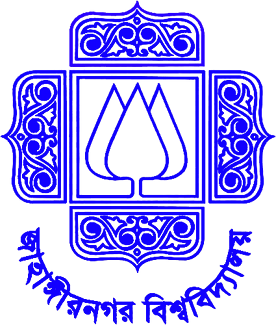
Course Title: Object Oriented Programming (C++)

Course Code: 160

Room No: CSE 302

Date: 18/08/2019

Laboratory Experiment: 02



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Lab Work: 01

**Objective**   
This is a simple challenge to help you practice printing to stdout.

We're starting out by printing the most famous computing phrase of all time! We can use either printf or cout to print the string to stdout. But, you must use both.

Input Format

You do not need to read any input in this program.

Output Format

Print  to stdout.

Sample Output

Hello, World!

Hint:

Printf("Hello! Testing 1,2,3\n");

cout<<"Hello! Testing 1,2,3"<<endl;

cout<<"Hello! "<<endl;

cout<<"Testing 1,2,3"<<endl;

#include <iostream> // this is for cin / cout

#include <cstdio> // This is for printf

using namespace std;

int main() {

printf("Hello, World!");

// Implement your code here using cout.

return 0;

}

Answer to the following question:  
  
1) What is the function of “endl” ?

Lab Work: 02

**Objective**

In this challenge, we're practicing reading input from stdin and printing output to stdout.

In C++, you can read a single whitespace-separated token of input using ***cin*** and print output to stdout using ***cout***.

For example, let's say we declare the following variables:

**string s;**

**int n;**

**cin >> s >> n;**

and we want to use ***cin*** to read the input "High 5" from stdin and output that. We can do this with the following

code:

The above code reads the first word ("High") from stdin and saves it as string , then reads the second word from stdin and saves it as integer . If we want to print these values to stdout, we write the following code:

cout << s << " " << n << endl;

This results in the following output:

**High 5**

**Sub Task- 1**: Read  3 numbers from stdin and print their sum to stdout.

Output Format

Print the sum of the three numbers on a single line.

|  |  |
| --- | --- |
| **Sample Input** | **Sample Output** |
| **1 2 7** | **10** |

**Sub Task - 2**: Read  ***N***  numbers from stdin and print their sum to stdout.

**Output Format**

Print the sum of the three numbers on a single line.

|  |  |
| --- | --- |
| **Sample Input** | **Sample Output** |
| **4**  **1 2 7 4** | **14** |

Hint: Basic knowledge in loop required to solve **sub task-1**. But why? Try to figure yourself. Good luck.

Lab Work - 03

Some *C++* data types, their format specifiers, and their most common bit widths are as follows in C:

* *int ("%d"):* 32 Bit integer
* *Long ("%ld"):* 64 bit integer
* *Char ("%c"):* Character type
* *Float ("%f"):* 32 bit real value
* *Double ("%lf"):* 64 bit real value

**Reading**    
To read a data type, use the following syntax: **scanf("`format\_specifier`", &val)**

For example, to read a *character* followed by a *double*:

char ch;

double d;

scanf("%c %lf", &ch, &d);

For the moment, we can ignore the spacing between format specifiers.

**Printing**   
To print a data type, use the following syntax:

printf("`format\_specifier`", val)

For example, to print a *character* followed by a *double*:

char ch = 'd';

double d = 234.432;

printf("%c %lf", ch, d);

**Input Format**

Input consists of the following space-separated values: *int*, *long*, *char*, *float*, and *double*, respectively.

**Output Format**

Print each element on a new line in the same order it was received as input. Note that the floating point value should be correct up to 3 decimal places and the double to 9 decimal places.

**Sample Input**

3 12345678912345 a 334.23 14049.30493

**Sample Output**

int value = 3

long value = 12345678912345

char value = a

float value = 334.230

double value = 14049.304930000

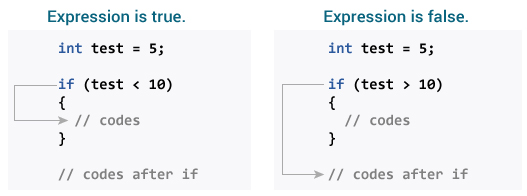
**NB:**  **If you are taking a million numbers as input and printing a million lines, it is faster to use *scanf* and *printf*.**

Lab Task - 04

if and else are two of the most frequently used conditionals in C/C++, and they enable you to execute zero or one conditional statement among many such dependent conditional statements. We use them in the following ways:

The if statement evaluates the test expression inside the parenthesis ().

