CS810 Project - Steph Oro & Gregory Johnson

I pledge my honor that I have abided by the Stevens Honor System

Project Rational and Technolgies

The purpose of this project shall be to produce a game/game-engine for iOS, leveraging important iOS technologies, frameworks, and libraries in the process. The learning from interacting with these technologies at the level of understanding and involvement necessary to produce a functioning and well made game of the type to be built should be considered sufficient an in depth dive into iOS to serve the purposes of the course project.

The main three main technologies that this app will interact with, which are important iOS technologies are Core Audio, Core Graphics, and SpriteKit. Additionally, the app shall use some standard interface components such as buttons. Taken together, these most of these technologies are used in the majority of commercial apps in some form, which suggests the learnings from the creation of this app will be valuable.

As the *spice* of this application, we will be building our own scripting language, which will enable us to support various ammenities that are favorable such as: the ability to provide downloadable content for the

application, the ability for end-users to modify the application, the ability to clearly separate the iOS application as a game-engine and supporting resources as the game content. The scripting language will be written in C++, and can be interacted with from Swift code through the use of Objective-C.

Project Description

The game we produce shall be a 2d diorama of sorts, in the category of “point and click” games and will be composed of images cut up and put together to create scenes. Our game engine will support musical accompanyment, animations, the loading/unloading of levels and level resources such as images (sprites), positioning information, and custom scripting events tied to triggers such as scene loading, button presses, animation endings, or events created by the scripts themselves.

A sample of the kind of diorama look can be found here. A sample of the thematic musical accompanyment chosen for this work can be found by Googling “Suite Bergamasque” or “Gymnopedies”. The source images for our project will be pulled from pexels. All resources chosen will be either in the public domain due to age, as with the music, or free for commercial use, as with pexels. For a sample of what a point and click game can be like, one might look to Myst as a prime an example of the genre of our game.

Project Timeline

1st Deliverable - the Basics

- Scripting language supports environment variables, lambda functions, and basic math and conditional operators (+,-,*,/,>, <,=,>=,<=)
- Sounds can be loaded and played.
- Tests show scripting langauge creating the `factorial` function and evaluation of `(factorial 5)` yields `120`.
- Tests play a sound from a file.

2nd Deliverable - Content Support

- On screen “Actors” which consist of images, coordinates, and sizing information can be put on screen via the scripting language.
- Basic Animations can be launched from the scripting language.
- Sound Effects can be played from the scripting language
- Tests show an image being put on a screen and then moving around.
- Tests show a sound playing triggered through the scripting language.

3rd Deliverable - Event Management

- Buttons can be created/removed via the scripting language.
- Events can be bound to animation ending, music ending, buttons, scene loading, and device interrupts (for emergency state-saving).

- Tests show buttons that make images move, and change the images/buttons on the screen.

4th Deliverable - Game Content

- Menus created.
- Basic scenes and story material appear in game and are nagivable.
- App loads with a selection menu of scenes to go to. Able to navigate back to the menu and between various scenes.

Final - Finished Game

- App opens to a game, instructions provided on how to play through the game.