Animal Revolution!

CIS 487 Game Design I

3D GDD

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Project Document Revision History

VersionNumber	Date	Revision Author	Description of Revision
1.0	11/20/2015	Andrew Kuelbs	Initial document creation and draft
1.0	11/25/2015	Group	All sections filled out completely
1.1	11/26/2015	Hadi Nasser	Added Resource to appendix, moved storyboard section to story section, added age to target audience based on feedback, added lessons learned, and bibliography section to be filled out to appendix, added management section.
1.2	11/30/2015	Andrew Kuelbs & Abdullah Hadid	Added missing charts and diagrams. Filled in and edited sections. Completed the table of contents
1.3	12/16/2015	Group	Edited and added final changes

Table of Contents

1. Section I - Game Overview

1.1. Game Concept

The game idea was inspired and formed from around the little board mockup we did in class, as well as tower defense games inspiration.

1.2. Genre: Strategy: Tower Defense, hunting, survival.

1.3. Target Audience

Strategizers, Critical thinkers, RPG gamers, shooter enthusiasts.

Ages 10+.

1.4. Game Flow Summary

The player will be able to move around the map. Meanwhile, the enemies will be spawning and running towards the player. The players will be able shoot the enemies to eliminate them to help ensure their survival.

Once the enemy health reaches 0, they will be destroyed. Once the timer reaches 0, the level will increase and enemies will spawn from more locations. When this happens, they will have successfully completed the level.

1.5. Project Scope – A summary of the scope of the game.

1.5.1. Number of locations: one

1.5.2. Number of levels: TBD

1.5.3. Number of NPC's: Number of npc's depends on the level number

1.5.4. Number of weapons

User will only be using one weapon during the game to shoot the enemies.

2. Section II - Gameplay and Mechanics

2.1. Gameplay

2.1.1. Mission/challenge Structure

The mission of the player is to face off all revolting animals and eliminate them from killing the hunter. With that in mind, it's not an easy task to accomplish; there are stronger and powerful types of animals that await!

2.1.2. Objectives

The objective of the game is to eliminate all animals while trying to survive yourself.

2.1.3. Player's role & actions

The player (hunter) is like a defense tower who have to protect their self against the incoming animals. The player is supposed to shoot the animals with the weapon in hand to avoid getting hurt and losing the game if that is the case eventually.

2.1.4. Strategies & Motivations

The player (hunter) is motivated by fully focusing on taking down the animals without getting hurt for as long as possible until all animals are eliminated.

In order to completely eliminate all the animals and consequently win, the player must stay alive throughout the game as long as possible. This means reaction speed of aiming and shooting is a key factor to success in the game!

