File handling Functions in C

Function	Uses/Purpose
fopen	Opens a file.
fclose	Closes a file.
fgetc	Reads a character from a file.
fputc	Writes a character to a file.
fprintf	Prints formatted output to a file.
fscanf	Reads formatted input from a file.
fgets	Read a string of characters from a file.
fputs	Write a string of characters to a file.
feof	Detects end-of-file marker in a file.
fseek	The fseek() function is used to set the file pointer to the specified offset. It is used to write data into file at desired location.

fputc() function: fputc(character, FILE *stream);

```
#include <stdio.h>

void main(){

FILE *filepoint;

filepoint = fopen("3.txt", "w");

fputc('T',filepoint);

fclose(filepoint);

}
```

fgetc() function: fgetc(FILE *stream);

```
#include <stdio.h>

int main(){

FILE *ptr;

char read;

if (ptr = fopen("TechVidvan.txt", "r")){

while((read=fgetc(ptr))!=EOF)
```

```
printf("Content of the file is: %c",read);
}
fclose(ptr);
return 0;
}
```

fputs() function: fputs(char *string, FILE *filepointer);

```
#include<stdio.h>
#include<conio.h>
void main(){
FILE *file;
file=fopen("puts.txt","w");
fputs("TechVidvan Tutorial: Writing to a file in C!",file);
fclose(file);
getch();
}
```

fgets() function: fgets(char *string, length, FILE *ptr);

```
#include<stdio.h>
#include<conio.h>
void main(){
FILE *file;
char strings[300];
file=fopen("puts.txt","r");
printf("Content of the file is: %s",fgets(strings,200,file));
fclose(file);
getch();
}
```

Getting data using fseek() function:

If you want to get the required data at a specific location then you can use the fseek() function in C. From the name. you can say that it seeks the cursor to the given record in the file.

Syntax: `fseek(FILE *file_pointer, long int offset, int whence);`

- The first parameter is the pointer to the file.
- The second parameter is the position of what you need to find.
- The third parameter determines the location from where the offset begins.

Different types of whence in fseek():-

1. SEEK_SET:- Used to start the offset from the beginning of the file.
2. SEEK_END:- Used to start the offset from the end of the file.
3. SEEK_CUR:- Used to start the offset from the current location of the cursor in a file.

Example:

```
#include <stdio.h>

void main(){

FILE *filepoint;

filepoint = fopen("2.txt","w+");

fputs("TechVidvan TutorialHi", filepoint);

fseek(filepoint,18 , SEEK_SET);

fputs(": Using fseek() in C!", filepoint);

fclose(filepoint);

}
```

2.txt

```
TechVidvan Tutorial: Using fseek() in C!
```

LAB 12 EXERCISES

QUESTION # 1

Write a C program to create 2 text files and store some text inside them. Then read these 2 files into the program and merge the text into a 3rd text file.

QUESTION # 2

Write a C program to count the occurrences of each letter in an existing text file and store this information into a new file, showing the occurrences of each letter and the total characters read in the following format:

A (Occurrances of A/a)
B (Occurrances of B/b)
C (Occurrances of C/c)
.
.
.

Total characters read = (Total characters)

QUESTION # 3

Write a C program to keep records and perform statistical analysis for a class of 20 students. The information of each student contains ID, Name, Sex, quizzes Scores (2 quizzes per semester), mid-term score, final score, and total score. All the records must be store in the file and you must read the scores <50, <80 and <100 until users selects the end file option.

QUESTION # 4

You're the owner of a hardware store and need to keep an inventory that can tell you what tools you have, how many you have and the cost of each one. Write a program that initializes the file "hardware.txt" to 10 empty records, lets you input the data concerning each tool, enables you to list all your tools, lets you delete a record for a tool that you no longer have and lets you update any information in the file. The tool identification number should be the record number. Use the following information to start your file:

Record #	Tool name	Quantity	Cost
3	Electric sander	7	57.98
17	Hammer	76	11.99
24	Jig saw	21	11.00
39	Lawn mower	3	79.50
56	Power saw	18	99.99
68	Screwdriver	106	6.99
77	Sledge hammer	11	21.50
83	Wrench	34	7.50

QUESTION # 5

Using C, create a file named budge.txt that contains three equal-length columns of numbers, like this:

```
 -462.13  486.47     973.79
755.42    843.04     -963.67
442.58   -843.02     -462.86
-233.93  -821.67     399.59
-379.65  -556.37     837.46
55.18     -144.93    -93.15
533.73    804.64     -66.25
-922.12   914.68     -264.67
-600.27  -838.59     747.02
-962.97   49.96      -677.79
```

Now write a program named budget.c that reads this file and adds up the numbers in each column. The program's output should look like this:

Column sums are: -1774.16 -105.79 429.47

QUESTION # 6

Create a structure to store Student data. A student has RollNo, Name, Department, Batch, Section, CGPA. Store the information of N students using **array** and store it into a file. Then access the file to find out the following information:

- Given a user input of "RollNo", print all the data of that student on the screen.
- Loop through the array of students and only print the data of students who are in Batch 2022

QUESTION # 7

Write a C program to read an existing text file, and encrypt it and save the encrypted version in a new file according to the following rules:

1. Each vowel must be replaced by "vow" or "VOW". It should be lowercase if it is the 1^{st},3^{rd},5^{th} vowel (odd num in the file (odd numbers) and uppercase if 2^{nd}, 4^{th}, 6^{th} etc (even numbers).
2. Every 3 letter sequence of characters containing "s" must be replaced with PF-Lab.
3. After the above changes, use a normal shift cipher and replace every letter in the file with the letter which is 3 letter after. For example, A will be replaced by D, B replaced by E, Z replaced by C and so on.