

**NAME:-SAKET PAWAR**

**CLASS:- SYBTECH-C**

**BATCH:- C-2**

**ROLL NO:- 223043**

**GR NO:- 17U021**

## **ASSIGNMENT NO.8.**

**Aim :-** Department maintains a student information. The file contains roll number, name, division and address. Allow user to add, delete information of student. Display information of particular employee. If record of student does not exist an appropriate message is displayed. If it is, then the system displays the student

**Objective:-** To study the different data structure concepts to implement this program.

### **Theory:-**

#### **Input/output formatting**

Writing to or reading from a file is similar to writing onto a terminal screen or reading from a keyboard. Differences are:

- File must be opened with an OPEN statement, in which the unit number and (optionally) the filename are given
- Subsequent writes (or reads) must refer to a known unit number (used for open)
- File should be closed at the end

#### **File opening and closing**

The syntax is:

```
OPEN([unit=]unit,file='name' [,options])
```

```
CLOSE([unit=]unit [,options])
```

For example:

**NAME:-SAKET PAWAR**

**CLASS:- SYBTECH-C**

**BATCH:- C-2**

**ROLL NO:- 223043**

**GR NO:- 17U021**

```
OPEN(10, file='output.dat', status='new')
```

```
CLOSE(unit=10)
```

- The first parameter is the unit number and the keyword unit= can be omitted.
- The unit numbers 0,5 and 6 are predefined.
  - 0 is output for standard (system) error messages
  - 5 is for standard (user) input
  - 6 is for standard (user) output
- These units are opened by default and should not be re-opened nor closed by users

Some options for opening a file:

- status: existence of the file ('old', 'new', 'replace', 'scratch', 'unknown')
- position: offset, where to start writing ('append')
- action: file operation mode ('write','read','readwrite')
- form: text or binary file ('formatted', 'unformatted')
- access: direct or sequential file access ('direct','sequential','stream')
- iostat: error indicator, (output) integer (non zero only upon an error)
- err: the label number to jump upon error
- recl: record length, (input) integer for direct access files only. Be careful, it can be in bytes or words...

### **Algorithm:-**

### **Program Code:-**

```
#include <iostream>
```

```
#include <fstream>
```

```
#include <cstring>
```

```
#include <iomanip>
```

**NAME:-SAKET PAWAR**

**CLASS:- SYBTECH-C**

**BATCH:- C-2**

**ROLL NO:- 223043**

**GR NO:- 17U021**

```
#include<cstdlib>
```

```
#define max 50
```

```
using namespace std;
```

```
class Student
```

```
{
```

```
    char name[max];
```

```
    int rollNo;
```

```
    int year;
```

```
    int division;
```

```
    char address[50];
```

```
    friend class FileOperations;
```

```
public:    Student()
```

```
    {
```

```
        strcpy(name,"");
```

```
        rollNo=year=division=0;
```

```
        strcpy(address,"");
```

```
    }
```

```
    Student(char name[max],int rollNo,int year,int division,char address[max])
```

```
    {
```

```
        strcpy(this->address,address);
```

**NAME:-SAKET PAWAR**

**CLASS:- SYBTECH-C**

**BATCH:- C-2**

**ROLL NO:- 223043**

**GR NO:- 17U021**

```
        strcpy(this->name,name);

        this->division=division;

        this->rollNo=rollNo;

        this->year=year;

    }

    int getRollNo()

    {

        return rollNo;

    }

    void displayStudentData()

    {

        cout<<endl<<setw(3)<<rollNo<<setw(10)<<name<<setw(3)<<year<<setw(2)<<di
vision<<setw(10)<<address;

    }

};

class FileOperations

{

    fstream file;

    public:FileOperations(char *name)

    {
```