2.1.5. Play Flow – Game flow for the game player (flowchart)
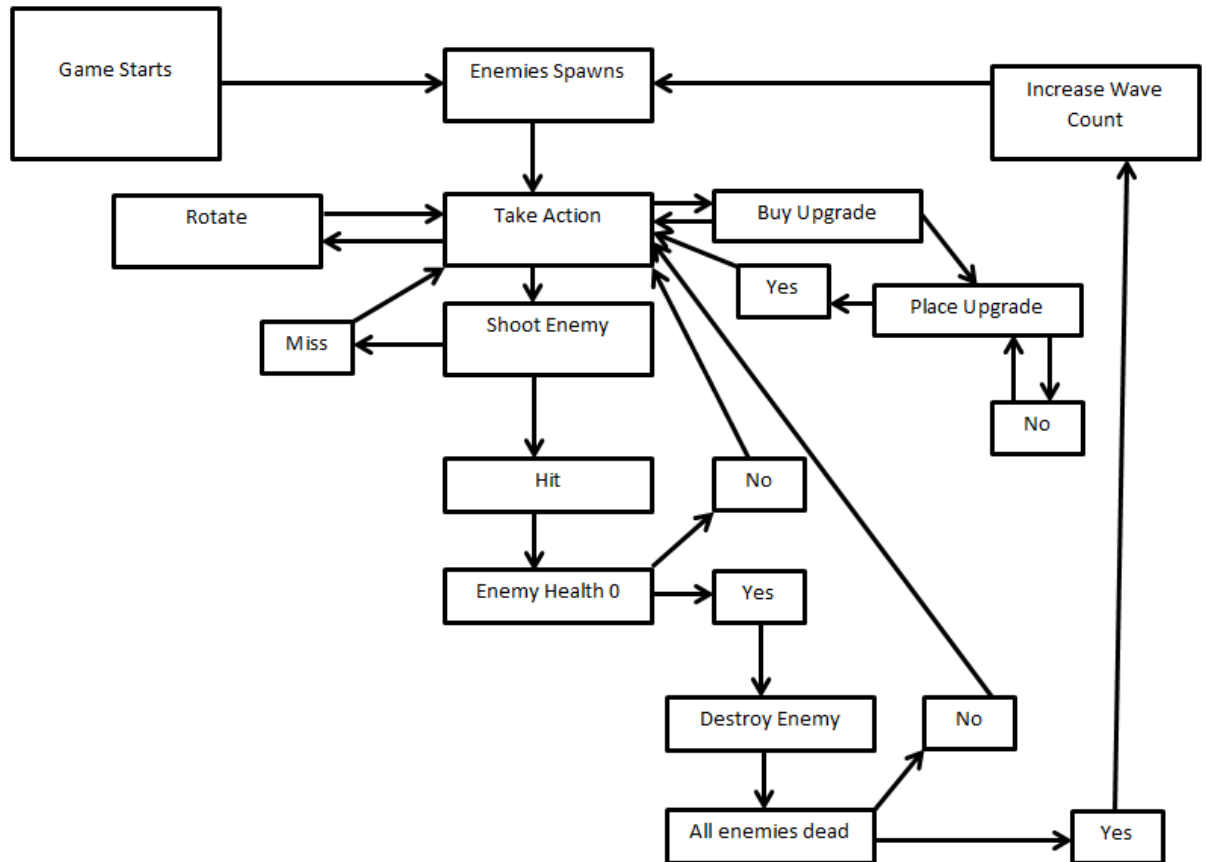
The flowchart takes into account all the actions and events that the player will be able to undertake while playing the game.

States

1. Start; spawn in game
2. Player move and turn
3. Shoot weapon

Transition Variables

1. Key input == arrows
2. Key input == w,a,s,d
3. Key input == left mouse/right mouse

4. Key input == Shift
5. Key input == 1, 2 - switch weapon

2.2.   Mechanics – Rules & object interactions

2.2.1. Physics

The player will be able to rotate normally. The bullets will shoot in straight directions, will not be affected by physics. They will disappear upon leaving the game. The animals will walk straight towards the player, upon dying, they will be destroyed. No real world physics will apply to the game.

2.2.2. Movement

2.2.2.1 Player Movement:

The player will be able to run around the map as the animals will be chasing him trying to hunt him down.

2.2.2.2 Enemy Movement:

The Animals will be moving toward the hunter. They won't try to dodge anything, nor move in any other direction. They have one goal only, and that is to reach the hunter.

2.2.3. Objects

2.2.3.1 Picking Up Objects

The player won't be able to pick up any objects.

2.2.3.2 Moving Objects

No objects outside of the player and the animals will be able to move.

2.2.4. Actions

2.2.4.1 Switches and buttons

The player will be able to pause the game through the escape key. While on the pause menu, they will be able to interact with the buttons on the screen.

2.2.5 Combat

The player will be able to shoot at the Animals in order to kill them, by left clicking the mouse. The animals on the other hand, will not be able to do any harm to the player unless they reach him. Upon reaching the player, the player will take damage, and the animal will disappear. The hunter takes more damage from harder enemies than easier ones.

2.2.7 Use Cases

2.2.7.1 Use Case: Shooting

If a player shoots at an enemy and hits the enemy, the enemy will lose a certain amount of health. Once the enemies health reaches zero, they will be destroyed.

2.2.7.2 Use Case: Taking Damage

When the enemies reach the player, they will deal a certain amount of damage and disappears. If the player's health falls to 0, they will lose the game

2.2.7.3 Use Case: Rotating

The player will be rotating the camera by moving the mouse. If they move to the right, it rotates right, and vice versa.

2.2.7.4 Use Case: Spawning

When a player begins a new level, there will be enemies that will spawn at different locations around the map. When this happens, they will begin to charge towards the player with the objective of reaching the player and dealing damage.

