

Include Headers

#include <headername>

#include <iostream> Several standard stream objects

#include <string> std::basic_string class template

#include <math> Behaves as if each name from <cmath> is placed in global namespace, except for names of mathematical special functions

#include <fstream> std::basic_fstream, std::basic_ifstream, std::basic_ofstream class templates and several typedefs

#include <cctype> Behaves as if each name from <cctype> is placed in global namespace

Namespace

using namespace std;

Data Types

int integer type (-32768 to 32767)

char single character type

float Floating-point types (single precision)

double Floating-point types (double precision)

bool *true* or *false*

void type with an empty set of values

Comments

//Single line

/*Multiple lines*/

Pointers

int *ptr; Pointer definition

ptr = &var1; *ptr* set to address of *var1*

var2 = *ptr; set *var2* to value of *var1*

Arithmetic Operators

+, -, *, / Addition, subtraction, multiplication, division

% Modulus (rest of division)

++ Add 1 to variable (example: i++)

-- Subtract 1 to variable (example: i--)

+=, -=, *=, /= Add/subtract/multiply/divide a value from the variable (example: i+=2; is equal to i=i+2;)

Relational Operators

< Less than

<= Less or Equal than

> Greater than

>= Greater or Equal than

== Equal than

!= Not Equal than

Logical Operators

|| OR

&& AND

! NOT

If Else

```
if (condition) {
    \\Do something
} else if (condition) {
    \\Do something
} else {
    \\Do something
}
```

condition must be a condition that return a boolean value *true* or *false*

else/else if blocks are optional

Switch

```
switch (variable) {
case constant1:
    \\Do something
break;
case constant2:
    \\Do something
break;
default:
    \\Do something
break;
}
```

default is optional

While Loop

```
while (condition) {
    \\Do something
}
```

Loop as long as the *condition* is *true*, when it becomes *false* it exits



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Do-While Loop

```
do {  
    \\Do something  
} while (condition);
```

Loop as long as the *condition* is *true*, when it becomes *false* it exits

For Loop

```
for (initialize, condition, update) {  
    \\Do something  
}  
example:  
for (int i=0; i<10; i++) {  
    \\Do something  
}
```

Loop as long as the *condition* is *true*, when it becomes *false* it exits



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