**UNIVERSITY OF GUJRAT**

**Semester Spring 2020 – Final Term Examination (Online)**

Department of Computer Sciences

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| **Course Title:**<br>**Object Oriented Programming** | **Course Code:** | **Teacher Name:**<br>**Dr. Nauman Riaz** |

## 1. Identify the attributes of the following objects

- Patient_name
- age
- city
- phone_number
- doctor name
- appointment_number
- appointement_status
- hours

## 2. Create the data classes of the following Objects

```
class dataclass:public  appointement

{

        string str[13];

        int size ;
        public:
         string datagetter()
{
        return *str;
}
void setter()
{
bookAppointment();

}
dataclass()
{

size=0;
ifstream read;
 read.open("appointment.txt");
 while(!read.eof()){
getline(read,str[size]);
size++;
}
}
```

3. **Add the following attributes with proper datatype in each data class\**

```
int     age ;
string city ;
```

```
char[13]      phone_number ;

int      appointment number;

string appointement status;

int      hours;

int hoursbook;

string name;
```

4. **Create the getter/setter functions of each data member in data classes of the following Objects**

```
string datagetter()
          {
                return *str;

          }
          void setter()
          { system("cls");

  cout<<"\n ----- Book Your Appointment ---- \n";
  cout<<"\n ----- Availbale slots ---- \n";

  //check if record already exist..
  ifstream read;
  read.open("appointment.txt");



  int arr[13] = {0,0,0,0,0,0,0,0,0,0,0,0,0};
  int recordFound =0;

  if(read)
  {
   string line;
   char key = 'A';
```

```
int i = 9;

while(getline(read, line)) {
char temp = line[0];
int index = (temp - 65);
arr[index]=1;
recordFound = 1;
}
if(recordFound == 1)
{
cout<<"\n Appointment Summary by hours:";
char key = 'A';
int hours = 9;
for(int i = 0; i<=12; i++)
{
if(i == 0){
if(arr[i] == 0)
cout<<"\n "<<key<<"-> 0"<<hours<<" - Available";
else
cout<<"\n "<<key<<"-> 0"<<hours<<" - Booked";
}

else
{
if(arr[i] == 0)
cout<<"\n "<<key<<"->"<<hours<<" - Available";
else
cout<<"\n "<<key<<"->"<<hours<<" - Booked";
}
hours++; key++;
}

}

read.close();
```

```
 }
  if(recordFound == 0){
  cout<<"\n Appointment Available for following hours :";
  char key = 'A';
  for(int i = 9; i<=21; i++)
  {
          if(i==9)
          cout<<"\n "<<key<<" -> 0"<<i<<" - Available";
          else
          cout<<"\n "<<key<<" -> "<<i<<" - Available";
          key++;
  }

  }

char choice;
cout<<"\n\n Input your choice : ";
cin>>choice;

if( !(choice >= 'A' && choice <='Z'))
{
  cout<"\n Error : Invalid Selection";
  cout<<"\n Please selction correct value from menu A- Z";
  cout<"\n Press any key to continue";
  getchar();getchar();
  system("cls");
  bookAppointment();
}

int index = (choice-65 );
int isBooked = 1;
if(arr[index] == 0)
  isBooked = 0;

if(isBooked ==1)
```

```
  {
    cout<<"\n Error : Appointment is already booked for this Hour";
    cout<<"\n Please select different time !!";
    cout<<"\n Press any key to continue!!";
    getchar();getchar();
    system("cls");
    bookAppointment();
  }


  cout<<"\n Enter your first name:";
  cin>>name;
  cout<<"Your Age\n";
  cin>>age;
  cout<<"Your City\n";
  cin>>city;
  ofstream out;
  out.open("appointment.txt", ios::app);

  if(out){
      out<<choice<<":"<<name.c_str()<<" "<<age<<" "<<city<<"\n";
      out.close();
      cout<<"\n Appointment booked for Hours : "<< (choice-65) + 9 <<"
successfully !!";
   }
   else
   {
    cout<<"\n Error while saving booking";
   }

   cout<<"\n Please any key to continue..";
    getchar(); getchar();
    return 0;

            }
```

5. **Create the data file or create tables in the database of the following Objects**

```
dataclass()
          {

size=0;
ifstream read;
 read.open("appointment.txt");
 while(!read.eof()){
                getline(read,str[size]);
   size++;
          }

    }
```

6. **Add static data member in Object class (created at step-2) which contains the value of data file path (created at step-3) and its value should not access directly. So, access the value through possible way. OR**

   **Connect with the database to access the data.**

```
String fname;
Fname=”appointment.txt”
string agetter()
          {
                return fname;
          }
```

7. **Create the data/repository class/interface for each data file or data table (created at step-4)**

```
   bookAppointment();
  }
  cout<<"\n Enter your first name:";
  cin>>name;
  cout<<"Your Age\n";
  cin>>age;
  cout<<"Your City\n";
  cin>>city;
  ofstream out;
  out.open(fname.c_str(), ios::app);

  if(out){
      out<<choice<<":"<<name.c_str()<<" "<<age<<" "<<city<<"\n";
      out.close();
      cout<<"\n Appointment booked for Hours : "<< (choice-65) + 9 <<"
successfully !!";
   }
   else
   {
    cout<<"\n Error while saving booking";
   }

   cout<<"\n Please any key to continue..";
    getchar(); getchar();
    return 0;
}
```

