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.

```cpp
#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.

```cpp
#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" ;
```

```cpp
        }

        return 0 ;
}
```

---

nested if

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

```cpp
#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 ;
}
```

Problems

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

```cpp
#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.

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

int main(){

    int n1,n2;
```

```cpp
    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.

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

int main(){

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

    if(a>b){
```

```cpp
        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.

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


int main()
{


    int sidea, sideb, sidec;
```

```cpp
    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.

```cpp
#include <iostream>

using namespace std;


int main()

{

    char c;

    int isLowercaseVowel, isUppercaseVowel;
```

```cpp
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;
}
```