



**Build Your IT Skill**

2020

ណែនាំស្តាប់ពី File Stream C++

Text File    Binary File





## ណែនាំអោយស្គាល់ពី

## File Stream C++

### 1. ដូចម្តេចទៅដែលហៅថា File Stream ?

File Stream សំដៅលើការរៀបចំការផ្ទុកទិន្នន័យជានិរន្តរ៍ពេលគឺមិន បាត់បង់ដូច ពីមុនទៀតទេ។ ការផ្ទុកទិន្នន័យលើ File គឺជាទិន្នន័យត្រូវយកទៅផ្ទុកលើ Hard Drive ដូចជា Hard Disk, USB, Memory ជាដើម។ ដើម្បីធ្វើការលើ File អ្នកត្រូវធ្វើការកាត់នូវ លក្ខណៈ ៗ យ៉ាងគឺ៖

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 ពេលគឺទិន្នន័យត្រូវធ្វើការកាត់ការបំប្លែងទិន្នន័យជាមុនសិន ដើម្បីយកផ្ទុក file ប្រភេទនេះគេអាចបើកមើលទិន្នន័យយល់ ជាធម្មតាគេចំណាំវាបានលើ (\*.txt) ។



## ឧទាហរណ៍ ១៖ ចូរធ្វើការ Write ទិន្នន័យចូលក្នុង File

```

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

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 File វិញ

```
1 //C++ program to write and read text in/from file.
2 #include <iostream>
3 #include <fstream>
4 using namespace std;
5 int main()
6 {
7     fstream file; //object of fstream class
8     //again open file in read mode
9     file.open("etec.txt",ios::in);
10    if(!file)
11    {
12        cout<<"Error in opening file!!!"<<endl;
13        return 0;
14    }
15    //read untill end of file is not found.
16    char ch; //to read single character
17    cout<<"File content: ";
18    while(!file.eof())
19    {
20        file>>ch; //read single character from file
21        cout<<ch;
22    }
23
24    file.close(); //close file
25    return 0;
26 }
```

លទ្ធផលទទួលបាន៖

C:\Users\Etec Center\Documents\Untitled1.exe

File content: ETECCenter,BuildYourITSkill1

-----  
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    }

```

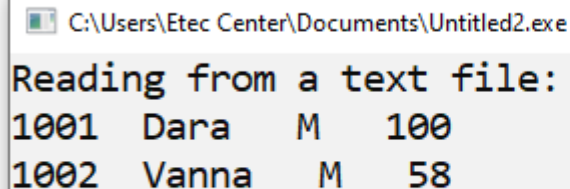
លទ្ធផលទិន្នន័យ៖

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 }
```

លទ្ធផលទទួលបាន៖



**ខាងក្រោមគឺជាប្រភេទ Class នៃ File ដូចជា៖**

- Ofstream: គឺជាប្រភេទ Stream ដែលប្រើប្រាស់សំរាប់ Write ទិន្នន័យ ចូល File និងអាចផ្ដើមឱ្យ Files ប្រសិនបើវាមិនទាន់មាននោះ។
- Ifstream: គឺជាប្រភេទ files Stream ដែលប្រើប្រាស់សំរាប់ធ្វើការ Read ទិន្នន័យ ចេញពីក្នុង 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 តែងទិន្នន័យចាស់ ។
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



## ឧទាហរណ៍ ៥៖ Write Data to files

```

1  #include<iostream>
2  #include<fstream>
3  using namespace std;
4  class Employee {
5  public:
6      // Instance variables
7      char Name[20];
8      char sex;
9      int age;
10 };
11 int main()
12 {
13     int n,i;
14     ofstream file_obj;
15     file_obj.open("Employee.txt", ios::app);
16     Employee obj;
17     cout<<"Input Number of Employee=";cin>>n;
18     for(i=0;i<n;i++)
19     {
20         cout<<"Input Name=";cin>>obj.Name;
21         cout<<"Input Sex[M/F]=";cin>>obj.sex;
22         cout<<"Input Age=";cin>>obj.age;
23         file_obj.write((char*)&obj, sizeof(obj));
24     }
25     file_obj.close();
26     return 0;
27 }

```

## លទ្ធផលទទួលបាន៖

