“Build Your IT Skill”

2020

ណែនាំស្គាល់ពី File ក្នុង C Programming

Text File | Binary File

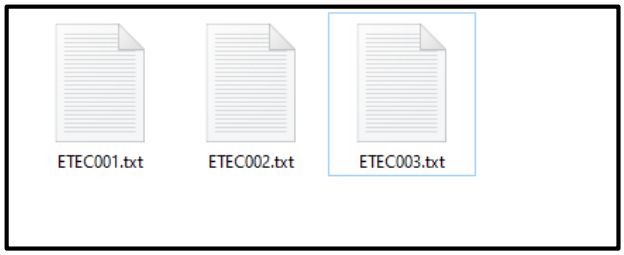
096 226 8884

077 35 8884

ណែនាំអោយស្គាល់ពី Files របស់ C Programming

I. ដូចម្តេចទៅដែលហៅថា File?

File គឺសំដៅលើការផ្ទុកទិន្នន័យជានិរន្តពោលគឺទិន្នន័យត្រូវយកទៅផ្ទុកនៅលើ Internal ឬ External Storage អាចជា Hard Disk ជាដើម។ ការយកទិន្នន័យទៅផ្ទុកនៅលើ file ទិន្នន័យនឹងមិនត្រូវបាត់បង់នោះទេនៅពេលដែលយើងបិទកម្មវិធី ឬ បិទកុំព្យូទ័រជាដើម។



I. ប្រភេទនៃ Files

១. Text File: គឺជាប្រភេទ File ការផ្ទុកទិន្នន័យរបស់វាមានលក្ខណៈជា Text data ពោលគឺទិន្នន័យអ្នកអាចបើកមើលវាយល់បានដោយវាមិនបានបំលែងទិន្នន័យទាំងនោះទេ។ ប្រភេទflile មួយនេះអ្នកអាចប្រើប្រាស់ងូវ កន្ទុយជាប្រភេទ (.txt) ដែលអ្នកងាយស្រួលមើលបាននៅលើNotepage ។

ដើម្បីធ្វើការ Accessing លើ File បានអ្នកអាចប្រើប្រាស់នូវដំហានខាងក្រោម៖

- ✓ Creating a new file
- ✓ Opening an existing file
- ✓ Closing a file
- ✓ Reading from and writing information to a file
  - ❖ fscanf() & fprintf()
  - ❖ fgets() & fputs()

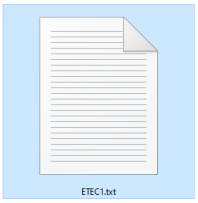
ការបើកឯកសារ file របស់ C Programming៖

```
1. fopen("E:\\cprogram\\newprogram.txt","w");
2.
3. fopen("E:\\cprogram\\oldprogram.bin","rb");
```

ឧទាហរណ៏ ១៖ ការ Write ទិន្នន័យចូលក្នុង Files ជាមួយនឹង fprintf

```c
#include <stdio.h>
#include <stdlib.h>
int main()
{
    int num;
    FILE *fptr;
    fptr = fopen("ETEC1.txt","w");
    if(fptr == NULL)
    {
        printf("Error!");
        exit(1);
    }
    printf("Enter num: ");
    scanf("%d",&num);
    fprintf(fptr,"%d",num);
    printf("=======Write Completed=======\n");
    printf("GoodBye....!");
    fclose(fptr);
    return 0;
}
```

លទ្ធផលទទួលបាន៖




```
C:\Users\Etec Center\Documents\Untitled001.exe
Enter num: 200
=======Write Completed=======
GoodBye....!
--------------------------------
Process exited after 5.975 seconds with return value 0
Press any key to continue . . .
```

ឧទាហរណ៏ ២៖ ការ Read ទិន្នន័យចេញពីក្នុង Files ជាមួយនិង fscanf

```c
#include <stdio.h>
#include <stdlib.h>
int main()
{
    int num;
    FILE *fptr;
    if ((fptr = fopen("ETEC1.txt","r")) == NULL){
        printf("Error! opening file");
        // Program exits if the file pointer returns NULL.
        exit(1);
    }
    fscanf(fptr,"%d", &num);
    printf("Value of n=%d", num);
    fclose(fptr);

    return 0;
}
```

```
C:\Users\Etec Center\Documents\Untitled001.exe
Value of n=200
--------------------------------
Process exited after 0.03118 seconds with return value 0
Press any key to continue . . .
```

