**ASSIGNMENT NO. 9**

**FILE HANDLING USING SYSTEM CALLS**

#include<stdio.h>

#include<sys/types.h>

#include<sys/stat.h>

#include<fcntl.h>

#include<unistd.h>

#include<stdlib.h>

typedef struct Fullname

{

char First[10],Last[10];

}FullName;

typedef struct Employee

{

FullName Name;

int Emp\_Id;

float Salary;

char Post[15];

}Employee;

//Check Duplicate data

int Duplicate(char \*File\_Name,int Id)

{

int fd;

Employee Emp\_Obj;

fd=open(File\_Name,O\_RDONLY);

if(fd==-1) printf("\nFile Opening Error");

else

{

while(read(fd,&Emp\_Obj,sizeof(Employee))!=0)

{

if(Id==Emp\_Obj.Emp\_Id)

{

close(fd);

return 1;

}

}

close(fd);

}

return 0;

}

//Create New File

int Create(char \*File\_Name)

{

//FILE \*Ptr;

int fd;

char Answer;

printf("\nEnter File Name: ");

scanf("%s",File\_Name);

fd=open(File\_Name,O\_RDONLY);

if(fd!=-1)

{

printf("\nFile already exist!!");

printf("\nDo u want to remove this File (y/n):\n");

scanf(" %c",&Answer);

}

if(Answer=='y' || Answer=='Y' || fd==-1)

{

fd=open(File\_Name, O\_RDONLY | O\_CREAT, S\_IRWXU);

if(fd==-1)

{

printf("File creation Error...");

return 1;

}

else

printf("\nFile Created Successfully: %d",fd);

}

close(fd);

return 0;

}

//Insert or Append data in existing File

void Insert(char \*File\_Name)

{

int Num,i,j,Id,Flag,Ch, fd;

float Sal;

Employee Emp\_Obj;

fd=open(File\_Name,O\_WRONLY | O\_APPEND);

if(fd!=-1)

{

printf("\nEnter Employee data:");

do

{

printf("\nFirst Name: ");

scanf("%s",Emp\_Obj.Name.First);

j=0;

Flag=0;

while(Emp\_Obj.Name.First[j]!='\0')

{

if((Emp\_Obj.Name.First[j]>='a' &&Emp\_Obj.Name.First[j]<='z')||(Emp\_Obj.Name.First[j]>='A'&&Emp\_Obj.Name.First[j]<='Z'))

j++;

else

{

Flag=1;

break;

}

}

if(Flag==1)

printf("\nWrong Input!! Re-enter First name:\n");

}while(Flag!=0);

printf("\nLast Name: ");

scanf("%s",Emp\_Obj.Name.Last);

while(1) //Check for Existance/Nagative value Employee Id

{

printf("\nEmployee Id:");

scanf("%d",&Id);

if(Id > 0 && !Duplicate(File\_Name,Id) )

{

Emp\_Obj.Emp\_Id=Id;

break;

} printf("\nEmployee Id already present/Negative Id re-enter:\n"); } while(1) //Check for Negative Salary

{ printf("\nSalary: ");

scanf("%f",&Sal);

if(Sal>0)

{

Emp\_Obj.Salary=Sal;

break;

}

printf("\nNegative Salary!! Reenter Salary ");

}

printf("\nPost: ");

scanf("%s",Emp\_Obj.Post);

write(fd,&Emp\_Obj,sizeof(Employee));

close(fd);

}

else

printf("File Opening Error...");

}

//Search & print details of given Employee Id

int Retrive(char \*File\_Name)

{ int Id,Flag=0,i=0, fd;

Employee Emp\_Obj;

fd=open(File\_Name,O\_RDONLY);

if(fd==-1)

printf("\nFile Opening Error!!");

else

{

printf("\nEnter Employee Id which is to be Retrived/Modified/Delete:\n");

scanf("%d",&Id);

while(read(fd,&Emp\_Obj,sizeof(Employee))!=0)

{

if(Id==Emp\_Obj.Emp\_Id)

