

2020

ណែនាំស្គាល់ពី File ក្នុង C Programming Text File | Binary File



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នៃវានាំអោយស្គាល់ពី Files មេសំ C Programming

I. ដូចម្ដេចទៅដែលហៅថា File?

File គឺសំដៅលើកាវផ្ទុកទិត្តន័យជានិវត្តពោលគឺទិត្តន័យត្រូវយកទៅផ្ទុកនៅលើ Internal ឬ External Storage អាចជា Hard Disk ជាដើម។ ការយកទិត្តន័យទៅផ្ទុកនៅលើ file ទិត្តន័យ និងមិនត្រូវបាត់បង់នោះទេនៅពេលដែលយើងបិទកម្មវិធី ឬ បិទកុំព្យូទ័រជាដើម។



- l. ប្រភេទនៃ Files
 - ១. Text File: គឺជាប្រភេទ File ការផ្ទុកទិត្តន័យរបស់វាមានលក្ខណះជា Text data ពោលគឺទិត្តន័យអ្នកអាចបើកមើលវាយល់បានដោយវាមិនបានបំលែង ទិត្តន័យទាំងនោះទេ។ ប្រភេទflile មួយនេះអ្នកអាចបើប្រាស់នូវ កន្ទុយជាប្រភេទ (.txt) ដែលអ្នកងាយស្រួលមើលបាននៅលើNotepage ។ ដើម្បីធ្វើការ Accessing លើ File បានអ្នកអាចបើប្រាស់នូវជំហានខាងក្រោម៖
 - ✓ Creating a new file
 - ✓ Opening an existing file
 - ✓ Closing a file
 - ✓ Reading from and writing information to a file
 - fscanf() & fprintf()
 - fgets() & fputs()



ការបើកនូវ file របស់ C Programming៖

```
    fopen("E:\\cprogram\\newprogram.txt","w");
    fopen("E:\\cprogram\\oldprogram.bin","rb");
```

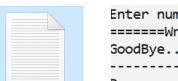
ឧទាឋាវណ៏ ១៖ ការ Write ទិត្តន័យចូលក្នុង Files ជាមួយឆិង fprintf

```
#include <stdio.h>
 2 #include <stdlib.h>
 3
   int main()
4 ₽ {
 5
       int num;
 6
       FILE *fptr;
 7
       fptr = fopen("ETEC1.txt","w");
 8
       if(fptr == NULL)
 9 🖨
10
          printf("Error!");
11
          exit(1);
12
13
       printf("Enter num: ");
       scanf("%d",&num);
14
15
      fprintf(fptr,"%d",num);
       printf("======Write Completed======\n");
16
17
       printf("GoodBye....!");
18
       fclose(fptr);
19
       return 0;
20 L }
```

C:\Users\Etec Center\Documents\Untitled001.exe

Press any key to continue . . .

លទ្ធផលទទួលបាន៖



```
Enter num: 200
======Write Completed=====

GoodBye...!
------

Process exited after 5.975 seconds with return value 0
```



ឧទាឋារណ៏ ២៖ ការ Read ទិន្នន័យចេញពីក្នុង Files ជាមួយនិង fscanf

```
1 #include <stdio.h>
 2 #include <stdlib.h>
 3 int main()
 4 □ {
 5
        int num;
 6
        FILE *fptr;
 7 🛱
        if ((fptr = fopen("ETEC1.txt", "r")) == NULL){
            printf("Error! opening file");
 8
 9
            // Program exits if the file pointer returns NULL.
10
            exit(1);
11
12
        fscanf(fptr,"%d", &num);
13
        printf("Value of n=%d", num);
14
        fclose(fptr);
                         C:\Users\Etec Center\Documents\Untitled001.exe
15
                        Value of n=200
16
        return 0;
17 <sup>∟</sup> }
                        Process exited after 0.03118 seconds with return value 0
                        Press any key to continue . . .
```

ឧទាហរណ៏ ៣៖ ការ Write ទិត្តន័យចូលក្នុង Files ជាមួយនិង fprintf

```
1 #include <stdio.h>
 2 □ main() {
 3
        FILE *fp;
 4
       fp = fopen("ETEC1.txt", "w");
 5
       if(fp == NULL)
 6 🖨
 7
            printf("Error!");
 8
           exit(1);
 9
10
        fprintf(fp, "Welcome to ETEC CENTER, Build Your IT Skill!\n");
11
12
        fclose(fp);
        printf("Write Success!");
13
14 <sup>L</sup> }
15
     C:\Users\Ftec Center\Documents\Untitled001.exe
     Write Success!
     Process exited after 0.03453 seconds with return value 14
     Press any key to continue . . .
```