2.3. Screenflow

2.3.1. Screen Flowchart – A graphical description of how each screen is related to every other
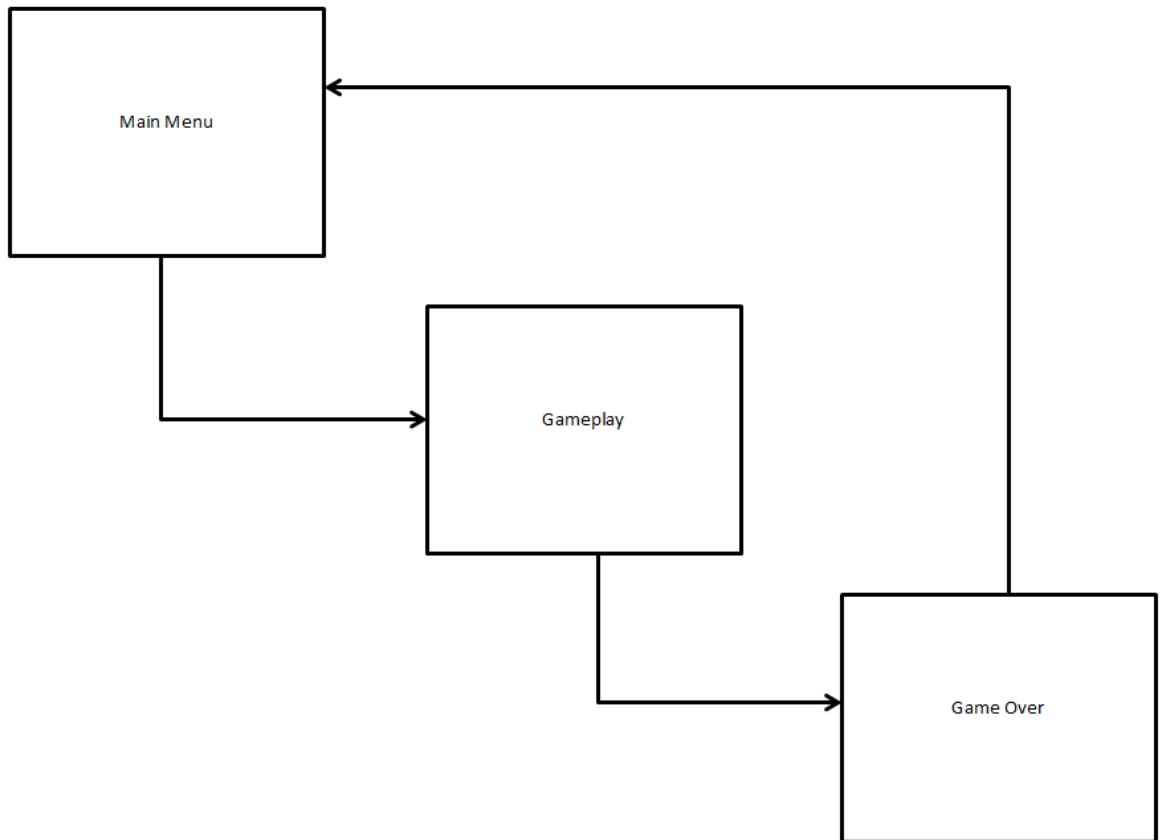
There will be 3 screens. The first screen will be the instructions. The second screen will be the game map, where all the action will occur. A player will be able to click the mouse of a button to move from the instruction screen to the gameplay mode. The third screen appears when the player loses, giving them the option to start over and saying game over. The transition is like the following:

Main menu -> Game play -> Game over -> Main Menu.

2.3.2. Screen Descriptions – Purpose of each screen

2.3.2.1.Main Menu Screen

- Start Game
- Instructions
- Story

2.3.2.2.Game state screen: Win/lose

- When the player's health reaches 0, they lose. this is displayed by a quick screen transitions to LOSE state.
- When the player has successfully made it through all the levels, and completing the objective of eliminating all the enemies along the way.

2.3.2.3 Game Play Screen

- This is the screen where most of the action will take place. For example, moving in 360 degree, shooting, etc

3. Section III – Executive Summary: Story, Setting and Character

3.1. Story and Narrative

3.1.1. Backstory

The Animals have been hunted for many.. many years. They have decided to take a stand and fight. The Animals have started revolting against the hunter! They are approaching in all different sizes and positions, each posing a threat to the hunter. Show your courage and might against these fearsome animals!

