

Int types

Data Type	Size (in bytes)	Range
short int	2	-32,768 to 32,767
unsigned short int	2	0 to 65,535
unsigned int	4	0 to 4,294,967,295
int	4	-2,147,483,648 to 2,147,483,647
long int	4	-2,147,483,648 to 2,147,483,647
unsigned long int	4	0 to 4,294,967,295
long long int	8	$-(2^{63})$ to $(2^{63})-1$
unsigned long long int	8	0 to 18,446,744,073,709,551,615

Int types

signed char	1	-128 to 127
unsigned char	1	0 to 255
float	4	
double	8	
long double	12	
wchar_t	2 or 4	1 wide character

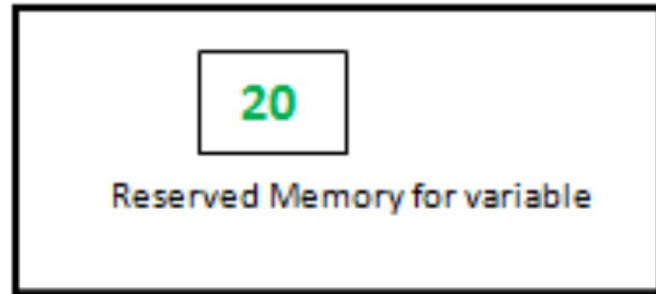
<limits.h>

<i><u>Name</u></i>	<i><u>Expresses</u></i>
CHAR_MIN	Minimum value for an object of type char
CHAR_MAX	Maximum value for an object of type char
SCHAR_MIN	Minimum value for an object of type Signed char
SCHAR_MAX	Maximum value for an object of type Signed char
UCHAR_MAX	Maximum value for an object of type Unsigned char

Variables in C++

`int age = 20;` ← value

datatype variable_name



RAM

Объявление = declaration

Инициализация = initialization

Определение = definition

// this is declaration of variable a

int a;

