

⇒ Assignment # 1 posted

⇒ C++ Programming

└ Type

└ variable of different types

└ output to terminal

└ input from terminal

```
int i; 50
```

```
cout << " value of i = " << i;
```

terminal

insertion
operator

value of i = 50

2

```
int i, j;
```

```
i 50
```

```
j 100
```

- ✓ cout << "Value of i = " << i;
- ✓ cout << endl;
- ✓ cout << "Value of j = " << j;

or "\n" Simple output

```
prompt => cout << "Enter height: ";  
read input => cin >> i;
```

Programs implement algorithms

↓ processed by computers

↓ Read by human beings

↳ STYLE Elements

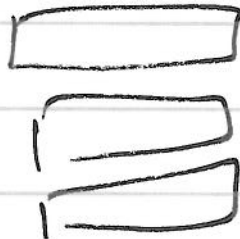
① Use MNEMONIC Variable names



② Indentation



{



}

C++ open format

③ Documentation



4

```
cout << "Enter length: ";
```

```
cin >> length;
```

```
if (length <= 0)
```

```
{ cout << "Error...";
```

```
else
```

```
{
```

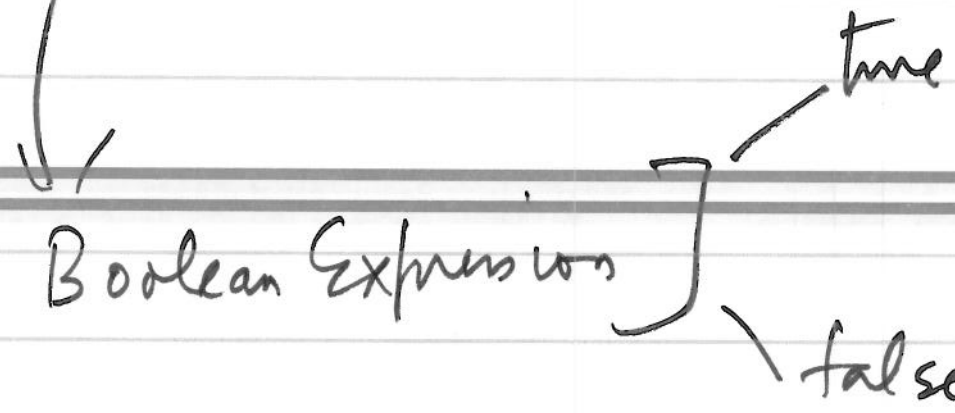
```
cout << "Enter breadth: ";
```

```
cin >> breadth;
```

```
}
```

```
① if (condition) stmt;
```

```
② if (condition) stmt 1;
   else stmt 2;
```



length > 0	length < 0	length <= 0
length == 0	length >= 0	length != 0
equality		<u>not equal</u>

Comparison operators

int length, breadth;

if (length > 0 and breadth > 0)

AND

area = length * breadth.

else

{

}

Boolean operators

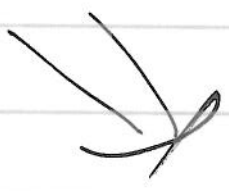
and

OR

! NOT

if (! (length > 0 && breadth > 0))