**NAME:-SAKET PAWAR**

**CLASS:- SYBTECH-C**

**BATCH:- C-2**

**ROLL NO:- 223043**

**GR NO:- 17U021**

```
        //strcpy(this->name,name);

        this->file.open(name,ios::in|ios::out|ios::ate|ios::binary);

    }

    void insertRecord(int rollNo,char name[max],int year,int division,char
address[max])
    {

        Student s=Student(name,rollNo,year,division,address);

        file.seekp(0,ios::end);

        file.write((char*)&s,sizeof(Student));

        file.clear();

    }

    void displayAllRecords()
    {

        Student s;

        file.seekg(0,ios::beg);

        while(file.read((char *)&s,sizeof(Student)))

        {

            s.displayStudentData();

        }

        file.clear();

    }
```

**NAME:-SAKET PAWAR**

**CLASS:- SYBTECH-C**

**BATCH:- C-2**

**ROLL NO:- 223043**

**GR NO:- 17U021**

```
}  
  
void displayRecord(int rollNo)  
{  
  
    Student s;  
  
    file.seekg(0,ios::beg);  
  
    void *p;  
  
    while(file.read((char *)&s,sizeof(Student)))  
    {  
  
        if(s.rollNo==rollNo)  
        {  
  
            s.displayStudentData();  
  
            break;  
  
        }  
  
    }  
  
    if(p==NULL)  
  
        throw "Element not present";  
  
    file.clear();  
  
}  
  
void deleteRecord(int rollNo)  
{
```

**NAME:-SAKET PAWAR**

**CLASS:- SYBTECH-C**

**BATCH:- C-2**

**ROLL NO:- 223043**

**GR NO:- 17U021**

```
ofstream newFile("new.txt",ios::binary);
file.seekg(0,ios::beg);
bool flag=false;
Student s;
while(file.read((char *)&s,sizeof(s)))
{
    if(s.rollNo==rollNo)
    {
        flag=true;
        continue;
    }
    newFile.write((char *)&s,sizeof(s));
}
if(!flag)
{
    cout<<"Element Not Present";
}
file.close();
newFile.close();
remove("student.txt");
```

**NAME:-SAKET PAWAR**

**CLASS:- SYBTECH-C**

**BATCH:- C-2**

**ROLL NO:- 223043**

**GR NO:- 17U021**

```
        rename("new.txt","student.txt");

        file.open("student.txt",ios::in|ios::ate|ios::out|ios::binary);

    }

    ~FileOperations()

    {

        file.close();

        cout<<"Closing file..";

    }

};

int main()

{

    ofstream newFile("student.txt",ios::app|ios::binary);

    newFile.close();

    FileOperations file((char *)"student.txt");

    int rollNo,year,choice=0;

    char division;

    char name[max],address[max];

    while(choice!=5)

    {
```



**NAME:-SAKET PAWAR**

**CLASS:- SYBTECH-C**

**BATCH:- C-2**

**ROLL NO:- 223043**

**GR NO:- 17U021**

```
//clrscr();

cout<<"\n*****Phone Book*****\n";

cout<<"1) Add New Record\n";

cout<<"2) Display All Records\n";

cout<<"3) Display by RollNo\n";

cout<<"4) Deleting a Record\n";

cout<<"5) Exit\n";

cout<<"Choose your choice : ";

cin>>choice;

switch(choice)

{

    case 1 : //New Record

        cout<<endl<<"Enter RollNo and name : \n";

        cin>>rollNo>>name;

        cout<<"Enter Year and Division : \n";

        cin>>year>>division;

        cout<<"Enter address : \n";

        cin>>address;

        file.insertRecord(rollNo,name,year,division,address);

        break;
```

**NAME:-SAKET PAWAR**

**CLASS:- SYBTECH-C**

**BATCH:- C-2**

**ROLL NO:- 223043**

**GR NO:- 17U021**

case 2 :

```
file.displayAllRecords();
```

```
break;
```

case 3 :

```
cout<<"Enter Roll Number";
```

```
cin>>rollNo;
```

```
try
```

```
{
```

```
file.displayRecord(rollNo);
```

```
}
```

```
catch(const char *str)
```

```
{
```

```
cout<<str;
```

```
}
```

```
break;
```

case 4:

```
cout<<"Enter rollNo";
```

```
cin>>rollNo;
```

```
file.deleteRecord(rollNo);
```

```
break;
```