* If the test expression is evaluated to true, statements inside the body of if are executed.
* If the test expression is evaluated to false, statements inside the body of if are not executed.



**Sub Task – 1**

Check whether an integer is odd or even.

Input Format

Input consists an integer ***n***. You have to determine whether n is odd or even.

Output Format

Print whether n is odd or even.

|  |  |
| --- | --- |
| **Sample Input** | **Sample Output** |
| 7 | 7 is odd number. |

|  |  |
| --- | --- |
| **Sample Input** | **Sample Output** |
| 100 | 100 is even number. |

**Sub Task – 2**

Program to relate two integers using =, > or < symbol

Input Format:

Input consist of two integer a and b.

Output format:

If a equals to b, print 🡪 a = b.  
If a is less than b, print 🡪 a < b  
If a is greater than b, print 🡪 a > b.  
  
Check sample input/output for clarity.

|  |  |
| --- | --- |
| **Sample Input** | **Sample Output** |
| 10 12 | 10 < 12 |

|  |  |
| --- | --- |
| **Sample Input** | **Sample Output** |
| 100 100 | 100 = 100 |

|  |  |
| --- | --- |
| **Sample Input** | **Sample Output** |
| 25 12 | 25 > 12 |

**Solve Following UVA Problems**

|  |  |  |
| --- | --- | --- |
| **NO** | **UVA Problem Number (With link)** | **Problem Name** |
|  | [**11727**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=2827) | **Cost Cutting** |
|  | [**11854**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=2954) | **Egypt** |
|  | [**12468**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=3912) | **Zapping** |
|  | [**12372**](https://uva.onlinejudge.org/index.php?option=onlinejudge&Itemid=8&page=show_problem&problem=3794) | **Packing For Holiday** |
|  | [**10323**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=1264) | **Factorial,You Must Be** |
|  | [**11805**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=2905) | **BafanaBafana** |
|  | [**11498**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=2493) | **Division of Nlogonia** |
|  | [**11044**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=1985) | **Searching for Nessy** |
|  | [**10370**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=1311) | **Above Average** |
|  | [**12611**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=4289) | **Beautiful Flag** |
|  | [**12646**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=4375) | **Zero or One** |
|  | [**12996**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=4879) | **Ultimate mango Challenge** |
|  | [**11219**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=2160) | **How old are you?** |
|  | [**11777**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=2877) | **Automate the grade** |
|  | [**11459**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=2454) | **Snakes and Ladders** |
|  | [**11689**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=2736) | **Soda Sarpler** |
|  | [**11479**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=2474) | **Is this the easiest problem?** |
|  | [**10812**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=1753) | **Beat the Spred** |
|  | [**10696**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=1637) | **f91** |
|  | [**12952**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=4831) | **Tri\_du** |

|  |  |  |
| --- | --- | --- |
|  | [**10773**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=1714) | **Back to Intermediate Math** |
|  | [**10071**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&category=24&page=show_problem&problem=1012) | Back to High School Physics |
|  | [**10347**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=1288) | Medians |
|  | [**113**](https://uva.onlinejudge.org/index.php?option=onlinejudge&Itemid=8&page=show_problem&problem=49) | Power of Cryptography |
|  | [**10110**](https://uva.onlinejudge.org/index.php?option=onlinejudge&Itemid=8&page=show_problem&problem=1051) | Light, more light |
|  | [**10499**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=1440) | The Land of Justice |
|  | [**913**](https://uva.onlinejudge.org/index.php?option=onlinejudge&Itemid=8&page=show_problem&problem=854) | Joana and the Odd Numbers |
|  | [**11715**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=2762) | **Car** |
|  | [**12598**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=4276) | Starting School |
|  | [**579**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=520) | Clock Hands |
|  | [**12895**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=4760) | **Armstrong Number** |
|  | [**11677**](https://uva.onlinejudge.org/index.php?option=onlinejudge&page=show_problem&problem=2724) | **Alarm Clock** |
|  | [**12531**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=3976) | **Hours & Minute** |
|  | [**11958**](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=3109) | **Coming Home** |

Good Luck  
Happy Coding

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For any problem like WA/RTE/TLE or confusion post here : <https://web.facebook.com/groups/programmingproblem/>

Or you can email me at: [shovonshovo415ju@gmail.com](mailto:shovonshovo415ju@gmail.com)