| | Mohammad Ali Jinnah University Karachi |
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| | **Computer Programming Lab Manual**<br>Instructor: Muhammad Suffian |

# Lab - 02
# Basic Elements and input/output

## Objective : To understand the basic elements of C++,data types, variables and operators:

Read the following  table to understand the instructions for the smooth flow of lab.

## Lab time and marks distribution

| No# | Topic/Task | Time | Assessment Marks |
|---|---|---|---|
| Topic Demonstration By Instructor :   30 minutes | | | |
| 1 | Walkthrough task | 20 minutes | |
| 1 | Variables & data types | 15 Minutes | 02 |
| 2 | Variables ,Input/output & Operators | 15 minutes | 02 |
| 3 | Basic statements & Operators | 10 minutes | 02 |
| | **Break** | **15 minutes** | |
| 4 | Pre & post increment/decrement | 20 minutes | 02 |
| 5 | Basic Operators | 20 minutes | 03 |
| 6 | Variables and operators | 15 minutes | 02 |
| 7 | Variable,Operator & built-in function | 20 minutes | 02 |

**Lab Policy :**

·   All the students have to do this lab individually
·   Anyone doing cheating will be assigned **ZERO** in assessment marks
·   All the tasks are mandatory to obtain the assessment marks
·   During lab No one is allowed to move outside without permission

## Walkthrough Tasks:

1. Write a program to initialize variables, storing some value in variables and printing the value.

//Solution

```cpp
#include<iostream>
using namespace std;
int main ()
{
        int A = 15;
        int b(12);      //This is another way of initializing variables
        int Result;
        A = A + 3;
        Result = A - b;
        cout << Result;
        return 0;

}
```

2. Write a program that asks the user to type the price without tax of one kilogram of tomatoes,the number of kilograms you want to buy and the tax in percent units. The program must write the total price including taxes.

```
//Solution code
        #include<iostream>
        using namespace std;
        int main()
        {
        double price_without_taxes,weight,taxes,total;
        cout<<"Type the price of 1 kg of tomatoes without taxes : ";cin>>price_without_taxes;
        cout<<"How much tomatoes do you want (in kilogram) : "; cin>>weight;
        cout<<"What is the tax in percent : ";cin>>taxes;
        total= ((((price_without_taxes*taxes)/100)+ price_without_taxes)*weight);
        cout<<"The total price is : "<<total<<endl;
        return 0;
        }
```

## Practice Tasks :

1)      Write a program to declare two integer and one float variables then initialize them to 10, 15, and 12.6 respectively. It then prints these values on the screen.

2)      Write a program that asks the user to type 5 integers and writes the average of the 5 integers.

3)      Write a program that asks the user to input two integers A and B and exchange the value of A and B.

4)      Write code to show the pre-increment/decrement and post-increment/decrement operations

5)      Write a program that asks the user to type the coordinate of 2 points, A and B (in a plane), and then writes the distance between A and B.

6)      Write a program to take input of Quiz marks , Mid term Marks and final marks then show the total marks and percentage of marks.

7)      Write a program to read the input of x and y then compute the equation:
 total=s2+p*(s-x)*(p+y)