{

printf("\n------------------------------------------------------------------------");

printf("\n\tName\t\tEmployee Id\t Salary\t Post");

printf("\n------------------------------------------------------------------------");

printf("\n%s",Emp\_Obj.Name.First);

printf(" %s",Emp\_Obj.Name.Last);

printf("\t%d",Emp\_Obj.Emp\_Id);

printf("\t\t%5.2f",Emp\_Obj.Salary);

printf("\t%s",Emp\_Obj.Post);

Flag=1;

break;

} i++;

}

if(Flag==0) i=-1;

close(fd);

}

return i;

}

//Modify salary & post of given employee(Using Temp File)

void Modify1(char \*File\_Name)

{

//FILE \*Ptr,\*Temp;

Employee Emp\_Obj;

int i=0,Pos, fd, fd1;

fd=open(File\_Name,O\_RDONLY);

fd1=open("Temp",O\_WRONLY | O\_CREAT, S\_IRWXU);

if(fd==-1)

printf("\nFile Opening Error");

else

{

Pos=Retrive(File\_Name);

if(Pos!=-1)

{

while(read(fd,&Emp\_Obj,sizeof(Employee)))

{

if(Pos==i)

{

printf("\nEnter Modified Employee data:"); printf("Salary: ");

scanf("%f",&Emp\_Obj.Salary);

printf("Post: ");

scanf("%s",Emp\_Obj.Post);

}

write(fd1,&Emp\_Obj,sizeof(Employee));

i++;

}

close(fd);

close(fd1);

remove(File\_Name);

rename("Temp",File\_Name);

}

else

printf("Record Not present");

}

}

//Remove Given Employee data(Using Temp File)

void Delete(char \*File\_Name)

{

//FILE \*Ptr,\*Temp;

Employee Emp\_Obj;

int Pos,i=0, fd, fd1;

fd=open(File\_Name,O\_RDONLY);

fd1=open("Temp",O\_WRONLY | O\_CREAT,S\_IRWXU);

if(fd==-1)

printf("\nFile Opening Error");

else

{

Pos=Retrive(File\_Name);

if(Pos!=-1)

{

while(read(fd,&Emp\_Obj,sizeof(Employee)))

{

if(Pos!=i)

write(fd1,&Emp\_Obj,sizeof(Employee));

i++;

}

close(fd);

close(fd1);

remove(File\_Name);

rename("Temp",File\_Name);

}

else printf("Record Not present");

}

}

//print contents of the given File

void Display(char \*File\_Name)

{

//FILE \*Ptr;

int fd;

Employee Emp\_Obj;

fd=open(File\_Name,O\_RDONLY);

if(fd==-1)

printf("\nFile Opening Error");

else

{

printf("\n------------------------------------------------------------------------");

printf("\n\tName\t\t\t Id\t Salary\t Post");

printf("\n------------------------------------------------------------------------");

while(read(fd,&Emp\_Obj,sizeof(Employee)))

{

printf("\n%10s",Emp\_Obj.Name.First);

printf("%10s |",Emp\_Obj.Name.Last);

printf("\t%9d |",Emp\_Obj.Emp\_Id);

printf("\t%9f |",Emp\_Obj.Salary);

printf("%9s",Emp\_Obj.Post);

}

close(fd);

}

}

int main()

{

char File\_Name[10],Ans;

int Choice, flag;

printf("\n\t\t\tFile Creation");

flag=Create(File\_Name);

if(flag==0)

{

do

{

printf("\nChoices:\n1: Insert\n2: Display\n3: Retrive\n4: Modify\n5: Delete\n6: Exit\nEnter Your Choice: ");

scanf("%d",&Choice);

switch(Choice)

{

case 1: printf("\n\t\t\tInsert Operation");

Insert(File\_Name);

Display(File\_Name);

break;

case 2: printf("\n\t\t\tDisplay Operation");

Display(File\_Name);

break;

case 3: printf("\n\t\t\tSearch Operation");

if(Retrive(File\_Name)==-1)

printf("\nRecord Not Present");

break;

case 4: printf("\n\t\t\tModify Operation");

Modify1(File\_Name);

Display(File\_Name);

break;

case 5: printf("\n\t\t\tDelete Operation");

Delete(File\_Name);

Display(File\_Name);

break;

case 6: exit(0);

default: printf("\nInvalid Choice\n");