ឧទាបារណ៏ ៤៖ ការ Read ទិន្នន័យចេញពីក្នុង Files ជាមួយនិង fscanf

```
#include <stdio.h>
 2 □ main() {
        FILE *fp;
 3
 4
        char ch;
 5
        fp = fopen("ETEC1.txt", "r");
 6
       if(fp == NULL)
 7 申
 8
            printf("Error!");
 9
            exit(1);
10
11
12
       while(fscanf(fp, "%c", &ch)!= EOF)
13 □
        printf("%c",ch);
14
15
16
                          C:\Users\Etec Center\Documents\Untitled001.exe
17
                         ETEC CENTER Build Your IT Skill...!
18 <sup>L</sup> }
19
                         Process exited after 0.03469 seconds with return value
                         Press any key to continue . . .
```

ឧទាហរណ៏ ៥៖ ការ Write ទិន្នន័យចូលក្នុង Files ជាមួយនិង fput

```
#include <stdio.h>
 2 □ main() {
        FILE *fp;
 3
 4
        char text[50];
 5
        fp = fopen("ETEC1.txt", "r");
 6
       if(fp == NULL)
 7 白
 8
            printf("Error!");
 9
            exit(1);
10
11
       printf("Input Text=");
12
       gets(text);
13
       fputs(text, fp);
14
        printf("Write to Succesfully....!");
15
        fclose(fp);
16
17 <sup>∟</sup> }
18
         C:\Users\Etec Center\Documents\Untitled001.exe
19
        Input Text=Welcome to ETEC CENTER...!
20
        Write to Succesfully....!
```



ឧទាហវណ៏ ៦៖ កាវ Write ទិត្តន័យចូលក្នុង Files ជាមួយនិង fget

```
1
    #include <stdio.h>
 2 □ main() {
 3
        FILE *fp;
        char buffer[255];
 4
 5
        fp = fopen("ETEC1.txt", "r");
 6
       if(fp == NULL)
7 白
           printf("Error!");
 8
 9
           exit(1);
10
11
       while(fgets(buffer, 255, fp) != NULL)
12
13 □
           printf("%s",buffer);
14
15
16
17 <sup>∟</sup> }
18
    C:\Users\Etec Center\Documents\Untitled001.exe
   ETEC CENTER Build Your IT Skill...!
   Process exited after 0.02978 seconds with return value 0
   Press any key to continue . . .
```

ខាងក្រោមគឺជាប្រភេទនៃ Mode File ដែលសំខាន់ៗជាមួយនិង Text File៖

| Mode File | អត្ថន័យ |
|-----------|----------------------|
| r | Read ទិន្នន័យ |
| w | Write ទិន្នន័យ |
| а | Append ទិន្នន័យ |
| r+ | Read/Write ទិន្នន័យ |
| W+ | Write/ Read ទិន្នន័យ |
| a+ | Read/Write/ Append |



ឧទាបារណ៏ ៧៖

```
#include<stdio.h>
    #include<stdlib.h>
 4
    int main()
 5 □ {
 6
        FILE *fp;
 7
        char name[50];
 8
        int roll_no, chars, i, n;
 9
        float marks;
10
        fp = fopen("records.txt", "a");
11
        if(fp == NULL)
12 🖨
13
            printf("Error opening file\n");
14
            exit(1);
15
        printf("Testing fprintf() function: \n\n");
16
        printf("Enter the number of records you want to enter: ");
17
18
        scanf("%d", &n);
19
        for(i = 0; i < n; i++)
20 🗀
21
            fflush(stdin);
22
            printf("\nEnter the details of student %d \n\n", i +1);
23
            printf("Enter name of the student: ");
24
            gets(name);
25
            printf("Enter roll no: ");
            scanf("%d", &roll_no);
26
            printf("Enter marks: ");
27
28
            scanf("%f", &marks);
            chars = fprintf(fp, "%s
29
                                             %f",
                                       %d
30
                 name, roll_no, marks);
31
           printf("\n%d characters successfully written to the file\n\n", chars);
32
33
        fclose(fp);
34
        return 0;
35 L }
```



```
#include<stdio.h>
 2
    #include<stdlib.h>
 3
 4
    int main()
 5 □ {
 6
        FILE *fp;
 7
        char name[50];
 8
        int roll_no, chars;
 9
        float marks;
10
        fp = fopen("records.txt", "r");
11
12
        if(fp == NULL)
13 □
14
            printf("Error opening file\n");
            exit(1);
15
16
        printf("Testing fscanf() function: \n\n");
17
18
        printf("Name:\t\tRoll\t\tMarks\n");
19
                                       %f"
20
        while( fscanf(fp, "%s
                                  %d
21
                         , name, &roll_no, &marks) != EOF )
22 □
23
            printf("%s\t\t%d\t\t%.2f\n", name, roll_no ,marks);
24
25
        fclose(fp);
26
        return 0;
27 L }
```

