

BRACT's
VISHWAKARMA INSTITUTE OF INFORMATION TECHNOLOGY, PUNE – 48
An Autonomous Institute Affiliated to Savitribai Phule Pune University, Pune

SD(LP-II) ASSIGNMENT (S.Y.B. Tech. – DIV: C)

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*****Assignment No.8*****

- **Aim:** Department maintains a student info. The file contains roll no., name, division and address. Allow user to add, delete info. Of student. Display info. Of a particular employee. If record of student does not exist in an appropriate message is displayed. If it is, then the system displays the student details. Use sequential file to maintain the data.
- **Objective:** We have to implement this using sequential file organization.
- **Theory:** File is a collection of records related to each other. The file size is limited by the size of memory and storage medium.

File organization ensures that records are available for processing. It is used to determine an efficient file organization for each base relation.

Sequential access file organization:

- a) Storing and sorting in contiguous block within files on tape or disk is called as sequential access file organization.
- b) 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.
- c) Sequential file search starts from the beginning of the file and the records can be added at the end of the file.
- d) 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:

- a) It is simple to program and easy to design.
- b) Sequential file is best use if storage space

- **Program:**

```
#include<iostream>
#include<fstream>
#include<conio.h>
using namespace std;
int pass;
struct student
{
string name, dept,dsg;
long long int id, cell;
};

class llist
{
public: struct student s,s1;llist *address;
};
llist *start=NULL, *start1=NULL;
//Accept a element
void accept()
{
llist *nnode,*temp;
nnode=new(llist);
cout<<"\nEnter name:";
cin>>nnode->s.name;
cout<<"\nEnter dept:";
```

```
cin>>nnode->s.dept;
cout<<"\nEnter id:";
cin>>nnode->s.id;
cout<<"\nEnter cell number:";
cin>>nnode->s.cell;
cout<<"\nEnter designation:";
cin>>nnode->s.dsg;
temp=start;
if(temp==NULL){ start=nnode;nnode->address=NULL;}
else{
while(temp->address!=NULL)
{
temp=temp->address;
}
temp->address=nnode;
nnode->address=NULL;
}
}

//Display the elements
void display()
{
llist *temp;
temp=start;
while(temp!=NULL)
```

```

{
    cout<<"\nName is "<<temp->s.name;
    cout<<"\ndept is "<<temp->s.dept;
    cout<<"\nid is "<<temp->s.id;
    cout<<"\nCell number is "<<temp->s.cell;
    cout<<"\ndesignation is "<<temp->s.dsg;
    temp=temp->address;
}
}

//Insert begin
void insert_begin()
{
    llist *nnode,*temp;
    nnode=new(llist);
    cout<<"\nEnter name:";
    cin>>nnode->s.name;
    cout<<"\nEnter dept:";
    cin>>nnode->s.dept;
    cout<<"\nEnter id:";
    cin>>nnode->s.id;
    cout<<"\nEnter cell number:";
    cin>>nnode->s.cell;
    cout<<"\nEnter designation number:";
    cin>>nnode->s.dsg;
    temp=start;

```

```
nnode->address=temp;
start=nnode;
}
//Insert middle
void insert_mid()
{
llist *nnode,*temp,*prev;
nnode=new(llist);
int i,p;
cout<<"\nEnter name:";
cin>>nnode->s.name;
cout<<"\nEnter dept:";
cin>>nnode->s.dept;
cout<<"\nEnter id:";
cin>>nnode->s.id;
cout<<"\nEnter cell number:";
cin>>nnode->s.cell;
cout<<"\nEnter designation:";
cin>>nnode->s.dsg;
cout<<"\nEnter position:";
cin>>p;
temp=start;
for(i=0;i<p-1;i++)
{
prev=temp;
```

```
temp=temp->address;
}
prev->address=nnode;
nnode->address=temp;
}
```

//Delete begin

```
void del_begin()
```

```
{
llist *temp;
temp=start;
start=temp->address;
temp->address=NULL;
delete(temp);
}
```