}

printf("\n\nDo u want to Continue :");

scanf(" %c",&Ans);

}while(Ans=='y' || Ans=='Y');

}

return 0;

}

**OUTPUT**

[it@localhost ~]$ gcc FileHandling.c

[it@localhost ~]$ ./a.out

File Creation

Enter File Name: xyz

File Created Successfully: 3

Choices:

1: Insert

2: Display

3: Retrive

4: Modify

5: Delete

6: Exit

Enter Your Choice: 2

Display Operation

------------------------------------------------------------------------

Name Id Salary Post

------------------------------------------------------------------------

Do u want to Continue :y

Choices:

1: Insert

2: Display

3: Retrive

4: Modify

5: Delete

6: Exit

Enter Your Choice: 1

Insert Operation

Enter Employee data:

First Name: Naman

Last Name: Jain

Employee Id:1

Salary: 100

Post: Manager

------------------------------------------------------------------------

Name Id Salary Post

------------------------------------------------------------------------

Naman Jain | 1 | 100.000000 | Manager

Do u want to Continue :y

Choices:

1: Insert

2: Display

3: Retrive

4: Modify

5: Delete

6: Exit

Enter Your Choice: 1

Insert Operation

Enter Employee data:

First Name: Shubham

Last Name: Agrawal

Employee Id:2

Salary: 200

Post: PO

------------------------------------------------------------------------

Name Id Salary Post

------------------------------------------------------------------------

Naman Jain | 1 | 100.000000 | Manager

Shubham Agrawal | 2 | 200.000000 | PO

Do u want to Continue :y

Choices:

1: Insert

2: Display

3: Retrive

4: Modify

5: Delete

6: Exit

Enter Your Choice: 1

Insert Operation

Enter Employee data:

First Name: Suraj

Last Name: Thakur

Employee Id:1

Employee Id already present/Negative Id re-enter:

Employee Id:3

Salary: 300

Post: Analyst

------------------------------------------------------------------------

Name Id Salary Post

------------------------------------------------------------------------

Naman Jain | 1 | 100.000000 | Manager

Shubham Agrawal | 2 | 200.000000 | PO

Suraj Thakur | 3 | 300.000000 | Analyst

Do u want to Continue :y

Choices:

1: Insert

2: Display

3: Retrive

4: Modify

5: Delete

6: Exit

Enter Your Choice: 4

Modify Operation

Enter Employee Id which is to be Retrived/Modified/Delete:

3

------------------------------------------------------------------------

Name Employee Id Salary Post

------------------------------------------------------------------------

Suraj Thakur 3 300.00 Analyst

Enter Modified Employee data:Salary: 400

Post: Data\_Analyst

------------------------------------------------------------------------

Name Id Salary Post

------------------------------------------------------------------------

Naman Jain | 1 | 100.000000 | Manager

Shubham Agrawal | 2 | 200.000000 | PO

Suraj Thakur | 3 | 400.000000 |Data\_Analyst

Do u want to Continue :y

Choices:

1: Insert

2: Display

3: Retrive

4: Modify

5: Delete

6: Exit

Enter Your Choice: 5

Delete Operation

Enter Employee Id which is to be Retrived/Modified/Delete:

3

------------------------------------------------------------------------

Name Employee Id Salary Post

------------------------------------------------------------------------

Suraj Thakur 3 400.00 Data\_Analyst

------------------------------------------------------------------------

Name Id Salary Post

------------------------------------------------------------------------

Naman Jain | 1 | 100.000000 | Manager

Shubham Agrawal | 2 | 200.000000 | PO

Do u want to Continue :y

Choices:

1: Insert

2: Display

3: Retrive

4: Modify

5: Delete

6: Exit

Enter Your Choice: 2

Display Operation

------------------------------------------------------------------------

Name Id Salary Post

------------------------------------------------------------------------

Naman Jain | 1 | 100.000000 | Manager

Shubham Agrawal | 2 | 200.000000 | PO

Do u want to Continue :y

Choices:

1: Insert

2: Display

3: Retrive

4: Modify

5: Delete

6: Exit

Enter Your Choice: 6

[it@localhost ~]$