National University of Computer and Emerging Sciences

Laboratory Manual
10&11

For

Programming Fundamentals
BBCS-1k

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Instructions:

1. Declare **const int Size** to to declare 1D array
2. Declare **const int rows and columns** to declare 2D array
3. Write a menu -driven program, and use do while loop. The program should ask the user if he/she wants to test another function, print the appropriate menu.

Question No 1: Write a program that asks user to input character array and then your task is to find the exact length of that character array i.e. how many characters are there in an array. You must not include spaces.
Example:
Input:

Enter a sentence: Hi how are you?
Output:
Total characters are: 12

Question No 2: Write a C++ program to read a sentence from console into a character array. Now separate each word and find the word with minimum length and display it on screen. You also have to make integer array to store length of each word in sentence. Your code should be generic

Sample Input
Summer Vacations are canceled this year.

Sample Output
6 9 3 8 4 4 Min: 3

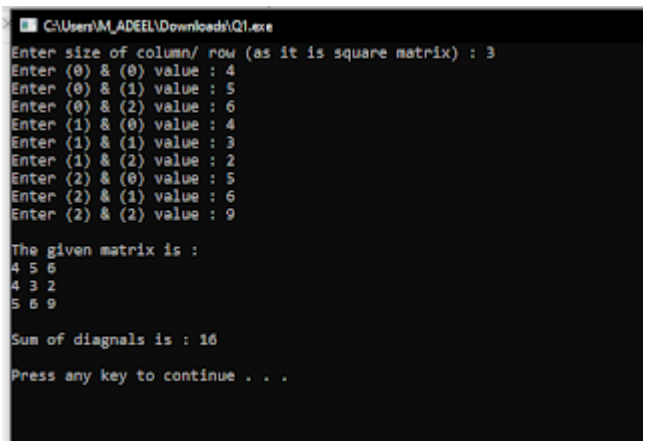
***Note:** Your sentence always ends with full stop.

Question No 3: Write a program that takes two inputs from the user. The 1st input will be a character. While the 2nd input will be a character array. Your program must now delete the character from the character array and displays the updated char array on the screen.

Input:
Enter a character: a
Enter a sentence: What is your name
Output:
Wht is your nme

Hint: You must use cin.ignore() after single character input and cin.getline() for char array. Do it without cin.ignore() and see the buffer blunder by yourself.

Question No 4. (2-D int array): Write a function in C++ called Trace(int data[][size]) that calculates and returns the trace of a square matrix. The trace of a square matrix is the sum of values present in its diagonal.



Question No 5:

Creates a small phone book. An array is used to store a list of names and another array is used to
store the phone numbers that go with each name. For example, Michael Myers'phone number is
333-8000 and Ash Williams' phone number is 333-2323. Write the function lookupName so the
code properly looks up and display the phone number for the input target name.

Question No 6:

Write a user defined function named Upper-half() which takes a two dimensional array A, with
size N rows and N columns as argument and prints the upper half of the array.

INPUT:	OUTPUT:
2 3 1 5 0	2 3 1 5 0
7 1 5 3 1	1 5 3 1
2 5 7 8 1	1 7 8
0 1 5 0 1	0 1
3 4 9 1 5	5

Question No 7:

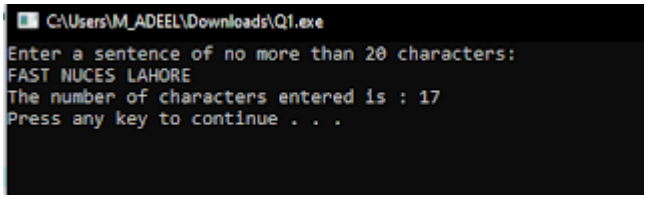
Write c++ program function ReverseString() which takes string as user input and finds the reverse of that string word by word. Note: **Implement through 1D character arrays.**

OUTPUT:

Enter the string: Fast University
tsaF ytisrevinU

Question No 8:

Write a function that returns an integer and accepts a character array as an argument. The function should count the number of characters in the character array and return that number. Demonstrate the function in a simple program that asks the user to input a string, passes it to the function, and then displays the function's return value.



Question No 9:

Write a function in C++ called

bool Exists(int data[][6], int pattern[][3])
that accepts a 2-dimensional integer array called data of size 6x6 and another 2-D integer array called pattern of size 3x3 as input parameters. It returns true if it finds the pattern within the array data and false otherwise. So

Exaple: if data carries the following values

1 2 7 8 9 6
2 2 3 4 5 6
3 2 3 4 5 6
4 2 3 4 5 6
5 2 9 8 7 6
6 2 7 4 5 6

And find has the values as below

3 4 5
3 4 5
3 4 5

Then your function should return true as the 3X3 matrix exists at data[1][2].

----------GOOD LUCK----------