Personal Reflection

KF5012 Software Engineering Practice

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# Part A: Reflection on Development

## A1: Description

Since I am on the “games stream” path (studying Computer Science with Games Development), the task our team has undertaken as the main part of this module was to create a fully fledged (while small-scale) video game.

The game we have made was titled “Temple Run”; it is a 3D 3rd person death-run style game, where the player attempts to reach the end as fast as possible, while navigating around traps or different obstacles, made to slow the player down or completely end the run. It was inspired by different games in the same genre or in the genre of 3D platformers as a whole. The game is themed to Mesoamerican (Aztec, Inca, Mayan) motifs and takes place in an accordingly designed temple.

As required by the module, the game was made in Unreal Engine 4, however our team also used other applications (such as Discord or GitHub) for communication and collaboration.

I have undertaken the missions “Project Management” and “2D Art and Interface” and the team missions “Game Design” and “Sound Design”. My responsibilities also included other tasks, mainly maintaining, and taking care of our team’s GitHub repository.

Overall, the development is presumably to be considered as success, as we have achieved the major objectives - that is to create a working video game with all the fundamental features a video game should have, such as gameplay with a clear goal and failure, functional controls and menus, graphics, and sound. However, the process has definitely not went without any complications or issues. These could be divided into two main categories – game development related, and team coordination related. And then further into game features wanted/planned versus game features actually made, the quality and polish of such features, troubles related to software used in the development process, difficulties with teamwork and cooperation and finally problems with meeting deadlines and time constraints.

### A1.1: My Work/Missions – 2D Art and Interface and Sound Design

When it comes to my missions associated with creating the game itself (2D Art and Interface and Sound Design), I am quite satisfied with my work, the features I wanted to implement (and implemented) and their quality.

Due to the nature of our game, which had very little information that needed to be displayed to the player in-game (i.e., no inventory, no health, no minimap, etc) and thus a substantial HUD (heads-up display) did not need to be built, I chose to focus on a more robust menu system, which was the second major part of the 2D Art and Interface mission. Besides the visuals and the functionality of the menus, I have also implemented the game’s settings system.

I believe that accessibility, or the effort to make video games playable for everyone (including for example persons with disabilities), is very important, and as a consequence of that, I had decided to design a special set of “accessible” user interfaces catered to this use case. Every title screen or in-game (i.e., pause, game over, victory) menu and the score counter have an accessible version with a clear white background, large black font, standard buttons and other widgets, and the option for menu narration (screen reading).

The game interfaces consist of several main (title screen) menus, a couple of in-game menus and the score display. The Main menu contains the traditional Play and Quit buttons and buttons that bring up other menus – Score menu, Options menu, and Credits menu. The Score menu displays the best scores achieved by the player in the game, the Options menu allows the player to modify the game’s settings (such as graphics quality, volume, etc) and the Credits menu presents the authors of the game and the technologies used in its development. The in-game menus are comprised of Pause menu, Game Over menu and Victory menu, which are brought up either by the player or by a specific event in the game. The in-game score display shows the current score.

The game can be altered in several ways through settings (in the Options menu), these include for example maximum frame rate, fullscreen mode, or volume. The effects take place immediately and are locally saved and then loaded when the game is launched, making the player’s options choices persistent over sessions. The code driving these settings is loosely based on the singleton design pattern.

One part of the Options menu that had been planned was ultimately not created – the controls settings, which would allow the player to modify the input controls (movement keyboard keys, mouse sensitivity, etc). The functionality of this segment, that is applying the chosen keys to the character controller in the game and their subsequent saving and loading, was to be made by another team member, however this has not come to pass.

Initially, the visuals for the (classic/not accessible) menus were supposed to be made with 2D assets, however no adequate 2D assets that would match the game’s theme and were at the same time suitable for a game menu were found. Instead, the scene was built from 3D assets from several different free asset packs.

Our team chose Sound Design as one of our team missions. At one of our team meetings, we had collectively decided to tackle it (the game’s sound) separately in relation to everyone’s personal missions (i.e., a person with the mission Environment Creation would create sounds for the game’s environments, for example the background ambience and the sounds of static objects). Thus, I had been tasked with making sounds for the game’s user interfaces. I had decided to create my own background music (alongside the button sounds and ambience) for the classic title screen menus and also do a narration of on-screen text for the accessible menus, toggleable in options.

Later in the project I also made a custom themed cursor for the classic menus. Unfortunately, Unreal Engine 4 does not have switching between multiple different cursors properly implemented, which meant that some already finished parts of the menu system had to be reworked, in particular the accessible menus, which were created early in development.

### A1.2: My Work/Missions – Project Management and Game Design

Evaluating the other two missions I have undertaken is more difficult, since the work done cannot be as easily quantified, however the game meets all the requirements of a game and was finished in time with no major disputers or obstacles.

Our game was based on an established video game genre, and we had a clear vision for its parts and features since the very beginning of the development process, and thus there were no large obstacles that would need to be overcome in terms of the game’s design process. The team agreed pretty much on all components of the gameplay, on the game’s theme and on the direction of its design throughout the development.

When it comes to project management, I am not fully sure how to accurately judge the development process. The project was successfully developed and finished, however the team cooperation was far from perfect, which has had impact on the project’s progression and caused a few substantial setbacks.

The biggest problems overall were associated with adopting the use of git (and GitHub) and as a consequence with properly sharing work. No team member had any previous experience/knowledge of git, or version control system technologies as a whole; the team still agreed that utilizing a GitHub repository would be the best approach to game development collaboration. I have taken the repository management upon myself (which eventually led to me adopting the Project Management mission) – setting up the repository for the team’s needs, creating some useful files and resources and handling errors.

## A2: Analysis

Accessibility menus – good for playtesting

## A3: Lessons to be Learned

# Part B: Employability Skill Plan

## B1: Target Position

## B2: Job Adverts Used

## B3: Skills List

## B4: Personal Skills Audit

## B5: List of Final Year Modules

* KF6015 Games Design
* KF6017 Software Architecture for Games
* KF6018 Computer Graphics and Animation
* KV6002 Team Project and Professionalism
* KV6003 Individual Computing Project

## B6: Identification of Which Skills (from B4) Will Be Improved by Chosen Final Year Modules (from B5)

## B7: Skills Shortfall

## B8: Action Plan