Revision History

Version	Author	Date	Comments
1.00	Peter Young II	November 20, 2018	Initial version
1.01	Joe Miller	November 21, 2018	Team review
1.0.2	Peter Young II	November 26, 2018	Expanded to include health and sword mechanics
1.0.3	Peter Young II	December 4, 2018	Expanded enemies to include knight, added death sequence under Health, added treasure
1.0.4	Peter, Joe	December 13, 2018	Updated controls and mechanics to address alpha testing, final draft revision

1. Introduction

This document specifies a design of a game provisionally entitled “Dungeon Delver”. It is based on prototype 7 laid out by Jeremy Gibson Bond in his book *Introduction to Game Design, Prototyping, and Development, 2 edition.* It has been expanded with elements discussed in various meetings held since November 18th, 2018 involving Peter Young II and Joe Miller.

1.1. Scope

This document is intended to be read by programmers, musical composers, and producers involved in the design implementation and testing of Dungeon Delver in addition to Dr. Richard Burns, a computer science professor at West Chester University who will grade this document as part of the final project for CSC 476 Game Development.

2. Target System

Dungeon Delver will be produced as a web build to be played on Windows PCs and Mac systems over the internet. The build will be pushed to university server at taz.cs.wcupa.edu/~py849166/DungeonDelverWebbuild and taz.cs.wcupa.edu/~jm836762/DungeonDelverWebbuild where users can access it.

3. Development System

Dungeon Delver will use the Unity Engine 2018.2.15f as a developing environment. The final product will be published as an HTML5 WebGL build.

4. Specification

4.1. Concept

The aim of Dungeon Delver is to be a fun puzzle-solving game with fighting elements along the lines of the original NES classic *The Legend of Zelda.* The game will be much smaller than the NES classic given that Zelda had almost 2 years of development and we have 4 weeks. There will be no overworld in this game as there is no time to develop it- just a series of 3 dungeons to clear.

4.2. Setting

The game will be set in a medieval fantasy world navigating a series of dungeons.

4.3. Game Structure

There will be 3 dungeons with a different graphic style for each dungeon. There will be puzzles to solve and monsters to fight in order to navigate the dungeons and reach the treasure at the end of the dungeon. The dungeons are laid out in a sequence with each dungeon loading at the completion of the previous dungeon.

4.4. Players

This is a single player game with the player controlling one hero to navigate the dungeons.

4.5. Action

Players will be able to move around the dungeons using weapons to fight enemies. The default weapon is the hero’s sword. The sword is used as a stab in a single direction. An additional item will be found in a dungeon: a grappler. This is a grappling hook that enables you to pass over previously impassable red “lava” tiles. The grappler can also be used to cause damage to enemies as a ranged weapon. Parts of the Dungeon will be unlocked with keys that the hero

picks up from fallen enemies or by solving a puzzle. Health items are used to restore health to the hero. Health items are dropped by enemies.

4.6. Objective

The objective of the game will be to fully navigate the dungeons, pick up the items, defeat the enemies contained therein to access the treasure at the end.

4.7. Graphics

All art assets are tile map. The game will use an 8-bit art style.

4.7.1. Dungeons

Dungeon tile map art assets provided by Mr. Bond will be used as the art assets for the dungeons. Mr. Bond gave tile map art assets for doors, lava, floors, stairs, walls, etc. as well as keys used for unlocking doors. Doors which require keys are differentiated from doors which are freely accessible. Due to limitations in the artistic and technical skills of the developers, the different dungeons will follow the same aesthetic.

4.7.2. Enemies

Enemy art assets have also been provided by Mr. Bond.

4.7.3. Hero

The art assets for the hero has been provided by Mr. Bond.

4.7.4. Items

Item assets for swords, the grappler, keys, and health pickups have been provided by Mr. Bond.

4.7.5. Layout

The game runs at 1080p despite the 8-bit art style with the screen divided into two parts: the world and the Heads Up Display (HUD). The HUD takes up the rightmost 1/5th of the 1920 x 1080 px screen while the rest is taken up by the world.

4.7.6. HUD

The HUD includes relevant information for the player to know at a glance including key count and health.

4.7.8. World

The world will be the dungeon room the player navigates. Despite the whole dungeon being rendered, only one room of the dungeon is seen at a time. This is the same as the inspiration for

this game: *The Legend of Zelda*. When a player enters a door, the camera view shifts to the new room the player entered.