ឧទាហរណ៏ ៣៖ ការ Write ទិន្នន័យចូលក្នុង Files ជាមួយនិង fprintf

```c
#include <stdio.h>
main() {
   FILE *fp;
   fp = fopen("ETEC1.txt", "w");
  if(fp == NULL)
   {
      printf("Error!");
      exit(1);
   }

   fprintf(fp, "Welcome to ETEC CENTER, Build Your IT Skill!\n");
   fclose(fp);
   printf("Write Success!");
}
```

```
C:\Users\Etec Center\Documents\Untitled001.exe
Write Success!
--------------------------------
Process exited after 0.03453 seconds with return value 14
Press any key to continue . . .
```

ឧទាហរណ៏ ៤៖ ការ Read ទិន្នន័យចេញពីក្នុង Files ជាមួយនិង fscanf

```c
#include <stdio.h>
main() {
   FILE *fp;
   char ch;
   fp = fopen("ETEC1.txt", "r");
  if(fp == NULL)
   {
      printf("Error!");
      exit(1);
   }

  while(fscanf(fp,"%c",&ch)!= EOF)
  {
   printf("%c",ch);
  }

}
```

```
C:\Users\Etec Center\Documents\Untitled001.exe
ETEC CENTER Build Your IT Skill...!

--------------------------------
Process exited after 0.03469 seconds with return value
Press any key to continue . . .
```

ឧទាហរណ៏ ៥៖ ការ Write ទិន្នន័យចូលក្នុង Files ជាមួយនិង fput

```c
#include <stdio.h>
main() {
   FILE *fp;
   char text[50];
   fp = fopen("ETEC1.txt", "r");
  if(fp == NULL)
   {
      printf("Error!");
      exit(1);
   }
  printf("Input Text=");
  gets(text);
  fputs(text, fp);
   printf("Write to Succesfully....!");
   fclose(fp);

}
```

```
C:\Users\Etec Center\Documents\Untitled001.exe
Input Text=Welcome to ETEC CENTER...!
Write to Succesfully....!
--------------------------------
```

ឧទាហរណ៏ ៦៖ ការ Write ទិន្នន័យចូលក្នុង Files ជាមួយនិង fget

```c
#include <stdio.h>
main() {
   FILE *fp;
   char buffer[255];
   fp = fopen("ETEC1.txt", "r");
  if(fp == NULL)
   {
      printf("Error!");
      exit(1);
   }

  while(fgets(buffer, 255, fp) != NULL)
    {
      printf("%s",buffer);
    }

}
```

```
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
a	Append ទិន្នន័យ
r+	Read/Write ទិន្នន័យ
w+	Write/ Read ទិន្នន័យ
a+	Read/Write/ Append

ឧទាហរណ៏ ៧៖

```c
#include<stdio.h>
#include<stdlib.h>

int main()
{
    FILE *fp;
    char name[50];
    int roll_no, chars, i, n;
    float marks;
    fp = fopen("records.txt", "a");
    if(fp == NULL)
    {
        printf("Error opening file\n");
        exit(1);
    }
    printf("Testing fprintf() function: \n\n");
    printf("Enter the number of records you want to enter: ");
    scanf("%d", &n);
    for(i = 0; i < n; i++)
    {
        fflush(stdin);
        printf("\nEnter the details of student %d \n\n", i +1);
        printf("Enter name of the student: ");
        gets(name);
        printf("Enter roll no: ");
        scanf("%d", &roll_no);
        printf("Enter marks: ");
        scanf("%f", &marks);
        chars = fprintf(fp, "%s   %d   %f",
            name, roll_no, marks);
       printf("\n%d characters successfully written to the file\n\n", chars);
    }
    fclose(fp);
    return 0;
}
```

```c
#include<stdio.h>
#include<stdlib.h>

int main()
{
    FILE *fp;
    char name[50];
    int roll_no, chars;
    float marks;
    fp = fopen("records.txt", "r");

    if(fp == NULL)
    {
        printf("Error opening file\n");
        exit(1);
    }
    printf("Testing fscanf() function: \n\n");
    printf("Name:\t\tRoll\t\tMarks\n");

    while( fscanf(fp, "%s   %d   %f"
                , name, &roll_no, &marks) != EOF )
    {
        printf("%s\t\t%d\t\t%.2f\n", name, roll_no ,marks);
    }
    fclose(fp);
    return 0;
}
```

លទ្ធផលទទួលបាន៖