**NAME:-SAKET PAWAR**  
**CLASS:- SYBTECH-C**  
**BATCH:- C-2**  
**ROLL NO:- 223043**  
**GR NO:- 17U021**

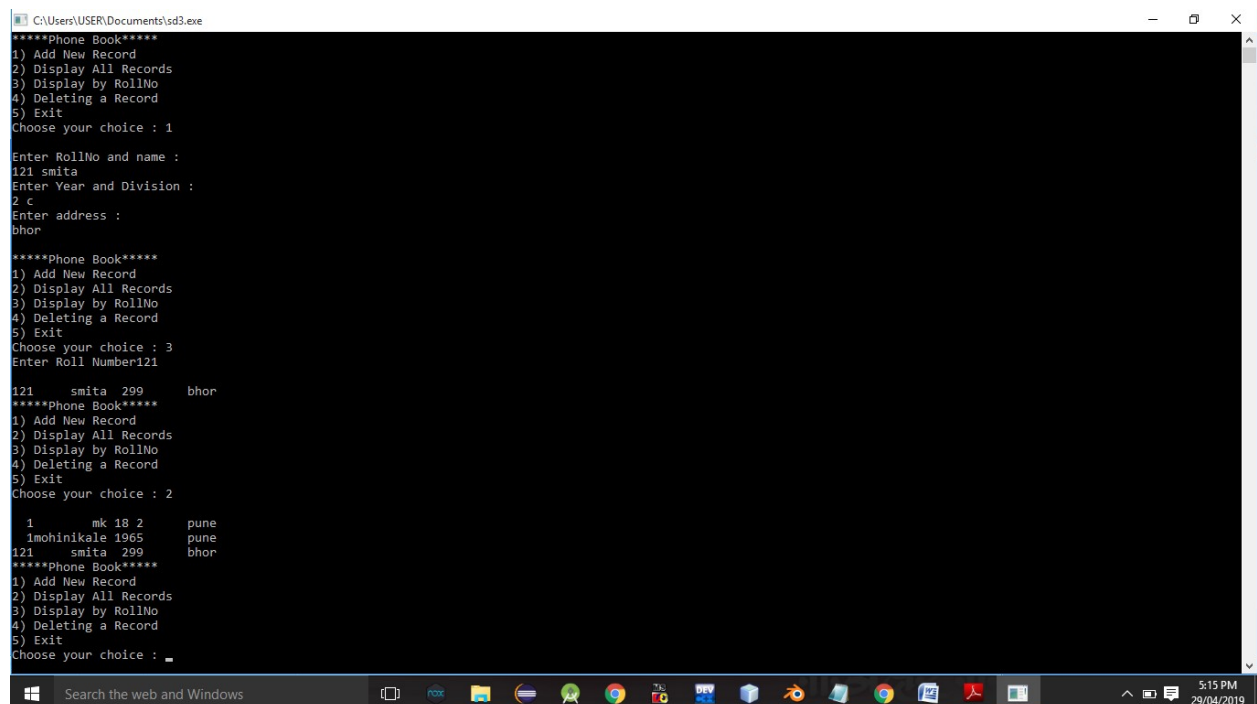
```
        case 5 :break;

    }

}

}
```

