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**Capstone Project Proposal**

**Game Development with GODOT: Abyssal**

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# Introduction

The application I intend to create will be a simple platformer game within the GODOT game engine. The game will include classic mechanics from platformer games including jumping, side-scrolling, health, coins, enemies, power-ups, main menu, and lives for the player. The game will be written in C# and game assets will be standard 32-64 bit.

# Program Writing and Executing

The program will be written both within the GODOT game engine and Visual Studio Code. GODOT will be responsible for compiling code and executing structured logic and sequencing of events. Visual Studio Code will be an external IDE (integrated development environment) I will use for all C# programming. GODOT comes with its own language, GDscript, but will not be utilized for any coding.

# Required Software and Hardware

The full software requirements will be:

* [GODOT 3.5](https://godotengine.org/download): Will need [Mono Version (C# support)](https://downloads.tuxfamily.org/godotengine/3.5/mono/Godot_v3.5-stable_mono_win64.zip)
* .[NET SDK](https://dotnet.microsoft.com/download): Framework for Mono Version
* 64-bit Windows operating systems
* [Visual Studio Code](https://code.visualstudio.com/): For external IDE development
  + GODOT extension in Visual Studio Code (C# tools for GODOT)
  + Mono Debug for code debugging
  + C# for Visual Studio Code
* [Kenney Game Assets All-in-1](https://kenney.itch.io/kenney-game-assets): Artwork for game
* [Trello](https://trello.com/?&aceid=&adposition=&adgroup=105703214328&campaign=9843285532&creative=430959026561&device=c&keyword=trello&matchtype=e&network=g&placement=&ds_kids=p53016490704&ds_e=GOOGLE&ds_eid=700000001557344&ds_e1=GOOGLE&gclid=CjwKCAjw3qGYBhBSEiwAcnTRLqFqu5s94mg_5UkCh4jl5AUThbPWSL-H66wyHoVY0-ZzozTLNSp73RoCujgQAvD_BwE&gclsrc=aw.ds): Used for Scrum/Agile development

# Project Schedule

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| Week | Description | Allotted time |
| 1 | Develop over-all outline of project, including software requirements and game assets | 10-hours |
| 2-3 | Create user and game requirements utilizing Scrum software | 20-hours |
| 4-6 | Have sample for gameplay and game logic finished and refine for quality-of-life improvements | 30-hours |
| 8-12 | Finish menu, save system, respawn, life counter, and any other systems that are standard for game design | 40-hours |
| 13-14 | Refine systems with assists and correct any lingering issues | 20-hours |
| 15-16 | Create presentation of application and documentation | 20-hours |

# Risk Analysis

Some potential issues that may arise include but are not limited to:

* Feature delay: Video game physics do not always align with the real world. There is a possibility that a certain physics mechanic will be delayed due to feature oversight or implications conflicting with other features.
* Allotted time: Although there is a specified amount of time for each iteration there is always a possibility the time is either not enough or is too much. The schedule will be adjusted accordingly.
* Feature redesign: The outline of the features is vague to incorporate multiple variations of the feature. This can cause a feature to be completely redesigned or scrapped entirely depending on complexity and time constraints.

These are just some of the main issues I expect the project to run into. There are many more (bugs, life, knowledge, reference material, etc..) but these will be addressed through systems unit tests, project analysis, and weekly evaluations. I will also utilize my professor for any feedback or variations needed to meet project requirements.

Delivery and Installation   
 The user will first need to download the zip file with all needed assets for the game and the .exe file that will launch the game. The application will be launched through a .exe file that can be opened from the file manager (or platform specific variations) When the application is launched the user will be presented with a main menu where they can select their save file and begin playing the game.