Build Your IT Skill

2020

# ណែនាំស្គាល់ពី File Stream C++

## Text File Binary File

# ណែនាំអោយស្គាល់ពី

# File Stream C++

1. **ដូចម្តេចទៅដែលហៅថា** File Stream?

File Stream *សំដៅលើការរៀបចំការផ្ទុកទិន្នន័យជានិរន្តពោលគឺមិន បាត់បង់ដូច ពីមុនទៀតទេ។ ការផ្ទុកទិន្នន័យលើ* File *គឺជាទិន្នន័យត្រូវយកទៅផ្ទុកលើ* Hard Drive *ដូចជា* Hard Disk, USB, Memory *ជាដើម។ ដើម្បីធ្វើការលើ* File *អ្នកត្រូវធ្វើការកាត់នូវ លក្ខណ្ឌ ៣យ៉ាងគឺ៖*

*១)* Open File

*២)* Read/ Write File

*៣)* Close File

*ប្រភេទនៃ*File *ត្រូវបានគេបែកចែកជា ២ប្រភេទគឺ៖*

*១)* Text file

*២)* Binary file

2. Text file : *គឺជាប្រភេទនៃ* File *ដែលអាចធ្វើការ* Read/ Write data*លក្ខណៈជា* Text Processing *ពោលគឺទិន្នន័យត្រូវធ្វើការកាត់ការបំលែងទិន្នន័យជាមុនសិន ដើម្បីយកផ្ទុក* file *ប្រភេទនេះគេអាចបើកមើលទិន្នន័យយល់ ជាធម្មតាគេចំណាំវាបានលើ* (*.txt) *។*

ឧទាហរណ៍ ១៖ ចូរធ្វើការ Write ទិន្នន័យចូលក្នុង File

```cpp
//C++ program to write and read text in/from file.
#include <iostream>
#include <fstream>
using namespace std;
int main()
{
    fstream file; //object of fstream class
    //opening file "sample.txt" in out(write) mode
    char text[100];
    file.open("etec.txt",ios::out);
    if(!file)
    {
        cout<<"Error in creating file!!!"<<endl;
        return 0;
    }

    cout<<"File created successfully."<<endl;
    cout<<"Input Text to write=";
    cin.getline(text,100);
    //write text into file
    file<<text;
    //closing the file
    file.close();
    return 0;
}
```

លទ្ធផលទទួលបាន៖

```
C:\Users\Etec Center\Documents\Untitled1.exe
File created successfully.
Input Text to write=ETEC Center, Build Your IT Skill

--------------------------------
Process exited after 16.4 seconds with return value 0
Press any key to continue . . .
```

លទ្ធផលទិន្នន័យ៖

```
1  ETEC Center, Build Your IT Skill
```

ឧទាហរណ៍ ២៖ ចូរធ្វើការ Read ទិន្នន័យចេញពីក្នុង Fileវិញ

```cpp
//C++ program to write and read text in/from file.
#include <iostream>
#include <fstream>
using namespace std;
int main()
{
    fstream file; //object of fstream class
    //again open file in read mode
   file.open("etec.txt",ios::in);
   if(!file)
   {
      cout<<"Error in opening file!!!"<<endl;
      return 0;
   }
   //read untill end of file is not found.
   char ch; //to read single character
   cout<<"File content: ";
   while(!file.eof())
   {
      file>>ch; //read single character from file
      cout<<ch;
   }

   file.close(); //close file
   return 0;
}
```

លទ្ធផលទទួលបាន៖

```
C:\Users\Etec Center\Documents\Untitled1.exe
File content: ETECCenter,BuildYourITSkilll
--------------------------------
Process exited after 0.05168 seconds with return value 0
Press any key to continue . . .
```