```
C:\Users\Etec Center\Documents\Untitled001.exe
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 ពោលគឺយើងមិនអាចមើលយល់ និង មានសុវត្ថិភាពល្អទៀតផង, ទំហំផ្ទុកទិន្នន័យរបស់វាអាចផ្ទុកបានចច្រើន។

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

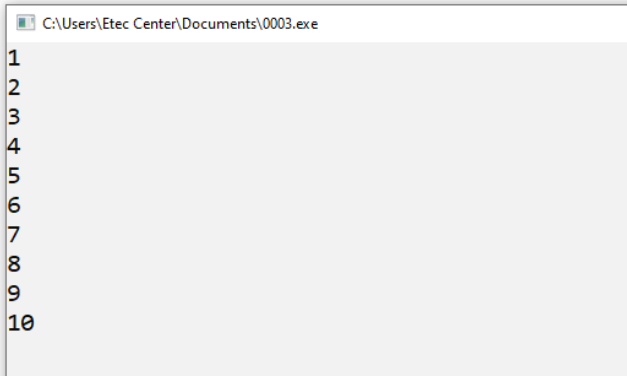
ឧទាហរណ៏ ១៖ ចូរសរសេរកូដ Write Binary file

```c
#include<stdio.h>
    struct rec
    {
        int x;
    };
    int main()
    {
        int i;
        FILE *ptr_myfile;
        struct rec my_record;

        ptr_myfile=fopen("etec.bin","wb");
        if (!ptr_myfile)
        {
            printf("Unable to open file!");
            return 1;
        }
        for ( i=1; i <= 10; i++)
        {
            my_record.x= i;
            fwrite(&my_record, sizeof(struct rec), 1, ptr_myfile);
        }
        printf("Write Succesful.....!");
        fclose(ptr_myfile);
        return 0;
    }

```

ឧទាហរណ៏ ២៖ ចូរសរសេរកូដ Read Binary file

```c
#include<stdio.h>

    /* Our structure */
    struct rec
    {
        int x;
    };

    int main()
    {
        int counter;
        FILE *ptr_myfile;
        struct rec my_record;

        ptr_myfile=fopen("etec.bin","rb");
        if (!ptr_myfile)
        {
            printf("Unable to open file!");
            return 1;
        }
        for ( counter=1; counter <= 10; counter++)
        {
            fread(&my_record,sizeof(struct rec),1,ptr_myfile);
            printf("%d\n",my_record.x);
        }
        fclose(ptr_myfile);
        return 0;
    }

```

លទ្ធផលទទួលបាន៖



ឧទាហរណ៏ ៣៖ ចូរសរសេរកូដ Write Binary file

```c
#include<stdio.h>
    struct Students
    {
        int id;
        char name[20];
        char sex;
        float score;
    };
    int main()
    {
        int i,n;
        FILE *ptr_myfile;
        struct Students stu;
        ptr_myfile=fopen("students.bin","wb");
        if (!ptr_myfile)
        {
            printf("Unable to open file!");
            return 1;
        }
        printf("Input Number of Students:");
        scanf("%d",&n);
        for ( i=0; i <n; i++)
        {
            printf("==================Record#%d================\n",i+1);
            printf("Input ID=");scanf("%d",&stu.id);
            fflush(stdin);
            printf("Input Name=");scanf("%s",&stu.name);
            fflush(stdin);
            printf("Input Gender=");scanf("%c",&stu.sex);
            printf("Input Score=");scanf("%f",&stu.score);
            fwrite(&stu, sizeof(struct Students), 1, ptr_myfile);
        }
        printf("Write Succesful.....!");
        fclose(ptr_myfile);
        return 0;
    }
```

លទ្ធផលទទួលបាន៖

```
C:\Users\Etec Center\Documents\002.exe
Input Number of Students:3
==================Record#1================
Input ID=1001
Input Name=LY
Input Gender=M
Input Score=56
==================Record#2================
Input ID=1002
Input Name=Sy
Input Gender=F
Input Score=67
==================Record#3================
Input ID=1003
Input Name=Dim
Input Gender=M
Input Score=90
Write Succesful.....!
--------------------------------
```

