

Introduction to Programming with C++

Chieh-Sen (Jason) Huang

Department of Applied Mathematics

National Sun Yat-sen University

INTRODUCTION TO
PROGRAMMING
WITH

The logo for C++ programming language, featuring a large blue 'C' followed by two blue '+' signs.

Third Edition

Contents are based on book by Y. Daniel Liang

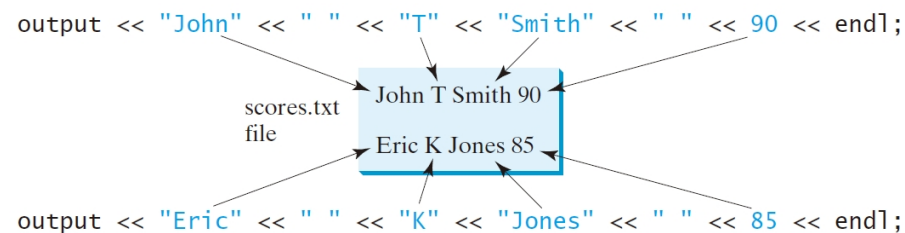
Text I/O

- The **ofstream class** can be used to write primitive data-type values, arrays, strings, and objects to a text file.
- We create an object, **output**, from the **ofstream class**.
- Then, we open a file named **scores.txt** for the **output** object.
- The program creates an instance of ofstream and writes two lines to the file **scores.txt**.
- Each line consists of **first name** (a string), **middle name initial** (a character), **last name** (a string), and **score** (an integer).

Text I/O

```
#include <fstream>
int main()
{
    ofstream output;
    // Create a file List13_1.cpp
    output.open("scores.txt");
    // Write two lines
    output << "John" << " " << "T" << " " << "Smith"
                << " " << 90 << endl;
    output << "Eric" << " " << "K" << " " << "Jones"
                << " " << 85 << endl;

    output.close();
    cout << "Done" << endl;
    return 0;
}
```



- The **close()** function must be used to close the stream for the object.

Text I/O

- The program creates an instance of **ifstream** and reads data from the file **scores.txt**.

```
int main()
{
    ifstream input("scores.txt");
    // Read data List13_2.cpp
    string firstName;
    char mi;
    string lastName;
    int score;

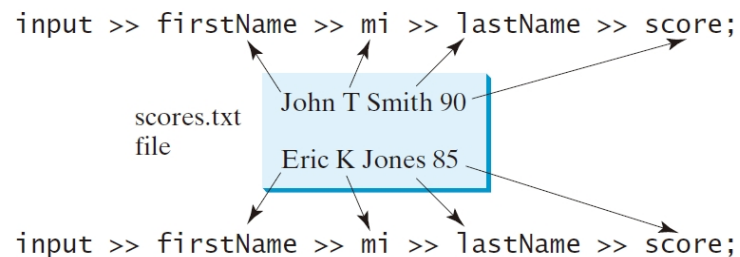
    input >> firstName >> mi >> lastName >> score;

    cout << firstName << " " << mi << " "
         << lastName << " " << score << endl;

    input >> firstName >> mi >> lastName >> score;

    cout << firstName << " " << mi << " "
         << lastName << " " << score << endl;

    input.close();
    cout << "Done" << endl;
    return 0;
}
```



Text I/O

- To read data correctly, you need to know exactly how data are stored.
- For example, the program in List13_2.cpp would not work if the file contained score as a double value with a decimal point.

In-Class Exercise: Write a file which contains your name, age and weight. Then read it back.

Homework 13.1: There are 8 scores in test3.txt. Please read them in and find the highest score and the lowest score.