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```
Testing fscanf() function:

Name: Roll Marks
Sok 1001 67.90
Vanny 1002 76.00

Process exited after 0.03039 seconds with return value 0
Press any key to continue . . .
```



២) Binary File: គឺជាប្រភេទ File មួយប្រភេទទៀតដែលការ read និង write ទិន្នន័យរបស់វាត្រូវបានបំលែងអោយទៅជា binary data ពោលគឺយើងមិនអាច មើលយល់ និង មានសុវត្តិភាពល្អទៀតផង់, ទំហំផ្ទុកទិន្នន័យរបស់វាអាចផ្ទុកបានច ព្រឹត្ត។

| Mode File | អត្ថន័យ |
|-----------|----------------------|
| rb | Read ទិន្នន័យ |
| wb | Write ទិន្នន័យ |
| ab | Append ទិន្នន័យ |
| rb+ | Read/Write ទិន្នន័យ |
| wb+ | Write/ Read ទិន្នន័យ |
| ab+ | Read/Write/ Append |

ឧទាឋាវណ៏ ១៖ ចូវសវសេវកូដ Write Binary file

```
#include<stdio.h>
 2
        struct rec
 3 □
 4
             int x;
 5
 6
        int main()
 7 □
 8
             int i;
 9
             FILE *ptr_myfile;
10
             struct rec my_record;
11
             ptr_myfile=fopen("etec.bin","wb");
12
13
             if (!ptr_myfile)
14 🖨
15
                 printf("Unable to open file!");
16
                 return 1;
17
18
             for ( i=1; i <= 10; i++)
19 🖨
20
                 my_record.x= i;
                 fwrite(&my_record, sizeof(struct rec), 1, ptr_myfile);
21
22
23
             printf("Write Succesful.....!");
             fclose(ptr_myfile);
24
25
             return 0;
26
        }
27
```



ឧទាឋារណ៏ ២៖ ចូរសរសេរកូដ Read Binary file

```
#include<stdio.h>
 2
 3
         /* Our structure */
 4
         struct rec
 5 □
 6
              int x;
 7 L
         };
 8
 9
         int main()
10 □
11
              int counter;
12
              FILE *ptr_myfile;
13
              struct rec my_record;
14
15
              ptr_myfile=fopen("etec.bin","rb");
16
              if (!ptr_myfile)
17 白
18
                  printf("Unable to open file!");
19
                  return 1;
20
21
              for ( counter=1; counter <= 10; counter++)</pre>
22 🖨
23
                  fread(&my_record, sizeof(struct rec), 1, ptr_myfile);
24
                  printf("%d\n",my_record.x);
25
26
              fclose(ptr_myfile);
27
              return 0;
28
29
                                           C:\Users\Etec Center\Documents\0003.exe
                                          1
                                          2
3
4
5
6
7
8
9
 លទ្ធផលទទួលបាន៖
```



ឧទាឋាវណ៏ ៣៖ ចូវសវសេវកូដ Write Binary file