AND



x	y	x && y
true	true	true
false	true	false
true	false	false
false	false	false

OR

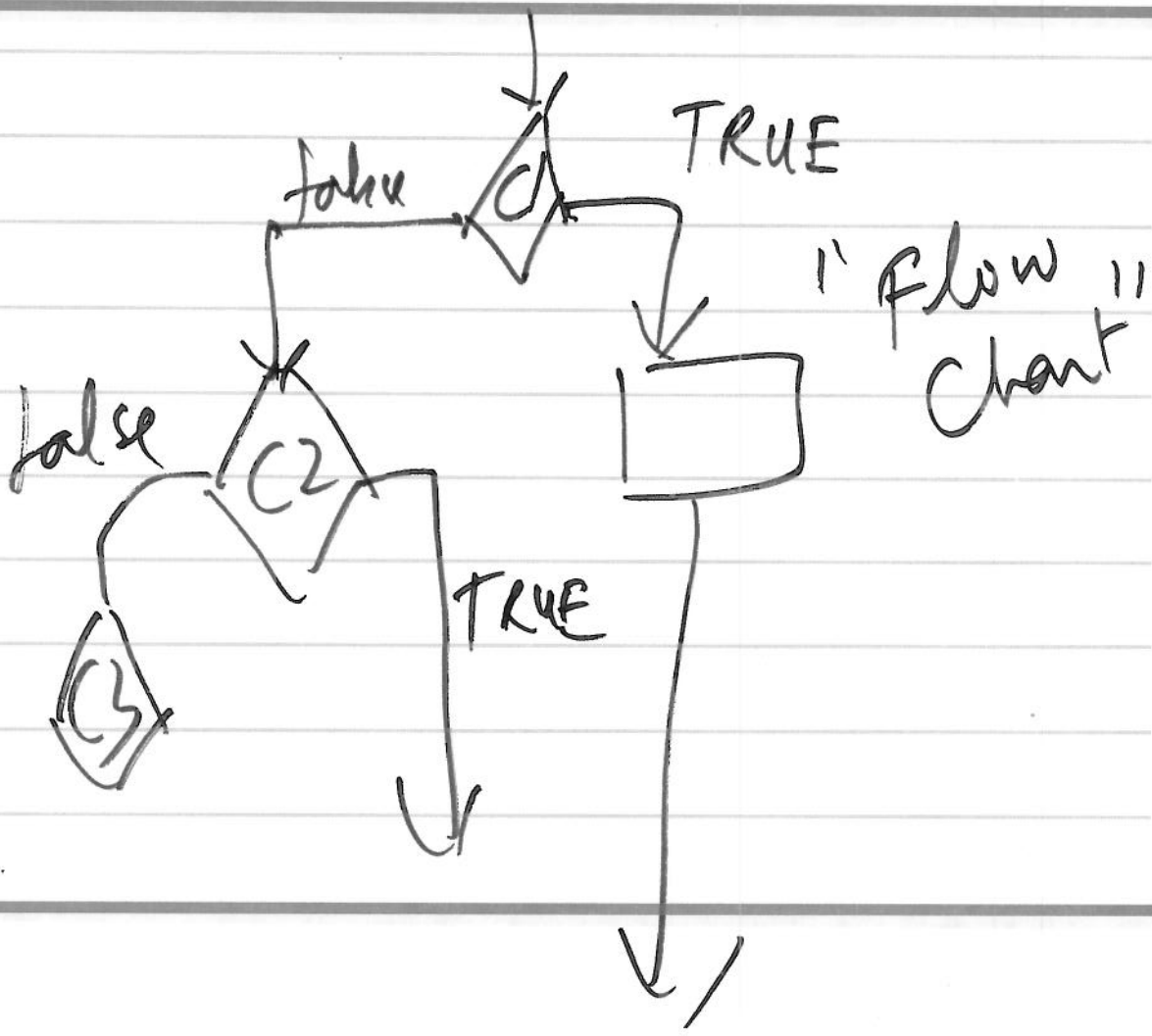
x	y	x y
true	true	true
false	true	true
true	false	true
false	false	false

!

x	!x
true	false
false	true

if (condition 1) stmt 1 ✓
else if (condition 2) stmt 2 ✓
else if (condition 3) stmt 3 ✓
else stmt 4 ✓

NESTING of IF
statements



ITERATION

[Repeating statements]
steps.

while some
condition holds

while statement

↓
while (condition) stmt;

⇒ Sum of 1st 10 numbers
int i = 1;
int sum = 0;

```
int i = 1;  
int sum = 0;
```