4.8. Data Storage

All relevant data will be packaged in a WebGL build folder. This folder will be posted on the West Chester University web server named taz.

5. Gameplay

5.1. Hero

The hero will be a knight in armor named “Dray”. To mimic the 8-bit technology of the original *Legend of Zelda* game, this hero will be able to face in any of four directions and will have an animation play when they walk and a lunging pose when they attack with his sword or other weapon. The hero will be the player controlled character navigating the dungeons. The hero will pick up new items as the game progresses. Dray’s health will be determined at the start to be 10 (5 health units).

5.2. Enemies

5.2.1. Skeletos

Basic enemy in the game. They randomly wander around the dungeon room that they’re in. Skeletos can pass over each other and can damage Dray with a touch. They deal 2 damage (1 health unit). They require 2 hits with the sword to be killed.

5.2.2. Knights

A slow-moving enemy that deals 4 damage (2 health units) and require 3 hits with the sword to be killed.

5.2.3. Knight Boss

A knight enemy that also is impervious to attacks from the front.

5.2.4. Bats

Bats are fast-moving enemies that move 50% faster than Skeletos, but deal 50% less damage than Skeletos dealing a total of 1 (1/2 health unit) damage. They require 1 hit with the sword in order to be killed.

5.3. Dungeons

Navigable areas full of puzzles and enemies. The dungeon is made up of multiple rooms. The player will navigate room to room defeating enemies and collecting keys to unlock the next room until the final room is reached containing the treasure, and the level is cleared. There are 3 dungeons in all.

5.4. Items

5.4.1. Keys

Keys will be used to unlock doors. They are either dropped by enemies or are obtained by solving puzzles in the dungeon.

5.4.2. Health pickups

Health pickups restore damage the player has taken. Enemies, when defeated, have a random 1/3 chance to drop health pickups.

5.4.3. Grappler

The grappler is analogous to the hookshot from the Zelda series. It is used as a ranged weapon and as a means by which an area can be traversed without taking damage from lava or falling down a chasm. The item is at first not present in the player's inventory. Once acquiring the item in a dungeon, the item is used by pressing J key.

5.4.4. Sword

Item the player has from the beginning. It deals 2 damage to enemies. The item is used by pressing the SPACEBAR.

5.4.5. Treasure

An item found in the final room of the dungeon. Acquiring it will complete the dungeon and load the next dungeon or the game over screen.

5.5. Controls

5.5.1. Basic movement

The W, A, S, D keys will serve as basic movement in the game, and when pressed, will make the hero face and move forwards, left, backward, and right respectively.

5.5.2. Usage of items

Sword = spacebar
Grappler = left shift

5.6. Health

Health consists of an integer value. When it hits zero, the hero or enemy dies. The HUD displays the player's health. It consists of a list of health units with 1 unit equalling 2 health. When 1 damage is dealt, the health unit reduces to a half-filled circle. When an additional 1 damage is dealt, that circle changes to an empty circle. When health reaches zero, the player is teleported back to the beginning of that dungeon with their progress reset. Health can be replenished with pickups

6. Development Tools

6.1. Unity

Unity 2018.2.16f1 will be used to edit scenes and build the game world.

6.2. Scripting

Scripting will be coded in C#.

6.3. Visual Studio 2017

Peter Young II has a PC, and will use Visual Studio 2017 to edit C# scripts.
Joseph Miller has a Macbook Pro and will use Visual Studio 2017 to edit C# scripts

7. Music/Sound Effects

7.1. Logic Pro X

7.1.1. Logic Pro X recording software will be used to record game music.

7.1.2. All effects such as reverb, tremolo, etc. will be mixed and mastered inside of logic instead of the Unity sound editor. Upon importing the music into Unity, they will be assigned to their respective levels.

7.1.3. Each dungeon has a unique musical theme. All dungeon themes are composed by John Miller, a composition major at West Chester University who was gracious enough to collaborate with the developers on this project.

7.2. Effects

7.2.1. Stock sound effects will be used to give players audible feedback to their interactions with their environment. 6 sound effects for the following actions have been added: taking damage, dealing damage, blocking damage (Knight Boss only), unlocking doors, picking up grappler and treasure, picking up health and keys

8. Team

Peter Young II
Joe Miller

9. Time

Official Start Date: November 18th, 2018
Complete Game Design: November 20th, 2018
Alpha Testing: December 4th, 2018
End of Project: December 13th, 2018