

Classes & Strings

Classes

Technique for implementing new data types and operations on them (*data abstraction*).

Many useful classes are already defined in *class libraries*. In particular we use *string* class.

Similar to built-in data types:

We can declare them

```
string myName;
```

although instead of saying *myName* is a *variable of type string* we say

myName is an *object of class string*.

we can apply assignment to *string* objects:

```
myName = "Dennis Peters";
```

We can input and output to *string* objects:

```
cout << myName << endl;
cin >> myName;
```

In the case of *cin*, all characters up to the next whitespace character are input into *myName*.

If you want to input sentences into a *string* you can use the *getline* function

```
getline(cin, myName, '\n');
```

which inputs all chars from *cin* to *myName* up to (but not including) the first occurrence of the whatever terminating character you specify.

Member Functions

Objects differ from variables in that they may have *member functions*

member functions are called using the *.* operator

```
len = myName.length();
```

returns the no. of characters contained in the *string*.

Some string Member Functions

Function	Example	Meaning
length	myName.length()	Number of characters in string
at	myName.at(0)	Character at given position (0 is first).
find	myName.find("ia")	Starting position of given string in string.
insert	myName.insert(6, " K. ")	Insert the new string into the string.



name.cpp

```

/*****
 * Memorial University of Newfoundland
 * Engineering 2420 Structured Programming
 * name.cpp -- Demonstrate strings
 *
 *
 * Author: Dennis Peters
 *
 *****/
#include <iostream>
#include <string>
using namespace std;

/*****
 * main
 *
 * Parameters: none
 * Modifies: cin, cout -- prompts for and reads some strings
 *
 * Returns: 0
 *****/
int main() {
    string name; // User name, input
    string middle; // middle name, input
    int spacePos = 0; // Position of space in name.
    cout << "Please enter your name, followed by the \"Enter
    getline(cin, name);

```

```
cout << "Your name is: \"" << name << "\"\n";
cout << "Your name contains " << name.length() << " char

spacePos = name.find(" ");
cout << "Formal form: " << name.at(0) << ". ";
cout << name.substr(spacePos+1, name.length()) << endl;

cout << "Please enter your middle name: ";
cin >> middle;

name.insert(spacePos+1, middle);
name.insert(spacePos+middle.length()+1, " ");
cout << "Full name: " << name << endl;

return 0;
}

/*****
 * $RCSfile: name.cpp,v $   $Revision: 1.3 $
 * $Date: 2001-01-30 20:57:49-03:30 $
 * $State: Exp $
 *
 *              REVISION HISTORY
 *
 * $Log: name.cpp,v $
 * Revision 1.3  2001-01-30 20:57:49-03:30  dpeters
 * Fixed main header block.
 *
 * Revision 1.2  2001-01-30 20:31:03-03:30  dpeters
 * Use some other name functions.
 *
 * Revision 1.1  2001-01-30 20:22:59-03:30  dpeters
 * Initial revision
 *
 *
 *****/
```

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