3.1.2. Plot Elements

- Animals
- Hunter
- threat/danger
- hero

3.1.3. Game Progression

The game starts out with few animals that the player can take care of, and as the game goes on, it will grow in difficulty. level progression includes:

- Animals increase in number

- Animals with stronger stamina appear. This means the player has to shoot these kind of animals more than once to take them down.

Once the player rids the region from the menacing animals, the animal revolution will be over. The player will have succeeded in achieving the title of the greatest hunter in history.

3.2. Game World-General look and feel of world

The game is a 3D game, in which there will be hunters flowing and attempting to approach the player. The player will be seen partially from the player perspective, while the weapon is sticking out aimed towards the hunters. The environment appears to be in the forest, where the game story is taking setting.

3.3. Characters-character bible

3.3.1. Character: Hunter

3.3.1.1. Look

3.3.1.1.1. Physical characteristics

The body of the hunter is not shown, only the hat and weapon are shown from player's view perspective.

3.3.1.1.2. Animations

The hunter will be rotating and pulling the gun when shooting/reloading. The animals will be walking or running toward the hunter.

3.3.1.2. Relevance to game story

The hunter will be the one facing the revolting animals and trying to eliminate them to survive.

3.3.2. Character: Animals

3.3.2.1. Look

3.3.2.1.1. Physical characteristics

The Animals will have different shapes as the player progresses levels throughout the game successfully.
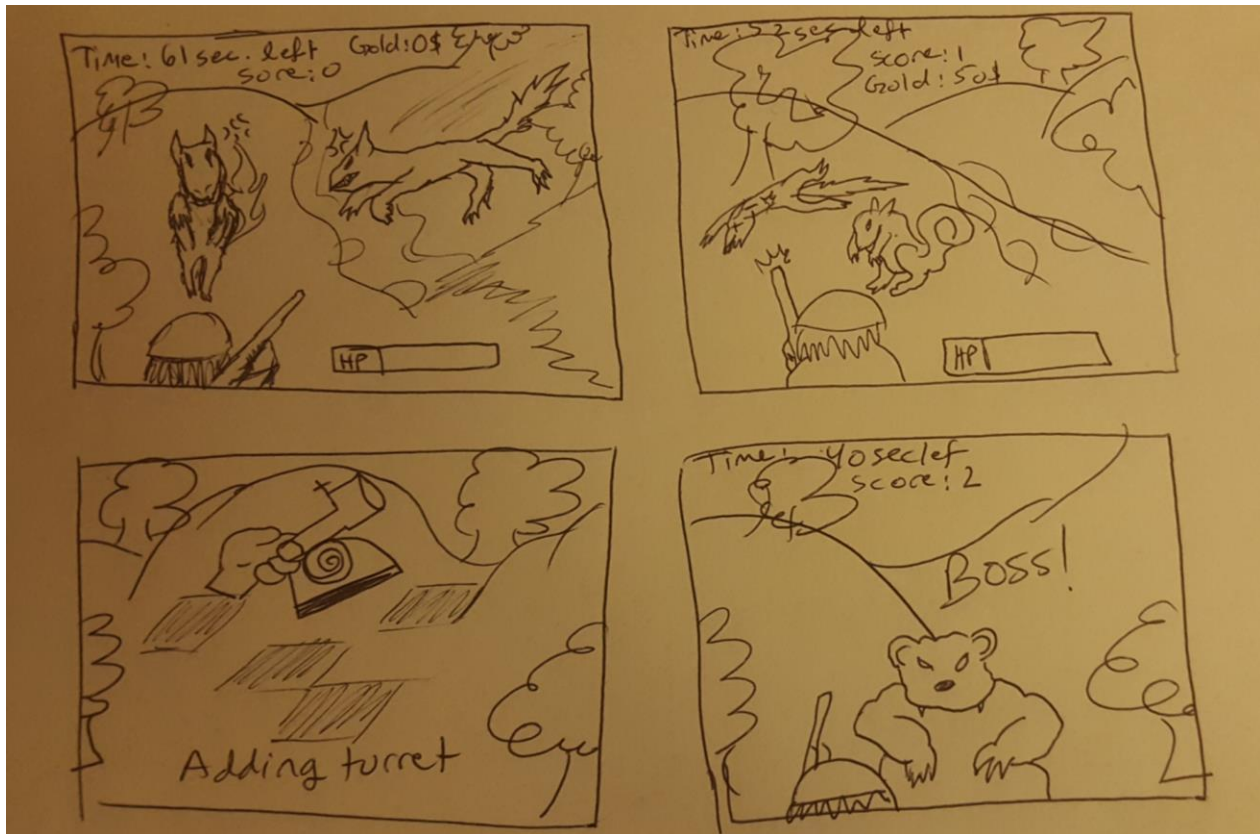
3.3.2.1.2. Animations

The Animals will be wiggling and incoming towards the player to break through them.

