

# Pass Task 18 – Planetary Rover

## Related Learning Outcomes

### ULO1 – Explain the OO Principles

This exercise demonstrated how to investigate and eliminate memory leaks by making sure the Rover destructors are deleting all the batteries and devices attached. The exercise taught how to create a deep copy to stop dangling references from happening by creating new instances of the object instead of a shallow copy which points to the same object.

### ULO2 – Use OO Language and Library

This exercise used namespace std, vector and iostream to access features such as lists and sending text to the console.

### ULO3 – Design, Develop and Test using an IDE

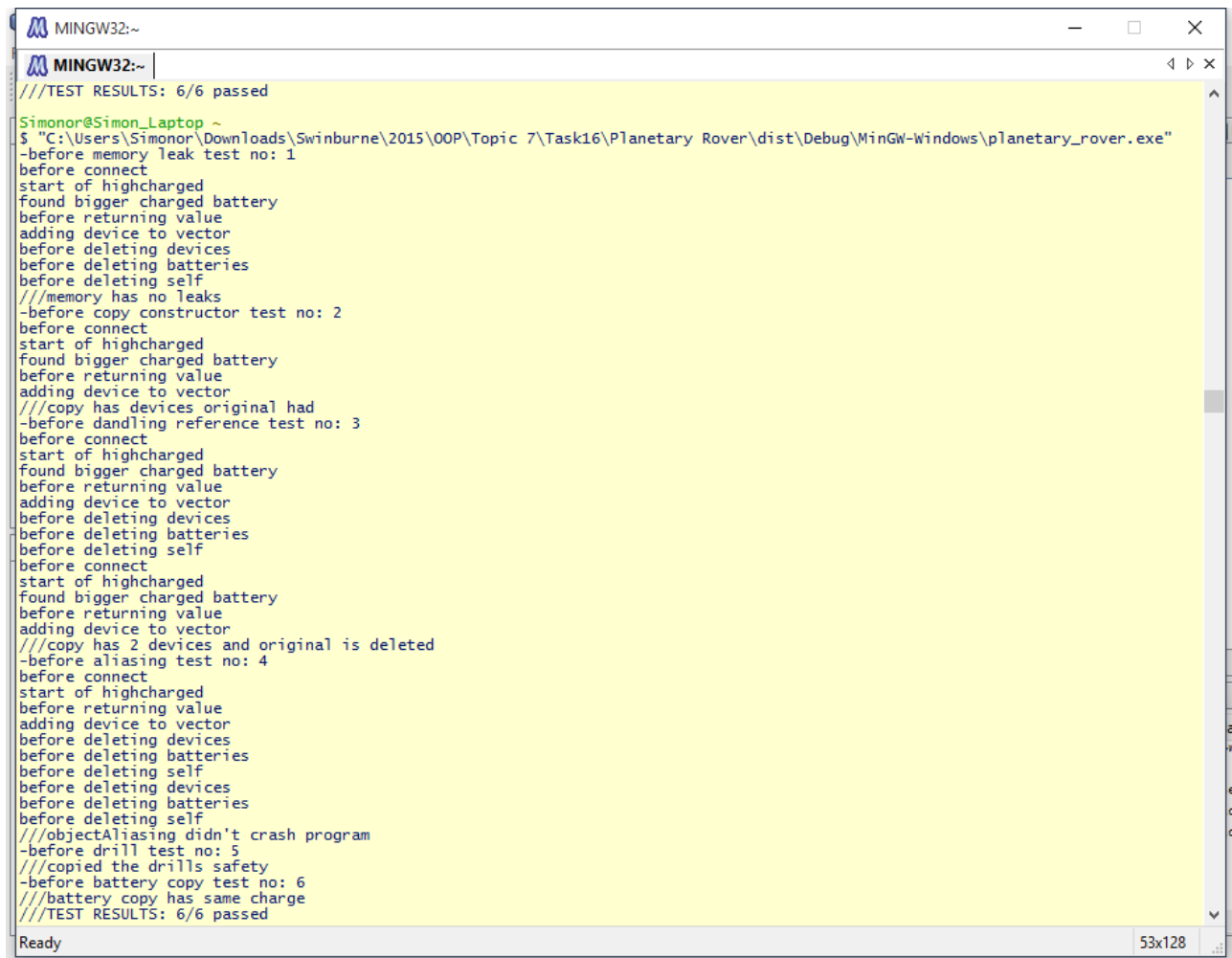
The code was developed using netbeans to build and run the program. to debug the program I used basic debugging with comments to find where the issue/crash occurred to step and inspect what when wrong. Debugging in main was used for the unit testing for the Rover, devices and battery classes for memory leaks, handling references and object aliasing.

### ULO5 – Describe Elements of Good OO Design

The exercise demonstrated correct use of C++ coding conventions including proper naming, syntax and correct layout. The exercise taught proper resource management of all the objects created to make sure no memory leaks occur.

## Screenshots

[use of IDE]



```
MINGW32:~  
MINGW32:~  
///TEST RESULTS: 6/6 passed  
Simonor@Simon_Laptop ~  
$ "C:\Users\Simonor\Downloads\Swinburne\2015\OOP\Topic 7\Task16\Planetary Rover\dist\Debug\MinGW-Windows\planetary_rover.exe"  
-before memory leak test no: 1  
before connect  
start of highcharged  
found bigger charged battery  
before returning value  
adding device to vector  
before deleting devices  
before deleting batteries  
before deleting self  
///memory has no leaks  
-before copy constructor test no: 2  
before connect  
start of highcharged  
found bigger charged battery  
before returning value  
adding device to vector  
///copy has devices original had  
-before dandling reference test no: 3  
before connect  
start of highcharged  
found bigger charged battery  
before returning value  
adding device to vector  
before deleting devices  
before deleting batteries  
before deleting self  
before connect  
start of highcharged  
found bigger charged battery  
before returning value  
adding device to vector  
///copy has 2 devices and original is deleted  
-before aliasing test no: 4  
before connect  
start of highcharged  
before returning value  
adding device to vector  
before deleting devices  
before deleting batteries  
before deleting self  
before deleting devices  
before deleting batteries  
before deleting self  
///objectAliasing didn't crash program  
-before drill test no: 5  
///copied the drills safety  
-before battery copy test no: 6  
///battery copy has same charge  
///TEST RESULTS: 6/6 passed  
Ready 53x128
```