COL100 Lecture 6

Note Title 09-08-2018

Reviews:

"hello"

string

- user input
- if-else
- nested if-else structure
- if-else without braces
- → flat if-else-if structure
- → logical operators: !, ||, &&

  ! > && > ||

  precedence:

  arithmetic > relational > logical

  +, -, ... <, ==, ... ||, &&, !, ...

if - else example

cin

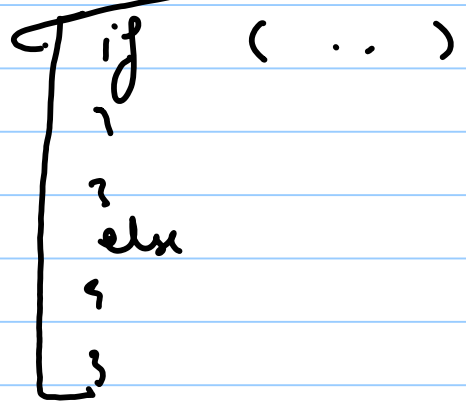
```
#include <iostream>
#include "simpio.h"
using namespace std;
int main() {
   int government = getInteger("Govt. votes? ");
   int opposition = getInteger("Oppn. votes? ");
   if (government > opposition) {
      cout << "Govt. won!" << endl;
   } else if (opposition > government) {
      cout << "Oppn. won!" << endl;
   } else {
      cout << "A tie." << endl;
   }
   return 0;
}
```

if (condition)

{

....] only one statement

} else



char: 'a', 'b', ..., '1', ..., '\n'

string: "ab", "a"

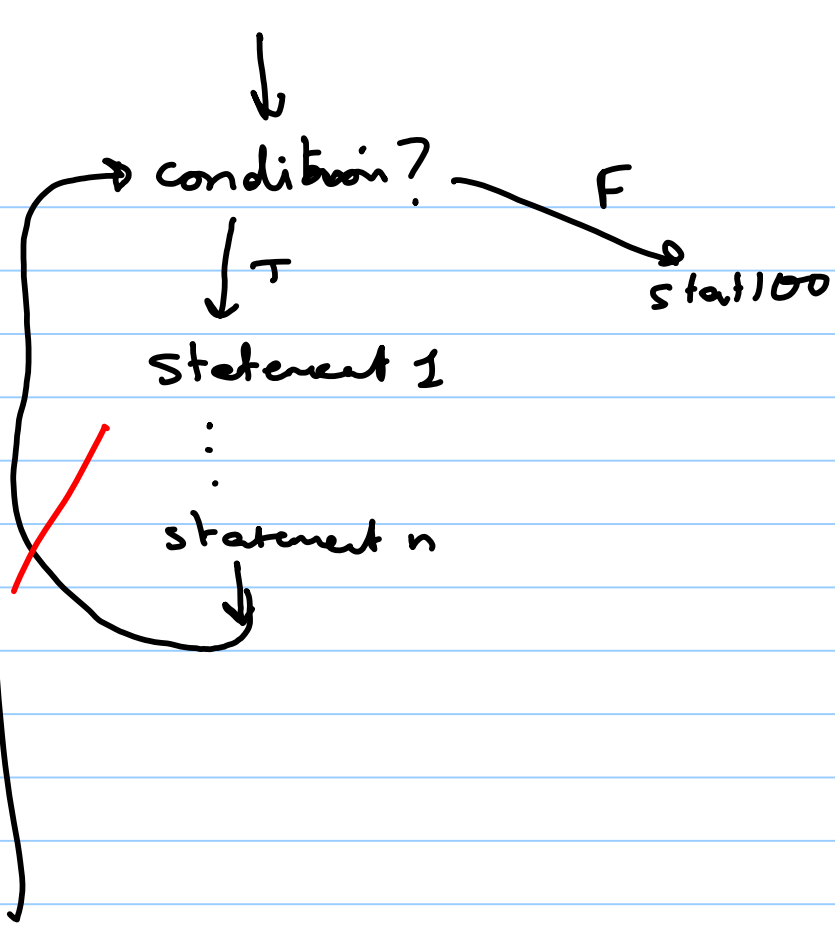
efficiency

```
string s = "hello " + "world";
char c = 'h' + 'w';   X
```