```

1  Sok yyyEè@    M    Vanna yyEè@    M    Kim yyyEè@    F    "    Ly yyyEè@    M

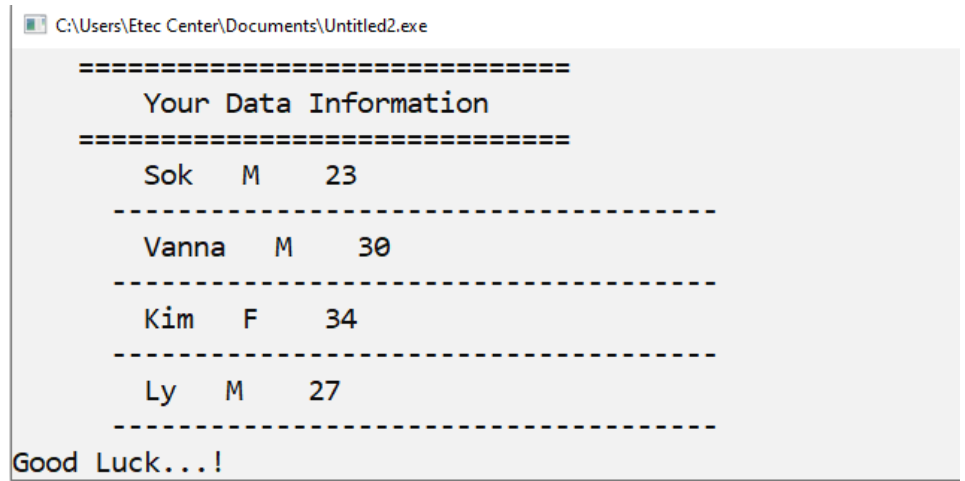
```



ឧទាហរណ៍ ៦៖ Read data from file

```
1  #include<iostream>
2  #include<fstream>
3  using namespace std;
4  class Employee {
5  public:
6      // Instance variables
7      char Name[20];
8      char sex;
9      int age;
10 };
11 int main()
12 { Employee obj;
13   ifstream file_obj;
14   file_obj.open("Employee.txt", ios::in);
15   file_obj.read((char*)&obj, sizeof(obj));
16   cout<<"      =====\n";
17   cout<<"      Your Data Information\n";
18   cout<<"      =====\n";
19   while (!file_obj.eof()) {
20       cout<<"      "<<obj.Name<<"      "<<obj.sex<<"      "<<obj.age<<endl;
21       cout<<"      -----\n";
22       file_obj.read((char*)&obj, sizeof(obj));
23   }
24   cout<<"Good Luck...!\n";
25   return 0;
26 }
```

លទ្ធផលទទួលបាន៖



```
=====
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) ត្រូវបំប្លែងជា Binary Data ជាមុនសិន។

ឧទាហរណ៍ ១៖ Write ទិន្នន័យចូលក្នុង files

```

1  #include <iostream>
2  #include <fstream>
3  #include<conio.h>
4  using namespace std;
5  int main()
6  { fstream file;
7    int code;
8    char name[20];
9    char sex[20];
10   float score;
11   char str[100];
12   do{ system("cls");
13     file.open("etec-student.bin",ios::app|ios::binary);
14     if(!file)
15     {
16       cout<<"Error in creating file!!!"<<endl;
17       return 0;
18     }
19     cout<<">>>Start Input Data>>>"<<endl;
20     cout<<"Input Code=";cin>>code;
21     cin.ignore();
22     cout<<"Input Name=";cin.getline(name,20);
23     cout<<"Input Sex=";cin>>sex;
24     cout<<"Input Score=";cin>>score;
25     //make string to write
26     sprintf(str,"%d %s %s %f",code,name,sex,score);
27     //write into file
28     file.write(str,sizeof(str));
29     cout<<"<<str<<"\nhas been written into file...."<<endl;
30     file.close();
31     cout<<"Write Completed!"<<endl;
32     file.close();
33     cout<<"Press Enter to Continue....!";
34   }while(getch()!='\n');
35   return 0;
36 }
```

លទ្ធផលទទួលបាន៖

1001 Lim Male 90.000000 @ ~ ü+ ý èúo ZH `êH pBH ÀmH € I 1002 Kim Male 67.000000

## ឧទាហរណ៍ ២៖ Read ទិន្នន័យចេញពីក្នុង files

```

1  #include <iostream>
2  #include <fstream>
3  #include<conio.h>
4  using namespace std;
5  int main()
6  { fstream file;
7    int code;
8    char name[20];
9    char sex[20];
10   float score;
11   char str[100];
12   file.open("etec-student.bin",ios::in|ios::binary);
13   if(!file)
14   {
15       cout<<"Error in creating file!!!"<<endl;
16       return 0;
17   }
18   file.read((char*)str,sizeof(str));
19   cout<<"      Students List          \n";
20   cout<<"      =====\n";
21   cout<<"      Code   Name   Sex       Score\n";
22   cout<<"      =====\n";
23   while (!file.eof()) {
24       sscanf(str,"%d %s %s %f",&code,&name,&sex,&score);
25       cout<<"      | "<<code<<"   "<<name<<"   "<<sex<<"   "<<score<<endl;
26       cout<<"      -----\n";
27       file.read((char*)str,sizeof(str));
28   }
29   file.close();
30
31
32   return 0;
33 }
```

