



National University

of computer and emerging sciences

Course Name:	Operating System	Course Code:	
Degree Program:	BS-CS	Semester:	Spring 2023
Exam Duration:	25 Minutes + 5 Minutes for submission	Total Marks:	10
Paper Date:	23-Feb-2023	Weight	
Exam Type:	Quiz-I		

Question 1

Write a C program that initializes a 2D array of size 5 by 5 with values between 1 to 1000. Using the fork system call to create parent and child processes. In the parent process, calculate the sum of the upper and lower triangular elements of the array, display both sums, and print its own ID and the child ID. The child process should count the frequency of each number in the array, display the frequencies, and print its own ID and the parent ID. (You are not allowed to use if condition for counting frequencies)

Ensure that the parent process waits until the child process finishes its execution.

For example 2d array is

{500, 200, 12, 13, 15},

{140, 15, 160, 170, 20},

{20, 40, 700, 1000, 11},

{10, 20, 20, 20, 20},

{20, 10, 12, 10, 1000},

Output

```
~/MujtabaFORKS$ gcc quizsolution.c -o quiz
~/MujtabaFORKS$ ./quiz
I am child having id 477
My parent's id is 476
frequency count
Number 10 freq 3
Number 11 freq 1
Number 12 freq 2
Number 13 freq 1
Number 15 freq 2
Number 20 freq 7
Number 40 freq 1
Number 140 freq 1
Number 160 freq 1
Number 170 freq 1
Number 200 freq 1
Number 500 freq 1
Number 700 freq 1
Number 1000 freq 2
My child's id is 477
I am parent having id 476
Upper Triangular sum is 3856
Lower Triangular sum is 2537
```

Question 2

Write a C program that accepts your first name as a command-line argument and calculates the length of your name. You are not permitted to use any built-in method to accomplish this.

Output

```
~/MujtabaFORKS$ gcc quizsecondquestion.c -o quizsecondquestion
~/MujtabaFORKS$ ./quizsecondquestion MUJTABA
The length of your name is 7
~/MujtabaFORKS$
```