## Output Screenshots:-



```
C:\Users\USER\Documents\sd3.exe
*****Phone Book*****
1) Add New Record
2) Display All Records
3) Display by RollNo
4) Deleting a Record
5) Exit
Choose your choice : 1

Enter RollNo and name :
121 smita
Enter Year and Division :
2 c
Enter address :
bhor

*****Phone Book*****
1) Add New Record
2) Display All Records
3) Display by RollNo
4) Deleting a Record
5) Exit
Choose your choice : 3
Enter Roll Number:121

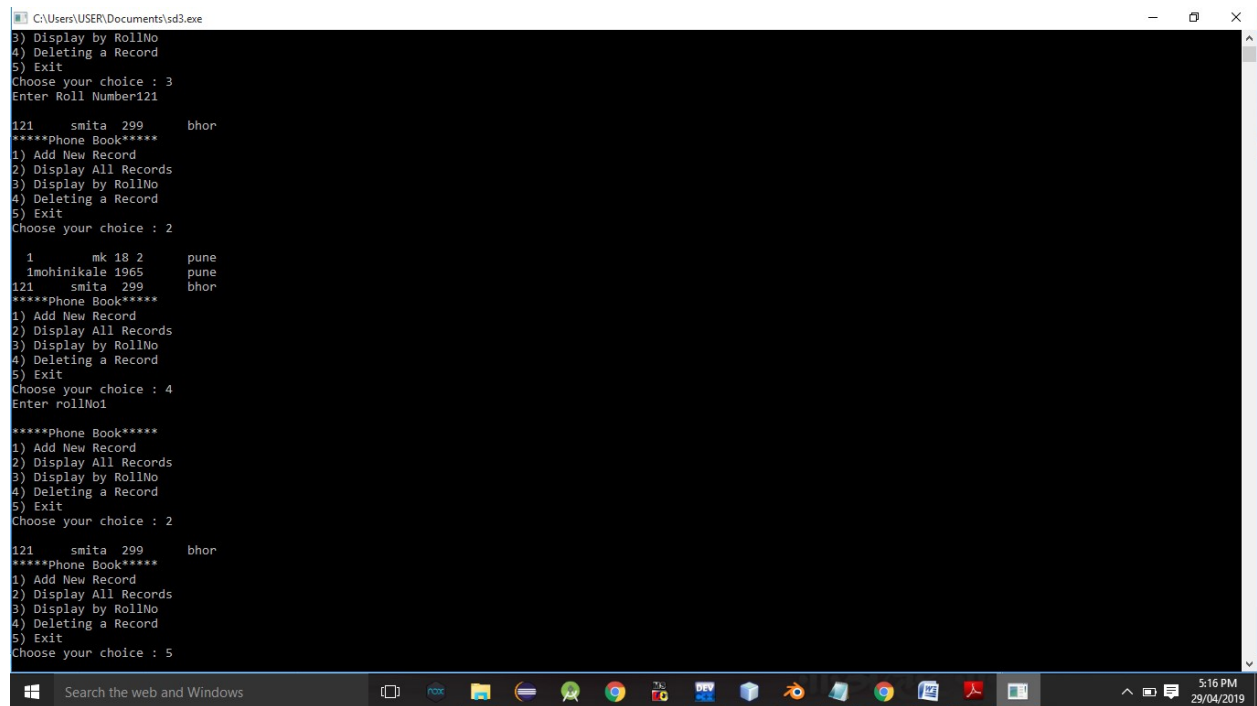
121 smita 299 bhor

*****Phone Book*****
1) Add New Record
2) Display All Records
3) Display by RollNo
4) Deleting a Record
5) Exit
Choose your choice : 2

1 mk 18 2 pune
1mohinkale 1965 pune
121 smita 299 bhor

*****Phone Book*****
1) Add New Record
2) Display All Records
3) Display by RollNo
4) Deleting a Record
5) Exit
Choose your choice : 5
```

**NAME:-SAKET PAWAR**  
**CLASS:- SYBTECH-C**  
**BATCH:- C-2**  
**ROLL NO:- 223043**  
**GR NO:- 17U021**



```
C:\Users\USER\Documents\sd3.exe
3) Display by RollNo
4) Deleting a Record
5) Exit
Choose your choice : 3
Enter Roll Number121

121    smita 299    bhor
*****Phone Book*****
1) Add New Record
2) Display All Records
3) Display by RollNo
4) Deleting a Record
5) Exit
Choose your choice : 2

1      mk 18 2      pune
imohinikale 1985    pune
121    smita 299    bhor
*****Phone Book*****
1) Add New Record
2) Display All Records
3) Display by RollNo
4) Deleting a Record
5) Exit
Choose your choice : 4
Enter rollNo1

*****Phone Book*****
1) Add New Record
2) Display All Records
3) Display by RollNo
4) Deleting a Record
5) Exit
Choose your choice : 2

121    smita 299    bhor
*****Phone Book*****
1) Add New Record
2) Display All Records
3) Display by RollNo
4) Deleting a Record
5) Exit
Choose your choice : 5
```

**Conclusion:-** Thus,this assignment implemented successfully.