```
#include<stdio.h>
 2
        struct Students
 3 □
 4
            int id;
 5
            char name[20];
 6
            char sex;
 7
            float score;
 8
        };
9
        int main()
10 □
11
            int i,n;
12
            FILE *ptr_myfile;
13
            struct Students stu;
14
            ptr_myfile=fopen("students.bin","wb");
15
            if (!ptr_myfile)
16 🖨
17
                printf("Unable to open file!");
18
                return 1;
19
            printf("Input Number of Students:");
20
21
            scanf("%d",&n);
22
            for ( i=0; i <n; i++)
23 🖨
                printf("========\n",i+1);
24
25
                printf("Input ID=");scanf("%d",&stu.id);
26
                fflush(stdin);
27
                printf("Input Name=");scanf("%s",&stu.name);
28
                fflush(stdin);
29
                printf("Input Gender=");scanf("%c",&stu.sex);
30
                printf("Input Score=");scanf("%f",&stu.score);
31
                fwrite(&stu, sizeof(struct Students), 1, ptr_myfile);
32
33
            printf("Write Succesful.....!");
34
            fclose(ptr_myfile);
35
            return 0;
36
```

លទ្ធផលទទួលបាន៖

```
C:\Users\Etec Center\Documents\002.exe
Input Number of Students:3
Input ID=1001
Input Name=LY
Input Gender=M
Input Score=56
Input ID=1002
Input Name=Sy
Input Gender=F
Input Score=67
Input ID=1003
Input Name=Dim
Input Gender=M
Input Score=90
Write Succesful....!
```



ឧទាឋាវណ៏ ៤៖ ចូវសវសេវកូដ Read Binary file

```
#include<stdio.h>
           1
            2
                  struct Students
           3 □
            4
                      int id;
            5
                      char name[20];
            6
                      char sex;
            7
                      float score;
            8
                  };
            9
                  int main()
           10 □
           11
                      int i=1,n;
           12
                      FILE *ptr_myfile;
           13
                      struct Students stu;
           14
           15
                      ptr_myfile=fopen("students.bin","rb");
           16
                      if (!ptr_myfile)
           17 🖨
           18
                         printf("Unable to open file!");
           19
                         return 1;
           20
           21
           22
                  while(1==fread(&stu, sizeof(struct Students), 1, ptr_myfile))
           23 🖨
           24
           25
                         printf("========\n",i);
           26
                         printf("ID=%d\n", stu.id);
                         printf("Name=%s\n", stu.name);
           27
                         printf("Gender=%c\n",stu.sex);
           28
                         printf("Score=%f\n", stu.score);
           29
           30
                         i++;
           31
           32
                      printf("Write Succesful.....!");
           33
                      fclose(ptr_myfile);
           34
                      return 0;
           35
           36
                     C:\Users\Etec Center\Documents\0003.exe
                     ID=1001
                    Name=LY
                    Gender=M
លទ្ធផលទទួលបាន៖
                    Score=56.000000
                     ID=1002
                    Name=Sy
                    Gender=F
                    Score=67.000000
                     ID=1003
                    Name=Dim
                    Gender=M
```

H/P: 096 226 888 4/ 077358884

Score=90.000000 Write Succesful....!



<u>លំហាត់អនុវត្តន៏</u>

គេមាននូវ Structure មួយដូចខាងក្រោម៖

ចូវបង្កើតឆូវ Menu ដូចខាងក្រោម៖

II. ការលុបទិន្នន័យចេញពី Files

ការលុបទិត្តន័យចេញពី File វាមិនសូវស្រួលដូចការលុបទិត្តន័យចេញពី Ram(Array) នោះទេមានន័យថា អ្នកបាន Write ទិត្តន័យរបស់អ្នកទៅផ្ទុកក្នុង file ប្រៀបបាន និងយកទិត្តន័យទៅផ្ទុកលើក្រដាសសរមួយសន្លឹកផង់ដែរ វានៅជាប់ និង ក្រដាសនោះ។ ខាងក្រោមជាជំហានក្នុងការលុបទិត្តន័យចេញពីក្នុង file មួយ៖

- 1. Search / ស្នែងរកធាតុណាមួយដែលត្រូវលប់ពី Files
- 2. Write តែធាតុណាដែលខុសពីធាតុដែលលុបចូលក្នុង File ថ្មី (tmp)
- 3. Delete File ថាស់ចោល
- 4. Rename file ថ្មី ទៅជាឈ្មោះ file ថ្មី



ឧទាឋាវណ៏ ៖

