

# Decision making

## if/else

The if block is used to specify the code to be executed if the condition specified in if is true, the else block is executed otherwise.

```
#include <iostream>
using namespace std ;

int main () {
    int age ;
    cin >> age ;

    if ( age >= 18 ) {
        cout << "You can vote." ;
    }
    else {
        cout << "Not eligible for voting." ;
    }

    return 0 ;
}
```

---

## else if

To specify multiple if conditions, we first use if and then the consecutive statements use else if.

```
#include <iostream>
using namespace std ;

int main () {
    int x,y ;
    cin >> x >> y ;

    if ( x == y ) {
        cout << "Both the numbers are equal" ;
    }
    else if ( x > y ) {
        cout << "X is greater than Y" ;
    }
    else {
        cout << "Y is greater than X" ;
    }
}
```

```
    }  
  
    return 0 ;  
}
```

---

## nested if

To specify conditions within conditions we make the use of nested ifs.

```
#include <iostream>  
using namespace std ;  
  
int main () {  
    int x,y ;  
    cin >> x >> y ;  
  
    if ( x == y ) {  
        cout << "Both the numbers are equal" ;  
    }  
    else {  
        if ( x > y ) {  
            cout << "X is greater than Y" ;  
        }  
        else {  
            cout << "Y is greater than X" ;  
        }  
    }  
  
    return 0 ;  
}
```

---

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## Problems

1. Program to check if a number is even or odd.

```
#include<iostream>
using namespace std;

int main(){

    int n;
    cin>>n;

    if(n%2==0){
        cout<<"Even"<<endl;
    }
    else{
        cout<<"Odd"<<endl;
    }

    return 0;
}
```

2. Program to find maximum, minimum among two numbers.

```
#include<iostream>
using namespace std;

int main(){

    int n1,n2;
```

```

cin>>n1>>n2;

int max, min;

if(n1>n2){
    max=n1;
    min=n2;
}
else{
    max=n2;
    min=n1;
}

cout<<"Max= "<<max<<endl;
cout<<"Min= "<<min<<endl;

return 0;
}

```

3. Program to find the maximum among three numbers.

```

#include<iostream>
using namespace std;

int main(){

    int a,b,c;
    cin>>a>>b>>c;

    if(a>b){

```

```
    if(a>c){
        cout<<a<<endl;
    }
    else{
        cout<<c<<endl;
    }
}
else{
    if(b>c){
        cout<<b<<endl;
    }
    else{
        cout<<c<<endl;
    }
}

return 0;
}
```

4. Program to check if a triangle is scalene, isosceles or equilateral.

```
#include <iostream>
using namespace std;

int main()
{

    int sidea, sideb, sidec;
```

```

cout << "Input three sides of triangle: \n ";
cin >> sidea >> sideb >> sidec;

if (sidea == sideb && sideb == sidec)
{
    cout << "This is an equilateral triangle. \n ";
}
else if (sidea == sideb || sidea == sidec || sideb == sidec)
{
    cout << "This is an isosceles triangle. \n ";
}
else
{
    cout << "This is a scalene triangle. \n ";
}

return 0;
}

```

5. Program to check if an alphabet is a vowel or a consonant.

```

#include <iostream>
using namespace std;

int main()
{
    char c;
    int isLowercaseVowel, isUppercaseVowel;

```

```
cout << "Enter an alphabet: ";  
cin >> c;  
  
isLowercaseVowel = (c == 'a' || c == 'e' || c == 'i' || c == 'o' || c == 'u');  
  
isUppercaseVowel = (c == 'A' || c == 'E' || c == 'I' || c == 'O' || c == 'U');  
  
if (isLowercaseVowel || isUppercaseVowel)  
    cout << c << " is a vowel.";  
else  
    cout << c << " is a consonant.";  
  
return 0;  
}
```

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