//Delete at position

```
void del_mid()
```

```
{
llist *temp,*prev;
int i,p;
cout<<"\nEnter position:";
cin>>p;
temp=start;
for(i=0;i<p-1;i++)
{
```

```
prev=temp;
temp=temp->address;
}
prev->address=temp->address;
delete(temp);
}

//Search node
void search()
{
int i,j;
llist *temp;
cout<<"\nEnter id to be found:";
cin>>j;
temp=start;
i=1;
//cout<<j<<" "<<temp<<" "<<i;
while(temp->address!=NULL)
{
if(temp->s.id==j){ break;}
else{ i++;temp=temp->address;}
}
cout<<"Position is:"<<i;
}
```

```

void save()
{
    int m=0;
    llist *temp;
    temp=start;
    ofstream file1,file2,file3,file4,file5;
    file1.open("names.txt",ios_base::app);
    file2.open("dept.txt",ios_base::app);
    file3.open("id.txt",ios_base::app);
    file4.open("dsg.txt",ios_base::app);
    file5.open("cell.txt",ios_base::app);
    while(m<5)
    {
        switch(m)
        {
            case 0:while(temp!=NULL){ file1<<temp->s.name<<endl;temp=temp->address;};break;
            case 1:while(temp!=NULL){ file2<<temp->s.dept<<endl;temp=temp->address;};break;
            case 2:while(temp!=NULL){ file3<<temp->s.id<<endl;temp=temp->address;};break;
            case 3:while(temp!=NULL){ file4<<temp->s.dsg<<endl;temp=temp->address;};break;
            case 4:while(temp!=NULL){ file5<<temp->s.cell<<endl;temp=temp->address;};break;
        }
        m++;
        temp=start;
    }
}

```



```
file1.close();
file2.close();
file3.close();
file4.close();
file5.close();
}

void displayfile()
{
    llist *temp;
temp=start1;

while(temp->address!=NULL)
{
    cout<<"-----\n";
    cout<<"\nName is:"<<temp->s1.name;
    cout<<"\ndept is:"<<temp->s1.dept;
    cout<<"\nid is:"<<temp->s1.id;
    cout<<"\nCell number is:"<<temp->s1.cell;
    cout<<"\ndesignation is:"<<temp->s1.dsg;
    cout<<"\n-----\n";
    temp=temp->address;
}
}
```

```

void open()
{
    llist *temp,*nnode,*next;

    if(start1!=NULL){ temp=start1->address;while(temp!=NULL){ next=temp-
>address;delete(temp);temp=next; } start1=NULL;}

    ifstream file1,file2,file3,file4,file5;

    file1.open("names.txt");
    file2.open("dept.txt");
    file3.open("id.txt");
    file4.open("dsg.txt");
    file5.open("cell.txt");
    while(!file3.eof())
    {
        temp=start1;
        nnode=new(llist);
        if(temp==NULL){ start1=nnode;nnode->address=NULL;}

        else{ while(temp->address!=NULL){ temp=temp->address; } temp->address=nnode;nnode-
>address=NULL;}

        getline(file1,nnode->s1.name);
        getline(file2,nnode->s1.dept);
        getline(file4,nnode->s1.dsg);
        file3>>nnode->s1.id;
        file5>>nnode->s1.cell;

    }
}

```

```
file1.close();
file2.close();
file3.close();
file4.close();
file5.close();
displayfile();
}

void del()
{
    ofstream file1,file2,file3,file4,file5;
    file1.open("names.txt",ios_base::trunc);
    file2.open("dept.txt",ios_base::trunc);
    file3.open("id.txt",ios_base::trunc);
    file4.open("dsg.txt",ios_base::trunc);
    file5.open("cell.txt",ios_base::trunc);
    file1.close();
    file2.close();
    file3.close();
    file4.close();
    file5.close();
}

void search1()
{
```

```

int a,i=1,m,l=0;

cout<<"\nEnter the id to be searched:";

cin>>a;

ifstream file;

file.open("id.txt");

while(!file.eof()){ file>>m;if(m==a){ cout<<"\nRecord found at:"<<i;l=1;break;} else{i++;} }

if(l==0){ cout<<"\nRecord not found!";}

file.close();

}

//Main Function

int main()

{

int i,flag=0;

while(flag==0)

{ cout<<"\nWelcome"<<"\nWhat do you want to do?"<<"\n1.Enter new element to
link\n"<<"2.Display the elements of array"<<"\n3.Insert at beginnng\n"

<<"4.Insert in middle\n"<<"5.Delete at begin\n"<<"6.Delete at
position"<<"\n7.Search\n"<<"8.Save Data"<<"\n9.Open File & Display file\n"<<"10.Display
Opened File"

<<"\n11.Clear the files"<<"\n12.Search For IDs"<<"\n13.Exit"<<"\nEnter your option:";

cin>>i;

switch(i)

{

case 1:accept();break;

