ASSIGNMENT : 9

Aim :-
Company maintains employee information as employee ID, name, designation and salary. Allow user to add, delete information of employee. Display information of particular employee. If employee does not exist an appropriate message is displayed. If it is, then the system displays the employee details. Use index sequential file to maintain the data.

Objective:-
to study use of different data structure concepts in this program.

Theory:-

A sequential file contains records organized by the order in which they were entered. The order of the records is fixed.
Records in sequential files can be read or written only sequentially.
After you place a record into a sequential file, you cannot shorten, lengthen, or delete the record. However, you can update (REWRITE) a record if the length does not change. New records are added at the end of the file.
If the order in which you keep records in a file is not important, sequential organization is a good choice whether there are many records or only a few.
Sequential output is also useful for printing reports.

Algorithm:-

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.

Program Code:-

```
#include <iostream>
#include <fstream>
#include <cstring>
#include <iomanip>
#include<cstdlib>
#define max 50
using namespace std;
class Employee
{
   char name[max];
   int empid;
   int sal;
   char de[50];
   friend class FileOperations;
   public:    Employee()
              {
                        strcpy(name,"");
                        empid=sal==0;
                        strcpy(de,"");
              }
```

```
        Employee(char name[max],int empid,int sal,char de[max])
        {
                strcpy(this->de,de);
                strcpy(this->name,name);

                this->empid=empid;
                this->sal=sal;
        }
        int getEmpId()
        {
                return empid;
        }
        void displayEmployeeData()
        {


    cout<<endl<<empid<<"\t\t\t"<<name<<"\t\t\t"<<sal<<"\t\t\t"<<de;
        }
};
class FileOperations
{
    fstream file;
    public:FileOperations(char *name)
```

```
{
        //strcpy(this->name,name);
        this->file.open(name,ios::in|ios::out|ios::ate|ios::binary);
}
void insertRecord(int empid,char name[max],int sal,char de[max])
{
         Employee s=Employee(name,empid,sal,de);
         file.seekp(0,ios::end);
         file.write((char*)&s,sizeof(Employee));
         file.clear();
}
void displayAllRecords()
{
         Employee s;
         file.seekg(0,ios::beg);
         while(file.read((char *)&s,sizeof(Employee)))
         {
                  s.displayEmployeeData();
         }
         file.clear();
}
void displayRecord(int empid)
{
```

```
        Employee s;
        file.seekg(0,ios::beg);
        void *p;
        while(file.read((char *)&s,sizeof(Employee)))
        {
            if(s.empid==empid)
            {
                s.displayEmployeeData();
                break;
            }
        }
        if(p==NULL)
            throw "Element not present";
        file.clear();
}
void deleteRecord(int empid)
{
        ofstream newFile("new.txt",ios::binary);
        file.seekg(0,ios::beg);
        bool flag=false;
        Employee s;
        while(file.read((char *)&s,sizeof(s)))
        {
```

```
                if(s.empid==empid)
                {
                        flag=true;
                        continue;
                }
                newFile.write((char *)&s,sizeof(s));
        }
        if(!flag)
        {
                cout<<"Element Not Present";
        }
        file.close();
        newFile.close();
        remove("Employee.txt");
        rename("new.txt","Employee.txt");
        file.open("Employee.txt",ios::in|ios::ate|ios::out|ios::binary);
}
~FileOperations()
{
        file.close();
        cout<<"Closing file..";
}
```

```
};
int  main()
{
        ofstream newFile("Employee.txt",ios::app|ios::binary);
        newFile.close();
        FileOperations file((char *)"Employee.txt");
   int empid,sal,choice=0;
   char name[max],de[max];
   while(choice!=5)
   {
      cout<<"\n\n1) 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 employee id and name : \n";
                        cin>>empid>>name;
                        cout<<"Enter sal  \n";
```

