Freddy Takes On Campus

Introduction:

The purpose of this project is to create a 2D game using Python and add ons such as Pygame to supplement level building. The goal is to have a fully functional map of the UWRF campus and have different levels/minigames throughout the game. Each level corresponds to a different class or part of the campus. Each level will vary in gameplay style and difficulty to make for a well rounded and challenging game. We want to have an interactive GUI that the player can use to navigate throughout the game. All documentation and code for the game will be available on our repository on GitHub (FTOC). The rest of the outline details the motivation behind creating this project, the project details such as the IDE we will be using as well as any additional software to help us create the game, the challenges we may encounter and finally the timeline in which we wish to complete the project.

Motivation:

The motivation behind this project is to combine our school spirit with our interest in the details of making our own video game. Our school mascot, Freddy Falcon, is often seen around campus interacting with students and taking part in many events. Therefore, we decided to make him, his very own video game! This project is interesting because it will take place on our very own UW-River Falls campus and feature various challenges, just like normal students do on a daily basis during the semester. Also, it will be one of the first (if not the first) video game solely dedicated to a mascot. Another motivating factor is that there is a lot to learn about developing your own video game. Along, the way will have to do work including, researching various coding topics, debugging, writing code, testing, etc. However, at the end we should have a pretty fun game that we can play and share with others at our school.

Project Details:

- **Environment:**
    - As mentioned previously we will be using Python to design and implement our game. We will be using visual studio code as our IDE to help facilitate production. Using visual studio code we will also be using several extensions that are available within the application.

- Pygame is one of the resources that we will be using to help develop our project as it was designed with the purpose of making video games. One of the advantages of using Pygame is that it is highly portable and can be used on almost every operating system. Although we will be creating a GUI to go with our game, you can use Pygame through the command line. The overall code of Pygame is small because they kept the core simple while other libraries are developed outside of Pygame.

- Visual Studio Code is another resource we will be using to develop our project, as our IDE of choice. It is easy to use and supports a variety of languages such as Python, JavaScript, TypeScript, C++, C, and more. Also, it features debugging tools that will be useful when we run into errors. Furthermore, it supports Git which will allow us to easily upload our code to Github as we make progress our our project.

Issues and Challenges for Implementation:

- **Visual Studio Code**
  - Visual Studio Code (VSC) has some built in options that allows users to push code to the repository of your choosing but there are also some extensions that can be used to help streamline the process. We are beginners when it comes to this IDE so it may take some time to get used to the functions and methods that VSC has.

- **Python**
  - Python is a newer programming language to the developers making it especially challenging to develop the code that powers the game. It will be a learning experience to create a functional GUI that users can navigate the game with. Pygame will be a useful tool that can help us add things into the game without too much digging and researching about Python documentation.

- **Levels**
  - What makes this game interesting will be the various challenges and minigames which the user will encounter throughout the game. Each of these puzzles will be unique, therefore creating a lot of issues that could occur. The design process will be much longer seeing as we will not be able to reuse and refactor code that we have already created. This will take some extra time to get into making for a more difficult design process.

- **Design**
  - We are going to have to create a unique look as well and characters/sprites for the game. This is going to be an area of learning and adapting as we create the pixel art for the game. We will be using our resources to help find things on the UWRF website that can aid our level design and overall game aesthetics. We want to design to be centered around campus and the various colors and objects that are commonplace at our university.

- **Deliverables:**

  - At the end of the project, we will have a fully functional video game about Freddy Falcon with different types of levels with varying difficulty. This will represent a “college experience” because as you progress through real college, the courses get harder as they prepare you for the real world. Our game will be no different, as you progress through the game, the levels will get more challenging to complete.

  - There will be different phases to represent the different prototypes and different coding stages. The early prototypes will have less features and more of the basics of any video game such as the framework. While later prototypes will have more levels and challenges to complete. These prototypes will be available for each milestone that is laid out by our professor to check the progress of our game. By the end of the timeline, we will have our final prototype/version of our game that will be playable with many different levels and challenges for the user to complete in order to “beat” the game.

- **Timeline:**

  - The entirety of this project will be completed within the timeline of the 484 Senior Seminar class. There will be 3 different milestones in which we will check in with the professor about our progress. The scope of the class is from January 24th to May 6th. We have that amount of time to complete the game and submit all necessary documentation and code.

Conclusion:

In closing, this project aims to create a game called Freddy Takes On College that uses elements and culture from the University of Wisconsin - River Fall campus. The motivation behind this project stems from our love of the campus as well as our interest in game development. Everything will be coded using the programming language Python. We are going to be using Visual Studio Code as our hub for development as well as several extensions offered within the software. We will be using modules from Pygame to help us create the levels and design of the game.There will be many challenges along the way including the software we will be using as well as the design and implementation of our levels which will take time and effort to produce especially with our novice level of experience with the language and the software. We have a strict timeline and goals in which we will have to complete before the semester ends.

References:

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