Lab 9

Filing in C++

Objectives

- To learn about operations on files in C++.

So far, we have been using the iostream standard library, which provides cin and cout methods for reading from standard input and writing to standard output respectively.

Performing read and write operations on a file requires another standard C++ library called fstream, which defines three new data types.

Streams and their Usage

ofstream
This data type represents the output file stream and is used to create files and to write information to files.

ifstream
This data type represents the input file stream and is used to read information from files.

fstream
This data type represents the file stream generally, and has the capabilities of both ofstream and ifstream which means it can create files, write information to files, and read information from files.

To perform file processing in C++, header files <iostream> and <fstream> must be included in your C++ source file.

Opening a file

A file must be opened before you can read from it or write to it. Either ofstream or fstream object may be used to open a file for writing. And ifstream object is used to open a file for reading purpose only.

In order to open a file with a stream object we use its member function open that is :

```
open (filename, mode);
```

Where filename is a string representing the name of the file to be opened, and mode is an optional parameter with a combination of the following flags:

Table 8.1:Modes of files

ios::app	Append mode. All output to that file to be appended to the end.
ios::ate	Open a file for output and move the read/write control to the end of the file.
ios::in	Open a file for reading.
ios::out	Open a file for writing.
ios::trunc	If the file already exists, its contents will be truncated before opening the file.

We can combine two or more of these values by ORing them together. For example we can open a file for reading and writing purpose as follows :

```
fstream  afile;
afile.open("file_01.txt", ios::out | ios::in );
```

Writing data to a file

Example 9.1

```
/*Example 01 */
#include <iostream>
```

```
#include <fstream>
int main ()
{
      //Creating object of output stream
      std::ofstream myfile;
      //Opening file for writing
      myfile.open("A1.txt");
      //Checking whether file is open
      if (myfile.is_open())
      {
            //if file has opened then write some text in that
            myfile << "Good Morning \n";
            myfile << "Have a good Day.\n";
            //closing file
            myfile.close();
      }
     else
      {
            //displaying message in case of failing in opening in file
            std::cout << "Unable to open file";
      }
      return 0;
}
```

Reading data from a file

Example 9.2

```
// reading a text file
#include <iostream>
#include <fstream>
int main ()
{
   //This is a string to read data from file
   std::string read_data;
   //ifstream object to read data from file
   std::ifstream myfile ("A1.txt");
   //while loop to read and print data of file line by line
   if (myfile.is_open())
   {
      while ( getline (myfile,read_data) )
      {
         std::cout << read_data << '\n';
```

```
      }
      myfile.close();
   }

   else
   {
      std::cout << "Unable to open file";
   }
   return 0;
}
```

Output

```
Hello World
```

Copy one file to another

Example 9.3

```
/* C++ Program - Copy Files */
#include<iostream>
#include<fstream>
int main()
{
      std::fstream rfile;
      std::fstream wfile;

      char ch=' ';
      rfile.open("A1.txt");
      if(!rfile)
      {
            std::cout<<"Error in opening source file..!!";
      }
      wfile.open("A2.txt");
      if(!wfile)
      {
            std::cout<<"Error in opening target file..!!";
      }
      while(rfile.eof()==0)
```

```
      {
            rfile>>ch;
            wfile<<ch;
      }
      std::cout<<"File copied successfully..!!";
      return 0;
}
```

Deletion of files

Example 9.4

```
#include <iostream>
#include <conio.h>
#include <stdio.h>
int main()
{
  //Declaring variable
  int status;
  char fname[20];
  std::cout <<"Enter name of file, you want to delete : ";
  std::getline(std::cin,fname);
  /*calling remove function to remove file from memory
  and assigning result to to a variable */
  status=remove(fname);
  if(status==0)
  {
      //if value of status is 0 then file will be deleted
      std::cout <<"file "<< fname <<" deleted successfully..!!\n";
  }
  else
  {
    std::cout << " Unable to delete file "<< fname <<" \n ";
    std::cout <<"Error Message ";
  }
 return 0;
}
```

Lab Tasks

Task 9.1
Write a C++ program that:

1. Asks user to input an array on size 10(Use smart pointers).
2. Calculates sum of this array.
3. Prints this sum to an existing file.

Task 9.2
Write a C++ program that:

1. Asks user for a string input.
2. Appends this string to a file.

Task 9.3
Write a C++ program that:

1. Reads numbers from a file.
2. stores these number into an array.
3. Prints the array.

DHA SUFFA UNIVERSITY
Department of Computer Science
Object Oriented Programming
CS-1002L
Spring 2020

Home Assignment

Task 9.4

SIMPLE TABLE

CODE NO.	FOOD	IMAGE	PRICE
abc-001	CHICKEN KARAHI		1000/=
abc-002	CHICKEN SANDWICH		300/=
abc-003	CLUB SANDWICH		400/=
abc-004	CHICKEN TWISTER		300/=
abc-005	ZINGER BURGER		600/=

Write code that will create html webpage and the code of above picture will be written to that file

Submission Instructions
1.Number your solution folders as question number e.g. Q1, Q2, etc. (Q is in upper case)
2.Every folder should contain three files (one header, one implementation and one driver)
3.Create a new folder named cs152abc where abc is your 3 digit roll #. e.g. cs192111.
4.Copy all the project folders into this folder.
5.Now make sure a zip file named cs192abc.zip is created e.g. cs192111.zip
6. Upload the assignment solution on LMS under the assignment named Lab 06 Assignment – XX, where XX is your section name.