Aror University of Art, Architecture, Design & Heritage Sukkur.

Department of Artificial Intelligence and Multimedia Gaming

Fundamentals of Programming (Fall-2023)

LAB No. 05

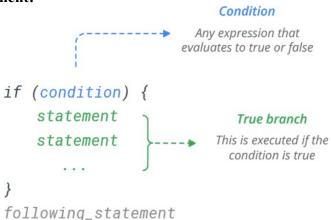**Prepared by: Abdul Haseeb Shaikh**

Objective of Lab No. 05:
After performing lab 5, students will be able to:
- o Understand if selection/conditional structure
- o Use if selection structure to solve real world problems
- o Understand if-else selection structure
- o Use if-else structure to solve real world problems
- o Understand and use nested if structure

If statement in C++:

If statement works like "If condition is met, then execute the task". It is used to compare things and take some action based on the comparison. Relational and logical operators supports this comparison

Syntax of if Statement:

If statement can contain a singular condition or a compound condition, compound conditions help to avoid nested if statement. You can have always more than one if statements depending upon the number of conditions you have to evaluate.

When the body of if statement has only one statement to execute you can skip the braces, for example the codes given below are equivalent.

if(a>b){
   cout<<"Hello";
}
cout<<"Hey"
	if(a>b)
	   cout<<"Hello";
	cout<<"Hey";

If-else statement in C++:

If statement has an optional else statement known as if-else. It works like "If condition is met, then execute the task inside if block and after that skip the else block and execute the code that is written after else block, and if the condition becomes false then execute the task inside else block and after that execute the code that is written after else block"

If-else syntax:

Nested if statements:

It is always legal to nest one if statement inside another.

Syntax:

```
// if base_condition is true control goes to base_condition1
if ( base_condition)
{
    // if base_condition is true control goes to base_condition2
    if(base_condition1)
    {
        if(base_condition2)
            ..........................
            ..........................
    }
}
```

Remember you can always use an optional else with the if statements, and use can use else-if as well which we are going to discuss in upcoming classes and labs.

LAB EXCERCISES

Task 01: Write a C++ program to read temperature in centigrade and display a suitable message according to the temperature state below:
- Temp < 0 then Freezing weather
- Temp 0-10 then Very Cold weather
- Temp 10-20 then Cold weather
- Temp 20-30 then Normal in Temp
- Temp 30-40 then Its Hot
- Temp >=40 then Its Very Hot

Task 02: Write a C++ Program to check whether a triangle is Equilateral, Isosceles or Scalene.
- Equilateral Triangle: measurement of all three sides is equal a=b=c
- Isosceles Triangle: measurement of any two sides is equal a=b, a=c, b=c
- Scalene: measurement of all three sides must be unequal

Task 03: Write a C++ program to check whether an input character is alphabet, digit or special character.

Task 04: Write a C++ program to input an alphabet character and check whether it is a vowel or consonant.

Task 05: Write a C++ program to find out maximum between three numbers using a nested if statement.

Task 06: Write a C++ program to find out whether an input number is positive number, it is even number, and is greater than 10, using a nested if statement.

Task 07: Write a C++ program which accepts two numbers and one operation as an input, the operation can be (+, -, *, /) after taking inputs the program should perform appropriate calculation and displays the result of calculation.