

Lecture 6

The If/else Statement Structure:

The *if* structure is more commonly used in the following format:

```
if (expression)  
statement1;  
else  
statement2;
```

where the *else* part is *optional*.

-In this case, either of the two statements is executed depending upon the value of *expression*. *Statement1* is *executed if the expression is true; else statement2 is executed*.

Example :

```
cin >> value;  
if ( value >= 0 )  
cout << "positive";  
else  
cout << "negative"
```

Example1:-Write a C++ program to read a student degree, and check if it's degree greater than or equal to 50, then print pass, otherwise print fail:

```
#include <iostream>  
#include<conio>  
void main( )
```

```
{
int degree;
cin >> degree;
if (degree >= 50 )
cout << "pass";
else
cout << "fail";
getch();
}
```

Example 2:-Write a C++ program to read a number, and check if it's even or odd:

```
#include <iostream>
#include<conio>
void main( )
{
int num;
cin >> num;
if ( num % 2 == 0 )
cout << "even";
else
cout << "odd";
getch();
}
```

Example3 : Write a program in C++ language to print on the screen of computer the word (OKEY) when the character entering from keyboard is 'Y' or 'y' otherwise print (NO).

```
#include<iostream>
#include<conio>
main()
{
char a;
cin>>a;
if('Y'==a||'y'==a) cout<<"OKEY " ;
else cout<<"NO";
getch();
}
```

*Example 4:-*Write a program to read any two different numbers and display the largest value of them.

```
# include <iostream>
#include<conio>
main ( )
{
float x,y;
cout << " Enter any two numbers >> \ n";
cin >> x >> y;
if (x > y)
```

```
cout << " Largest value is " << x << endl;
else
cout << " Largest value is " << y << endl;
getch();
}
```

Else if Statements:-

General Form of else if statement:

```
if ( expression or condition 1 ) statement1 ;
else if ( expression or condition 2 ) statement2 ;
else if ( expression or condition 3 ) statement3 ;
:
else if ( expression or condition n ) statement-n ;
else statement-e ;
```

Example :

```
if ( value == 0 ) cout << "grade is A";
else if ( value == 1 ) cout << "grade is B";
else if ( value == 2 ) cout << "grade is C";
else cout << "grade is X";
```

example 5:- Write a C++ program to read a number, and print the day of the week:

```
#include <iostream>
#include <conio>
main( )
```

```

{
int day;
cin >> day;
if ( day == 1 ) cout << "Sunday";
else if (day == 2 ) cout << "Monday";
else if (day == 3 ) cout << "Tuesday";
else if (day == 4 ) cout << "Wednesday";
else if (day == 5 ) cout << "Thursday";
else if (day == 6 ) cout << "Friday";
else if (day == 7 ) cout << "Saturday";
else cout << "Invalid day number";
getch();
}

```

Example 6:- Write C++ program to compute the value of Z according to the following equations:

$$Z = \begin{cases} x + 5 & : x < 0 \\ \cos(x) + 4 & : x = 0 \\ \sqrt{x} & : x > 0 \end{cases}$$

```

#include <iostream>

#include <math.h>

#include <conio>

void main( )

```

```

{
int Z, x;

cout << "Enter X value \n";

cin >> x;

if ( x < 0 )

Z= x + 5;

else if ( x == 0 )

Z= cos(x) + 4;

else

Z= sqrt(x);

cout << "Z is " << Z;

getch();

}

```

Nested If Statements:

Some of the samples of **NESTED if-else** constructions are shown below

<pre> If (exp.) { Statements } Else { Statements } </pre>	<pre> If (exp.) { If (exp.) {Statements} Else { Statements } } Else {Statements} </pre>	<pre> If (exp.) { If (exp.) {Statements} Else { Statements } } Else {If (exp) {Statements} Else {Statement} } </pre>
---	---	--

Ex7 :-Write C++ program to find a largest value among three numbers:

```
#include<iostream>
```

```
# include <conio>
```

```
main()  
{  
float x,y,z;  
Cout<<"Enter any two numbers\n";  
Cin>>x>>y,z;  
If (x>y) {  
If (x>z)  
cout << "largest value is"<<x<<endl;  
else  
cout << "largest value is"<<z<<endl;  
}  
else If (y>z)  
Cout << "largest value is"<<y<<endl;  
else  
Cout << "largest value is"<<z<<endl;  
getch();  
}
```

The Switch Selection Statement (Selector):

The switch statement is a special multi way decision maker that tests whether an expression matches one of the number of constant values, and braces accordingly

General Form of Switch Selection statement:

```
switch ( selector )
{
    case label1 : statement1 ; break;
    case label2 : statement2 ; break;
    case label3 : statement3 ; break;
    :
    case label-n : statement-n ; break;
    default : statement-e ; break;
}
```

Example 1:

```
switch (value)
{
    case 0: cout << "grade is A";
            break;
    case 1: coucout << "grade is B";
            break;
    case 2: coucout << "grade is C";
            break;
    default: cout << "grade is X";
            break;
}
```

Example 8 :-Write C++ program to read integer number, and print the name of the day in a week

```
#include <iostream>
```

```
#include <conio>
```



```
main()  
  
{  
  
int day;  
  
cout << "Enter the number of the day \n";  
  
cin >> day;  
  
switch (day)  
{  
  
case 1: cout << "Sunday";  
  
break;  
  
case 2: cout << "Monday";  
  
break;  
  
case 3: cout << "Tuesday";  
  
break;  
  
case 4: cout << "Wednesday";  
  
break;  
  
case 5: cout << "Thursday";  
  
break;  
  
case 6: cout << "Friday";  
  
break;
```

```
case 7: cout << "Saturday";

break;

default: cout << "Invalid day number";

break;

}

getch();

}
```

Example 9:- Write C++ program to read two integer numbers, and read the operation to perform on these numbers

```
#include <iostream>
# include <conio>
void main( )
{
int a, b;
char x;
cin >> a >> b;
cin >> x;
switch ( x )
{
case '+': cout <<( a + b);
break;
case '-': cout << (a - b);
break;
case '*': cout << (a * b);
```

```
break;  
case '/': cout << (a / b);  
break;  
default: break;  
}  
getch();  
}
```