Week 9: Programs to demonstrate File Handling, Array of Pointers ,Callback and Sorting

2021

Name:	SRN:	Section:
	Date:	Week Number:

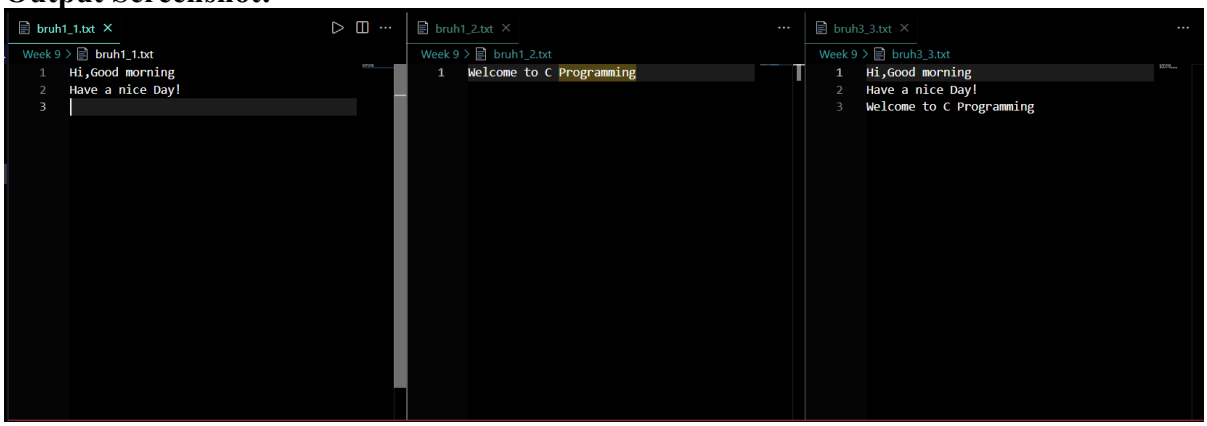
1	Write a C program to merge contents of two files into a third file.
	Hint: Create three files- 2 files(file1.txt and file2.txt) with contents and third file(file3.txt) to merge contents of other two files(file1.txt and file2.txt).
	Input:
	gedit file1.txt
	Hi,Good morning!
	Have a nice day
	gedit file2.txt
	Welcome to C programming- file handling concepts
	gedit file3.txt
	//empty file
	Enter the 1st file name : file1.txt
	Enter the 2nd file name : file2.txt
	Enter the new file name to merge the two files:file3.txt
	Output:
	The two files merged into file3.txt file successfully..!!
	//Third file-Merged contents of two files(file1.txt and file2.txt)
	gedit file3.txt
	Hi,Good morning!
	Have a nice day
	Welcome to C programming- file handling concepts

	Program:
	`#include<stdio.h>`
	`#include<stdlib.h>`
	`#include<conio.h>`
	`#include<string.h>`

```c
int main(){
  //initializing the first two files
  FILE *file1;
  FILE *file2;
  file1=fopen("bruh1_1.txt","w+");
  file2=fopen("bruh1_2.txt","w+");
  fprintf(file1,"Hi,Good morning\nHave a nice Day!\n");
  fprintf(file2,"Welcome to C Programming");
  fclose(file1);
  fclose(file2);


  FILE *read1;
  FILE *read2;
  FILE *file3;
  read1=fopen("bruh1_1.txt","r+");
  read2=fopen("bruh1_2.txt","r+");

  file3=fopen("bruh3_3.txt","w");

  char str[255];

  while (fgets(str,255,read1))fputs(str,file3);
  fclose(read1);

  while (fgets(str,255,read2))fputs(str,file3);
  fclose(read2);

  fclose(file3);

  return 0;
}
```

```
bruh1_1.txt
Hi,Good morning
Have a nice Day!

Bruh1_2.txt
Welcome to C Programming

Bruh3_3.txt
Hi,Good morning
Have a nice Day!
Welcome to C Programming
```

Output Screenshot:



2 Write a C program to write multiple lines in a text file.

Input:
enter the filename
file.txt
Enter the number of lines to be written : 2
The lines are
hi hello
how are you
Output:
The content of the file file.txt is :
hi hello
how are you

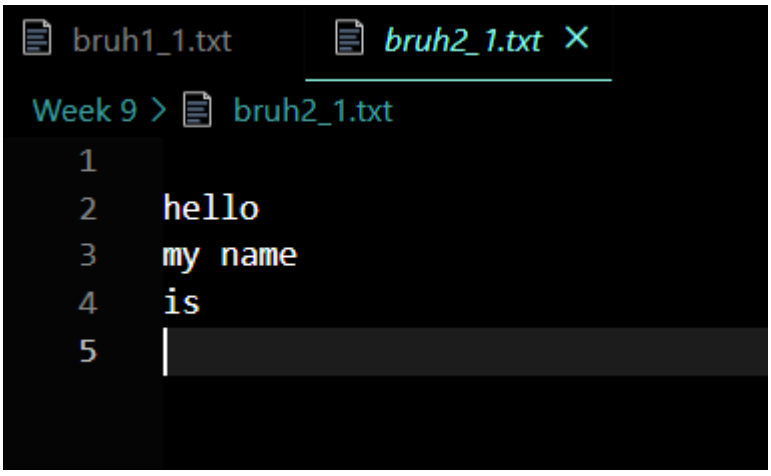
Program:

