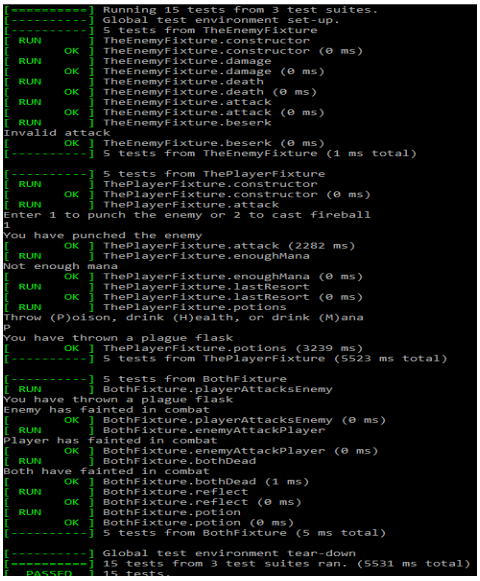
Previous Works of Trystan Lee

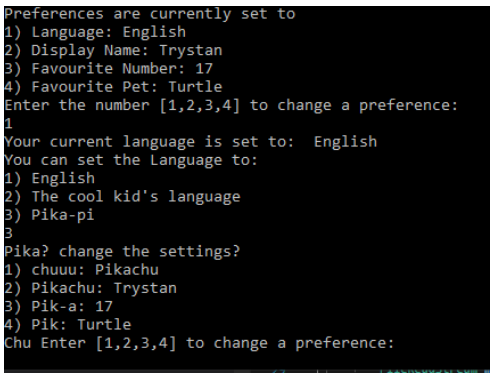
C/C++ - Visual Code Studio

1. Configuration
    a. GoogleTest



- ☐ S - Class Assignment
- ☐ T - Develop 2 classes and 15 white and black box test cases (5 for each one and 5 more for interactions between them)
- ☐ A - I created a player and an enemy class to represent some common interactions that may happen in an RPG game. This included if the player had enough stamina or mana to continue combat (white box), the amount of damage the enemy can do, and giving the player a couple of options of which potion to consume (black box).
- ☐ R - This introduced me to the concept of box testing (white box being developer input and black box being user input) and confirming if my expected outputs are correct.

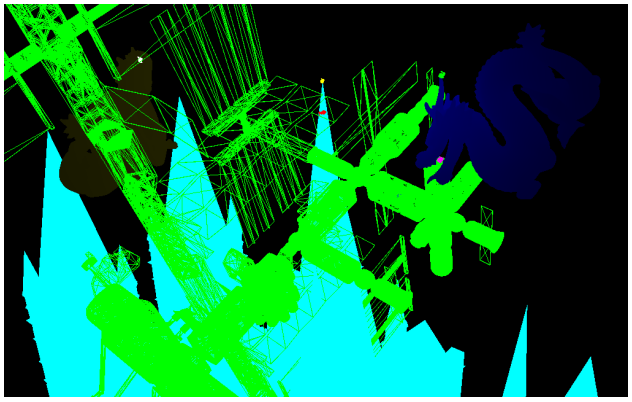
b. User Preferences



- ☐ S - Class Assignment

- ☐ T - Create a program that would read and write to .json files and would save user preferences such as language settings, name, favourite number, and favourite kind of pet so when the program is ran again all the settings would remain the same
- ☐ A - I created a language manager struct that used a map and associated a key to a string value from a language .json file and each language file would have the same keys but different values. I could then swap out language json files and reset the map and since they have the same keys, printed values would just be swapped with their equivalent phrasing.
- ☐ R - This project has taught me how to extract a specific piece of information and use it in a chain to get other pieces of information to finally obtain what I need. My program checked the configuration file to see which is the user preference file, and does the user preference file have a valid language setting, and if that .json exist in the directory.

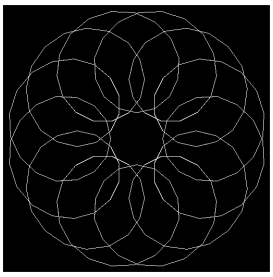
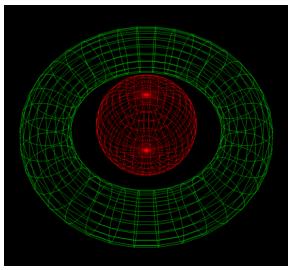
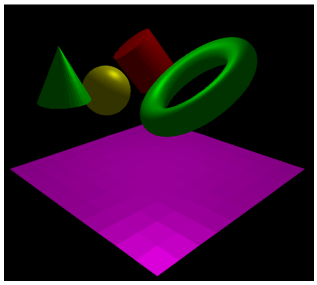
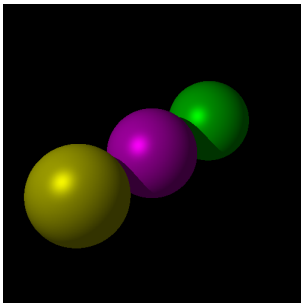
2. Graphics



- ☐ S - Class Assignment
- ☐ T - Display wiremesh models in a 3D plane
- ☐ A - I used OpenGL library to display 10 different models (6 rabbits, 2 dragons, 1 ISS, and 1 Hogwarts) in a 3D space. The scene had to be described in a file of our design, so I made a .csv file that listed the model file as well as details how to scale, rotate, and colour the model.
- ☐ R - From this assignment I had learned to use linear algebra in a practical way by setting up the camera and setting up key inputs to rotate the camera around these models.

