BULLETPROOF CODE (2)

String Streams

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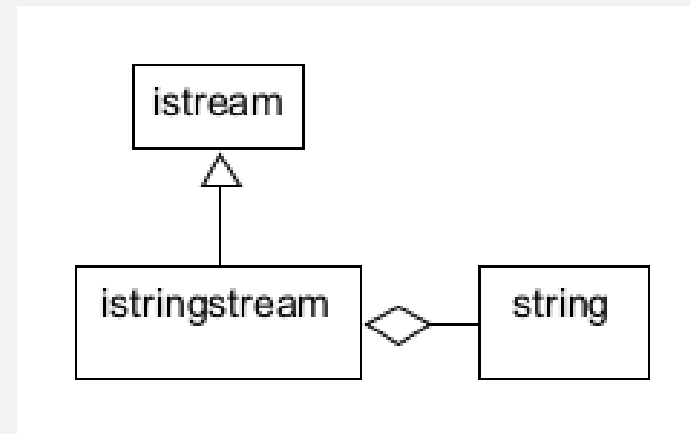
STRING STREAMS

C-STRINGS
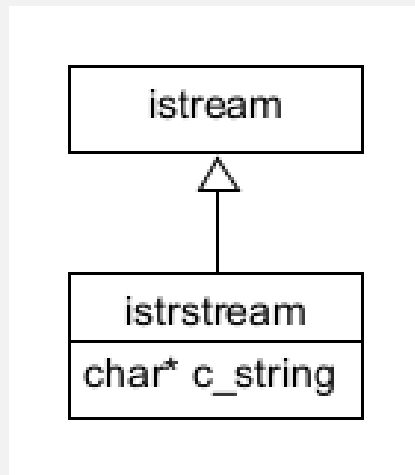
STRING OBJECTS

DATA CONVERSIONS

- Programs and operating systems exchange console and command line data as strings of characters

- Some conversion occur "automatically" as part of the I/O operations

  - cout <<

  - cin >>

- Sometimes programs "manually" perform the conversion

STRING STREAM CLASSES

C-STRING

- <strstream>
- istrstream
- ostrstream

- Deprecated

string CLASS

- <sstream>
- istringstream
- ostringstream

C-STRING CONVERSIONS

```
istrstream  n1("123");
istrstream  n2("3.14");
int         i;
double      d;

n1 >> i;
n2 >> d;
cout << "i = " << i << endl;
cout << "d = " << d << endl;
```

```
char        a[100];
ostrstream  i(a, 100);
ostrstream  f(a, 100);

i << 76 << ends;
cout << "a = " << a << endl;

f << 76.58 << ends;
cout << "a = " << a << endl;
```

string CONVERSIONS

```
string          s1("123");
string          s2("3.14");
istringstream n1(s1);
istringstream n2(s2);
int             i;
double          d;

n1 >> i;
n2 >> d;
cout << "i = " << i << endl;
cout << "d = " << d << endl;
```

```
ostringstream i;
ostringstream f;


i << 76;
string s1 = i.str();
cout << "s1 = " << s1 << endl;


f << 76.58;
string s2 = f.str();
cout << "s2 = " << s2 << endl;
```

REREADING INPUT WITH STRING STREAMS

Bill Gates:1 Microsoft Way, Redmond, WA:(403) 123-4567
Cranston Snort:1600 Pennsylvania Ave:(306) 678-9876

Albert Einstein:Princeton, NJ:(456) 123-8765
This is a comment
John Smith:123 Elm St.:801-555-1234

REREADING INPUT WITH STRING STREAMS

```
while (! in.eof())
{   string  line;
    getline(in, line);

    if (line.length() == 0 || line[0] == '#')
        continue;

    istringstream  input(line);
}
```

```
string name;
getline(input, name, ':');

string address;
getline(input, address, ':');

string phone;
getline(input, phone, '\n');

cout << left << setw(20) << name <<
    setw(35) << address <<
    setw(20) << phone << endl;
```

DATA INPUT WITH istringstream

```
416:July 8:Gas Company:15.85
417:7/9:Auto Store:19.95
418:7/10:Grocery Store:47.50
419:Dec 5:Hardware Store:47.89
Deposit:8/19/2006:-:150.00
```

DATA INPUT WITH istringstream

```
double balance = 0;
while (!in.eof())
{
    string entry;
    getline(in, entry);

    if (entry.length() == 0 || entry[0] == '#')
        continue;

    istringstream input(entry);

    string type, date, to;
```

```
getline(input, type, ':');
getline(input, date, ':');
getline(input, to, ':');

double amount;
input >> amount;

if (type == "Deposit" || type == "deposit")
        balance += amount;
    else
        balance -= amount;
```