

# CS 341 - Computer Architecture Lab

## Assignment 2 - Assembly Language Programming

August 1 , 2018

**Problem 1. Finding the greatest integer** - Write an assembly language program for MIPS processor which takes an integer variable, 'count' - number of integers to be input. It then accepts 'count' number of integers one by one and outputs the greatest one among them. For sample I/O, consider the following-

```
Enter count(number of integers to be input): 12
Enter integers: -5 319 7 28 -115 3 135 -71 1024 103 91 -243
Largest integer is: 1024
```

Please note that you should not sort the integers in any way for doing this. Also, make sure you use the same I/O format (even the same prompt messages).

**Problem 2. Finding the kth largest integer** - Modify the code for Problem 1 as following:

Besides entering the 'count' of the integers and the integers themselves, also enter an integer variable 'k'. Your program should output the kth largest integer if  $k \leq \text{count}$ , else it should output "Error". For sample I/O, consider the following-

```
Enter count(number of integers to be input): 12
Enter integers: -5 319 7 28 -115 3 135 -71 1024 103 91 -243
Enter k: 3
kth largest integer is: 135

Enter count(number of integers to be input): 12
Enter integers: -5 319 7 28 -115 3 135 -71 1024 103 91 -243
Enter k: 13
Error
```

As mentioned in the problem statement, you can take the input integers one by one (one integer input per line) instead of reading all at once (all integers in one line) though the sample input shows all integers in a line to save space in this document. As another reference, consider following example for sample input:

```
Enter count(number of integers to be input): 2
Enter integers:
1
2
```

## Submission Guidelines

Please follow the following directory structure for submission.

```
la2_[roll-no.]
├── problem1.s
└── problem2.s
```

Compress the directory `la2_[roll-no.]` as a `.tar.gz` file and upload it on moodle.

**Deadline - 5:00 PM, 1st August 2018**