**Lab Tasks**

**Q1.** Write a program to create an array of N elements using **ONLY POINTERS** (You cannot declare as arr[n]). You can do this using calloc/malloc functions. Then you must take user input of each element in the array (**USE POINTER**) and calculate the sum of the array. The whole process must be done by dereferencing the array using **ONLY POINTERS** (You cannot access by writing arr[i]).

**Q2.** Declare a 2D array of integers using **ONLY POINTERS** using calloc/malloc. The row and column dimensions will be taken as user input. Then, loop through this input array using **ONLY** **POINTER SYNTAX** (not arr[i][j]). You must print on the screen the total sum of ALL ROWS and ALL COLUMNS separately.

**Example Input:**

1 2 3

4 5 6

**Example Output:**

Row #1 Sum = 6

Row #2 Sum = 15

Column #1 Sum = 5

Column #2 Sum = 7

Column #3 Sum = 9

**Q3.** Declare a char array of size 1000, and take user input of a sentence. The sentence can contain as many words as the user wishes (less than 1000 characters). After taking input, you must create a 2D char array using **ONLY POINTERS** using calloc/malloc. You must parse through the original input char array and extract all the words from it into your new 2D char array. Example is given below:

**Example:**

**Original Input:** I will get A+ in PF-Lab if I work hard

**2D Array Output:**

I

will

get

A+

in

PF-Lab

if

i

work

Hard

**Q4.** Take user input for rows and columns. Dynamically allocate memory for the 2D integer array and randomly assign integer values (range -200 -> 200) for each element. Loop through the array and replace every positive integer with the MINIMUM value in the row, and replace every negative integer with the MAXIMUM value in the row. **(Note that it should be minimum and maximum according to the original values in the array, not the modified array). You must solve this problem using only one array, do not declare another array.**

After each time of doing this entire process, ask the user if they wish to continue or stop the program. In case they wish to continue, you must repeat this process (take new dimensions as input, reallocate the memory) and use the SAME POINTER to create the new array.