stats from them.
Test Dummies with some form of AI if possible. The AI will be at best some sort of very basic navigation like moving to a fixed location. Maybe have HP that is displayed and can be deducted. Jack will handle AI,

Treasure Chest: Interactable that will spawn 4 "Items" which are randomly rolled. Likely guns from weapon system. Rachel will work on this.

Map: Likely a large room made of 6 boxes, one each for the walls, ceiling and floor. Each will have a collider and not interact with gravity. Jarod and Chase can work on this.

UI: UI will be done by Marco. Ammo counter and health objects drawn on canvas and updating as we change variables. These changes can be done via editor

Sprint Backlog: an overview of the development work to realize a Sprint's goal, typically a forecast of functionality and the work needed to deliver that functionality. Managed by the Development Team.

- Preliminary Research: Research needed to be made to plan out core features and core systems for this project.
- Player and Gun Controller: Controllers needed to allow player to move and use gun during gameplay
- BattleMap level Prototype: Prototype Level to demo Project 3 ● Asset Design:
    - Chest Object Design: 3D Object Model design of chest object to use for Lootbox Prototype
- Lootbox Prototype: Prototype of an interactable object for player to interact with. Will be used to collect items such as health and guns for Player to use.
- Player HUD prototype: Prototype of the Player HUD, including player health bar, aim cursor, and ammo counter.

Retrospective

Sprint Meetings:

Scrum 1 - 10/23/2019 - Spahr Classroom

Project Ideas:
- Borderlands style shooter
- Galaga

Agreed project:
- Borderlands style shooter

Features:
- Maze/Gauntlet style map with combat rooms and "rest" rooms
- 3D/FPS
- Static maps, NOT random generation.
- No hit scan - projectiles only, requring platforms and upward mobility
- Jump mechanics
- Doom style mechanics
- QWERTY support (input manager)
- Mapping to controller if time allows with (input manager)
- Safe rooms / "rest" rooms for outfitting and equipment
- Weapon generation and customization within the restrooms - heavy customizability with weapons
- General shapes for characters for simplicity - modeling and artwork later.
- Inventory system
- Random enemy spawns
- Player health/shield
- Dumb AI

Stretch goals:
- Multi-player (adversarial & coop) support
- multiple maps
- Multi characters

Scrum 2 - 10/23/2019 - Spahr Classroom

Plans for week 10/28
-Discussed schedules for the week.

-Nav mesh and all level rooms needs to be completed.
-Hidden Walls that look glitchy

-Trigger colliders and spawning
-Basic AI needs to be set up

-Begin graphic/art and modeling for synthwave bathroom and enemy characters - Animation

Scrum 3 - 10/30/2019 - Spahr Classroom

-Deciding on enemy character shapes - possibly skeletons. Easier animation. 3D modelling.
-Add physics to dem bones
-Neon horror theme. SPECIAL characters designed by Haleigh -
Trigger colliders for rooms still need to be implemented.
-Enemy spawner needed
-Scripts with timers, spawn enemy
-Use flags for rooms
-Modify timers based on areas
-Multiple spawn points for enemies
-Enemies spawning from cracks in the ground - can be hit when facing player, invisible when angled perpendicular -Bullet animations for different ammo

Challenges

- A New Challenger has joined the team, with Projects 3 and 4 our project would need to ensure that 6 members have a sufficient amount of work split between them for these projects. With the current project as is, our project was able to include more work for new members.
- With only one week to complete this current, our goals for this project had to be scaled down to just developing a working prototype rather than complete a finished project. Prototype should be ready for Demos.

Features that didn't make it

- Player HUD layout completed, but more time will be needed for HUD scripting. Will be picked up later in Project 4 under User Interactions.
- While the randomized gun generator is implemented, the random spawning for the guns is not. The loot crate interaction will be finished in Project 4.

What we would have done differently

- Clarify with Scrum Master the requirements needed for this project, and if we have met those requirements with the progress made thus far.

Work Split for Project 3

- **Documentation** - Setup completed by Haleigh Hunt and Rachel Elting, all members contributed to documentation
- Refer to Gantt Chart for detailed Work Split for Projects 3 and 4.

Gantt

Timeline

dates/team	Chase	Jack	Jarod	Haleigh	Marco	Rachel
10/25	Preliminary Research					
10/26						
10/27	Done					
10/28	Player Controller	AI Prototype	BattleMap Level Prototype	Asset Design	Player HUD Prototype	210 Project
10/29	Done	Moving AI		Chest Object Design		210 Project
10/30	Gun Controller	Moving AI		Chest Object Design<- Done		563 Project
10/31	Done	Moving AI				563 Project

11/1		Moving AI<- Done	Done		Done	Lootbox Prototype
11/2			Project Finalization			Lootbox Prototype
11/3						Lootbox

						Prototype Doxygen Documentation
11/4	368 Projects/ Labs 5 and 6/ Project 3 Demo					
11/5						
11/6						
11/7						
11/8						
11/9	Weapons System	AI Design	Level Design	Character Design	User Interactions	Level Design
11/10		AI Firing	Level Design, Textures	Player Model Design Textures	Player HUD Scripting	Level Design, Textures
11/11		AI Firing	Level Design, Textures	Player Model Design Textures	Player HUD Scripting	Level Design, Textures

11/12		AI Firing	Level Design, Textures	Player Model Design Textures	Player HUD Scripting	Level Design, Textures
11/13		AI Variants: Turrets, Melee, etc.	Level Design, Textures	Enemy AI Model Design Textures	Pause Menu	Level Design, Textures
11/14		AI Variants	Level Design, Textures	Enemy AI Model Design Textures	Pause Menu	Level Design, Textures
11/15		AI	Level	Enemy AI	Pause	Level

		Variants	Design, Textures	Model Design Textures	Menu	Design, Textures
11/16	Project Midpoint					
11/17						
11/18	510 Midterm	AI Wave Configurations	510 Midterm			563 Project
11/19		AI Wave Configurations				
11/20		AI Wave Configurations				

11/21		AI Wave Configurations				
11/22	Weapons System	AI Wave Configurations	Textures	Character Design	User Interactions	Textures
11/23		AI Wave Configurations	645 Midterm	Enemy AI Model Design Textures	645 Midterm	Textures
11/24		AI Wave Configurations		Enemy AI Model Design Textures		Textures
11/25		AI Wave Configurations		Enemy AI Model Design Textures		Textures
11/26		AI Wave Configurations	Textures	Enemy AI Model Design	User Interactions	Textures
				Textures		
11/27	Happy Thanksgiving					
11/28						
11/29						
11/30			Project Finalization			

12/1						**Doxygen Documentation**