

Lab 3

If/else Statements

In a program the most important statement for making the decision is the if/else statement which chooses between two alternatives. This can be used without else using the if statement only. These are called decision statements.

If statement

The If statement is the simplest of decision statements.

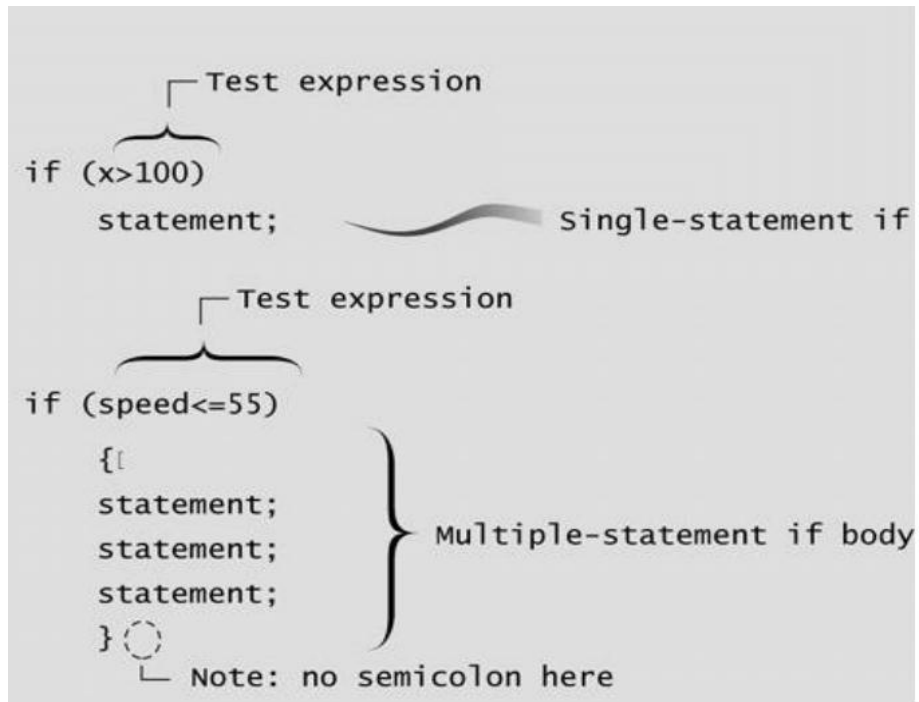
Program 1

```
#include<iostream>
using namespace std;
int main()
{
    int x;
    cout<<"Enter a number";
    cin>>x;
    co

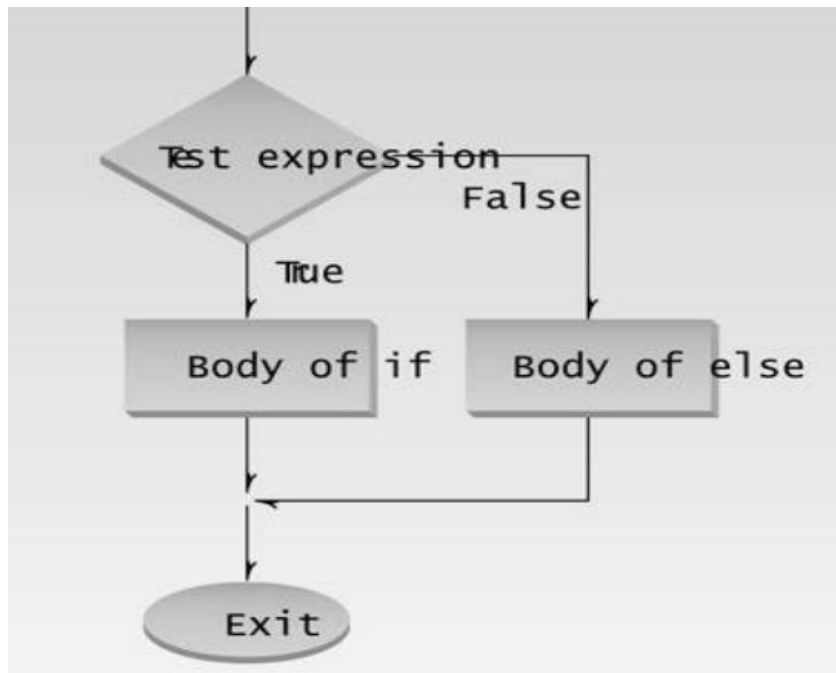
    if (x>100)
    cout<<"that number is greater than 100\n";
    return 0;
}
```

Output of Program 1

Syntax of If statement



Operation of If else statement



Nested If Statement

When there is an if statement inside another if statement then it is called the **nested if statement**.