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

int main(){
  FILE *file1;
  file1=fopen("bruh2_1.txt","w");

  int num,i;

  printf("ENTER THE NO OF LINES:");
  scanf("%d",&num);
```

```
  char str[255];
  printf("ENTER LINES:\n");

  for (i = 0; i < num+1; i++)
  {
     fgets(str,sizeof str,stdin);
     fputs(str,file1);
  }

  fclose(file1);


}
```

Output Screenshot:

```
                > cd "d:\Important Files\AYUSHSINGHPES2UG20CS081\Week 9\" ; if ($?)
ENTER THE NO OF LINES:3
ENTER LINES:
hello
my name
is
PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week 9>
```



3 Write a program to sort positive integers in the ascending order using insertion sort

Input:
Enter the number of elements u want to sort
5
Output:
Enter 5 elements
13
6

```
23
1
89
Before sorting
13
6
23
1
89
After sorting
1
6
13
23
89
```

Program:

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

void InsertionSort(int *arr,int n){
  int j;
  int temp;
  for(int i=0;i<n;i++){
     j=i-1;
     temp=arr[i];

     while (j>-1 && arr[j]>temp)
     {
        arr[j+1]=arr[j];
        j--;
     }
     arr[j+1]=temp;
  }
}

void display(int *arr,int n){
  for (int i = 0; i < n; i++)
  {
     printf("%d ",arr[i]);
  }
  printf("\n");
```

```
}

int main(){
   int n;
   printf("ENTER NO OF NUMBERS:");
   scanf("%d",&n);

   int arr[n];
   printf("ENTER ELEMENTS:\n");
   for (int i = 0; i < n; i++)
   {
      scanf("%d",&arr[i]);
   }

   display(arr,n);
   InsertionSort(arr,n);
   display(arr,n);

   return 0;


}
```

Output Screenshot:

```
PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week 9> cd "d:\Import
nnerFile } ; if ($?) { .\tempCodeRunnerFile }
ENTER NO OF NUMBERS:4
ENTER ELEMENTS:
1
3
2
7
1 3 2 7
1 2 3 7
PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week 9>
```

4	Write a bubblesort program to sort students details based on students roll number/name in the ascending order using array of pointers, by taking input from csv file and using callback to call two functions i)sort based on roll number ii) sort based on name.

	Input: stud.csv file Output: 99 xx 7 bb 22 cc 45 zz 8 aa 12 ff 4 gg 3 dd 27 jj 1 kk 32 ee Enter your option 1.sort on roll

	2.sort on name 0.exit 1 1 kk 3 dd 4 gg 7 bb 8 aa 12 ff 22 cc 27 jj 32 ee 45 zz 99 xx Enter your option 1.sort on roll 2.sort on name 0.exit 2 8 aa

7 bb

22 cc

3 dd

32 ee

12 ff

4 gg

27 jj

1 kk

99 xx

45 zz

Program:

```
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
struct Student{
  char name[50];
  int roll;
};

void display(struct Student *arr,int size){
  for (int i = 0; i < size; i++)
  {
    printf("%s %d \n",(arr+i)->name,(arr+i)->roll);
  }
```

```
}

void BubblesortINT(struct Student *arr,int size){
  struct Student temp;
  for (int i = 0; i < size; i++)
  {
    for (int j = 0; j < size-1-i; j++)
    {

      if ((arr+j)->roll>(arr+j+1)->roll)

      {

        temp=*(arr+j+1);
        *(arr+j+1)=*(arr+j);
        *(arr+j)=temp;
      }
    }

  }

}

void BubblesortSTR(struct Student *arr,int size){
  struct Student temp;
  for (int i = 0; i < size; i++)
  {
    for (int j = 0; j < size-1-i; j++)
    {

      if (strcmp((arr+j)->name,(arr+j+1)->name)>0){

        temp=*(arr+j+1);
        *(arr+j+1)=*(arr+j);
        *(arr+j)=temp;
      }
    }

  }

}


```

```
int main(){

  FILE *fp=fopen("bruh4.csv","r");
  struct Student arr[100];
  int count=0;

  if(!fp)printf("Cant open file: /n");
  else{
    char line[1024];

    fgets(line,1024,fp);
    while(fgets(line,1024,fp)){

      char *temp=strtok(line,",");
      strcpy(arr[count].name,temp);

      temp=strtok(NULL,"\n");
      arr[count].roll=atoi(temp);

      count++;
    }
  }
  printf("ORIGINAL LIST:\n");
  display(arr,count);
  printf("\n\n");

  printf("SORTED ON NAME:\n");
  BubblesortSTR(arr,count);
  display(arr,count);
  printf("\n\n");


  printf("SORTED ON ROLL:\n");
  BubblesortINT(arr,count);
  display(arr,count);

}
```

Output Screenshot:

```
PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week 9> cd "d:\Important Files\AYUSHSINGHPES2UG
ruh4 }
ORIGINAL LIST:
xx 99
bb 7
cc 27
zz 45
aa 8
ff 12
gg 4
dd 3
jj 27
kk 1
ee 32


SORTED ON NAME:
aa 8
bb 7
cc 27
dd 3
ee 32
ff 12
gg 4
jj 27
kk 1
xx 99
zz 45


SORTED ON ROLL:
kk 1
dd 3
gg 4
bb 7
aa 8
ff 12
cc 27
jj 27
ee 32
zz 45
xx 99
PS D:\Important Files\AYUSHSINGHPES2UG20CS081\Week 9>
```