**System Design Document**

**Turn-Based Combat Game**

**The Flying Mongooses**

**4601 Mid Rivers Mall Dr**

**Cottleville, MO 63376**

**Date**

6/19/21

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# Introduction

Our team will create a fun to play and feature rich turn-based combat game. The game will be created using the Unity game engine and developed using the C# language. The team will work together on all aspects of the games design and development over the 8-week period running from 6/12/21 until 7/31/21. During this duration, many on our team will have their first experiences not only with game development, but with Unity and C# sharp as well. This will help us become better developers as a while, as well as strengthen our team-oriented skills. This project is managed by Samuel Maynard, and the developers are Shane Callaway, Thomas Mattei, Alton Stillwell, Kaitlyn Staats and Evan Colyer.

# Purpose

The purpose of this project is to create a turn-based combat game that can be both engaging to play and play itself. In this we aim to provide a game that is both challenging and has replay-ability, with the ability to compare one’s own skill to others via online scorekeeping and leaderboard systems.

# System Overview

The game will be developed in the Unity game engine using the C# language. The database will be written with Microsoft SQL Server.

# Design Constraints

The main constraint for this project is the learning curve of Unity – each of the team members has to learn how to integrate our code both with the game engine and with each other’s code. Other constraints include art and game style, we’re keeping things simple with a 2D game that is turn based, which requires less in-system coding and tracking. The other major constraint is time as designing and implementing a game with online services is a large task to accomplish within an 8-week period, though not impossible.

# Roles and Responsibilities

The responsibilities of the team are as follows:

Samuel Maynard: Project Manager and art direction

Shane Callaway: Assist with UI design and function, basic level combat, player and enemy stats, leveling, and balancing of combat

Thomas Mattei:

Alton Stillwell:

Kaitlyn Staats: Database design and integrating the database into unity.

Evan Colyer: AI programming, both for player characters and enemy non-player characters.

# Project References

<include references here>

# System Architecture

**Hardware:** Personal Computers, Mouse Driven

**Software:** Unity Game Engine, C# background code (Running via Unity Game Engine)

# Database Design

The database will be designed in Microsoft SQL. The database will store all users, the leaderboard, user history, wins/losses, states, levels, weapons, characters, each user’s inventory, current state, and level. When a user logs in to the server their data will be pulled from the database and displayed in the game.

# Hardware and Software Detailed Design

**Hardware:**

**Software:**

# System Security and Integrity Controls

Our game is created using the Unity game engine, so the built-in integrity and security of the game engine will be utilized. Additionally, the built-in security of SQL will be leveled for our game. While some basic information on the in-game characters will be stored in the database, no personal or sensitive information of the players themselves will be kept at any point.

Sponsor Acceptance

Approved by the Project Sponsor:

Date:

<Faculty Sponsor>

<Faculty Sponsor Title>

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