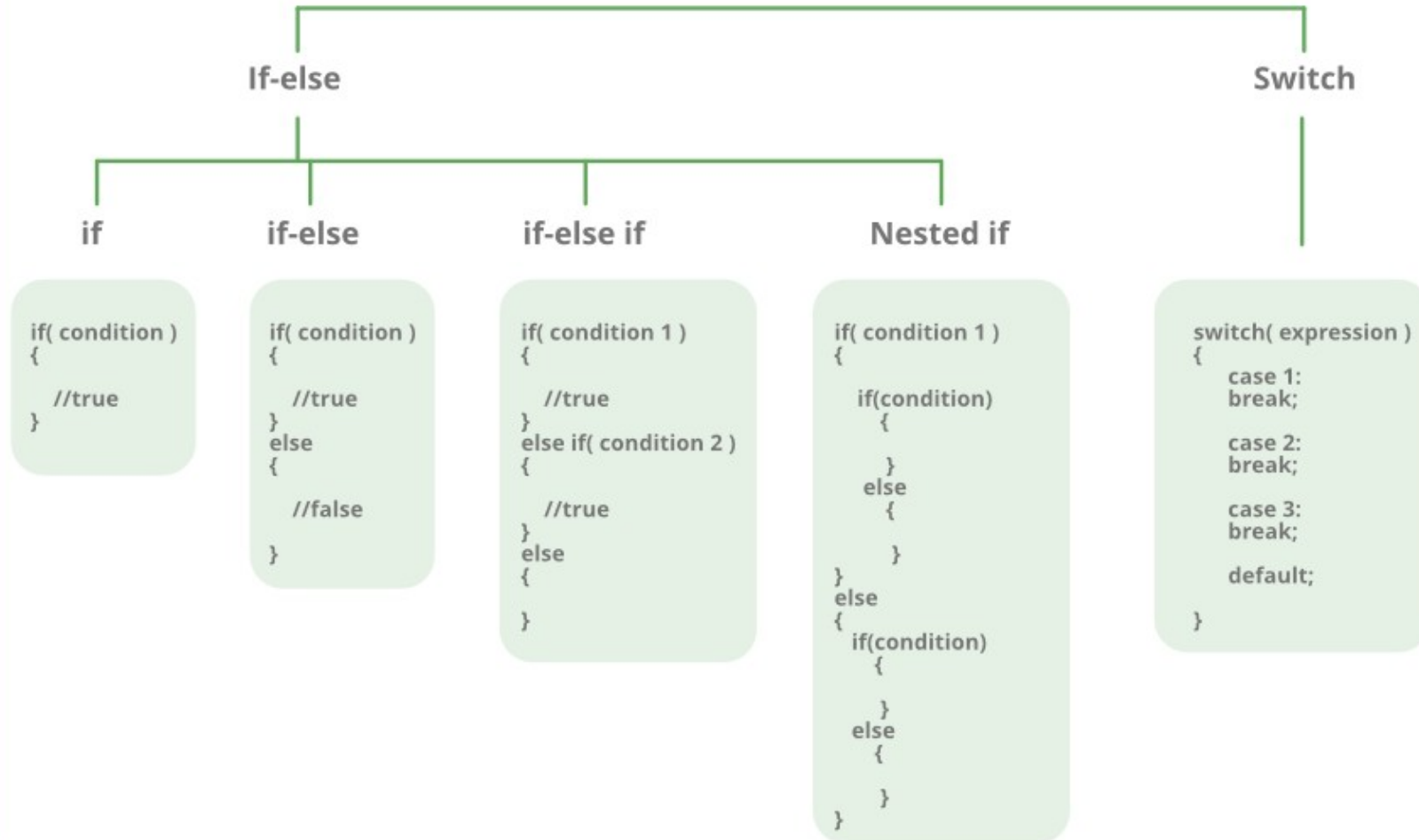
// this is initialisation of a

a = 10;

// this is definition = declaration + initialisation

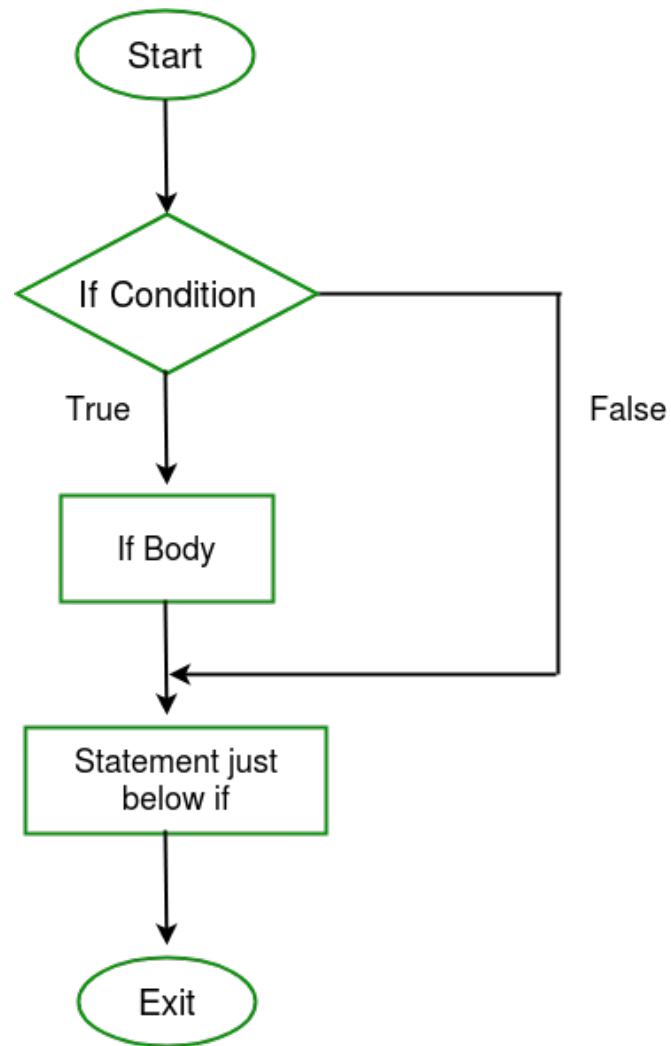
int b = 20;

Decision Making



Оператор IF

```
if(condition)
{
    // Действия если
    // condition == true
}
```



```
// C++ program to illustrate If statement
#include<iostream>
using namespace std;

int main()
{
    int i = 10;

    if (i > 15)
    {
        cout<<"10 is less than 15";
    }

    cout<<"I am Not in if";
}
```


If - else

```
// C++ program to illustrate if-else statement
#include<iostream>
using namespace std;

int main()
{
    int i = 20;

    if (i < 15)
        cout<<"i is smaller than 15";
    else
        cout<<"i is greater than 15";

    return 0;
}
```

