

**Spike:** 9**Title:** Composite Pattern**Author:** Michael Williams, 7668481**Goals / deliverables:**

- Code
- To implement the Composite Design Pattern
- To refactor old code and update it to use the new classes created by the implementation of this pattern.
- To expand the Command Processor to include more interactions with game world entities.

**Technologies, Tools, and Resources used:**

- Visual Studio IDE
- [www.cplusplus.com](http://www.cplusplus.com)
- Assorted web sources.
  - YouTube
  - Tutorials

**Tasks undertaken:**

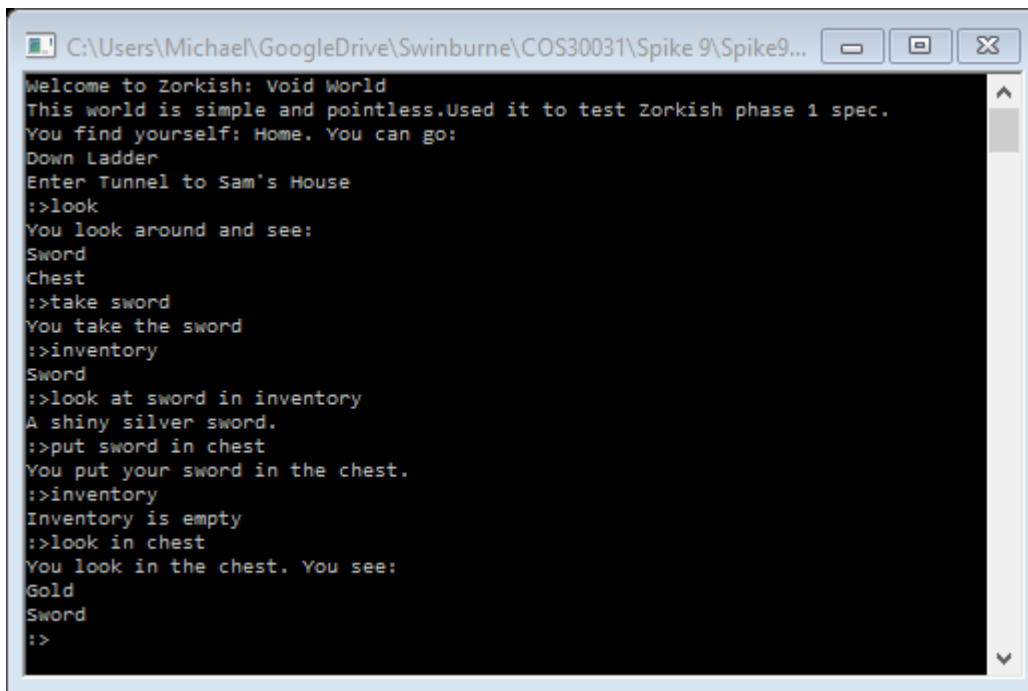
- Research the Composite Pattern including when, how and why you would implement this pattern in particular scenarios.
- Practice implementation in small programs to understand the fabric of the pattern and how the classes link together.
- Transfer knowledge into the Zorkish game adding the classes required to support the pattern.
- Refactor the old code (inventory, world processor, graph etc.) to make use of the new classes and methods implemented.
- Testing code to ensure it all works the same as before.
- Expanding the command processor to add additional functionality.

**What we found out:**

We found out how to implement the Composite Design pattern and what the advantages of using this method is. This allows for objects to be composed of other objects by using two child classes derived from the base class. One is a singular entity, the other is an entity which contains entities. To implement the Composite entities, we chose to use a list of Entity pointers.

This reduces the size of the data being passed around by passing pointers instead of whole data structures (much more efficient).

Through doing this exercise, we found it quite natural to use the pointers, even though it has proven confusing in the past, now we have learned first-hand how useful pointers can be.

A screenshot of a Windows terminal window. The title bar shows the file path: C:\Users\Michael\GoogleDrive\Swinburne\COS30031\Spike 9\Spike9... The terminal displays the text of a text-based adventure game. The game starts with a welcome message and instructions. The player enters commands like 'look', 'take sword', 'inventory', 'look at sword in inventory', 'put sword in chest', and 'look in chest'. The game responds with descriptions of the environment and the items found.

```
C:\Users\Michael\GoogleDrive\Swinburne\COS30031\Spike 9\Spike9...
Welcome to Zorkish: Void World
This world is simple and pointless.Used it to test zorkish phase 1 spec.
You find yourself: Home. You can go:
Down Ladder
Enter Tunnel to Sam's House
:>look
You look around and see:
Sword
Chest
:>take sword
You take the sword
:>inventory
Sword
:>look at sword in inventory
A shiny silver sword.
:>put sword in chest
You put your sword in the chest.
:>inventory
Inventory is empty
:>look in chest
You look in the chest. You see:
Gold
Sword
:>
```