I/O STREAM FILE

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Introduction

- To store and retrieve data outside a C++ program, you need two things:
  - A file
  - A file stream object

#include <fstream>

ofstream – output file – write/save data into a file

ifstream – input file – read data from a file

Introduction (cont'd.)

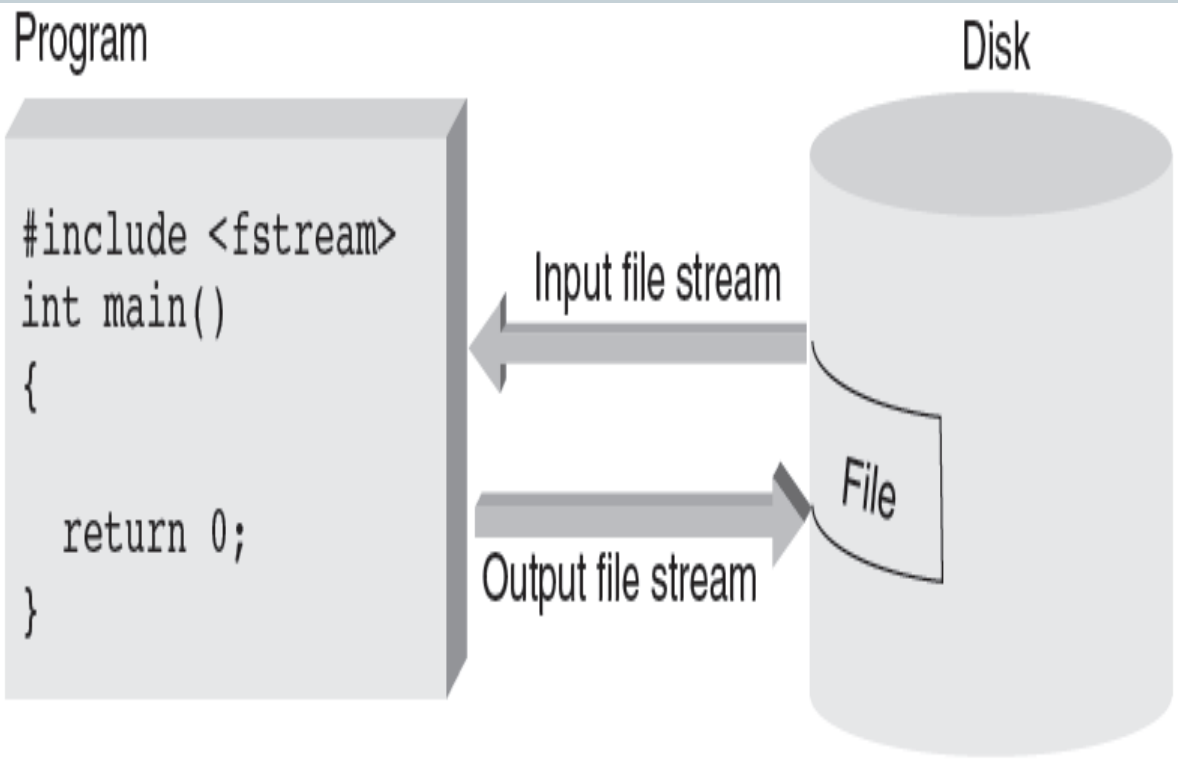

Figure 9.1 Input and output file streams

CODE 3A: WRITING DATA TO A FILE

```
#include <iostream>
#include <fstream>
using namespace std;

int main()
{
    ofstream output;
    output.open ("myoutput.txt");

    output << "This is myoutput.txt";

    output.close();

    return 0;
}
```

Ofstream object name

Create a file

Write data to a file

Close the file

CODE 3B: WRITING DATA TO A FILE

```
include <iostream>
#include <fstream>
using namespace std;

int main()
{
    ofstream output;

    // Create a file
    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;
}
```

CODE 3C: READ DATA FROM A FILE

```
#include <iostream>
#include <fstream>
using namespace std;

int main()
{
    ifstream input;
    input.open("myoutput.txt");

     int num1, num2, num3, num4;

    input >>num1>>num2>>num3>>num4;

    cout << num1 << " ";
    cout << num2 << " ";
    cout << num3 << " ";
    cout << num4 << " " << endl;

    input.close();


    return 0;
}
```

Ifstream object name

Open a file

Write data to a file

Close the file

CODE 3D: STRING

```
#include <iostream>
#include <fstream>
#include <string>
using namespace std;

int main()
{
    ifstream input("scores.txt");

    // Read data
    string firstName, lastName;
    char mi;
    int score;
    input >> firstName >> mi >> lastName
>> score;

    input >> firstName >> mi >> lastName
>> score;
    input.close();
    cout << "Done" << endl;
    return 0;
}
```

CODE 3E: fail( )

```
#include <iostream>
#include <fstream>
using namespace std;

int main()
{
    // Open a file
    ifstream input;
    input.open("state.txt");

    if (input.fail())
    {
        cout << "File does not exist" <<
         endl;
        cout << "Exit program" << endl;
        return 0;
    }

    input.close();

    cout << "Done" << endl;
    return 0;
}
```

CODE 3E: eof( )

```
#include <iostream>
#include <fstream>
using namespace std;

int main()
{
    // Open a file
    ifstream input;
    input.open("state.txt");

// Read data
    string city;

    while (!input.eof()) // Continue
if not end of file
    {
        getline(input, city, '#');
        cout << city << endl;
    }

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

CODE 3F : Write Formatted Data to a File

```
#include <iostream>
#include <iomanip>
#include <fstream>
using namespace std;

int main()
{
    ofstream output;
    // Create a file
   output.open("formattedscores.txt");

    // Write two lines
    output << setw(6) << "John" <<
setw(2) << "T" << setw(6) << "Smith”
<< " " << setw(4) << 90 << endl;
    output << setw(6) << "Eric" <<
setw(2) << "K" << setw(6) << "Jones”<<
" " << setw(4) << 85;

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