ឧទាហរណ៏ ៤៖ ចូរសរសេរកូដ Read Binary file

```c
#include<stdio.h>
    struct Students
    {
        int id;
        char name[20];
        char sex;
        float score;
    };
    int main()
    {
        int i=1,n;
        FILE *ptr_myfile;
        struct Students stu;

        ptr_myfile=fopen("students.bin","rb");
        if (!ptr_myfile)
        {
            printf("Unable to open file!");
            return 1;
        }

    while(1==fread(&stu, sizeof(struct Students), 1, ptr_myfile))
    {

            printf("===============Record #%d================\n",i);
            printf("ID=%d\n",stu.id);
            printf("Name=%s\n",stu.name);
            printf("Gender=%c\n",stu.sex);
            printf("Score=%f\n",stu.score);
            i++;
    }
        printf("Write Succesful.....!");
        fclose(ptr_myfile);
        return 0;
    }

```

លទ្ធផលទទួលបាន៖

```
C:\Users\Etec Center\Documents\0003.exe
===============Record #1================
ID=1001
Name=LY
Gender=M
Score=56.000000
===============Record #2================
ID=1002
Name=Sy
Gender=F
Score=67.000000
===============Record #3================
ID=1003
Name=Dim
Gender=M
Score=90.000000
Write Succesful.....!
--------------------------------
```

លំហាត់អនុវត្តន៏

គេមានឲ្យ Structure មួយដូចខាងក្រោម៖

```
4
5       struct Product
6       {
7           int code;
8           char name[20];
9           int qty;
10          float price;
11      };
12
```

ចូរបង្កើតឲ្យ Menu ដូចខាងក្រោម៖

```
3
4       >>>>>>>>>>>>>>>Menu<<<<<<<<<<<<<<<<
5          >>>1. Write
6          >>>2. Read
7          >>>3. Search
8          >>>4. Exit
9       Choose One(1-4)=____
10
11
```

II. ការលុបទិន្នន័យចេញពី Files

ការលុបទិន្នន័យចេញពី File វាមិនសូវស្មុលដូចការលុបទិន្នន័យចេញពី Ram(Array) នោះទេមានន័យថា អ្នកបាន Write ទិន្នន័យរបស់អ្នកទៅផ្ទុកក្នុង file ប្រៀបបាន និងយកទិន្នន័យទៅផ្ទុកលើក្រដាសសរមួយសន្លឹកផង់ដែរ វានៅជាប់និង ក្រដាសនោះ។ ខាងក្រោមជាជំហានក្នុងការលុបទិន្នន័យចេញពីក្នុង file មួយ៖

1. Search / ស្វែងរកធាតុណាមួយដែលត្រូវលប់ពី Files
2. Write តែធាតុណាដែលខុសពីធាតុដែលលុបចូលក្នុង File ថ្មី (tmp)
3. Delete File ចាស់ចោល
4. Rename file ថ្មី ទៅជាឈ្មោះ file ថ្មី