3.3.2.2. Relevance to game story

The Animals are the scorn enemies of the hunter. They will be the ones responsible for attempting to attack the player.

3.4.   Story Board

3.5. Interface Mock-up

4. Section IV – Levels

4.1. Level #1

4.1.1. Synopsis

The first wave of Animals is seen incoming at the player (hunter). Perhaps after the animals are eliminated, an animal boss with double the stamina and size of the other animals is revealed here.

4.1.2. Introductory Material

- level counter increases

4.1.3. Objectives

The player must eliminate those animals quickly before they approach them and hurt them this way. The waves will be coming in timely manner, if the player still has not eliminated the current wave, the next wave might come and double the trouble!

4.2. Level #2

4.2.1. Synopsis

The second wave of animals will spawn more than the previous level and from more areas.

4.2.2. Introductory Material

- level counter will increase

4.2.3. Objectives

The player must eliminate those animals quickly before they approach them and hurt them this way. The waves will be coming in timely manner, if the player still has not eliminated the current wave, the next wave might come and double the trouble.

4.3. Level #3

4.3.1. Synopsis

The third wave of animals will include an increased amount of enemies than those levels before it, and in more areas.

4.3.2. Introductory Material

- Level counter will increase

4.3.3. Objectives

The player must eliminate those animals quickly before they approach them and hurt them this way. The waves will be coming in timely manner, if the player still has not eliminated the current wave, the next wave might come and double the trouble.

4.4. Level #4

4.4.1. Synopsis

The fourth wave of animals will include an increased amount of enemies than those levels before it, and in more areas.

4.4.2. Introductory Material

- Level counter will increase

4.4.3. Objectives

The player must eliminate those animals quickly before they approach them and hurt them this way. The waves will be coming in timely manner, if the player still has not eliminated the current wave, the next wave might come and double the trouble.

4.5. Level #5

4.5.1. Synopsis

The fifth wave of animals will include an increased amount of enemies than those levels before it, and in more areas.

4.5.2. Introductory Material

- Level counter will increase

4.5.3. Objectives

The player must eliminate those animals quickly before they approach them and hurt them this way. The waves will be coming in timely manner, if the player still has not eliminated the current wave, the next wave might come and double the trouble.