ឧទាហរណ៍ ៣៖ ចូរធ្វើការ Write ទិន្នន័យចូលក្នុង File

```
1  //C++ program to write and read text in/from file.
2  #include <iostream>
3  #include <fstream>
4  #include<conio.h>
5  using namespace std;
6  int main()
7  {
8     fstream file; //object of fstream class
9     //opening file "sample.txt" in out(write) mode
10     int code;
11     char name[20];
12     char sex;
13     float score;
14 do{system("cls");
15    file.open("students.txt",ios::app);
16    if(!file)
17    {
18       cout<<"Error in creating file!!!"<<endl;
19       return 0;
20    }
21    cout<<">>>>Start Input Data>>>>>"<<endl;
22    cout<<"Input Code=";cin>>code;
23    cin.ignore();
24    cout<<"Input Name=";cin.getline(name,20);
25    cout<<"Input Sex=";cin>>sex;
26    cout<<"Input Score=";cin>>score;
27
28    //write text into file
29    file<<code<<"  "<<name<<"   "<<sex<<"   "<<score<<endl;
30    //closing the file
31    cout<<"Write Completed!"<<endl;
32    file.close();
33   cout<<"Press Enter to Continue....!";
34 }while(getch()==13);
35    return 0;
36 }
```

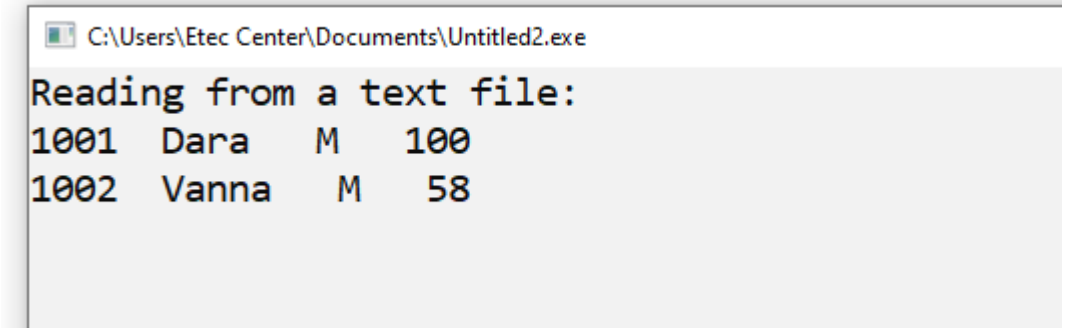
លទ្ធផលទិន្នន័យ៖

```
1  1001  Sok Dara   M   56
2  1002  Lim Kim   M   89
3  1003  Chan Vanna   M   89
```

ឧទាហរណ៍ ៤៖ ចូរធ្វើការ Read ទិន្នន័យចេញពីក្នុង File វិញ

```
1  //C++ program to write and read text in/from file.
2  #include <iostream>
3  #include <fstream>
4  #include<conio.h>
5  using namespace std;
6  int main()
7  {
8     fstream file; //object of fstream class
9     //opening file "sample.txt" in out(write) mode
10     char line[20];
11    file.open("students.txt",ios::in);
12    if(!file)
13    {
14        cout<<"Error in creating file!!!"<<endl;
15        return 0;
16    }
17   cout << "Reading from a text file:" << endl;
18   while (!file.eof())
19     {
20         file.getline(line, 100);
21         cout << line << endl;
22     }
23    file.close();
24    return 0;
25 }
26
```

លទ្ធផលទទួលបាន៖



**ខាងក្រោមគឺជាប្រភេទ** Class **នៃ** File **ដូចជា៖**

- Ofstream: *គឺជាប្រភេទ* Stream *ដែលប្រើប្រាស់សំរាប់* Write *ទិន្នន័យ ចូល* File *និងអាចង្កើតនូវ* Files *ប្រសិនបើវាមិនទាន់មាននោះ។*
- Ifstream: *គឺជាប្រភេទ* files Stream *ដែលប្រើប្រាស់សំរាប់ធ្វើការ* Read *ទិន្នន័យចេញពីក្នុង* files *ដែលមានរួចស្រេចហើយនោះ។*
- fstream: *គឺជាប្រភេទ* file stream *ដែលអាចអោយគេ បានទាំង* Read *និង* Write *ទិន្នន័យចូលក្នុង* file *ណាមួយច្បាស់លាស់ ។*

