

## BIL214 - Systems Programming

### LAB4

In this lab, you will answer the 2 questions given below. For both questions, you will write a C script into a file named "q1\_<studentid>.c", "q2\_<studentid>.c" and upload your file into the form below. Make sure your scripts can be compiled correctly with the gcc compiler.

Upload Form: <https://forms.gle/LxJvnyXHPKPWsBGt5>

Deadline: 18:30 14.10.2021

#### 1. Calculator

In this question, you will write a C script that calculates the number of elements, the max element, the min element, the sum, the mean, the product, and the maximum difference between elements of the given elements. Your program should take all of the elements in a row. The maximum element size is 20 and all elements are positive integers (You can assume that a given array fits these restrictions). After calculating the above, the program should ask if you want to continue. Your program should work like the example below. (For floating numbers, it doesn't matter how many digits you print after the point.)

```
~$./q1_111111111
Welcome,
Please enter the array: 5 2 6 8 9 10 1
Number of elements: 7
Max: 10
Min: 1
Sum: 41
Mean: 5.857142
Product: 43200
Max difference: 9
Do you want to continue? (Y/N)
Y
Please enter the array: 5 2 6 8 9 10 1
Number of elements: 7
Max: 10
Min: 1
Sum: 41
Mean: 5.857142
Product: 43200
Max difference: 9
Do you want to continue? (Y/N)
N
Exiting program.
```

## 2. String Editing

In this question, you will write a C script that edits and prints a given string. The program takes a string and prints the followings,

- The string whose all letters are lowercase.
- The string whose all letters are uppercase.
- The string whose all letters are alternated.
- The string where each uppercase letter is duplicated.
- ASCII representation of each letter where each integer is printed with 3 digits.

The maximum length of the string is 15 and the string can consist of only lowercase or uppercase English characters (You can assume the given string fits these restrictions.). After printing the above, the program should ask if you want to continue. Your program should work like the example below.

```
~$./q2_111111111
Welcome,
Please enter a string: bilGiSAyar
Original: bilGiSAyar
Lowercase: bilgisayar
Uppercase: BILGISAYAR
Alternated case: BILgIsaYAR
Duplicated: bilGGiSSAAyar
ASCII: 098 105 108 071 105 083 065 121 097 114
Do you want to continue? (Y/N)
N
Exiting program.
```