nested-if

```
if (condition1)
{
    //Выполняется если condition1 == true
    if (condition2)
    {
        //Выполняется если condition2 == true
    }
}
```

```
// C++ program to illustrate nested-if statement
#include <iostream>
using namespace std;

int main()
{
    int i = 10;

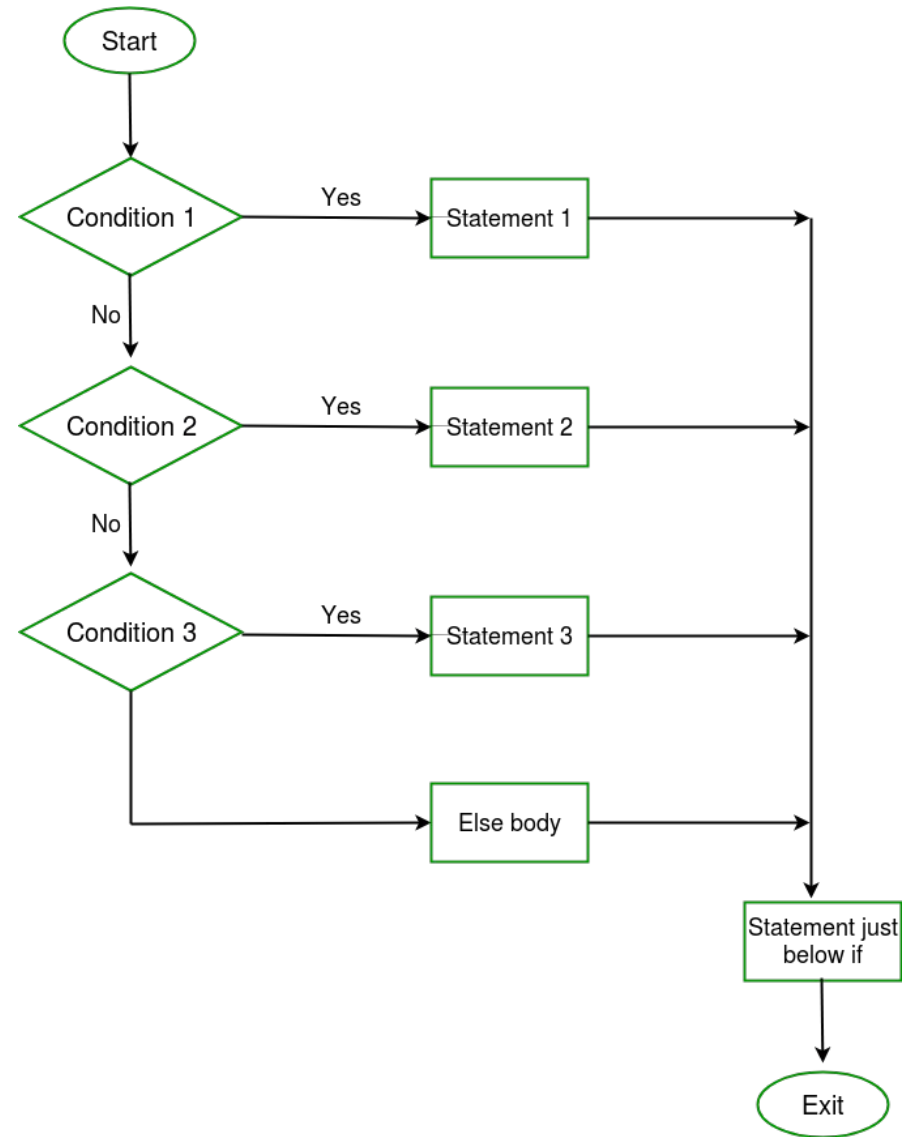
    if (i == 10)
    {
        // First if statement
        if (i < 15)
            cout<<"i is smaller than 15\n";

        // Nested - if statement
        // Will only be executed if statement above
        // is true
        if (i < 12)
            cout<<"i is smaller than 12 too\n";
        else
            cout<<"i is greater than 15";
    }

    return 0;
}
```

if-else-if ladder

```
if (condition)
    statement;
else if (condition)
    statement;
.
.
else
    statement;
```



Циклы

[illegible]