  *ខាងក្រោមគឺជា* Mode *សំខាន់ៗរបស់* file *ដូចជា ៖*

  1. ios::app *គឺជាប្រភេទ* Mode *ដែលអាចធ្វើការ* Write *បន្ថែមតែវាមិនបាត់បង់ទិន្នន័យចាស់នោះទេពោលគឺវា តពីទិន្នន័យចាស់ ។*
  2. ios::ate *គឺជាប្រភេទ* mode *ដែលរំកិល* pointer *សំរាប់ការ* read/ write *ទិន្នន័យទៅ ទីតាំងចុងក្រោយនៃ* files*។*
  3. ios:: in *គឺជាប្រភេទ* mode *សំរាប់ការ* read *ទិន្នន័យចេញពី* files
  4. ios:: out *គឺជាប្រភេទ* Mode *សំរាប់ការ* Write *ទិន្នន័យចូលក្នុង* file

ឧទាហរណ៏ ៥៖ Write Data to files

```
#include<iostream>
#include<fstream>
using namespace std;
class Employee {
public:
    // Instance variables
    char Name[20];
    char sex;
    int age;
};
int main()
{
    int n,i;
    ofstream file_obj;
    file_obj.open("Employee.txt", ios::app);
    Employee obj;
    cout<<"Input Number of Employee=";cin>>n;
    for(i=0;i<n;i++)
    {
        cout<<"Input Name=";cin>>obj.Name;
        cout<<"Input Sex[M/F]=";cin>>obj.sex;
        cout<<"Input Age=";cin>>obj.age;
        file_obj.write((char*)&obj, sizeof(obj));
    }
     file_obj.close();
    return 0;
}
```

លទ្ធផលទទួលបាន៖

```
1  Sok ÿÿÿÿEè@    ▯   M   ▯   Vanna ÿÿEè@    ▯   M       Kim ÿÿÿÿEè@    ▯   F   "   Ly  ÿÿÿÿEè@    ▯   M   ▯
```

ឧទាហរណ៏ ៦៖ Read data from file

```
#include<iostream>
#include<fstream>
using namespace std;
class Employee {
public:
    // Instance variables
    char Name[20];
    char sex;
    int age;
};
int main()
{  Employee obj;
    ifstream file_obj;
    file_obj.open("Employee.txt", ios::in);
    file_obj.read((char*)&obj, sizeof(obj));
    cout<<"    ==============================\n";
    cout<<"         Your Data Information\n";
    cout<<"    ==============================\n";
   while (!file_obj.eof()) {
      cout<<"        "<<obj.Name<<"   "<<obj.sex<<"    "<<obj.age<<endl;
      cout<<"      ---------------------------------------\n";
      file_obj.read((char*)&obj, sizeof(obj));
   }
   cout<<"Good Luck...!\n";
    return 0;
}
```

លទ្ធផលទទួលបាន៖

```
C:\Users\Etec Center\Documents\Untitled2.exe
    ==============================
        Your Data Information
    ==============================
        Sok    M    23
      ---------------------------------------
        Vanna    M    30
      ---------------------------------------
        Kim    F    34
      ---------------------------------------
        Ly    M    27
      ---------------------------------------
Good Luck...!
```

3. Binary file: *គឺជាប្រភេទ* File *ដែលការ* Processing(Read/Write) *ត្រូវបំលែងជា*Binary Data *ជាមុនសិន។*

*ឧទាហរណ៏ ១៖* Write *ទិន្នន័យចូលក្នុង* files

```
#include <iostream>
#include <fstream>
#include<conio.h>
using namespace std;
int main()
{  fstream file;
    int code;
    char name[20];
    char sex[20];
    float score;
    char str[100];
do{ system("cls");
   file.open("etec-student.bin",ios::app|ios::binary);
   if(!file)
   {
       cout<<"Error in creating file!!!"<<endl;
       return 0;
   }
   cout<<">>>>Start Input Data>>>>>"<<endl;
   cout<<"Input Code=";cin>>code;
   cin.ignore();
   cout<<"Input Name=";cin.getline(name,20);
   cout<<"Input Sex=";cin>>sex;
   cout<<"Input Score=";cin>>score;
   //make string to write
    sprintf(str,"%d  %s  %s  %f",code,name,sex,score);
    //write into file
    file.write(str,sizeof(str));
    cout<<""<<str<<"\nhas been written into file....."<<endl;
    file.close();
   cout<<"Write Completed!"<<endl;
   file.close();
  cout<<"Press Enter to Continue....!";
 }while(getch()==13);
   return 0;
}
```