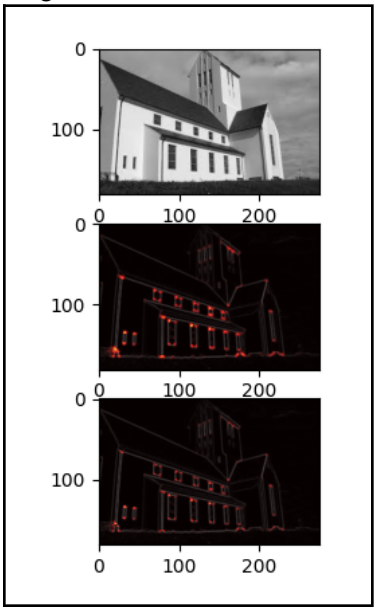
Python - Pycharm

1. Graphics

 Drawing Lines	 Create Wire Mesh Shapes
 Create Solid Shapes + Lighting Source	 Lighting Source + Shading

- ☐ S - Class Assignments
- ☐ T - 4 different graphics assignment in Python
- ☐ A - I studied and applied my knowledge to develop programs that would generate image files. Some core concepts included transformations in a 3D space, Brensenham's line drawing algorithm, and ray-tracing-principles.
- ☐ R - I obtained outstanding grades on these assignments. These concepts often come up when designing visual effects in movies or in computer games.

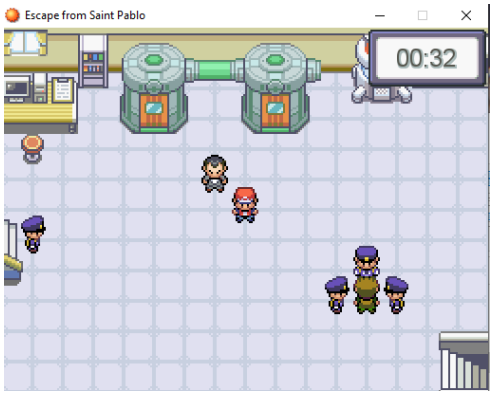
2. Edge/Corner Detection



- ☐ S - Class Assignment
- ☐ T - Using an AI algorithm to analyze an image and detect corners within it
- ☐ A - I used the Canny Edge Dectection algorithm which has many steps to it like changing the image to grayscale, then finding the Guassian Kernel and it's derivative, and then suppressing non relevant points.
- ☐ R - A computer cannot see like a person however by using Canny Edge Detection a computer can create a list of minimal data points to process which can later be used in AI's that identify objects which acts at a computer's vision. An example of using computer vision is for a camera to identify and translate ASL.

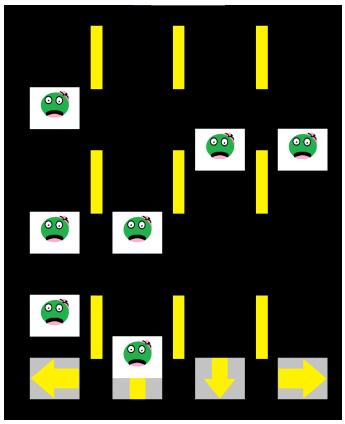
Game Demos - RPGMaker and Unity

1. Escape From Saint Pablos (Pokemon Parody)



- ☐ S - Class Assignment (Group)
- ☐ T - Develop one of the demos made from someone within the group into a complete demo
- ☐ A - I was in a group with 1 other member where we decided to champion his demo of a Pokemon parody game. I was in charge of map design using RPGMaker and the side storylines before confronting the final boss.
- ☐ R - The demo was a great success and was rated the best Pokemon parody game seen in the class since the TA has been assisting the course.

2. Vertical Slice Demo of a Rhythm Game



- ☐ S - Class Assignment
- ☐ T - Develop a vertical (develop 1 aspect of a game incredibly well) or a horizontal (develop many aspects of the game at a mediocre level) demo
- ☐ A - I was given a randomly generated prompt entailed making a science-fiction rhythm game. I used Unity and C# to make 1 complete level and have music notes represented as zombies coming down the screen and the player can destroy the zombies by pressing one of the arrow keys corresponding to the column.
- ☐ R - The demo was an absolute success, the notes moved down at a smooth and steady pace and I was able to match it with the BPM of the song so that zombies would be destroyed on a beat.