

## Programming Assignment I

(Due Time: 11:59pm, 10/14/2018 Sunday)

1. Read Section 2.13 “A C Sort Example to Put It All Together” in the textbook to understand how the C code of `swap()` and `sort()` is translated to their respective MIPS assembly code.
2. Read Appendix A.9 on Page A-40 about the SPIM simulator, in particular, on how to use system calls to conduct input and output.
3. The C code for `sort()` in the textbook is wrong. A correct version is as follows:

```
for(int i = 1; i < n; i++) {  
    for(int j = 0; j < n - i; j++) {  
        if (v[j] > v[j+1])  
            swap(v, j);  
    }  
}
```

Revise the assembly code for `sort()`, and insert your assembly code for `sort()` and `swap()` into the given program `lab1.asm`.

You need to use SPIM to debug and run the program. Note that `swap()` and `sort()` should be two separate functions in the assembly code program. You are strongly suggested to re-use the code in Fig 2.25 and Fig. 2.27 as much as possible and change them only when it is indeed necessary, such as for correcting the error in `sort()`.