ASSIGNMENT : 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 details Use Sequential file to maintain data

Objective :

To emplement sequential file in c++.

Theory :

Storing and sorting in contiguous block within files on tape or disk is called as sequential access file organization.

In sequential access file organization, all records are stored in a sequential order. The records are arranged in the ascending or descending order of a key field.

Sequential file search starts from the beginning of the file and the records can be added at the end of the file.

In sequential file, it is not possible to add a record in the middle of the file without rewriting the file.

Advantages of sequential file

It is simple to program and easy to design.

Sequential file is best use if storage space.

Disadvantages of sequential file

Sequential file is time consuming process.

It has high data redundancy.

Random searching is not possible.

Algorithm for Sequential File Allocation:
Step 1: Start the program.
Step 2: Get the number of memory partition and their sizes.
Step 3: Get the number of processes and values of block size for each process.
Step 4: First fit algorithm searches all the entire memory block until a hole which is big enough is encountered. It allocates that memory block for the requesting process.
Step 5: Best-fit algorithm searches the memory blocks for the smallest hole which can be allocated to requesting process and allocates it.
Step 6: Worst fit algorithm searches the memory blocks for the largest hole and allocates it to the process.
Step 7: Analyses all the three memory management techniques and display the best algorithm which utilizes the memory resources effectively and efficiently.
Step 8: Stop the program.

