Useful Insights into the C++ Language

Boolean assignment:

```
bool b;
int x;

...
if (x > 5)
      b = true;
else
      b = false;
```

Better:

```
b = (x > 5);

b = !(x > 5);      // the reverse example
```

The conditional expression:

```
int x, y;

...
if (x > 5)
      y += 10;
else
      y += 100;
```

A shortcut:

```
y += (x > 5) ? 10 : 100;
```

Another example:

```
cout << "You are " << ((age > 60) ? "very old" : ((age > 40) ? "old" : "young")) << endl;
```

Efficient variable swapping:

```
int x = 10, y = 20;
int temp;

temp = x;
x = y;
y = temp;
```

A shortcut:

```
int x = 10, y = 20;

x = x ^ y;
y = x ^ y;
x = x ^ y;
```

Even better:

```
Use ^=
```

```
#include <iostream>
#include <string.h>

using namespace std;

int main(int argc, char** argv)
{
        bool b;
        int x = 4;
        char s[64] = "Hello ";
        int age = 61;

        if (x > 5)
                b = true;
        else
                b = false;
        cout << (b ? "True" : "False") << endl;

        b = !(x > 5);
        cout << (b ? "True" : "False") << endl << endl;

        strcat(s, ((x > 5) ? "World!" : "Class!"));
        cout << s << endl << endl;

        while (age > 1)
        {
                cout << age << ": You are " << ((age > 60) ? "very old" : ((age > 40) ? "old" : "young")) << endl;
                age -= 20;
        }

        x = 10; age = 33;
        cout << "\nx=" << x << ", age=" << age << endl;
        age ^= x;
        x ^= age;
        age ^= x;
        cout << "x=" << x << ", age=" << age << endl;
}

/**********
 * OUTPUT *
 **********/
False
True

Hello Class!

61: You are very old
41: You are old
21: You are young

x=10, age=33
x=33, age=10
```