5. Section V - Interface

5.1. Visual System

5.1.1. HUD

- weapons
- health/lives

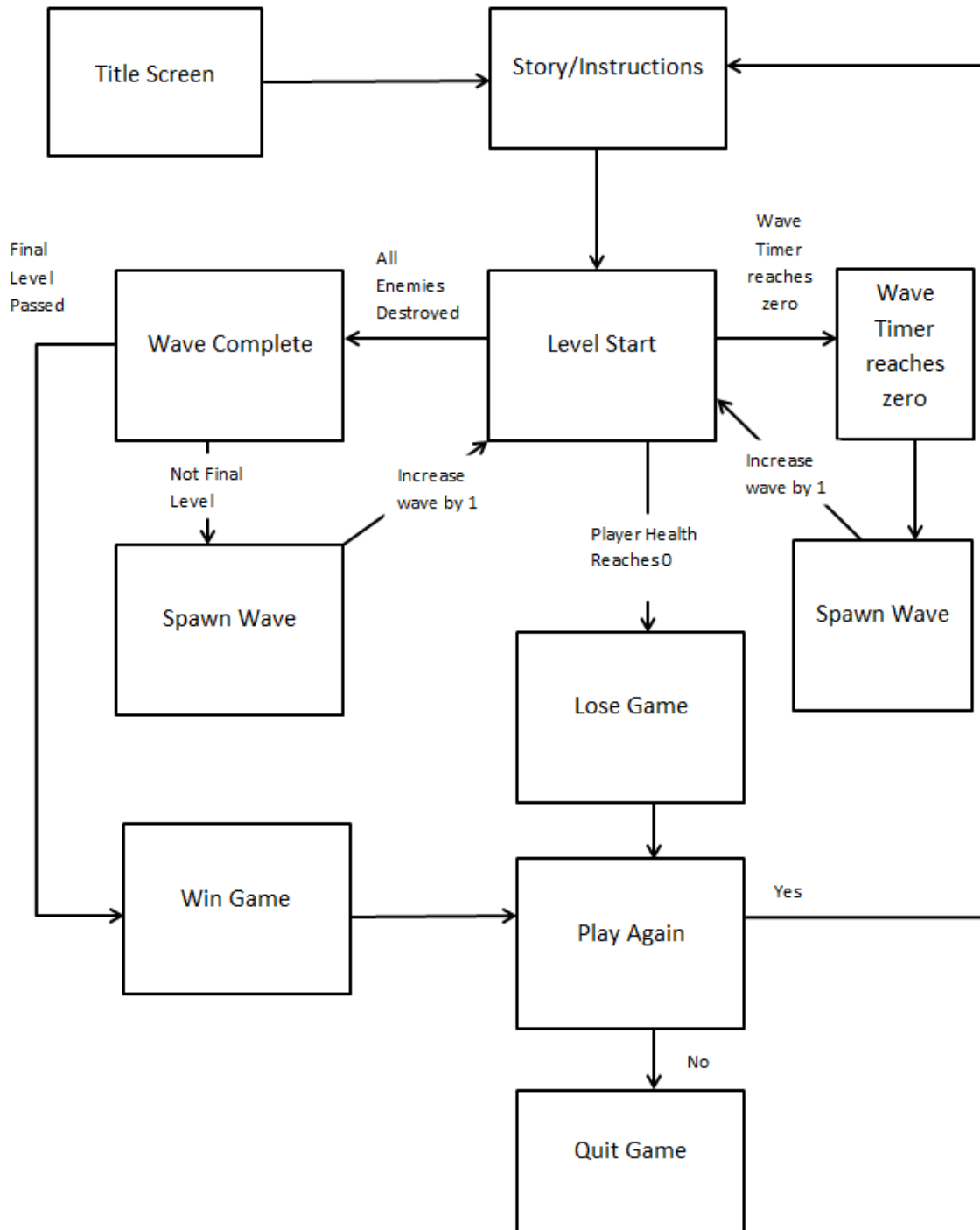### 5.1.2. Menus

- pause
- quit

5.1.3. Camera

The camera will remain in the first person view of the player as they rotate around the game scene view.

5.2. Control System

	Movement	Shooting	Run
Player	w,a,s,d for movement mouse rotates camera	Left Mouse Click Fires Weapon	Shift to run

5.3. State transition diagram

5.4. Audio

small audio files will be used when shooting the gun

5.5. Music

There will be no music, just audio files

5.6. Sound Effects

Sound effects that will be used in the game will be sounds for shooting weapon.

6. Section VI - Artificial Intelligence

6.1. Opponent AI- designed how?

The Animal's AI will be to run toward the hunter, no matter which direction they are coming from. No serious AI needed for it.

6.2. Non-Player Characters: none

6.3. Support AI

6.3.1. Player and Collision Detection

When an animal reaches the hunter, a collision detection is used. If they collided, the hunter takes damage.

6.3.2. Reactive items

When the animals are shot, they take damage. When they take enough damage, they die. This is used with detecting a bullet collision with the animals.