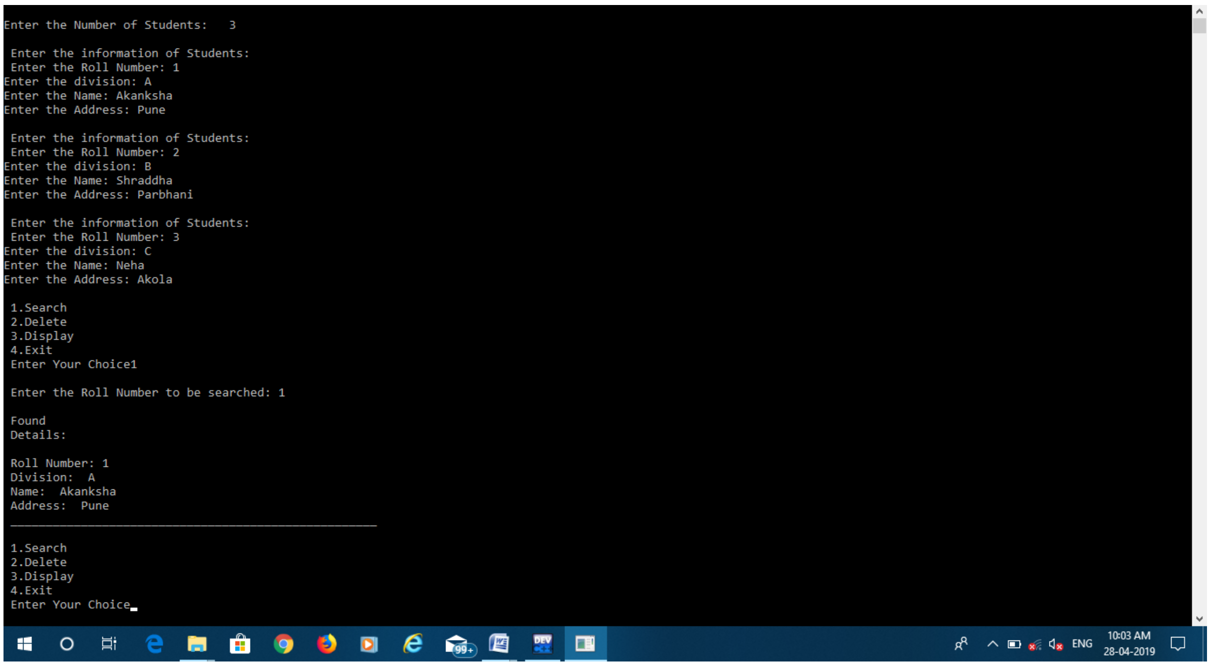
CODE:

```
#include<iostream>

#include<fstream>

using namespace std;

class student

{

        int roll_num;

        char div;

        string name;

        string address;

        public:

        void getdata()

        {
            cout<<"\n Enter the Roll Number: ";
            cin>>roll_num;
            cout<<"Enter the division: ";
            cin>>div;
            cout<<"Enter the Name: ";
            fflush(stdin);
            getline(cin,name);
            cout<<"Enter the Address: ";
            fflush(stdin);
            getline(cin,address);
        }
        void putdata(int n)
        {
            student st[n];
            ifstream infile;
            infile.open("student.dat",ios::binary|ios::in);
            for(int i=0;i<n;i++)
          {
                infile.read((char *)&st[i],sizeof(st[i]));
                cout<<"\n Roll Number: "<<st[i].roll_num;
                cout<<"\n Division:  "<<st[i].div;
                fflush(stdin);
                cout<<"\n Name:  "<<st[i].name;
                fflush(stdin);
```

```
                        cout<<"\n Address:  "<<st[i].address;
                        cout<<"\n
________________________________________________________________ \n";
            }
                infile.close();
    }



        void search_(int n)
        {
                student st[n];
                ifstream infile;
                cout<<"\n Enter the Roll Number to be searched: ";
                int r;
                cin>>r;
                infile.open("student.dat",ios::in|ios::binary);
                for(int i=0;i<n;i++)
                {
                        infile.read((char *)&st[i],sizeof(st[i]));
                        if(st[i].roll_num==r)
                        {
                                cout<<"\n Found";
                                cout<<"\n Details:  "<<endl;
                                cout<<"\n Roll Number: "<<st[i].roll_num;
                                cout<<"\n Division:  "<<st[i].div;
```

```
                    fflush(stdin);
                    cout<<"\n Name:  "<<st[i].name;
                    fflush(stdin);
                    cout<<"\n Address:  "<<st[i].address;
                    cout<<"\n
___________________________________________________ \n";
                    infile.close();
                    return;
            }
          }
          cout<<"\n Not Found";
          infile.close();
     }

     void del(int n)
     {
          student st[n];
          int r;
          cout<<"\n Enter the roll number to be deleted ";
          cin>>r;
          ifstream infile;
          ofstream outfile;
          infile.open("student.dat",ios::binary|ios::in);
          outfile.open("temp.dat",ios::binary|ios::out);
          for(int i=0;i<n;i++)
```

```
                {
                        infile.read((char *)&st[i],sizeof(st[i]));
                        if(st[i].roll_num==r)
                        {
                                continue;
                        }
                        else
                        {
                                outfile.write((char *)&st[i],sizeof(st[i]));
                        }
                }
                outfile.close();
                infile.close();
                remove("student.dat");
                int re=rename("temp.dat","student.dat");
                cout<<"Data deleted";

        }
};
int main()
{
        int n;
        cout<<"\nEnter the Number of Students:   ";
        cin>>n;
        student s[n];
        ofstream outfile;
        outfile.open("student.dat",ios::out|ios::binary);
        for(int i=0;i<n;i++)
        {
                cout<<"\n Enter the information of Students: ";
                s[i].getdata();
                outfile.write((char *)&s[i],sizeof(s[i]));
        }
        outfile.close();

        int c;
        student d;
        do
        {
                cout<<"\n 1.Search";
                cout<<"\n 2.Delete";
                cout<<"\n 3.Display";
                cout<<"\n 4.Exit";
                cout<<"\n Enter Your Choice";
                cin>>c;
                switch(c)
                {
                        case 1:d.search_(n);break;
                case 2:d.del(n);n=n-1;break;

                case 3:d.putdata(n);break;

                case 4:break;

            }

        }

        while(c!=4);


}
```



```
Enter the Number of Students:   3

 Enter the information of Students:
 Enter the Roll Number: 1
Enter the division: A
Enter the Name: Akanksha
Enter the Address: Pune

 Enter the information of Students:
 Enter the Roll Number: 2
Enter the division: B
Enter the Name: Shraddha
Enter the Address: Parbhani

 Enter the information of Students:
 Enter the Roll Number: 3
Enter the division: C
Enter the Name: Neha
Enter the Address: Akola

 1.Search
 2.Delete
 3.Display
 4.Exit
 Enter Your Choice1

 Enter the Roll Number to be searched: 1

 Found
 Details:

 Roll Number: 1
 Division:  A
 Name:  Akanksha
 Address:  Pune
 ____________________________________________________

 1.Search
 2.Delete
 3.Display
 4.Exit
 Enter Your Choice_
```

Conclusion:

Hence Sequential file is implemented for employee data storage.