Loops

```
if (condition)
{
    .
    .
    .
}
```

```
while (condition)
{
    statement 1;
    .
    .
    statement n;
}
statement 100;
```



sentinel : a value that signals end of user input

- sentinel loop: repeats until a sentinel value is seen

```
Next vegetable? 10
Next vegetable? 20
Next vegetable? -1
Total bill: 30
$
```

```
#include <iostream>
#include "simpio.h"
using namespace std;

int main() {
    int sum = 0, int nump = 0;
    int num = getInteger("next Vegetable? ");
    while (num != -1)
    {
        sum = sum + num;
        [illegible]
    }
    cout << "Total bill: " << sum << endl;
    return 0;
}
```

```
while (false)
{
        int x=10;
        cout << " I will never get printed.";
}

bool b= (n < 10);
while (b)
{
        .
        .
        b = ... ;
}
```

```
while ( num != -1 )
{

}
```

num!

```
        int   sum=0;
        int   nump=0;
1       int   num =  getInteger ("next  Vg?  ");
        while (  num != -1
                 && nump < 10 )
        {
            sum = sum + num;
nump=0  ──→ num = getInteger ("next  Vg? ");
  1         nump = nump + 1;
  2
  ⋮
  9             if (nump == 10   && num != -1)
        }
        cout << "Total: " << sum << endl;
```

```
while ( num != -1
        && numb < 10)
{
    ...
}
if (numb == 10 && num != -1)
{
    cout << "Your last purchase is invalid!";
}
cout << "Total bill: " << sum;
```

```
int sum = 0;
int nump = 0;
int num = getInteger(" next ? ");
while ( num != -1 && nump < 10) {
        sum = sum + num;
        nump = nump + 1;
        num = getInteger("next ? ");
}
if ( nump == 10 && num != -1) {
        cout << " Last purchase invalid " << endl;
}
cout << " Total: " << sum << endl;
```

Case 1:
-1

Case 2:
10
20
-1

Case 3:
10
20
30
:
100
110

nump == 10
num == 110

Case 4:

10
20
:

100
-1

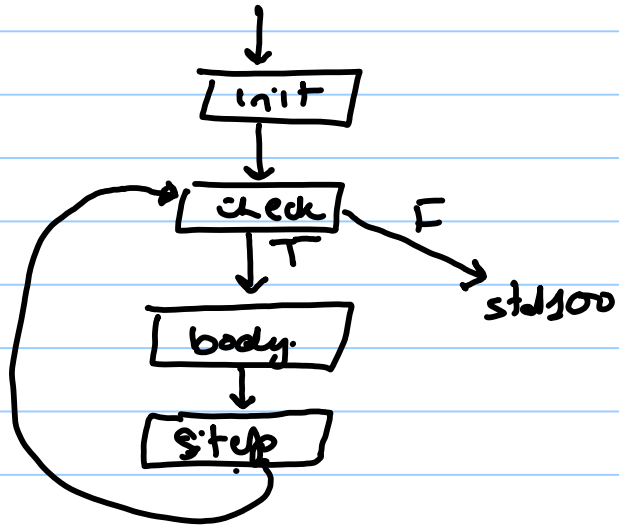
For loops

init

bool-valued check

step

```
for (int i = 0; i < count; i++)
{
    statement 1;
    :
    statement n;
}
statement 100;
```



```
int i = getInteger("init value?");
for ( ; i < count; i++)
{
    ...
}
```

```
for (int i = getInteger("init value?"); i < count; i++)
{
    ...
}
```