

National University of Computer and Emerging Sciences



**Lab Manual**  
*for*  
**Object Oriented Programming**

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## Lab Manual 4

### Objectives:

After performing this lab, students shall be able to:

- ✓ 2D array
- ✓ Classes and objects
- ✓ Double pointers and dynamic allocation of 2D arrays.

### **Problem 1**

Implement a C++ Function **void** myTokenizer(**char** \*data, **char** \*\*list\_tokens, **char** delimiter)

Your function should store the tokens in the list\_tokens and split the data array on the basis of delimiter. Delimiter is another name for 'separator'. Call the function in main and print the list\_tokens.

Start traversing the data array until you find delimiter. Once you find the delimiter store the first token in the first row of list\_tokens. Now find second token and store in the second row of list\_tokens and so on...

First find the number of tokens that can be formed from data. This will be the number of **rows** for **char \*\*list\_tokens**. Each row will have different number of columns. e.g. If string is **my,name** and delimiter is **,** then following shall be the result.

	0	1	2	3	4
0	m	y	'\0'		
1	n	a	m	e	'\0'

**Don't allocate extra memory.** Release memory before exiting program.

**Sample:**

**Input:** my,name,is,Mr,Faheem

**Delimiter:** ,

**Tokens are:**

my  
name  
is  
Mr  
Faheem

## Problem 2

As we already know that:

A class is simply a representation of a type of object. It is the blueprint/ plan/template that describes the details of an object.

Your task is to design a class for **Student**. You must take any 5 necessary data members:

Roll No

Name

CNIC

Degree

Address

Now implement all the required functions i.e. input function, print function.

Now create an object of Student in the main and call all the functions.

## Problem 3

### Exercise 1:

- Create a class Date having following private data members:  
Int Day  
Int Month  
Int Year
- Create an object of Date “date1” and run your program

### Exercise 2 [Default Constructor]:

- Write a default Constructor of Date that initializes the object to 1st January 1926 and prints “Default Constructor Called” in start.
- Now run your program and test what does date1 prints?

### Exercise 3 [Print Function]:

- Implement a function Print in Date class which prints a date in following format: dd/mm/yyyy (e.g. 1/1/1926 for date1)
- Print object date1 in your main function and run the program.
- What does it print and how can we initialize the data of date1 at the time of creation?

**Exercise 4 [Input Function]:**

- Write a function Input in your Date class that takes input from user to populate a Date object.
- Call “date1.Input()” and “date1.Print()” in your driver program and test it.

**Exercise 5 [Setters]:**

- Create an object xmasDay using default constructor.
- Print xmasDay and see what it prints.
- Write Setters i.e. SetDay, SetMonth and SetYear in your class.
- Now set xmasDay to 25/12/2020 using Setters in main.

**Exercise 6 [Getters]:**

- Write Getters i.e. GetDay, GetMonth and GetYear in your date class.
- Now print xmasDay using Getters in your Driver program.