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៖

```
1 #include<iostream>
2 #include<fstream>
3 using namespace std;
4 class Student
5 {
6     char name[20];
7     int mark;
8 public:
9     void GetStudentData();
10    void ShowStudentData();
11 };
12 void Student :: GetStudentData()
13 { cout << "Enter Student Name:" << endl;
14   cin >> name;
15   cout << "Enter Student Mark:" << endl;
16   cin >> mark;
17 }
18 void Student :: ShowStudentData()
19 { cout << "Student Details are:" << endl;
20   cout << "Name: " << name << endl;
21     << "Mark: " << mark << endl;
22 }
23 int main()
24 { char ans='y';
25   Student sobj;
26   //We open student.dat in append mode
27   ofstream out("student.dat", ios::app);
28   if(out.is_open())
29   {
30       //Loop will continue until something other than y is entered
31       cout<<"Press y to Continue....!";
32       while( ans == 'y')
33       {
34           cout << endl << "Continue ?";
35           cin >> ans;
36           if(ans == 'y')
37           {
38               sobj.GetStudentData();
39               out.write((char*) & sobj, sizeof(sobj));
40           }
41       }
42   }
43   out.close();
44   ifstream in("student.dat");
45   if(in.is_open())
46   {
47       while(!in.eof())
48       {
49           in.read((char*) &sobj, sizeof(sobj));
50           if(!in.eof())
51           {
52               sobj.ShowStudentData();
53           }
54       }
55   }
56   in.close();
57 }
```



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 ២៖

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

### លំហាត់អនុវត្តទី១៖

គេមាននូវ Class មួយដូចខាងក្រោម៖

```
1 class Products{
2     private:
3         int code;
4         char name[20];
5         int qty;
6         float price;
7     public:
8         void Input();
9         void Output();
10
11 };
12
13 >>>>>>> Menu <<<<<<<<
14 1. Write
15 2. Read
16 3. Search |
17 4. Exit
18 | Choose One=___
19
```

## លំហាត់អនុវត្តន៍ ២៖

គេមាននូវ Class មួយដូចខាងក្រោម៖

```
1 class Dictionary{
2     private:
3         char word[20];
4         char speech[20];
5         char des[50];
6     public:
7         void Input();
8         void Output();
9
10 };
11
12 >>>>>>> Menu <<<<<<<<<
13     1. Write
14     2. Read
15     3. Search
16     4. Delete
17     4. Exit
18     Choose One=____
19
```

### 4. Delete Content binary file

នៅក្នុង C++ Programming អ្នកអាចធ្វើការលុបទិន្នន័យចេញពី File បានទៅតាម  
ជំហានខាងក្រោមនេះ៖

```
2
3 // to remove the file
4 remove("name_of_file");
5
6 // to rename file1 as file2
7 rename("name-of_file1", "name_of_file2");
```

ឧទាហរណ៍ ៖

```
1  int pos, flag = 0;
2  ifstream ifs;
3  ifs.open("he.dat", ios::in | ios::binary);
4  ofstream ofs;
5  ofs.open("temp.dat", ios::out | ios::binary);
6  while (!ifs.eof()) {
7      ifs.read((char*)this, sizeof(abc));
8      // if(ifs) checks the buffer record in the file
9      if (ifs) {
10
11          // comparing the roll no with
12          // roll no of record to be deleted
13          if (rno == roll) {
14              flag = 1;
15              cout << "The deleted record is \n";
16
17              // display the record
18              putdata();
19          }
20          else {
21              // copy the record of "he" file to "temp" file
22              ofs.write((char*)this, sizeof(abc));
23          }
24      }
25  }
26  ofs.close();
27  ifs.close();
28  // delete the old file
29  remove("he.dat");
30  // rename new file to the older file
31  rename("temp.dat", "he.dat");
32  if (flag == 1)
33      cout << "\nrecord successfully deleted \n";
34  else
35      cout << "\nrecord not found \n";
```