7. Section VII – Technical

7.1. Target Hardware

Desktops/Laptops

7.2. Development software and hardware

7.2.1 Software

- OS: Windows XP SP2+, 7 SP1+, 8, 10, Mac OS X 10.7+, Ubuntu 12.04+, SteamOS+
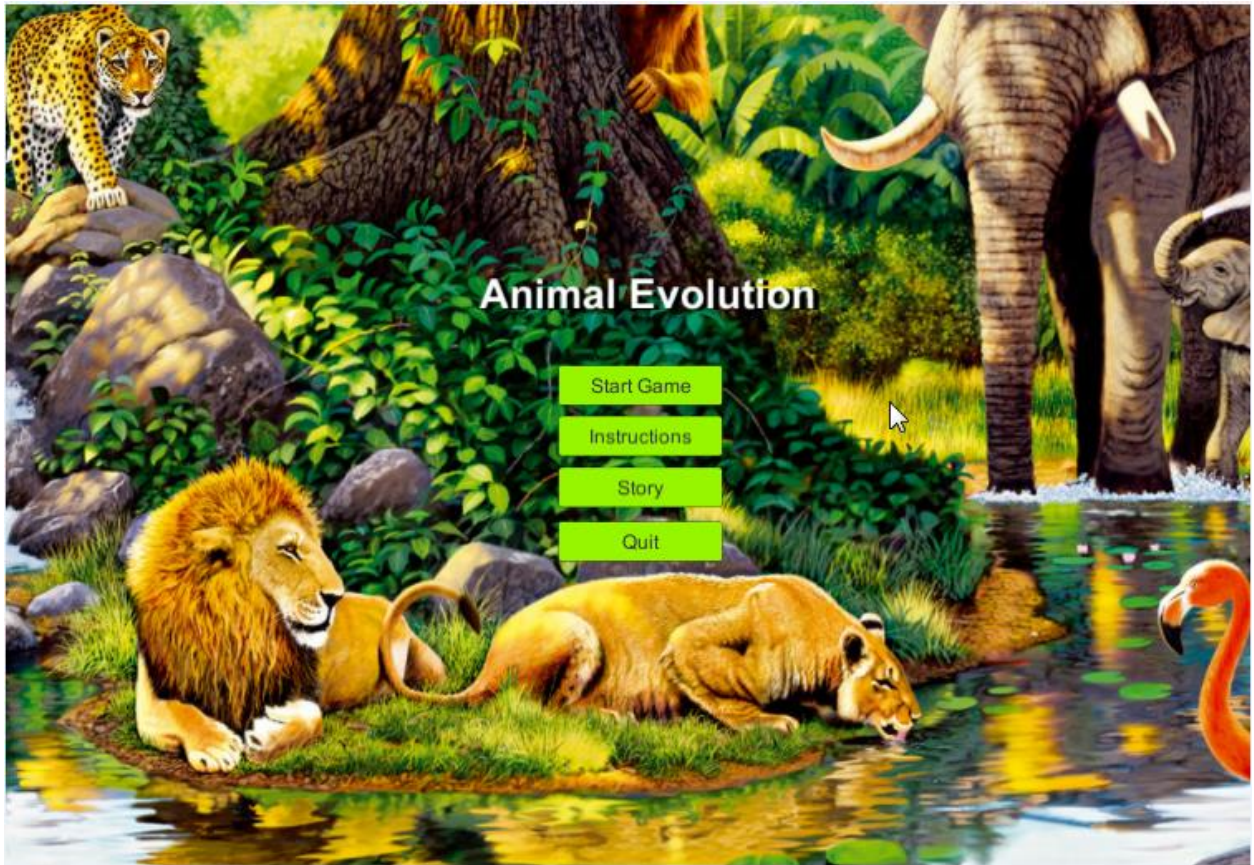
- Unity Engine

7.2.2 Hardware

- CPU: Most if not all modern CPUs should be able to run Animal Revolution.

