

ICS 103, Term 103

Computer Programming in C

HW# 2 Solution

Due date: Saturday, July 23, 2011

Q.1. You are required to write a program to do the following:

- (i) Prompt the user for the file name and read it.
- (ii) Display the following menu to the user and read the input from the user. If the input entered by the user is invalid, print that the input is invalid and repeat the process as long as the user does not select the option to exit the program.

Select one of the following options:

- (1) Write data into a file
- (2) Display the content of a file
- (3) Add a number to a file
- (4) Delete a number from a file
- (5) Exit the program

- (iii) In case option 1 is selected, ask the user to enter the numbers to be written to the file and write them to the file such that each number is written in a new line. Assume that the numbers entered are integer and that the number -99 indicates the end of the data entered.
- (iv) In case option 2 is selected, display the content of the file on the screen.
- (v) In case option 3 is selected, ask the user to enter the number to be added to the file. Insert the number in the file such that it is inserted before the first number found that is greater than it.
- (vi) In case option 4 is selected, ask the user to enter the number to be deleted from the file. Delete all occurrences of the number in the file.

Sample executions of the program are given below:

```
Enter the file name: input.txt
Select one of the following options:
(1) Write data into a file
(2) Display the content of a file
(3) Add a number to a file
(4) Delete a number from a file
(5) Exit the program
1
Enter the numbers to be stored in the file: 10 20 30 40 50 -99
Select one of the following options:
(1) Write data into a file
(2) Display the content of a file
(3) Add a number to a file
(4) Delete a number from a file
(5) Exit the program
2
10
20
30
40
50
```

```

S
Select one of the following options:
(1) Write data into a file
(2) Display the content of a file
(3) Add a number to a file
(4) Delete a number from a file
(5) Exit the program
W
Enter the number to be inserted in the file: 45
S
Select one of the following options:
(1) Write data into a file
(2) Display the content of a file
(3) Add a number to a file
(4) Delete a number from a file
(5) Exit the program
N
N
10
200
400
450
500
S
Select one of the following options:
(1) Write data into a file
(2) Display the content of a file
(3) Add a number to a file
(4) Delete a number from a file
(5) Exit the program
4
Enter the number to be deleted from the file: 30
S
Select one of the following options:
(1) Write data into a file
(2) Display the content of a file
(3) Add a number to a file
(4) Delete a number from a file
(5) Exit the program
N
N
10
200
400
450
500
S
Select one of the following options:
(1) Write data into a file
(2) Display the content of a file
(3) Add a number to a file
(4) Delete a number from a file
(5) Exit the program
6
Invalid choice...
Select one of the following options:
(1) Write data into a file
(2) Display the content of a file
(3) Add a number to a file
(4) Delete a number from a file
(5) Exit the program
5
Press any key to continue . . .

```

```

#include <stdio.h>
#include <stdlib.h>
#include <math.h>

```

```

void menu(void);

```

```

int main() {

```

```

    char filename[100], ch;
    FILE *infile, *outfile;
    int choice, num, num2, flag;

```

```

    printf("Enter the file name: ");
    scanf("%s", filename);

```

```

do {
    flag = 0;
    menu();
    scanf("%d",&choice);
    switch (choice){

    case 1: infile = fopen(filename,"w");
        if (infile==NULL) { // to check if input file is opened properly or not
            printf("Sorry, input file not found");
            system("pause");
            exit(1); // terminates the program
        }
        printf("Enter the numbers to be stored in the file: ");
        scanf("%d",&num);
        while (num != -99){
            fprintf(infile,"%d\n",num);
            scanf("%d",&num);
        }
        fclose(infile);
        break;

    case 2: infile = fopen(filename,"r");
        if (infile==NULL) { // to check if input file is opened properly or not
            printf("Sorry, input file not found");
            system("pause");
            exit(1); // terminates the program
        }
        while (fscanf(infile,"%c",&ch) != EOF){
            printf("%c",ch);
        }
        fclose(infile);
        break;

    case 3: infile = fopen(filename,"r");
        if (infile==NULL) { // to check if input file is opened properly or not
            printf("Sorry, input file not found");
            system("pause");
            exit(1); // terminates the program
        }
        outfile = fopen("tmp.txt","w");
        printf("Enter the number to be inserted in the file: ");
        scanf("%d", &num2);
        while (fscanf(infile,"%d",&num) != EOF){
            if (num > num2){
                if (!flag) fprintf(outfile,"%d\n",num2);
                flag = 1;
            }
            fprintf(outfile,"%d\n",num);
        }
        if (!flag) fprintf(outfile,"%d\n",num2);
        fclose(infile);
        fclose(outfile);
        infile = fopen("tmp.txt","r");
        outfile = fopen(filename,"w");
        while (fscanf(infile,"%c",&ch) != EOF){
            fprintf(outfile,"%c",ch);
        }
        fclose(infile);

```

```

        fclose(outfile);
        break;

    case 4: infile = fopen(filename,"r");
        if (infile==NULL) { // to check if input file is opened properly or not
            printf("Sorry, input file not found");
            system("pause");
            exit(1); // terminates the program
        }
        outfile = fopen("tmp.txt","w");
        printf("Enter the number to be deleted from the file: ");
        scanf("%d", &num2);
        while (fscanf(infile,"%d",&num) != EOF){
            if (num != num2)
                fprintf(outfile,"%d\n",num);
        }
        fclose(infile);
        fclose(outfile);
        infile = fopen("tmp.txt","r");
        outfile = fopen(filename,"w");
        while (fscanf(infile,"%c",&ch) != EOF){
            fprintf(outfile,"%c",ch);
        }
        fclose(infile);
        fclose(outfile);
        break;
    case 5: system("pause"); return 0;

    default: printf("Invalid choice...\n");
    }
} while (choice !=5);

system("pause");
return 0;
}

void menu(void){

    printf ("Select one of the following options:\n");
    printf("(1) Write data into a file\n");
    printf("(2) Display the content of a file\n");
    printf("(3) Add a number to a file\n");
    printf("(4) Delete a number from a file\n");
    printf("(5) Exit the program\n");

}

```