I/O STREAMS : objects and manipulators, examples

_____

The standard input/output (I/O) library for C++ is <iostream.h>, not <stdio.h>.   Although C++ supports the "old" I/O functions, you should probably get use to using streams.   The following provides the basics of using C++ streams.

OBJECTS AND MANIPULATORS


```
                    C++ I/O OBJECTS
        ====================================
        |  Object Name      Default Device   |
        |-----------------------------------|
        |     cin              Keyboard      |
        |     cout              Screen       |
        |     cerr              Screen       |
        |     clog              Screen       |
        ====================================
```


```
                 C++ I/O MANIPULATORS
    ================================================================
    |  Manipulator                     Description          |
    |--------------------------------------------------------------|
    |     dec                      Decimal output           |
    |     hex                      Hexadecimal output        |
    |     oct                      Octal output             |
    |     endl                     End of line (or \n)       |
    |     ends                     End of string (or \0)     |
    |     flush                    Flushes buffer           |
    |     resetiosflags(long)      Resets effect of setiosflags  |
    |     setprecision( int )      Secifies digits of precision  |
    |     setiosflags( format flag )  Sets format flag       |
    |     setw( int )              Sets field width          |
    ================================================================
```


```
                 C++ I/O FORMAT FLAGS
    ================================================================
    |  Format Flag                  Description              |
    |--------------------------------------------------------------|
    |   ios::left          Left-justified output within width      |
    |   ios::right         Right-justified output within width     |
    |   ios::scientific    Formats numbers in scientific notation  |
    |   ios::fixed         Normal decimal format                 |
    |   ios::dec           Formats numbers in base 10             |
    |   ios::hex           Formats numbers in base 16             |
    |   ios::oct           Formats numbers in base 8              |
    |   ios::uppercase     Scientific notation characters uppercase  |
    |   ios::showbase      Force base prefix in output            |
    |   ios::showpos       Show '+' sign for positive numbers      |
    ================================================================
```


EXAMPLES

The following snippet shows how to use the basics of using C++ I/O streams.   The insert operator '<<' and extraction operator '>>' are used to send and get data from the screen and keyboard.

```cpp
// io.cp
#include <iostream.h>
#include <iomanip.h>

void main( void )

    int    i;
    float f;
    char   c;

    cout << "Enter an integer: ";
    cin >> i;
    cout << "Enter a float: ";
    cin >> f;
    cout << "Enter a character: ";
    cin >> c;

    cout << endl;
    cout << "Default formats" << endl;
    cout << i << endl;
    cout << f << endl;
    cout << c << endl;

    cout << endl << "Other formats" << endl;
    cout << hex << i << endl;
    cout << setprecision(2) << f << endl;
    cout << setiosflags( ios::scientific ) << f << endl;

// end io.cp
```