# CS381-L Software Engineering Lab 01

**Type of Lab: Close Ended** **Weightage: 5%**

**CLO 2:** Implement, in a programming language, an executable solution to a given problem using best practices.

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|---|---|---|---|
| Implement, in a programming language, an executable solution to a given problem using best practices. | **Cognitive/Apply** | CLO2 | Rubric A |

**CLO 5:** Comply with Plagiarism Policies.

| | | | |
|---|---|---|---|
| Comply with Plagiarism Policies. | **Cognitive/Understand** | CLO2 | Rubric B |

**Rubric A: Cognitive/Apply**

| CLO2 | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Implement, in a programming language, an executable solution to a given problem using best practices. | Student could not complete the task | Student understand the problem and solution but could not write the code | Student write code but with some minor errors | Student code is giving the desired results | Student code is correct with perfect indentation |

**Rubric B: Cognitive/Understand**

| **CLO 5** | **0** | **1** | **2** | **3** | **4** |
|---|---|---|---|---|---|
| Comply with plagiarism policies. | Students copied complete code from other fellows. | Student gives his code to other students. | Students partially copied or asked the code from other fellows. | Students copied the code but clearly mentioned the part of the code that has been taken. | Student did not copy the code and did not allow anyone to copy his code. |

# Lab 01

## Assessment Criteria:

Program working 5 points
Documentation 2 points
Plagiarism 3 points
**Reading Material:** .Net Book Zero

## Assignment 1

Write a C# program in which you are required to define a class named **Student**. The class must include the following five data members.

- **Student Name** //data type should be String (name should be alphabetic, special characters and numbers are not allowed)
- **Registration Number** //data type should be String (Format should be like this: 2015-CS-888, any other format should be handled in setter function )
- **Date of Birth** //data type should be Date (Date of birth should be less than 1st January 2005 and greater than 31st December 1990, add conditions for invalid data)
- **CGPA** // data type should be double ( should be between 0 and 4)
- **CNIC** //data type should be String (only 13 digits are allowed with valid CNIC)
- **Hobbies** // data type should be string array
- Your Program should define two constructors for the class **Student**
- A constructor with **no parameter**
- A constructor with **two parameters** (Name, Registration Number)
- All of these two constructors are meant to initialize their respective objects.
- Define getter setter for each data member
- Apart from getter, setter and constructor, define the following function:
    - **Input() –** It should take input of all attributes from user
    - **GetAge()** – it should calculate the age of the student upto current date.
    - **GetStatus()** – function should tell the status of student in the following cases:
- IF CGPA less than 2.0 - Status is Suspended
- IF CGPA between 2.0 and 2.5 - Status is Below Average
- IF CGPA between 2.5 and 3.3 - Status is Average
- IF CGPA between 3.3 and 3.5 - Status is Below Good

- IF CGPA greater than 3.5 – Status is Excellent
- **NumberOfWordsInName()** – it should return number of words in students name
- **GetGender()** – if last digit of CNIC is odd then it should return MALE otherwise FEMALE
- **ToString()**— It should display the output of student object in format given in output section

Declare two objects (1 for each type of constructor) in **main**.

Write a function in class **Student** to display the initialized data members for each object.

Write **destructor** for the class **Student**. Display a message that says "**destructor called**" in the destructor body.

## Output

Your output should be like the following with same formatting:

Name: Sarfraz Ahmed (Contain 2 words)

Registration Number: 2017-CS-999

CGPA: 2.9 Average

Date of Birth: December 27, 1999 (Age is 17 years 8 months and 12 days)

CNIC: 3567912356781

Gender: Male

Hobbies: Cricket, Study

Name: Hafiz Muhammad Aslam (Contain 3 words)

Registration Number: 2017-CS-999

CGPA: 3.4 Good

Date of Birth: November 27, 1999 (Age is 18 years 9 months and 12 days)

CNIC: 3567912356785

Gender: Male

Hobbies: Politics, Hockey, Study

## What to submit

You are simply required to submit a source file (**Student.cs** and **Test.cs** (in which main function is defined) that includes the implementation of the above mentioned program. No extra file should be submitted.

Submit your assignment on google classroom.