

## CSE 2133 - Lab 2

### Part A

You will create an interactive program (name it **lab2a.cob**) that will prompt the user for a 4 digit (signed) number. The program will repeat this until the user enters a 0. The program will show the highest and lowest values entered, as well as the average (rounded to 2 decimal places). **Note that the 0 is not to be treated as the last number entered; it is strictly a sentinel value, not data.** Make sure all instructions and outputs are clear and meaningful.

Sample session:

```
Enter a 4-digit signed number (0 to stop): 12
Enter a 4-digit signed number (0 to stop): -8
Enter a 4-digit signed number (0 to stop): 1234
Enter a 4-digit signed number (0 to stop): -17
Enter a 4-digit signed number (0 to stop): -270
Enter a 4-digit signed number (0 to stop): 1
Enter a 4-digit signed number (0 to stop): 9876
Enter a 4-digit signed number (0 to stop): 0
```

```
The lowest value entered: -270
The highest value entered: 9876
The average value entered: 1546.86
```

***Note:** Accepting a number w a negative sign a little strange in OpenCOBOL. Define the field as S9(5), not S9(4). Defining it as S9(4) will only cause it to recognize 3 digits and the sign (so an entry of -1000 is read in as -100).*

### Part B

This will be a modification of lab2a. This program will be named **lab2b.cob** and will allow for multiple sessions in a run. With the “Another Session” prompt, an input value of “N” will stop the program; any other value can be treated as a “Y” and initiate a new session.

Sample run:

```
Another Session (Y/N)? Y
```

```
Enter a 4-digit signed number (0 to stop): 12
Enter a 4-digit signed number (0 to stop): -8
Enter a 4-digit signed number (0 to stop): 1234
Enter a 4-digit signed number (0 to stop): -17
Enter a 4-digit signed number (0 to stop): -270
Enter a 4-digit signed number (0 to stop): 1
Enter a 4-digit signed number (0 to stop): 9876
Enter a 4-digit signed number (0 to stop): 0
```

```
The lowest value entered: -270
The highest value entered: 9876
The average value entered: 1546.86
```

Another Session (Y/N)? Y

Enter a 4-digit signed number (0 to stop): -18

Enter a 4-digit signed number (0 to stop): 19

Enter a 4-digit signed number (0 to stop): -20

Enter a 4-digit signed number (0 to stop): 0

The lowest value entered: -20

The highest value entered: 19

The average value entered: -6.33

Another Session (Y/N)? N

## Part C

This will be a modification of lab2a. This program will be named **lab2c.cob** and will be a batch version of lab2a.cob. The input file will be named “lab2c-in.dat” and will be located in the same directory as the lab2c executable (so do not specify a path for the file in the Select statement). The program will show (to the screen) the highest and lowest values in the file, as well as the average (rounded to 2 decimal places) of all values read in from the value.

The record format for the file is as follows:

<u>Field Description</u>	<u>Length</u>	<u>Data Type</u>
Value	4	Signed Number (no decimal places)

**There is no sentinel value within the file; each record is to be treated as data, even if the value on the record is 0.** Also, each file represents a single session.

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