



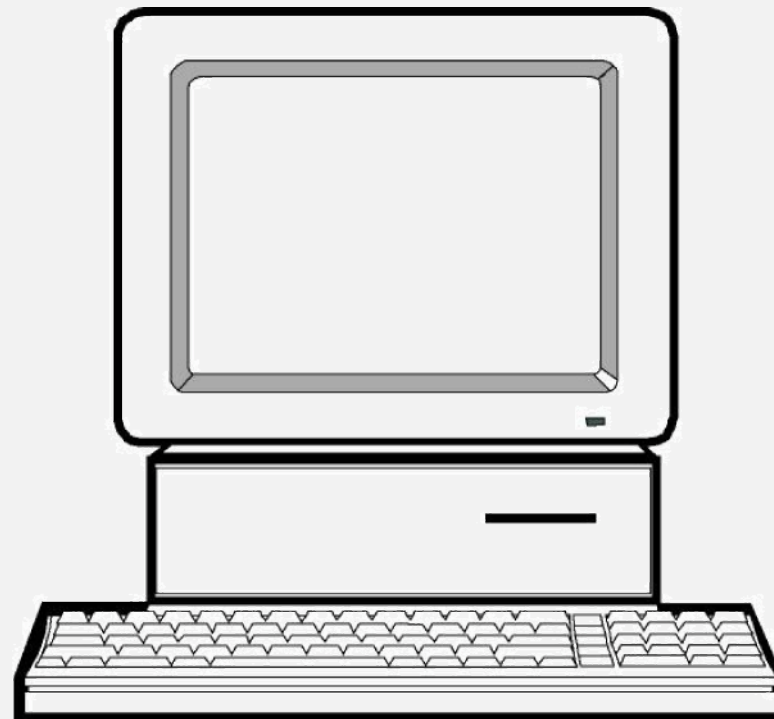
# C++ CONSOLE INPUT / OUTPUT

Reading input from the keyboard and  
displaying output to the screen



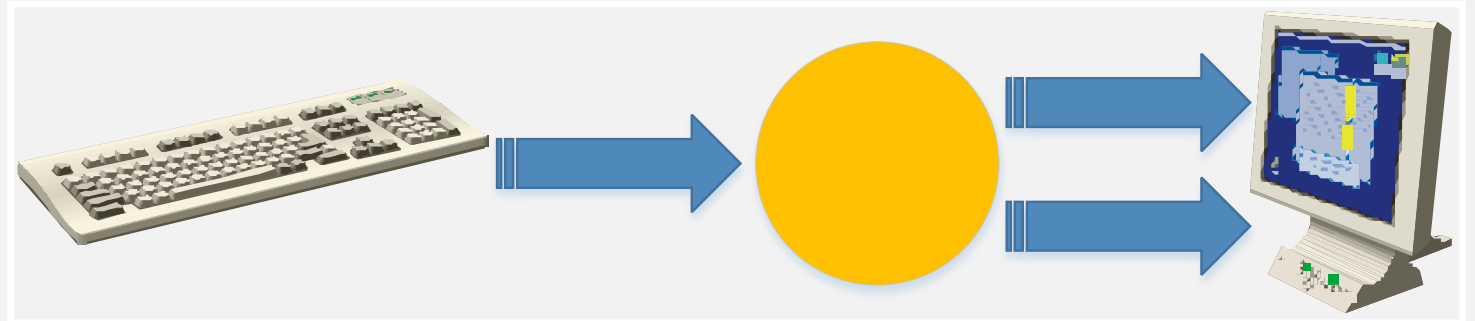
# THE COMPUTER CONSOLE

- The screen
- The keyboard



# CONSOLE I/O OBJECTS

- `cin >> var;`
- `cout << expression;`
- `cerr << expression;`
- `<<` is the inserter operator
- `>>` is the extractor operator
- `cin`, `cout`, and `cerr` are pre-instantiated objects extracted from a C++ library





# USING THE CONSOLE I/O SYSTEM

```
#include <iostream>
using namespace std;
.
.
.
cout << "hello world" << endl;
```

```
#include <iostream>
.
.
.
std::cout << "hello world" << std::endl;
```



# MANIPULATORS

- Manipulators are special functions designed to work with the inserter (<<) and the extractor (>>) operators
- Manipulators without arguments are described in <iostream>
- endl (the last character is a lower case L) ends the line by dropping down one line and returning the cursor to the left side of the screen

```
#include <iostream>
using namespace std;

int main()
{
    cout << "See the quick red ";
    cout << "fox jump over the " << endl;
    cout << endl << "lazy brown dog." << endl;

    cout << endl;

    return 0;
}
```

# ESCAPE SEQUENCES / CHARACTERS

Sequence	Character
<code>\n</code>	Newline
<code>\a</code>	Alert (or bell)
<code>\b</code>	Backspace
<code>\f</code>	Form feed
<code>\r</code>	Carriage return
<code>\t</code>	Horizontal tab
<code>\\</code>	Backslash
<code>\'</code>	Single quotation mark
<code>\"</code>	Double quotation mark
<code>\xdd</code>	Char with hex value <i>dd</i>