Loops

Entry Controlled

for

```
for( initialization ; condition; updation)
{
}
```

while

```
while( condition )
{
}
```

Exit Controlled

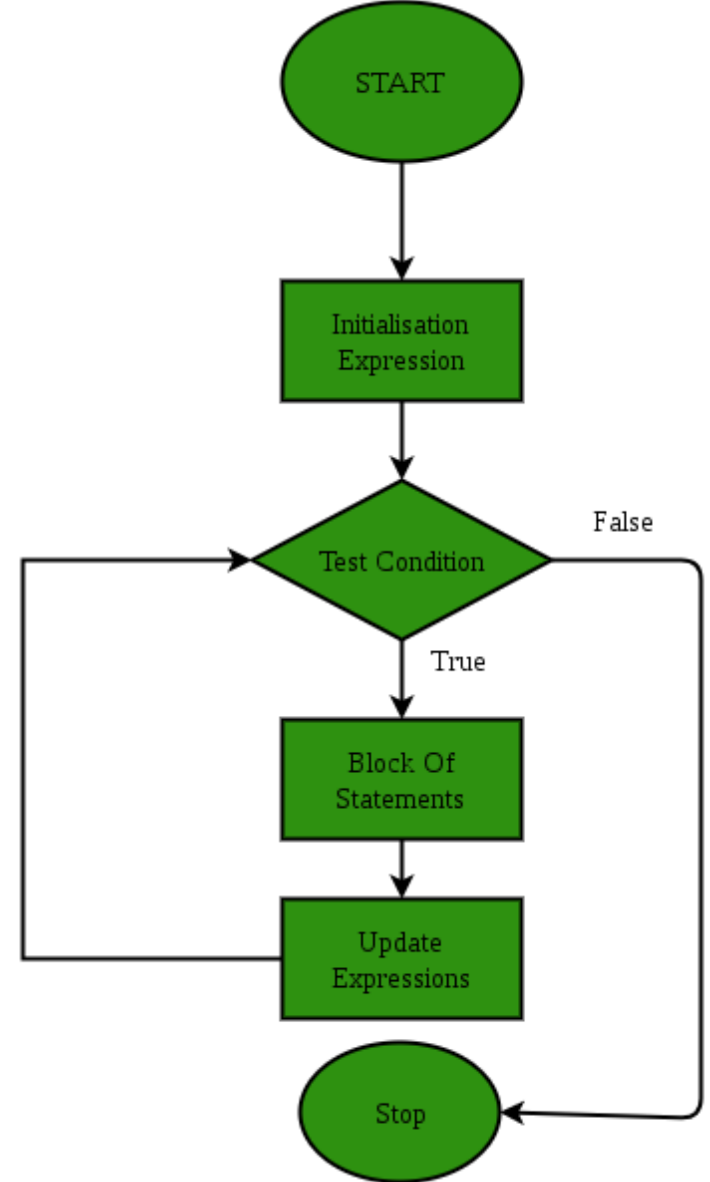
do-while

```
do
{
}while( condition )
```

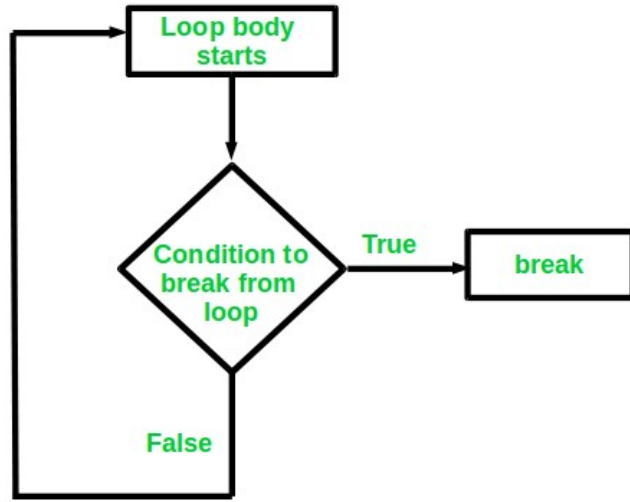
Цикл for

```
for (initialization expr; test expr; update expr)
{
    // body of the loop
    // statements we want to execute
}
```

```
for(int i = 0; i < n; i++){
}
```

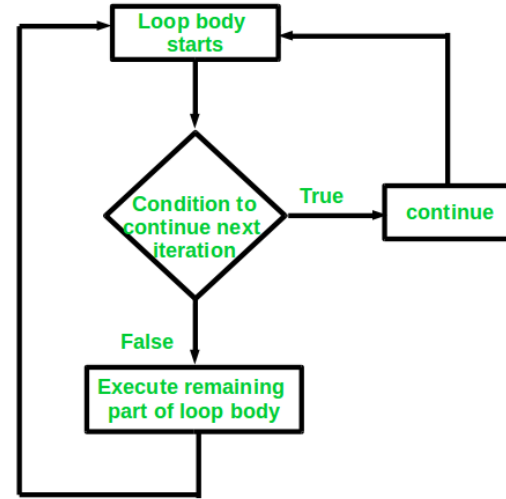


break



```
for (int i = 0; i < size; i++) {  
    if (arr[i] == key) {  
        cout << "Element found at position: "  
        << (i + 1);  
        break;  
    }  
}
```

continue



```
for (int i = 1; i <= 10; i++) {  
    if (i == 6)  
        continue;  
    else  
        cout << i << " ";  
}
```