I/O in C++

Reading:

- Appropriate sections of your C++ book.
  E.g., Stroustrop chapter 21
  (warning: it's hard to digest)


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

void main()
{
   // Output to "the standard output".
   cout << "Hello.\nHow old are you? ";

   // Input from "the standard input".
   int age;
   cin >> age;
   cout << "Wow, " << age << ".  You're that old?\n";


   // Output to a file (as text).
   fstream out;
   out.open ("outfile", ios::out);
   out << age;

   // Input from a file (as text).
   int num;
   fstream in;
   in.open ("infile", ios::in);
   in >> num;
   cout << "I just read from a file: " << num << ".\n";
```



```
   // Output to a file (binary).
   fstream bin;
   bin.open ("binfile", ios::out);
   for (int i=0; i < 10; i++)
        bin.write (&i, sizeof(int));
   char c = 'A';
   bin.write (&c, sizeof(char));
   bin.close();

   // Input from a file (binary).
   bin.open ("binfile", ios::in);
   bin.read (&num, sizeof(int));
   cout << "I just read from the binary file: "
        << num << ".\n";

   // Input until end of file.
   cout << "The rest of the binary file contains:\n";
   bin.read (&num, sizeof(int));
   while (!bin.fail()) {
        cout << "   " << num << "\n";
        bin.read (&num, sizeof(int));
   }

  cout << "For the record, sizeof(int) is "
       << sizeof(int) << ".\n";
  cout << "For the record, sizeof(char) is "
       << sizeof(char) << ".\n";
}
```



```
dvp.cs 94% cat infile
12345

dvp.cs 95% a.out
Hello.
How old are you? 3
Wow, 3.  You're that old?
I just read from a file: 12345.
I just read from the binary file: 0.
The rest of the binary file contains:
   1
   2
   3
   4
   5
   6
   7
   8
   9
For the record, sizeof(int) is 4.
For the record, sizeof(char) is 1.

dvp.cs 96% cat outfile
3
```

```
dvp.cs 97% od binfile
0000000 000000 000000 000000 000001 000000 000002 000000 00(
0000020 000000 000004 000000 000005 000000 000006 000000 00(
0000040 000000 000010 000000 000011 040400
0000051
```

```
dvp.cs 98% od -b binfile
0000000 000 000 000 000 000 000 000 001 000 000 000 002 000
0000020 000 000 000 004 000 000 000 005 000 000 000 006 000
0000040 000 000 000 010 000 000 000 011 101
0000051
```



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

void main()
{
  // Input from a file (text), grabbing a line
  // at a time.
  fstream in;
  in.open ("infile", ios::in);

  for (int i = 1; i<=5; i++) {
     char a[100];                  // Yuk: magic numbers.
     in.getline(a, 100, '\n');
     cout << "As a C-style string: " << a << "\n";

     // Making a C++ string out of this C-style string a.
     string s(a, 0, 99);
     cout << "As a C++ string    : " << s << "\n";
  }
}
```



```
qew.cs 849% cat infile
12345
Hello, here's a line
and here is another line.
Let's put some more
stuff in here so that
we don't hit end-of-file before we're
doing trying to read input.
```

```
qew.cs 850% a.out
As a C-style string: 12345
As a C++ string    : 12345
As a C-style string: Hello, here's a line
As a C++ string    : Hello, here's a line
As a C-style string: and here is another line.
As a C++ string    : and here is another line.
As a C-style string: Let's put some more
As a C++ string    : Let's put some more
As a C-style string: stuff in here so that
As a C++ string    : stuff in here so that
```