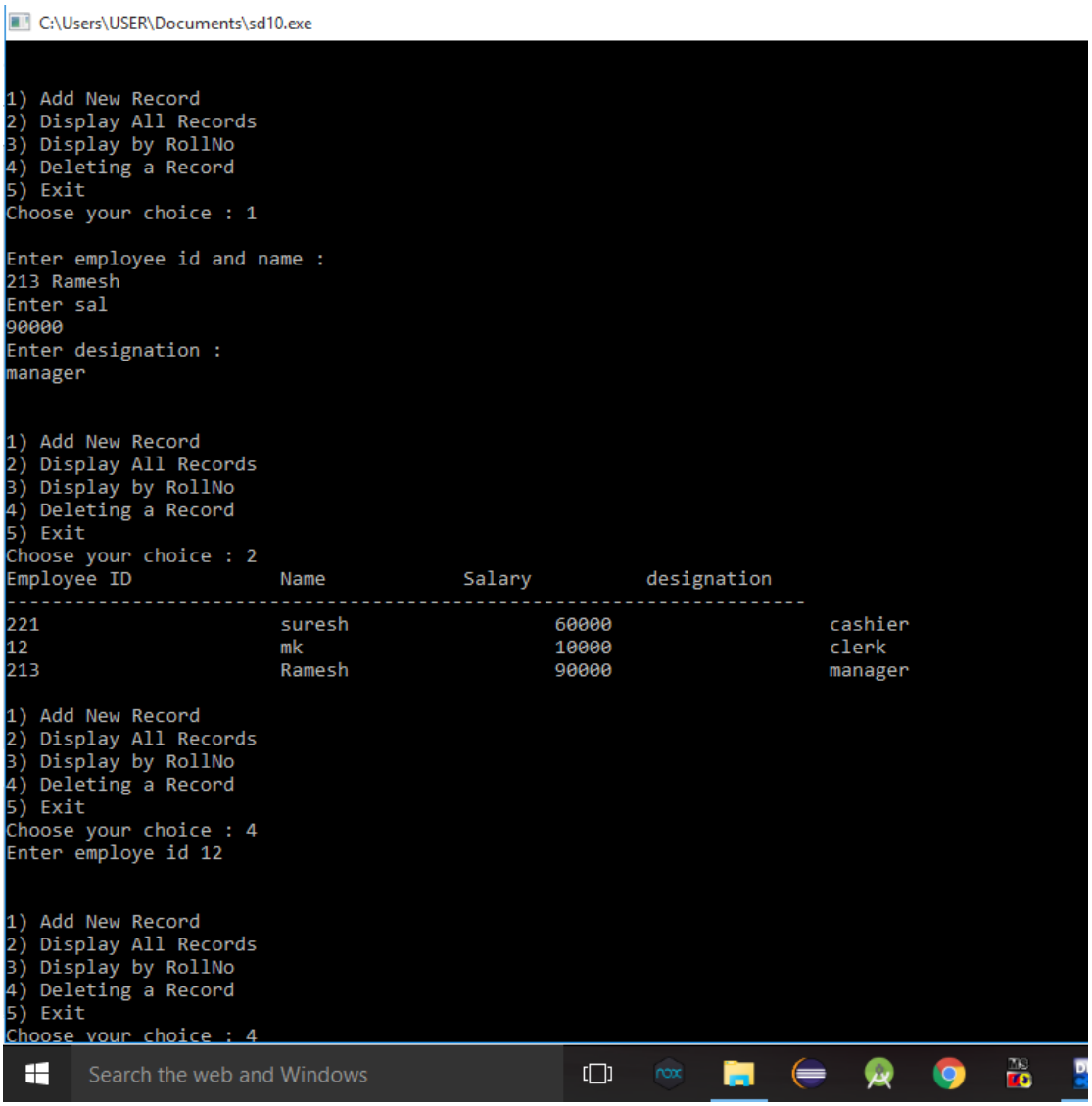
```
                cin>>sal;
                cout<<"Enter designation : \n";
                cin>>de;
                file.insertRecord(empid,name,sal,de);
                break;
        case 2 :

                  cout<<"Employee
ID"<<"\t\t"<<"Name"<<"\t\t"<<"Salary"<<"\t\t"<<"designation\n";
            cout<<"--------------------------------------------------------------------";
                        file.displayAllRecords();
                break;
        case 3 :
                cout<<"Enter employee id";
                cin>>empid;
                try
                {
                        file.displayRecord(empid);
                }
                catch(const char *str)
                {
                        cout<<str;
                }
```

```
                    break;
          case 4:
                    cout<<"Enter employe id";
                    cin>>empid;
                    file.deleteRecord(empid);
                    break;
         case 5 :break;
       }


   }
}
```

Output Screenshots:-



Conclusion:- Thus, this assignment is completed successfully.