```

```
case 2:display();break;
case 3:insert_begin();break;
case 4:insert_mid();break;
case 5:del_begin();break;
case 6:del_mid();break;
case 7:search();break;
case 8:save();break;
case 9:open();break;
case 10:displayfile();break;
case 11:del();break;
case 12:search1();break;
case 13:flag=1;
}
}
return 0;
}
```

- **Output:**

"E:\S.Y.B.Tech\SEM-II\Skill Development\Assignment8.exe"

```
*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 1
```

```
Enter name:prajwal
Enter the division:c
Enter roll no:2356
Enter the address:kondhwa
```

```
*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
```

```
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 1

Enter name:akash
Enter the division:a
Enter roll no:8654
Enter the address:pune

*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 2

Name is prajwal
Division is c
Roll number is 2356
Address is kondhwa
```

```
Name is akash
Division is a
Roll number is 8654
Address is pune
*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 3

Enter name:archis
Enter the Division:s
Enter roll no:7458
Enter the address:mumbai

*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
```



```
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 2

Name is archis
Division is s
Roll number is 7458
Address is mumbai

Name is prajwal
Division is c
Roll number is 2356
Address is kondhwa

Name is akash
Division is a
Roll number is 8654
Address is pune
*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
```

```
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 4

Enter name:sanket
Enter the Division:b
Enter roll no:5412
Enter the address:solapur
Enter position:2

*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 2

Name is archis
Division is s
```

```
Roll number is 7458
Address is mumbai

Name is sanket
Division is b
Roll number is 5412
Address is solapur

Name is prajwal
Division is c
Roll number is 2356
Address is kondhwa

Name is akash
Division is a
Roll number is 8654
Address is pune
*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 5
```

```
*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 2

Name is sanket
Division is b
Roll number is 5412
Address is solapur

Name is prajwal
Division is c
Roll number is 356
Address is kondhwa

Name is akash
Division is a
Roll number is 8654
Address is pune
*****Welcome*****
Enter the operation mode below
```

```
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 6
```

```
Enter position:2
```

```
*****Welcome*****
```

```
Enter the operation mode below
```

```
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 2
```

```
Name is sanket
Division is b
Roll number is 5412
Address is solapur

Name is akash
Division is a
Roll number is 8654
Address is pune
*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 7

Enter id to be found:8654
Position is:2*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
```

```
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 8
*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 9
-----

Name is:sanket

Division is:b

Roll number is:5412
```

Address is:solapur

Name is:akash

Division is:a

Roll number is:8654

Address is:pune

*****Welcome*****

Enter the operation mode below

- 1.Enter new element to link
- 2.Display the elements of array
- 3.Insert at beginning
- 4.Insert in middle
- 5.Delete at begin
- 6.Delete at position
- 7.Search
- 8.Save Data
- 9.Open File & Display file
- 10.Display Opened File
- 11.Clear the files
- 12.Search For IDs
- 13.Exit

Enter your option: 10

Name is:sanket

Division is:b

Roll number is:5412

Address is:solapur

Name is:akash

Division is:a

Roll number is:8654

Address is:pune

*****Welcome*****

Enter the operation mode below

- 1.Enter new element to link
- 2.Display the elements of array
- 3.Insert at beginning
- 4.Insert in middle
- 5.Delete at begin
- 6.Delete at position
- 7.Search
- 8.Save Data
- 9.Open File & Display file
- 10.Display Opened File
- 11.Clear the files

```
12.Search For IDs
13.Exit
Enter your option: 12

Enter the id to be searched:5412

Record found at:1*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 11
*****Welcome*****
Enter the operation mode below
1.Enter new element to link
2.Display the elements of array
3.Insert at beginning
4.Insert in middle
5.Delete at begin
6.Delete at position
7.Search
8.Save Data
9.Open File & Display file
```

```
9.Open File & Display file
10.Display Opened File
11.Clear the files
12.Search For IDs
13.Exit
Enter your option: 13

Process returned 0 (0x0)    execution time : 238.262 s
Press any key to continue.
```

- **Conclusion:** Thus, we implemented this example using sequential file organization.