*Space Runner*

**4.0 Software Development Plan**

**4.1 Plan Introduction**

This Software Development Plan provides the details of the planned development for Space Runner, a mobile based platformer that has procedurally generated level layouts. The project will make use of skills garnered over the course of my career at Loyola Marymount University.

**4.1.1 Project Deliverables**

Project Proposal: A description of the project to our class and a justification for its existence. This was given on Week 3.

Requirements Specification Document: A description of the requirements that our product must satisfy, we wrote this to define the minimum viable product. This was turned in on Week 5.

Software Development Plan: A detailed plan for the completion of our product, this document includes the organization of our team and a summary of the previous deliverables.

**4.2 Project Resources**

To complete the project and deliver it in it's entirety, I need my own computer to code on and install Unity, the game engine software that I will be making the game in. I also need the pixel art editing program called Pyxel in order to do the art and animation.

**4.2.1 Hardware Resources**

|  | Development | Execution |
|---|:---:|:---:|
| **PC** |  |  |
| OS:   Windows 10 | X | X |
| GPU: Nvidia graphics card | X | X |
| PnP:  Mouse, keyboard, monitor,          speakers/headphones | X | X |
|  |  |  |
| **Smart-Phone** |  |  |
| Touch Screen |  | X |
| Speakers |  | X |

**4.2.2 Software Resources**

|  | Development | Execution |
|---|---|---|
| **PC**<br>OS:      Windows 10<br>Engine: Unity 5.4<br>VCS:    Git | X<br>X<br>X | X |
| **Smart-Phone**<br>App Store |  | X |

**4.3 Project Organization**

Major Functions:
        Graphic Designer: Creating in-game graphics and animations
        GUI Designer: Creating the user interface in game
        Combat Designer: Develop combat between the AI and the player
        AI Designer: Develop enemy types and movement/attack patterns
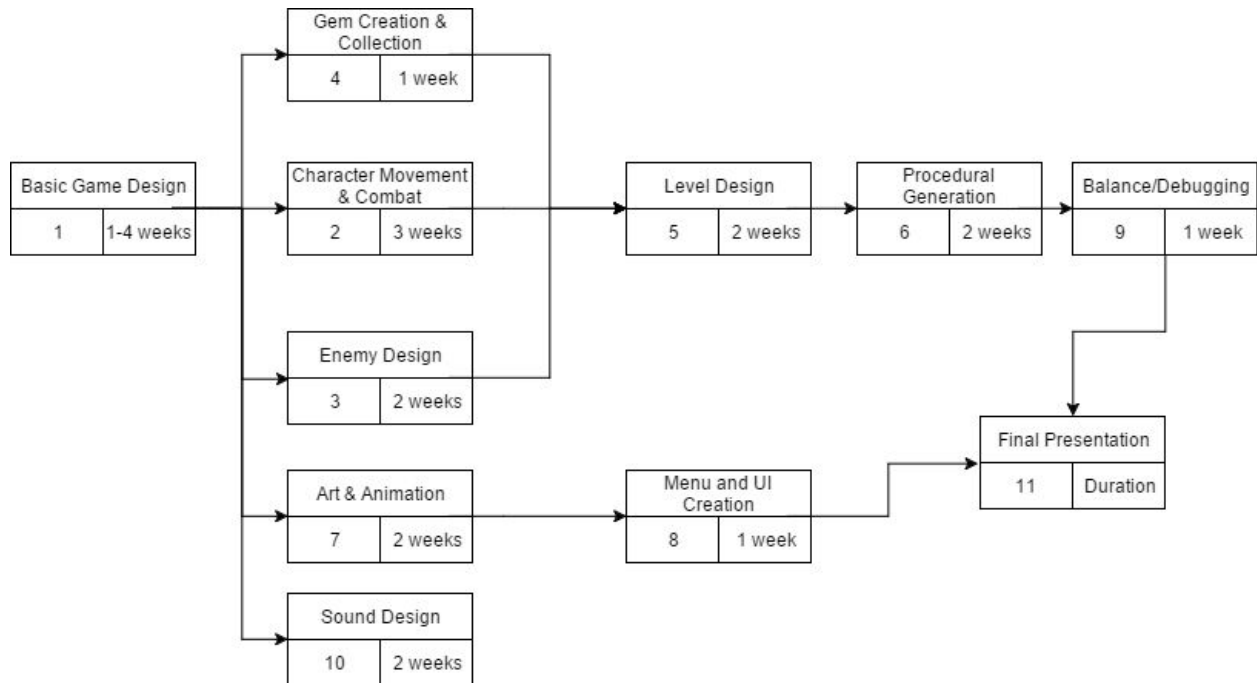        Balance Tester: Balance and check the game for bugs
        Movement Designer: Design movement for player character
        Procedural Generation: Cause game to flow from screen to screen fluidly with enemies,
                obstacles, gems, and layout

**4.4 Project Schedule**

**4.4.1 PERT / GANTT Chart**

| Gem Creation & Collection | |
|---|---|
| 4 | 1 week |

| Basic Game Design | |
|---|---|
| 1 | 1-4 weeks |

| Character Movement & Combat | |
|---|---|
| 2 | 3 weeks |

| Level Design | |
|---|---|
| 5 | 2 weeks |

| Procedural Generation | |
|---|---|
| 6 | 2 weeks |

| Balance/Debugging | |
|---|---|
| 9 | 1 week |

| Enemy Design | |
|---|---|
| 3 | 2 weeks |

| Art & Animation | |
|---|---|
| 7 | 2 weeks |

| Menu and UI Creation | |
|---|---|
| 8 | 1 week |

| Final Presentation | |
|---|---|
| 11 | Duration |

| Sound Design | |
|---|---|
| 10 | 2 weeks |

**4.4.2 Task / Resource Table**

| Task | Time Est. | Resource Est. | Difficulty 1-5 |
|---|---|---|---|
| Character Movement & Combat | 3 Weeks | Unity | 4 |
| Enemy Design | 2 Weeks | Unity | 3 |
| Gem Creation & Collection | 1 Week | Unity | 1 |
| Art & Animation | 2 Weeks | Unity & Pyxel | 4 |
| Sound Design | 2 Weeks | Unity & Audacity | 2 |
| Level Design | 2 Weeks | Unity | 2 |
| Procedural Generation | 2 Weeks | Unity | 3 |
| Menu and UI | 1 Week | Unity | 1 |