# Assignment 8

## Programming Languages

1. [20 pts, Subprograms]

   Imagine you need to write a function which prints an integer value on the screen. This value represents a counter and is set to '1' initially and then incremented on subsequent calls to the same function. Can it be done in Java without using function parameters or non-local variables? How about a C macro?

2. [40 pts] Consider the following code slice using Java 8 Function interface.

```
import java.util.function.Function;
public class Test1 {
    public Function<Integer, String> getTextOfWeekday = num -> {
        String [] weeks = {"Mon", "Tue", "Wed", "Thu", "Fri", "Sat",
"Sun"};
        return (num > 0 && num <= weeks.length) ? weeks[num-1] : null;
    };
    public void test () {
        System.out.println(getTextOfWeekday.apply(3));
    }
    public static void main (String args[]) {
        Test1 t = new Test1(); t.test();
    }
}
```

   Output: `Wed`

   (a.) What is(are) the name of concept(s) this code slice use (that we have seen in this course)?

   (b.) Write another Function TestPrint and print the same result using

   " `TestPrint` o `getTextOfWeekday`" in order to demonstrate the concept that you specified in (a.). The output should be same and the form of the call should be (in generic terms) `function1.apply(function2.apply(...))`.

3. [40 pts] Write a tail recursive factorial (in a language of your choice) and show the activation record for 'factorial of 5'.