

# **IF AND SWITCH WITH APPLICATIONS**

## **IN C++ LANGUAGE**

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### **4<sup>th</sup> Lecture**

# The if Statement :

It is sometimes desirable to make the execution of a statement dependent upon a condition being satisfied. The **if** statement provides a way of expressing this, the general form of which is:

```
if (expression)  
statement;
```

First **expression** is evaluated. If the outcome is nonzero then statement is executed. Otherwise, nothing happens. For example, when dividing two values, we may want to check that the denominator is nonzero:

```
if (count != 0)  
average = sum / count;
```



# Four formulas to write IF

```
if (cond.) stat1;  
else stat2;
```

```
Ex// if (x>0) cout<<"pso";  
else cout<<"Neg.";
```

```
if (cond.)  
{ stat1; stat3; stat5; }  
else { stat2; stat4; stat6; }
```

```
Ex// if (x==0) { ..... ; .....; .....; }  
else { .... ; .....; ....; }
```

```
//Nested IF  
if (cond1.) stat1;  
else if (cond2.) stat2;  
else if (cond3.) stat3;  
else stat2;
```

```
Ex// if (x>0) cout<<"pso";  
else if (x<0) cout<<"Neg.";  
else cout<<"Zero";
```

```
if (cond1. && cond2.) stat1;  
و  
if (cond1. || cond2.) stat1;  
او
```

```
Ex//  
if (E>=60 && F>=60)  
cout<<"accept";
```



**Q7////write a program to input 3 integers and determine which of them is biggest?**

```
#include<iostream>
using namespace std;
int main()
{ int a,b,c,larg;
cout<<"enter a , b and c one after another"<<endl;
cin>>a>>b>>c;
Larg=a;
if (b>larg) larg=b;
if (c>larg) larg=c;
cout<<"larg numbers equal"<<larg;
return 0;
}
```



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**Q //write a program to enter a character and determine the character is digit,small or capital letter?**

```
#include <iostream.h>
using namespace std;
int main()
{ char letter;
  cout<<"Enter a letter:"; cin >> letter;
  if(letter >= '0' && letter <= '9') cout<<"entered a digit.";
  else
  if(letter >= 'a' && letter <= 'z') cout<<"entered a small letter.";
  else
  if(letter >= 'A' && letter <= 'Z') cout<<"entered a capital letter.";
  else
  cout<<"You entered a special letter.";
  return 0;
}
```



**Q//write program to simulation a simple hand Calculator work?**

```
#include<iostream.h>
using namespace std;
int main()
{
int x,y; char sign;
cin>>x >>sign >>y;
if (sign== '+')
    cout<<x + y;
else if (sign == '-')
    cout<< x - y;
else if (sign == '*')
    cout<< x * y;
else if (sign == '/')
    cout<< x / y;
else
cout << "ERROR" ;
return 0;
}
```



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**Q // Write Program (W.P.) to read number between (1-7) and print name of day?**

```
#include<iostream>
using namespace std;
int main()
{ int d; cout<<"Enter Number (1-7): "; cin>>d;
  if (d==1) cout<<"Sun.";
  else if (d==2) cout<<"Mun.";
  else if (d==3) cout<<"Tues.";
  else if (d==4) cout<<"Wen.";
  else if (d==5) cout<<"Thri.";
  else if (d==6) cout<<"Fri.";
  else if (d==7) cout<<"Sat.";
  else cout<<"number out of range!!!";
return 0;
}
```



# The Switch Statement :

The switch statement provides a way of choosing between a set of alternatives, based on the value of an expression. The general form of the switch statement is:

```
switch (expression) {  
case constant 1: statements;  
...  
...  
case constant n: statements;  
default: statements;  
}
```





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**Q // Write Program (W.P.) to read number between (1-7) and print name of day?**

```
#include<iostream>
using namespace std;
int main()
{ int d;
cout<<"Enter Number (1-7): "; cin>>d;
switch (d)
{
case 1: cout<<"Sun."; break;
case 2: cout<<"Mun."; break;
case 3: cout<<"Tues."; break;
case 4: cout<<"Wen."; break;
case 5: cout<<"Thri."; break;
case 6: cout<<"Fri."; break;
case 7: cout<<"Sat."; break;
default: cout<<"number out of range!!!";
} return 0;
}
```



**Q//write program to simulation a simple hand Calculator work?  
(using switch)**

```
#include<iostream>
using namespace std;
int main()
{ float a,b; char sign;
cin>>a>>sign>>b;
switch (sign)
{
case '+': cout<<"="<<a+b <<endl ; break;
case '-': cout<<"="<<a-b <<endl ; break;
case '*': cout<<"="<<a*b <<endl ; break;
case '/': cout<<"="<<a/b <<endl ; break;
default:cout<<"ERROR";
}
return 0;
}
```



**Ex//Enter month Number from (1-12) then display count month days?**

```
#include<iostream>
using namespace std;
int main()
{ int m;
cout<<"enter No. month: "; cin>>m;
switch (m){
    case 1:
    case 3:
    case 5:
    case 7:
    case 8:
    case 10:
    case 12: cout<<"31 days"; break;
    case 2:cout<<"28 days"; break;
    case 4:
    case 6:
    case 9:
    case 11: cout<<"30 days"; break;
    default:cout<<"No. out of range 1_12";
} return 0; }
```



**and we can use nested switch statement!!**

```
switch (expression1)  
{  
  case constant 1: switch (expression2)  
  :  
  :  
  case constant n:  
  
  default: statements;  
}
```



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**Q5//Write Program (W.P.) to read first and second letter from names day starting and print name of day?**

```
#include<iostream>
using namespace std;
int main()
{
char t1; char t2;
cout<<"Enter first charater: "; cin>>t1;
switch (t1)
{
case 's': {cout<<"Enter second charater: ";
cin>>t2;
switch(t2)
{ case 'u':      cout<<"Sun."; break;
case 'a': cout<<"Sat."; break;
default: cout<<"ERROR !!!"; break;
}break; }
}
```

**H.W. : Complete the previous program.**