```
1
    #include<stdio.h>
 2
        struct Students
 3 □
 4
             int id;
 5
             char name[20];
 6
             char sex;
 7
             float score;
 8
 9
10
        void WriteFile( struct Students stu)
11 □
            FILE *ptr myfile;
12
            int i,n;
13
             ptr_myfile=fopen("students.bin","ab");
14
               if (!ptr_myfile)
15
                     printf("Unable to open file!");
16
17
                     return 1;
18
19
                printf("Input Number of Students:");
                scanf("%d",&n);
20
21
              for ( i=0; i <n; i++)
22 🗀
                printf("=======\n",i+1);
23
                printf("Input ID=");scanf("%d",&stu.id);
24
25
                fflush(stdin);
26
                printf("Input Name=");scanf("%s",&stu.name);
27
                fflush(stdin);
                printf("Input Gender=");scanf("%c",&stu.sex);
28
29
                printf("Input Score=");scanf("%f",&stu.score);
                fwrite(&stu, sizeof(struct Students), 1, ptr_myfile);
30
31
32
                printf("Write Succesful.....!");
33
                fclose(ptr_myfile);
34
35
10
        void WriteFile( struct Students stu)
11 ⊟
           FILE *ptr_myfile;
12
            int i,n;
13
             ptr_myfile=fopen("students.bin","ab");
14
              if (!ptr_myfile)
15 白
                   printf("Unable to open file!");
16
17
                   return 1;
18
19
               printf("Input Number of Students:");
20
                scanf("%d",&n);
21
              for ( i=0; i <n; i++)
22 🗀
                printf("========\n",i+1);
23
24
                printf("Input ID=");scanf("%d",&stu.id);
25
                fflush(stdin);
                printf("Input Name=");scanf("%s",&stu.name);
26
27
                fflush(stdin);
                printf("Input Gender=");scanf("%c",&stu.sex);
28
                printf("Input Score=");scanf("%f",&stu.score);
29
30
                fwrite(&stu, sizeof(struct Students), 1, ptr_myfile);
31
                printf("Write Succesful.....!");
32
33
                fclose(ptr_myfile);
34
35
```



```
36
         void readFile(struct Students stu)
                 FILE *ptr_myfile;
37 ⊟
38
                 int i=0;
39
                 ptr_myfile=fopen("students.bin", "rb");
40
                 if (!ptr_myfile)
41 🖨
42
                     printf("Unable to open file!");
43
                     return 1;
44
                 }
45
46
                 while(1==fread(&stu, sizeof(struct Students), 1, ptr_myfile))
47白
48
                 printf("========\n",i);
49
                 printf("ID=%d\n",stu.id);
50
                 printf("Name=%s\n", stu.name);
                 printf("Gender=%c\n",stu.sex);
51
52
                 printf("Score=%f\n", stu.score);
53
                 i++;
54
55
                 printf("Write Succesful.....!");
56
                 fclose(ptr_myfile);
57
58
         void deleteFile(struct Students stu)
59 □
60
         FILE *fp;
61
         FILE *fp_tmp;
62
         char sname[20];
63
         int found=0;
64
         fp=fopen("students.bin", "rb");
         if (!fp)
65 E
66
             printf("Unable to open file %s", sname);
67
             return -1;
68
69
         fp_tmp=fopen("tmp.bin", "wb");
70 🖹
         if (!fp_tmp) {
71
             printf("Unable to open file temp file.");
72
             return -1;
73
74
         printf("Input Name to Search=");
75
         scanf("%s",sname);
76 🖨
         while (fread(&stu,sizeof(struct Students),1,fp) != NULL) {
77 🖨
             if (strcmp (sname, stu.name) == 0) {
78
                 printf("A record with requested name found and deleted.\n\n");
79
                 found=1;
80
             } else +
81
                 fwrite(&stu, sizeof(struct Students), 1, fp_tmp);
82
83
84 🖨
         if (!found) {
85
             printf("No record(s) found with the requested name: %s\n\n", sname);
86
87
88
         fclose(fp);
89
         fclose(fp_tmp);
90
91
         remove("students.bin");
92
         rename("tmp.bin", "students.bin");
93
94
95
         int main()
96 □
97
             int i,n,op;
98
99
             struct Students stu;
100 🖹
         do{ system("cls");
             printf(">>>> 1. Write\n");
101
             printf(">>>> 2. Read\n");
102
```

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```
103
              printf(">>>> 3. Deleted\n");
104
              printf("Choose One=");
              scanf("%d",&op);
105
106
              switch(op)
107 🖨
108 🖨
              case 1:{
109
                  WriteFile(stu);
110
              }break;
111 🖨
              case 2:{
112
                  readFile(stu);
113
                  break;
114
115 🗀
              case 3:{
116
                  deleteFile(stu);
117
                  break;
118
119
120
          printf("\nPress Enter to Continue.....!");
121
         }while(getch()==13);
122
              return 0;
123
124
```

```
លទ្ធផលទទួលបាន៖
```

```
C\Users\Etec Center\Documents\002.exe
>>>> 1. Write
>>>> 2. Read
>>>> 3. Deleted
Choose One=2
=========Record #0===========
ID=1002
Name=Lim
Gender=M
Score=56.000000
Write Succesful....!
Press Enter to Continue....!
```

