Lecture 23

File Handling in C++

The following article provides an outline on File Handling in C++. In programing sometimes we need to read or write the data from or to the file, so C++ provides a standard library fstream. We use the iostream standard library, iostream provides cin method for reading from input and cout method for writing to output. Similarly to read from a file and write to a file we can use C++ provided standard library fstream. The fstream provides different data types for different purposes.

The different data types of fstream library are as follows:

- **ifstream:** ifstream data type of fstream library acts as an input file stream which is used to read data from a file. To use this data type in the C++ program we need to include header file <ifstream>.
- **ofstream:** ofstream data type of fstream library acts as an output file stream that is used to write data to a file. To use this data type in the C++ program we need to include header file <ofstream>.
- **fstream:** fstream data type of fstream library acts as a file stream generally which can be used for both ifstream and ofstream purpose. To use this data type in the C++ program we need to include header file <fstream>.

Reading from File in C++

As we read the data from the keyboard by using cin object and stream extraction operator (“>>”), in the same way, we can read data from a file into a program by using ifstream object and stream extraction operator (“>>”), so the difference is cin which is an object of class istream instance of it we will use object of ifstream.

Writing to File in C++

Again as we write the data to the monitor by using cout object and stream insertion operator (“<<”), the same way we can write data to a file from a program by using ofstream object and stream insertion operator (“<<”), so the difference is cout which is an object of class ostream instance of it we will use object of ofstream.

Examples of File Handling in C++

Given below are the examples of File Handling in C++:

Example #1

Example for reading and writing from or to a file.

Code:

```
#include <iostream>

#include <fstream>

using namespace std;

int main () {

char info[100], inp;
```

```
// open a file to write

ofstream of("data.txt");

cout << "Enter the data to store in the file:" << endl;

cout << "Enter your name: ";

cin.getline(info, 100);

// writing inputted information to the file

of << info << endl;

cout << "Enter your phone number: ";

cin >> info;

cin.ignore();

// writing again to the file.

of << info << endl;

// close the file.

of.close();

cout<<"Do you want to read the information, if yes please enter 'y'"<<endl;

cin >> inp;

if(inp=='y'||inp=='Y')

{

// open for reading from file

ifstream ifs("data.txt");

cout << "Reading information from the file" << endl;

ifs >> info;

// writing information to the monitor
```

```
cout << info << endl;

// reading again the information from the file

ifs >> info;

// writing again information to the monitor

cout << info << endl;

// close the file.

ifs.close();

}

return 0;
}
```

Output:

```
Enter the data to store in the file:
Enter your name: John
Enter your phone number: 464484515
Do you want to read the information, if yes please enter 'y'
y
Reading information from the file
John
464484515
```

In the above code, the getline() function is used to read a line from the keyboard and ignore() is used to ignore characters that are left by earlier read statements.