# Workshop 12 - Jack OS

### The Operating System

##### [Practical Marker](https://cs.adelaide.edu.au/services/pracmarker/)

#### Question 1 - Implement a Jack OS class

Choose one of the Jack OS classes and implement it. You will find skeleton implementations of each OS class and a corresponding test program in the **projects/12** directory in the Nand2Tetris software.

Assume that you chose to implement the **String** class. Change to the directory **StringTest** and compile and run the test program. Because you have not yet provided a **String** class, the **VMEmulator** will use its builtin copy. This will allow you to see what the test program should be doing if you have a correct implementation of the **String** class.

Now make a complete copy of the **StringTest** directory and add a copy of the **String.jack** file to it. If you try to compile this copy of the test program, you should find that every function in the class produces an error message because all of the functions have empty bodies. If you work through each function and provide a minimal implementation you will then be able to run the test program using your **String** class. When you have a complete **String** class implementation, the test program should produce the same output as the copy that is using the builtin implementation.

You can repeat the above steps for all of the Jack OS classes. Because the **VMEmulator** substitutes builtin implementations for missing OS classes, the above steps will work for any of the OS classes. If you complete an implementation of all of the OS classes, you could try running a program using only your own implementations. This will not run very fast because the builtin versions are written in Java and will benefit from the Java just-in-time compiler. However, you will have a working system.