*លទ្ធផលទទួលបាន៖*

```
1001  Lim  Male  90.000000      @▯ ~     ▯ü+▯ý▯  èûo      ZH     `êH          pÞH     ÀmH     €▯ I 1002  Kim  Male  67.000000
```

## ឧទាហរណ៍ ២៖ Read ទិន្នន័យចេញពីក្នុង files

```
#include <iostream>
#include <fstream>
#include<conio.h>
using namespace std;
int main()
{  fstream file;
    int code;
    char name[20];
    char sex[20];
    float score;
    char str[100];
   file.open("etec-student.bin",ios::in|ios::binary);
   if(!file)
   {
       cout<<"Error in creating file!!!"<<endl;
       return 0;
   }
   file.read((char*)str,sizeof(str));
   cout<<"        Students List          \n";
   cout<<"     ================================\n";
   cout<<"       Code   Name    Sex      Score\n";
   cout<<"     ================================\n";
    while (!file.eof()) {
        sscanf(str,"%d %s %s %f",&code,&name,&sex,&score);
        cout<<"       | "<<code<<"  "<<name<<"   "<<sex<<"    "<<score<<endl;
        cout<<"    ------------------------------------\n";
        file.read((char*)str,sizeof(str));
    }
    file.close();


   return 0;
}
```

លទ្ធផលទទួលបាន៖

```
     Students List
 ================================
   Code   Name    Sex      Score
 ================================
    1001  Lim   Male   90
 ------------------------------------
    1002  Kim   Male   67
 ------------------------------------
    1003  Vanna   Female   98
 ------------------------------------
    1004  Lyna   Female   50
 ------------------------------------
```

ឧទាហរណ៍ ៣៖

```cpp
#include<iostream>
#include<fstream>
using namespace std;
class Student
{
    char name[20];
    int mark;
public:
    void GetStudentData();
    void ShowStudentData();
};
void Student ::  GetStudentData()
{   cout << "Enter Student Name:" << endl;
    cin >> name;
    cout << "Enter Student Mark:" << endl;
    cin >> mark;
}
void Student ::  ShowStudentData()
{   cout << "Student Details are:" << endl;
    cout << "Name: " <<  name << endl
        << "Mark: " <<  mark << endl;
}
int main()
{   char ans='y';
    Student sobj;
    //We open student.dat in append mode
    ofstream out("student.dat", ios::app);
    if(out.is_open())
    {
        //Loop will continue until something other then y is entered
        cout<<"Press y to Continue....!";
        while( ans == 'y')
        {
            cout << endl << "Continue ?";
            cin >> ans;
            if(ans == 'y')
            {
                sobj.GetStudentData();
                out.write((char*) & sobj, sizeof(sobj));
            }
        }
    }
    out.close();
    ifstream in("student.dat");
    if(in.is_open())
    {
        while(!in.eof())
        {
            in.read((char*) &sobj, sizeof(sobj));
            if(!in.eof())
            {
            sobj.ShowStudentData();
            }
        }
    }
    in.close();
}
```

*លទ្ធផលទទួលបាន៖*

```
C:\Users\Etec Center\Documents\Untitled2.exe
Press y to Continue....!
Continue ?no
Student Details are:
Name: Sok
Mark: 78
Student Details are:
Name: Kim
Mark: 89

--------------------------------
Process exited after 5.956 seconds with return value 0
Press any key to continue . . .
```