<u>លំហាត់អនុវត្តន៏</u>

ចូរបន្ថែមលើ Menu ពីរខាងក្រោមទៀតទៅលើ code ខាងលើ៖

- 4. Update
- 5. Sort
- 6. Exit



- III. Random Access to File
 អ្នកអាចធ្វើការជាមួយនិង file ឬ អាចចល័តនូវ Pointer ដើម្បីរំកិលទីតាំងរបស់
 file ទៅតាមការចង់បានរបស់អ្នក។
 - 1. fseek(): គឺជាប្រភេទ function ដែលមានតួនាទីវំកិលទីតាំងក្នុងការចល័ត ទិន្នន័យរបស់ flle ។

fseek(file pointer, displacement, pointer position)

| 7 | | |
|----|-------|--------------------|
| 8 | Value | pointer position |
| 9 | 0 | Beginning of file. |
| 10 | 1 | Current position |
| 11 | 2 | End of file |
| 12 | | |

ឧទាបាវណ៏ ៖

- fseek(p,10L,0): មានន័យថារំកិលទីតាំង Pointer ពីទីតាំង O
 និង វំលងចំនួន 10 Bytes ពីទីតាំង 0 នៃ p។
- ◆ fseek(p,5L,1): លេខ 1 មានន័យថាលើទីតាំងកំពុងឈរនៅ
 (current Location) និង វំលង់ 5 bytes ។
- fseek(p,-5L,1): មានន័យថា រំកិល Pointer ពីទីតាំងកំពុងនៅ ថយចំនួន 5 bytes។
 - ✓ SEEK_SET(0): ទីតាំងចាប់ផ្តើមនៃ files
 - ✓ SEEK_CUR(1): ទីតាំងកំពុងតែនៅឈា៖
 - 🗸 SEEK_END(2): ទីតាំងឋញ្ជប់

រៀបរៀងដោយសាស្ត្រាចារ្យៈ បោង ភក្តិណា អនុបណ្ឌិតពត៏មានវិទ្យា ឯកទេសបង្កើតកម្មវិធី H/P: 096 226 888 4/ 077358884



ឧទាឋាវណ៏ ១៖

```
1 #include <stdio.h>
 3 □ int main () {
       FILE *fp;
 5
       char c;
       fp = fopen("etec001.txt","w+");
 6
 7
       fputs("ETEC CENTER, Build your IT Skill", fp);
 8
 9
      fseek( fp, 12, SEEK_SET );
10
       fputs(" IT Trainning Center", fp);
11
       fclose(fp);
12
13
       //Read file
14
       fp = fopen("etec001.txt","r");
15
16 🖨
       while(1) {
17
         c = fgetc(fp);
          if( feof(fp) ) {
18 🖨
19
              break;
20
21
          printf("%c", c);
22
23
       fclose(fp);
24
25
       return(0);
26 <sup>L</sup> }
```

```
ETEC CENTER, IT Trainning Center

-------

Process exited after 0.03613 seconds with return value 0

Press any key to continue . . .
```

- 2. ftell(): ច្រើសំរាប់ប្រាប់ទំហំទាំងមូលរបស់ file ដែលចាប់ពីទីតាំង currents ទៅ ។
- 3. rewind(): ច្រើប្រាស់សំរាប់រកិលទីតាំង Pointer មកទីតាំងដើមវិញ។

======The END======

Good Luck...!