The structure of nested if looks like this:

```
if(condition_1) {  
    Statement1(s);  
  
    if(condition_2) {  
        Statement2(s);  
    }  
}
```

Statement1 would execute if the condition_1 is true. Statement2 would only execute if both the conditions (condition_1 and condition_2) are true.

Program 2

```
#include <iostream>  
using namespace std;  
int main(){  
    int num=90;  
    /* Nested if statement. An if statement  
    * inside another if body  
    */  
    if( num < 100 ){  
        cout<<"number is less than 100"<<endl;  
        if(num > 50){  
            cout<<"number is greater than 50";  
        }  
    }  
    return 0;  
}
```

Output of Program 2

If else Statement

Sometimes you have a condition and you want to execute a block of code if condition is true and execute another piece of code if the same condition is false. This can be achieved in C++ using if-else statement.

This is how an if-else statement looks:

```
if(condition) {  
    Statement(s);  
}  
else {  
    Statement(s);  
}
```

The statements inside “if” would execute if the condition is true, and the statements inside “else” would execute if the condition is false.

Program 3

```
#include <iostream>  
using namespace std;  
  
int main()  
{  
    int number;  
    cout << "Enter an integer: ";  
    cin >> number;  
  
    if ( number >= 0)  
    {  
        cout << "You entered a positive integer: " << number << endl;  
    }  
    else  
    {  
        cout << "You entered a negative integer: " << number << endl;  
    }  
  
    return 0;  
}
```

Output of Program 3

If-else-If Statement

if-else-if statement is used when we need to check multiple conditions. In this control structure we have only one “if” and one “else”, however we can have multiple “else if” blocks.

```
if(condition_1) {
    /*if condition_1 is true execute this*/
    statement(s);
}
else if(condition_2) {
    /* execute this if condition_1 is not met and
    * condition_2 is met
    */
    statement(s);
}
else if(condition_3) {
    /* execute this if condition_1 & condition_2 are
    * not met and condition_3 is met
    */
    statement(s);
}
.
.
.
else {
    /* if none of the condition is true
    * then these statements gets executed
    */
    statement(s);
}
```

In if-else-if, as soon as the condition is met, the corresponding set of statements get executed, rest gets ignored. If none of the condition is met then the statements inside “else” gets executed.

Program 4

```
#include <iostream>
using namespace std;
int main(){
    int num;
    cout<<"Enter an integer number between 1 & 99999: ";
    cin>>num;
    if(num <100 && num>=1) {
        cout<<"Its a two digit number";
    }
    else if(num <1000 && num>=100) {
        cout<<"Its a three digit number";
    }
    else if(num <10000 && num>=1000) {
        cout<<"Its a four digit number";
    }
    else if(num <100000 && num>=10000) {
        cout<<"Its a five digit number";
    }
    else {
        cout<<"number is not between 1 & 99999";
    }
    return 0;
}
```

Output of Program 4

LAB TASKS

2.1 Q No 1 Largest value among three

Write a program in C++ that take input of three integer's numbers from user. Find the largest number among three of them.

2.2 Q No 2 Grade Program using nested if else

Write a program in C++ using if/else operator with nested statements to find the grade of a student.

The detail is as follow.

- grade >= 90
→ Grade A
- grade >= 80
→ Grade B
- grade >= 70
→ Grade C
- grade >= 60
→ Grade D
- grade < 60
→ Grade F

2.4 Q No 4 Even / Odd

Write a Program in C++ that take an Integer Value from the user and tell that the number is EVEN or ODD.

Date: _____

Marks Obtained: _____

Instructor's Signature: _____