**1. Pyrite Engine**

The final product built from all the tasks below.

**1.2 Window**

The window created from all the tasks below, used to show the engine output, the asset section and the component section.

**1.1.1 Starting Window**

The initial window will need to be created to house the different window containers.

**1.1.2 MDI Support**

Set up the window to be an MDI container so that the different sections can be added to the window.

**1.1.3 Displaying Scene**

Assign the Panda3D render output to the window.

**1.1.4 Asset Section**

Create the window within the window that allows the user to add files to their project

**1.1.4.1 Drag and Drop Files**

Allow the user to drag files from their file explorer directly into the asset section. Store these files in a new asset folder created with the project.

**1.1.5 Component Section**

Create a window within the main window that displays a component for the object.

**1.1.5.1 Displaying Components**

Set up an initial placeholder for displaying the components. This will be changed when components are added to the editor.

**1.2 User Input**

Set up input from the user.

**1.2.1 Keyboard Input**

Set up window to receive keyboard inputs from the user.

**1.2.1 Mouse Input**

Set up window to receive mouse inputs from the user.

**1.3 Scene Editor**

**1.3.1 Lock Screen Output**

Prevent the engine from looping while the scene is being edited. This will need to update positions without running all associated code.

**1.3.2 Object Creation**

Creating the object from the models that are imported into the asset section

**1.3.2.1 Drag Models from Assets to Scene**

Set up being able to drag a file from the asset window into the scene window.

**1.3.2.1 Create Object with Model**

From dragging the model onto the scene, an object should be created within the code.

**1.3.3 Selecting Objects**

Allow the user to select an object within the scene.

**1.3.3.1 Highlight Selected Object**

Highlight the selected object to ensure the user knows what object is currently targeted.

**1.3.3.2 Show Transform Indicator**

Show the transform indicator that will allow the user to move the object around the scene.

**1.4 Components**

Adding support for components that can be attached to each object in the scene.

**1.4.1 Transform Component**

Create the transform component that can be attached to each object in the game.

**1.4.1.1 Attach to Object**

Allow the transform object to be attached to the object.

**1.4.1.2 User Input to Define what Transform Does**

Allow the user to define how the transform component with affect the object it is attached to.

**1.4.2 Collision Component**

Create the component that will make collision possible within the game.

**1.4.2.1 Add Collision to Object**

Add the collision to the object that will prevent two objects from going through each other.

**1.4.2.2 Change Collision Type**

Set up either box or capsule colliders which will wrap around the object and allow you to change this inside the component.

**1.4.3 World Trigger Object**

Create an object within the world, when another object goes inside of it, the trigger will change a variable or other object

**1.4.3.1 Attach Other Objects**

Attach other objects to the trigger.

**1.4.3.2 Make Changes to Attached Object**

Once object is attached to trigger, support changing variables associated with object when trigger is entered.

**1.5 Project Management**

Adding the support for saving, loading and exporting the project as an EXE.

**1.5.1 Saving Project**Add the ability to save the project as a JSON file.

**1.5.1.1 Export Information to a JSON File**

Export all the files, object positions and components attached to each object.

**1.5.2 Loading Project**

Add the ability to load the project from a JSON file

**1.5.2.1 Import Information from JSON File**

Take information from the JSON File to load the project

**1.5.3 Building the Project**

Turn the project into an EXE without the editor.

**1.5.3.1 Remove Editor Code**

Remove anything to do with the editor when building the project.

**1.5.3.2 Include all Components to Build**

Allow the components to run on all objects once the project has been built.

**1.5.3.3 Create EXE for Game**

Create an EXE which installs the game to the PC, this will include all assets and source files.