

### 3. Write a C++ program to read and write and student objects with variable-length records using any suitable record structure. Implement pack(),unpack(),modify() and search() methods

#### Program Screenshots:

```
#include<iostream>
#include<string.h>
#include<fstream>
#include<stdlib.h>
using namespace std;
class student
{
    public:char name[20],usn[10],age[5],sem[5],branch[5];
};
student s[100],t;
char buffer[45],temp[20];
int count=0,i;
fstream fp;
void pack(student p)
{
    fp.open("hello.txt",ios::out|ios::app);
    strcpy(buffer,p.name);
    strcat(buffer,"|");
    strcat(buffer,p.usn);
    strcat(buffer,"|");
    strcat(buffer,p.age);
    strcat(buffer,"|");
    strcat(buffer,p.sem);
    strcat(buffer,"|");
    strcat(buffer,p.branch);
    strcat(buffer,"|");
    //    int x=strlen(buffer);
    //    for(int j=0;j<45-x;j++)
    //        strcat(buffer,"!");
    fp<<buffer<<endl;
    fp.close();
}
```

```

void write()
{
    cout<<"Enter the name\n";
    cin>>t.name;
    cout<<"Enter the usn\n";
    cin>>t.usn;
    cout<<"Enter the age\n";
    cin>>t.age;
    cout<<"Enter the sem\n";
    cin>>t.sem;
    cout<<"Enter the branch\n";
    cin>>t.branch;
    pack(t);
}

void unpack()
{
    fp.open("hello.txt",ios::in);
    for(i=0;i<count;i++)
    {
        fp.getline(buffer,100);
        sscanf(buffer,"%[^]|%[^]|%[^]|%[^]|%[^]|",s[i].name,s[i].usn,s[i].age,s[i].sem,s[i].branch);
    }
    fp.close();
}

void display()
{
    if(count==0)
    {
        cout<<"\nNo records\n";
        return;
    }
    cout<<"\n name\t usn\t age\t sem\t branch\n";
    for(i=0;i<count;i++)
        cout<<s[i].name<<"\t"<<s[i].usn<<"\t"<<s[i].age<<"\t"<<s[i].sem<<"\t"<<s[i].branch<<endl;
}

void search()
{
    cout<<"Enter the usn\n";
    cin>>temp;
    for(i=0;i<count;i++)
        if(!strcmp(s[i].usn,temp))
        {
            cout<<"Record found\n"<<s[i].name<<"\t"<<s[i].usn<<"\t"<<s[i].age<<"\t"<<s[i].sem<<"\t"<<s[i].branch<<endl;
            break;
        }
}

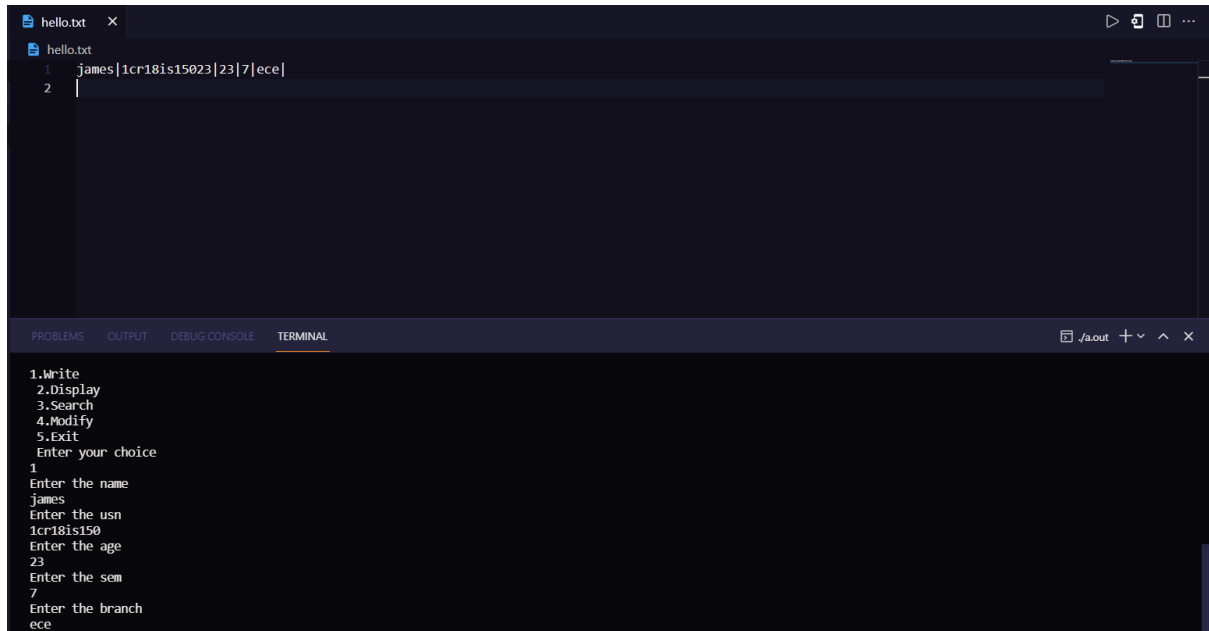
```

```

        if(i==count)
            cout<<"Record not found";
    }
    void modify()
    {
        if(i==count)
            return;
        cout<<"Enter new values\n Enter name :";
        cin>>s[i].name;
        cout<<"Enter usn :";
        cin>>s[i].usn;
        cout<<"Enter age :";
        cin>>s[i].age;
        cout<<"Enter sem :";
        cin>>s[i].sem;
        cout<<"Enter branch :";
        cin>>s[i].branch;
        fp.close();
        remove("hello.txt");
        fp.open("hello.txt",ios::out);
        fp.close();
        for(int j=0;j<count;j++)
            pack(s[j]);
    }
    int main()
    {
        int c;
        fp.open("hello.txt",ios::out);
        fp.close();
        while(1)
        {
            cout<<"\n1.Write\n 2.Display\n 3.Search\n 4.Modify\n 5.Exit\n Enter your choice\n";
            cin>>c;
            switch(c)
            {
            case 1:count++;write();break;
            case 2:unpack();display();break;
            case 3:unpack();search();break;
            case 4:unpack();search();modify();break;
            default:exit(0);
            }
        }
    }
}

```

## Output:



The screenshot shows a code editor with a file named `hello.txt`. The code in the editor is a C program that implements a simple database system. The program has a menu with five options: 1. Write, 2. Display, 3. Search, 4. Modify, and 5. Exit. The user has entered '3' to select the Search option. The program then prompts for 'Enter the usn' and the user has entered '1cr18is150'. The program then prompts for 'Enter the age' and the user has entered '23'. The program then prompts for 'Enter the sem' and the user has entered '7'. The program then prompts for 'Enter the branch' and the user has entered 'ece'. The program then displays the output 'Record not found'.

```
hello.txt
1 james|1cr18is15023|23|7|ece|
2 |
```

```
1.Write
2.Display
3.Search
4.Modify
5.Exit
Enter your choice
1
Enter the name
james
Enter the usn
1cr18is150
Enter the age
23
Enter the sem
7
Enter the branch
ece
```

```
1.Write
2.Display
3.Search
4.Modify
5.Exit
Enter your choice
3
Enter the usn
1cr18is140
Record not found
```