ឧទាហរណ៏ ៖

```c
#include<stdio.h>
    struct Students
    {
        int id;
        char name[20];
        char sex;
        float score;
    };

    void WriteFile( struct Students stu)
    {   FILE *ptr_myfile;
        int i,n;
         ptr_myfile=fopen("students.bin","ab");
           if (!ptr_myfile)
            {
                printf("Unable to open file!");
                return 1;
            }
            printf("Input Number of Students:");
            scanf("%d",&n);
          for ( i=0; i <n; i++)
          {
            printf("==================Record#%d================\n",i+1);
            printf("Input ID=");scanf("%d",&stu.id);
            fflush(stdin);
            printf("Input Name=");scanf("%s",&stu.name);
            fflush(stdin);
            printf("Input Gender=");scanf("%c",&stu.sex);
            printf("Input Score=");scanf("%f",&stu.score);
            fwrite(&stu, sizeof(struct Students), 1, ptr_myfile);
          }
            printf("Write Succesful.....!");
            fclose(ptr_myfile);
    }

    void WriteFile( struct Students stu)
    {   FILE *ptr_myfile;
        int i,n;
         ptr_myfile=fopen("students.bin","ab");
           if (!ptr_myfile)
            {
                printf("Unable to open file!");
                return 1;
            }
            printf("Input Number of Students:");
            scanf("%d",&n);
          for ( i=0; i <n; i++)
          {
            printf("==================Record#%d================\n",i+1);
            printf("Input ID=");scanf("%d",&stu.id);
            fflush(stdin);
            printf("Input Name=");scanf("%s",&stu.name);
            fflush(stdin);
            printf("Input Gender=");scanf("%c",&stu.sex);
            printf("Input Score=");scanf("%f",&stu.score);
            fwrite(&stu, sizeof(struct Students), 1, ptr_myfile);
          }
            printf("Write Succesful.....!");
            fclose(ptr_myfile);
    }
```

```c
void readFile(struct Students stu)
{       FILE *ptr_myfile;
        int i=0;
        ptr_myfile=fopen("students.bin","rb");
        if (!ptr_myfile)
        {
            printf("Unable to open file!");
            return 1;
        }

        while(1==fread(&stu, sizeof(struct Students), 1, ptr_myfile))
        {
        printf("===============Record #%d================\n",i);
        printf("ID=%d\n",stu.id);
        printf("Name=%s\n",stu.name);
        printf("Gender=%c\n",stu.sex);
        printf("Score=%f\n",stu.score);
        i++;
        }
        printf("Write Succesful.....!");
        fclose(ptr_myfile);
}
void deleteFile(struct Students stu)
{
FILE *fp;
FILE *fp_tmp;
char sname[20];
int found=0;
fp=fopen("students.bin", "rb");
if (!fp) {
    printf("Unable to open file %s", sname);
    return -1;
}
fp_tmp=fopen("tmp.bin", "wb");
if (!fp_tmp) {
    printf("Unable to open file temp file.");
    return -1;
}
printf("Input Name to Search=");
scanf("%s",sname);
while (fread(&stu,sizeof(struct Students),1,fp) != NULL) {
    if (strcmp (sname, stu.name) == 0) {
        printf("A record with requested name found and deleted.\n\n");
        found=1;
    } else {
        fwrite(&stu, sizeof(struct Students), 1, fp_tmp);
    }
}
if (!found) {
    printf("No record(s) found with the requested name: %s\n\n", sname);
}

fclose(fp);
fclose(fp_tmp);

remove("students.bin");
rename("tmp.bin", "students.bin");

}
int main()
{
    int i,n,op;

    struct Students stu;
do{  system("cls");
    printf(">>>> 1. Write\n");
    printf(">>>> 2. Read\n");
```

```
103         printf(">>>> 3. Deleted\n");
104         printf("Choose One=");
105         scanf("%d",&op);
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......!
```

លំហាត់អនុវត្តន៏

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 ដែលមានតួនាទីរំកិលទីតាំងក្នុងការចល័តទិន្នន័យរបស់ 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
```

ឧទាហរណ៏ ៖

- fseek(p,10L,0): មានន័យថារំកិលទីតាំង Pointer ពីទីតាំង 0 និង រំលងចំនួន 10 Bytes ពីទីតាំង 0 នៃ p។
- fseek(p,5L,1): លេខ 1 មានន័យថាលើទីតាំងកំពុងឈរនៅ (current Location) និង រំលង់ 5 bytes ។
- fseek(p,-5L,1): មានន័យថា រំកិល Pointer ពីទីតាំងកំពុងនៅថយចំនួន 5 bytes។
  - ✓ SEEK_SET(0): ទីតាំងចាប់ផ្តើមនៃ files
  - ✓ SEEK_CUR(1): ទីតាំងកំពុងតែនៅឈរ
  - ✓ SEEK_END(2): ទីតាំងបញ្ចប់

ឧទាហរណ៏ ១៖

```c
#include <stdio.h>

int main () {
   FILE *fp;
   char c;
   fp = fopen("etec001.txt","w+");
   fputs("ETEC CENTER, Build your IT Skill", fp);

   fseek( fp, 12, SEEK_SET );
   fputs(" IT Trainning Center", fp);
   fclose(fp);

   //Read file

   fp = fopen("etec001.txt","r");
   while(1) {
      c = fgetc(fp);
      if( feof(fp) ) {
         break;
      }
      printf("%c", c);
   }
   fclose(fp);

   return(0);
}
```

```
C:\Users\Etec Center\Documents\0006.exe
ETEC CENTER, IT Trainning Center
--------------------------------
Process exited after 0.03613 seconds with return value 0
Press any key to continue . . .
```

2. ftell(): ប្រើសំរាប់ប្រាប់ទំហំទាំងមូលរបស់ file ដែលចាប់ពីទីតាំង currents ទៅ ។
3. rewind(): ប្រើប្រាស់សំរាប់រកិលទីតាំង Pointer មកទីតាំងដើមវិញ។

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

Good Luck...!