- Graphics card: DX9 (shader model 2.0) capabilities

- 1GB RAM

- Hard Drive Space: 100MB

7.3. Game Engine: Unity3D

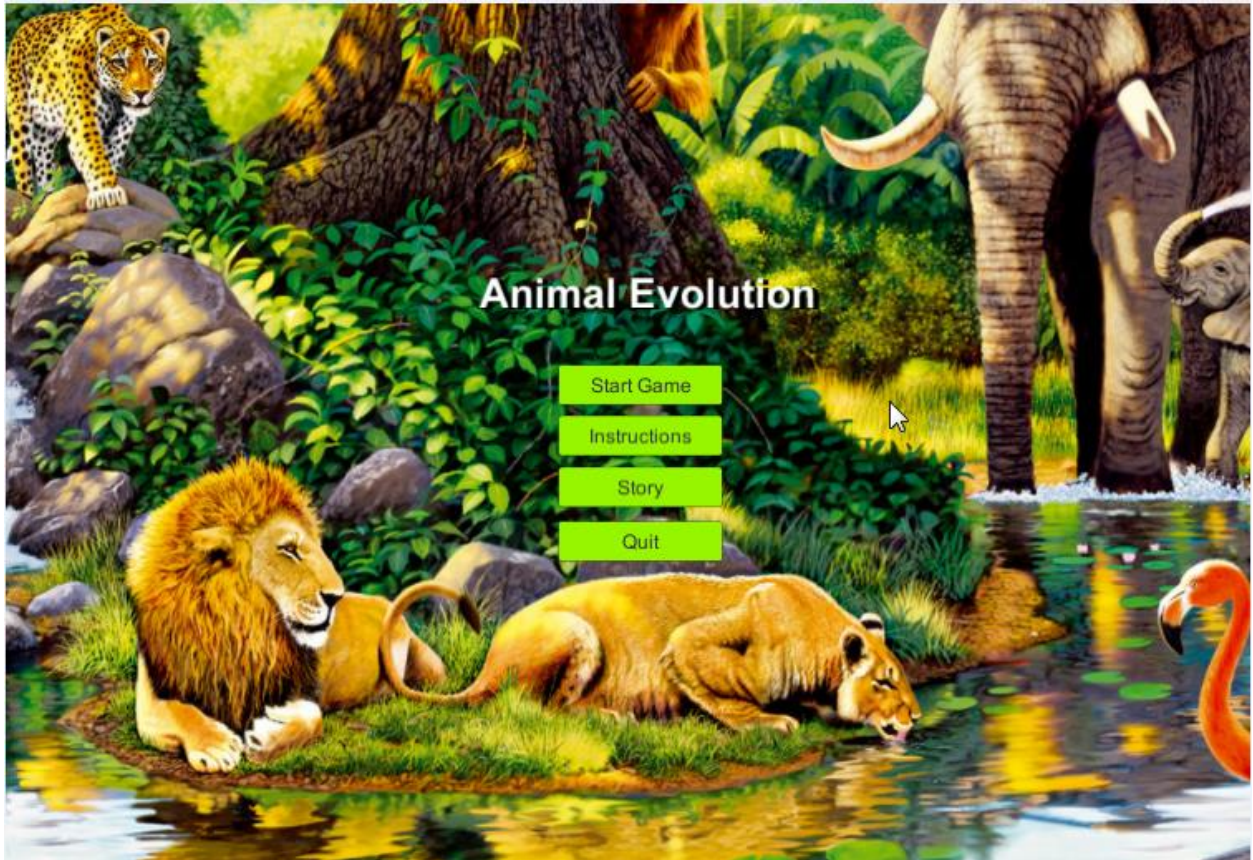## 7.4. Scripting Language: C#

8. Section VIII – Game Art

8.1. Main Menu

8.2. Characters

8.3. Equipment

8.4. Environment/HUD

9. Section IX – Management

9.1. Schedule

1. 11/25/15 - Submit first 3D GDD draft for peer review.

2. 11/30/15 - Submit revised draft

3. 12/2/15 - Have our individual parts assigned amongst us for the actual game design complete

4. 12/3/15 - Continue working on game

    5.   12/16/15 - Final project turn in

9.2. Budget: Everything free

9.3. Risk Analysis

- Conflicting meeting times amongst the team members may lead to disorganization or members not knowing what the plan is. However, communication through GroupMe messaging app should suffice to allow everyone's task be defined.

- Not finishing the game on time may rise up as an issue. In that case, we may end up cutting some features originally planned in the game and focus on finishing the design of the most important functionalities regarding the gameplay.

9.4. Test Plan

The development of the game will be split into 4 parts. The player actions, the animals actions and the game map display. Each part will be tested individually as it is being created. Upon finishing those parts, we will integrate the 4 separate components into one, starting with 2, then adding the 3rd, and finally the 4th component. The integrated program will be tested extensively. Upon minimizing the bugs/errors, we will continue to test the remaining functionality as they are developed.

10. Section X – Appendix

10.1. Resource List

- Unity game Store
- Other potential free 3D internet game asset websites

10.2. Bibliography

Unity Asset Store: https://www.assetstore.unity3d.com/en/

3D Warehouse: https://3dwarehouse.sketchup.com/?hl=en

Open Game Art: http://opengameart.org/

10.3. Lessons learned

We should have checked out the availability of certain free assets on the internet for our original game idea involving clowns and balloons before confirming it. We ended up wasting time with me filling out the many sections here with the original game idea details. However, Animal Revolution is close to our original game idea, so we didn't have to edit out too much of the details from Balloon Revolution.