Logical
True == NOT Zero
False == Zero

if (integer age)
{
  // if age not zero
}

typing
if (ch) if it is
  NOT ZERO
  Zero - ASCII \ø which is NULL, also '\ø'
if (cost < 0.0)
    cout << "Error";
else if (cost > 1000.0)
    cout << "Too Expensive";
else
    cout << "We are on track";

 Relational
   < <= > >=

 if (age >= 20)
  " age is not less than 20"

 Equality
   == !=

 if (age != 20)

 Boolean & & || !
 (AND) (OR) (NOT)
```
char yeono = 'y';
if ( yeono == 'y')
{
    char variable single quotes

    cout << "Gee... should be y or n";
}
else if ( yeono != 'n')
{
    cout << "Gee... should be y or n";
}
else // yeono is an 'n'
{
    
    
}
```

IF age NOT LESS IS

if (age >= 15)
```
char yesno;
cout << "Would you like to continue?" << "y or n" << endl;
cin >> yesno;
if (yesno == 'y' || yesno == 'n')
    cout << "Good job!";
else
    cout << "What did you type in?";

if (yesno != 'y' && yeono != 'n')
    cout << "Error";

NO if (yesno == 'y' || 'n')
TRUE Always NO NO = NO
No short cuts!

If variable greater than zero and less than 20

\[ \text{if } (0 < \text{variable} < 20) \text{ // NO} \]

\[ \begin{array}{c}
\text{1} \\
\circ \\
\text{TRUE}
\end{array} \]

\[ \text{if } (0 < \text{variable} \& \& \text{variable} < 20) \text{ // YES} \]

\[ \begin{array}{c}
\text{1} \\
\circ \text{ or } 1
\end{array} \]
if ( variable == 10 ||
variable == 20 ||
variable == 30 )

if ( variable == 10 ||
    0.1
  ||
  variable == 30 )

1st opened
if ( ! variable == 100 )

if ( ! ( variable == 100 ) )

if ( ! variable == 100 )

float inches, mm;

multiplication
Prefix Increment
++ count;

Add 1.

Postfix Increment
count++; j

1. temp

2. Adds 1 to count

3. Residual value (result) is the temp value "Pre-Increment number"

cout << ++count;

cout << count++;

variable = variable + 1;
variable += 1;

count = 10

10

cout

11

11
Loops

while
do while
for

} c, c++, java
3
while
if (break)
{...}
No
No
No
No
```cpp
    cout << "prompt";
    cin >> info;
    cout << "Is it correct?"; cin >> response;

    while (response == 'n')
    
        cout << "Error";

    // body
    
    cin >> response;

    char response;

do
{
    cout << "prompt";
    cin >> info;
    cout << "Echo" << info;
    cout << "Is this correct?";
    cin >> response;

} while (response != 'y');
```
```cpp
int count;

float total = 0.0; float num;

for (int i = 0; i < count; ++i) {
    cin >> num;
    total += num;
}
```

```cpp
int c = 5; int total = 0;
while (i < count) {
    cin >> num;
    total += num;
    ++i;
}
```

```cpp
+total = total + num;
```
// Calculator Program

// + - =

#include <iostream>
using namespace std;

int main()
{
    char response;
    float total = 0.0;    // .......
    float num1, num2;
    char operation;      // + - =

    do
    {
        cout << "Please enter your first number;  ";
        cin >> num1; cin.ignore();
        cout << "Please enter the operation +, -, = ";
        cin >> operation; cin.ignore();
        while (operation != '+' && operation != '-' &&
               operation != '=')
        {
            cout << "Error ............... should +, - = ";
            cout << "Retry " << endl;
        }
    } while (operation != '=');

    total = num1 + num2;
    cout << "The result is: " << total << endl;
}

if (total == 42)
    cout << "Congratulations! You have solved the equation."
else
    cout << "Sorry, the result does not match 42."

return 0;
cin >> operation; cin.ignore();

} else
{
    cout << "Please enter another number."
    cin >> num2; cin.ignore();
    if (operation == '+')
        total += (num1 + num2);
    else
        total = num1 - num2;
}

cout << "Your total is: "
cout << total << endl;

cout << "Would you like to continue?";
    cin >> response;
}

while (response == 'y' || response == 'Y');

return 0;