*ឧទាហរណ៍ ៤៖*

```
#include <iostream>
#include <fstream>
#define FILE_NAME "emp.dat"

using namespace std;

//class employee declaration
class Employee {
private :
        int     empID;
        char    empName[100] ;
        char    designation[100];
        int     ddj,mmj,yyj;
        int     ddb,mmb,yyb;
public  :
        //function to read employee details
        void readEmployee(){
                cout<<"EMPLOYEE DETAILS"<<endl;
                cout<<"ENTER EMPLOYEE ID : " ;
                cin>>empID;
                cin.ignore(1);
                cout<<"ENTER  NAME OF THE EMPLOYEE : ";
                cin.getline(empName,100);

                cout<<"ENTER DESIGNATION : ";
                cin.getline(designation,100);

                cout<<"ENTER DATE OF JOIN:"<<endl;
                cout<<"DATE : "; cin>>ddj;
                cout<<"MONTH: "; cin>>mmj;
                cout<<"YEAR : "; cin>>yyj;

                cout<<"ENTER DATE OF BIRTH:"<<endl;
                cout<<"DATE : "; cin>>ddb;
                cout<<"MONTH: "; cin>>mmb;
                cout<<"YEAR : "; cin>>yyb;
        }
        //function to write employee details
        void displayEmployee(){
                cout<<"EMPLOYEE ID: "<<empID<<endl
                 <<"EMPLOYEE NAME: "<<empName<<endl
                 <<"DESIGNATION: "<<designation<<endl
                 <<"DATE OF JOIN: "<<ddj<<"/"<<mmj<<"/"<<yyj<<endl
                 <<"DATE OF BIRTH: "<<ddb<<"/"<<mmb<<"/"<<yyb<<endl;
        }
};
```

```
int main(){

        //object of Employee class
        Employee emp;
        //read employee details
        emp.readEmployee();

        //write object into the file
        fstream file;
        file.open(FILE_NAME,ios::out|ios::binary);
        if(!file){
                cout<<"Error in creating file...\n";
                return -1;
        }

        file.write((char*)&emp,sizeof(emp));
        file.close();
        cout<<"Date saved into file the file.\n";

        //open file again
        file.open(FILE_NAME,ios::in|ios::binary);
        if(!file){
                cout<<"Error in opening file...\n";
                return -1;
        }

        if(file.read((char*)&emp,sizeof(emp))){
                        cout<<endl<<endl;
                        cout<<"Data extracted from file..\n";
                        //print the object
                        emp.displayEmployee();
        }
        else{
                cout<<"Error in reading data from file...\n";
                return -1;
        }

        file.close();
        return 0;
}
```

## *លំហាត់អនុវត្តន៏១៖*

*គេមានទូវ* Class *មួយដូចខាងក្រោម៖*

```
class Products{
    private:
        int code;
        char name[20];
        int qty;
        float price;
    public:
       void Input();
       void Output();

};

  >>>>>>>> Menu <<<<<<<<<
    1. Write
    2. Read
    3. Search
    4. Exit
     Choose One=____
```

## លំហាត់អនុវត្តន៏ ៦៖

គេមានទូវ Class មួយដូចខាងក្រោម៖

```
class Dictionary{
    private:
        char word[20];
        char speech[20];
        char des[50];
    public:
       void Input();
       void Output();

};

  >>>>>>>> Menu <<<<<<<<<
    1. Write
    2. Read
    3. Search
    4. Delete
    4. Exit
     Choose One=____

```

4. Delete Content binary file

   នៅក្នុង C++ Programming អ្នកអាចធ្វើការលុបទិន្នន័យចេញពី File បានទៅតាមជំហានខាងក្រោមនេះ៖

```

// to remove the file
remove("name_of_file");

// to rename file1 as file2
rename("name-of_file1", "name_of_file2");

```

ឧទាហរណ៍ ៖

```
int pos, flag = 0;
   ifstream ifs;
   ifs.open("he.dat", ios::in | ios::binary);
   ofstream ofs;
   ofs.open("temp.dat", ios::out | ios::binary);
   while (!ifs.eof()) {
       ifs.read((char*)this, sizeof(abc));
       // if(ifs)checks the buffer record in the file
       if (ifs) {

           // comparing the roll no with
           // roll no of record to be deleted
           if (rno == roll) {
               flag = 1;
               cout << "The deleted record is \n";

               // display the record
               putdata();
           }
           else {
               // copy the record of "he" file to "temp" file
               ofs.write((char*)this, sizeof(abc));
           }
       }
   }
   ofs.close();
   ifs.close();
   // delete the old file
   remove("he.dat");
   // rename new file to the older file
   rename("temp.dat", "he.dat");
   if (flag == 1)
       cout << "\nrecord successfully deleted \n";
   else
       cout << "\nrecord not found \n";
```