**National University of Computer and Emerging Sciences**



**Lab Manual 04**

**Object Oriented Programming**

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| Section | K |
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## Objectives

After performing this lab, students shall be able to:

* Learn basics of classes and object creation.
* Create Constructors (Default Parameterized, Overloaded).
* Create and use setters and getters.

**TASK 1 (Quiz):**

**TASK 2:**

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,Imran

**Delimiter**: ,

**Tokens are**:

my

name

is

Mr

Imran

**TASK 2:**

Your task is to design a class for Student. You must take any 5 necessary data members as Roll No, Name, CNIC, Degree and Address. Now implement all the required functions i.e. constructor, getters, setters, input function, print function.

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

Define your class in “Student.h” file, Implement all the functions of Student class in “Student.cpp” and Test your class in “Driver.cpp”.

Exercise 1:

* Create a class Student having following private data members:

Int Roll no

Char Name []

Char Department []

Int CNIC

Char Address []

* Create an object of Student “Student1” and run your program

*The sizes of the thre c-strings should be declared as named constants before the class declaration.*

Exercise 2 [Default Constructor]:

* Write a default Constructor of Student that initializes the 0 to Roll no and ID, empty string to Name, department and address, and prints “Default Constructor Called” in start.

Exercise 3 [Print Function]:

* Implement a function Print in Student class which prints all the attributes neatly on screen.
* Create object date1 in your main function and run the program.

Exercise 4 [Input Function]:

* Write a function Input in your Student class that takes input from user to populate a Student object.
* Call “student 1.Input()” and “student1.Print()” in your driver program and test it.

Exercise 5 [Setters]:

* Implement setter function for each member of the class.

Exercise 6 [Getters]:

* Write Getters i.e. GetRollno, GetName GetCNIC, GetDegree, and GetAddress in your Student class.
* Now print student object using Getters in your Driver program.

**NOTE: Make sure that you create 3 separate files, .h file to declare class and its members, imp.cpp file for implementation member function of class. Driver.cpp file for main() function.**