INITIALIZATION

```
while (i <= 10)
```

EXIT
CONDITION

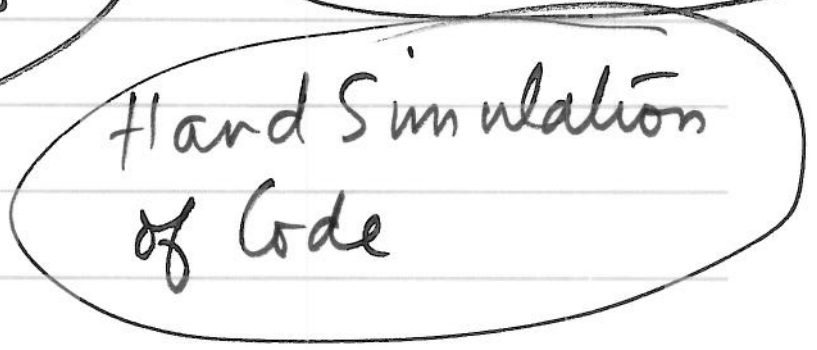
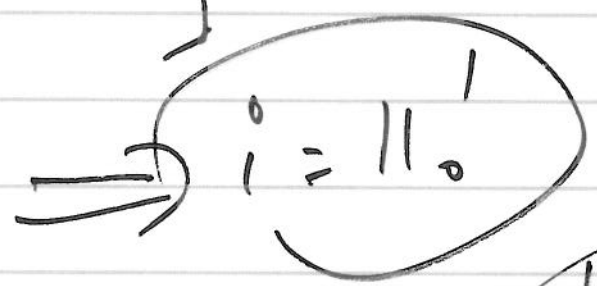
"while
loop"

{

```
sum = sum + i;
```

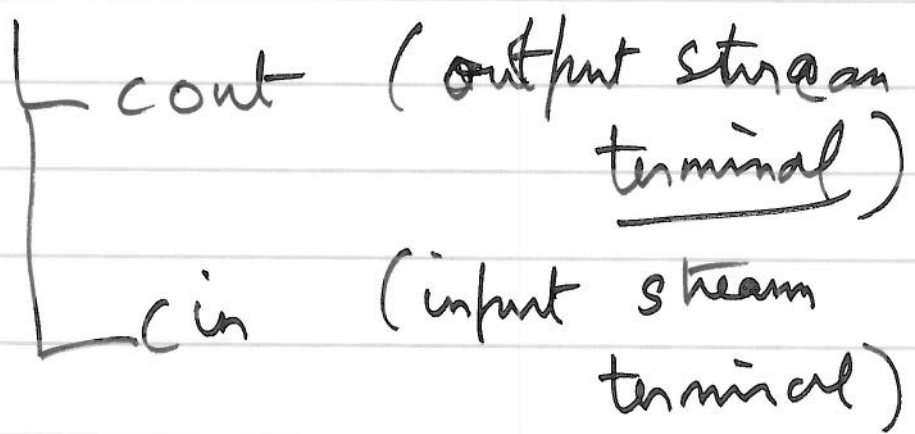
```
i = i + 1;
```

```
i++
```



Reading Input from a File
{ External Doc

Stream



output ⇒ output stream } logical
 input ⇒ input stream } file

```
#include <fstream>
           ↓
           file
```

myinput.txt

variable of your choice!

```

=> ifstream inputfile ("myinput.txt");
    
```

↓ type ↓ name of stream ↓ external file

```

if (inputfile == NULL)
{
  cout << "File not found";
}
  
```

```

}
else
{
  
```

input file → ;

END OF FILE

```

}
  
```

```
while ((inputfile >> i) != NULL)
```

```
{
  //
}
```

3
 ⇒ File has reached end.

```
int i = 0;
int sum = 0;
```

```
while ((inputfile >> i) != NULL)
```

```
{
  sum = sum + i;
}
```

3
 ⇒ cout << "Sum = " << sum;

```
ofstream outfile ("out.txt");  
outfile  
ofstream << "Sum = " << sum  
    << endl;
```