### 8. Create the service which return the all records in the file/table (created in step-4)

```
        string datagetter()
                {
                        return *str;


                }
```

**9. Create the service which return the all active records in the file/table (created in step-4)**

```
int existingAppointment()
{
   system("cls");
   cout<<"\n ----- Appointments Summary ---- \n";
   //check if record already exist..
   ifstream read;
   read.open(fname.c_str());

   int hoursbook = 8;

   int arr[13] = {0,0,0,0,0,0,0,0,0,0,0,0,0};
    int recordFound =0;

   if(read)
   {
         string line;
         char key = 'A';
         int i = 9;
    while(getline(read, line)) {
           char temp = line[0];
           int index = (temp - 65);
           arr[index]=1;
           recordFound = 1;
    }
if(recordFound == 1)
{
cout<<"\n Appointment Summary by hours:";
char key = 'A';
int hours = 9;
for(int i = 0; i<=12; i++)
{
  if(arr[i] == 0)
  cout<<"\n "<<key<<"->"<<hours<<" - Available";
  else
  cout<<"\n "<<key<<"->"<<hours<<" - Booked";
  hours++; key++;
}


  }
```

10. **Create the service which return the record of given ID in the file/table (created in step-4)**

    int idgetter(string line)

```
        {
                int recordFound;
                int index;
                ifstream read;
        read.open(fname.c_str());
                while(getline(read, line)) {
                  char temp = line[0];
                  index = (temp - 65);
                  recordFound = 1;
                  break;
         }
```

11. **Create the service which add the record into the file/table (created in step-4)**

```
    bookAppointment();

}




cout<<"\n Enter your first name:";

cin>>name;

cout<<"Your Age\n";

cin>>age;

cout<<"Your City\n";

cin>>city;

ofstream out;

out.open(fname.c_str(), ios::app);


if(out){

        out<<choice<<":"<<name.c_str()<<" "<<age<<" "<<city<<"\n";
```

```
            out.close();

            cout<<"\n Appointment booked for Hours : "<< (choice-65) + 9 <<" successfully !!";

    }

    else

    {

        cout<<"\n Error while saving booking";

    }


    cout<<"\n Please any key to continue..";

        getchar(); getchar();

        return 0;

}
```

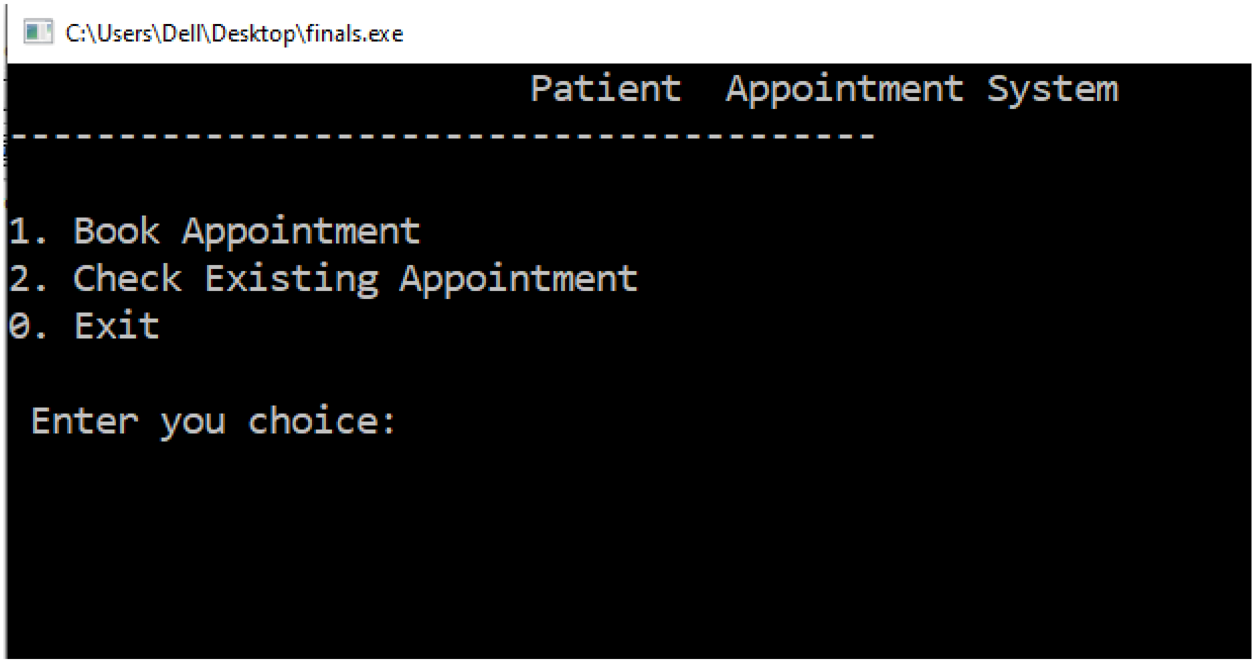
### 12. Create the service which update the record of given ID in the file/table (created in step-4)

```
void update()

            {

                    int op;

                    cout<<"Enter Record number\n";

                     cin>>op;

                     cout<<"appoint ment Status\n";

                     cin>>str[op];

                                }
```

### 13. Create the service which delete the record of given ID in the file/table (created in step-4)

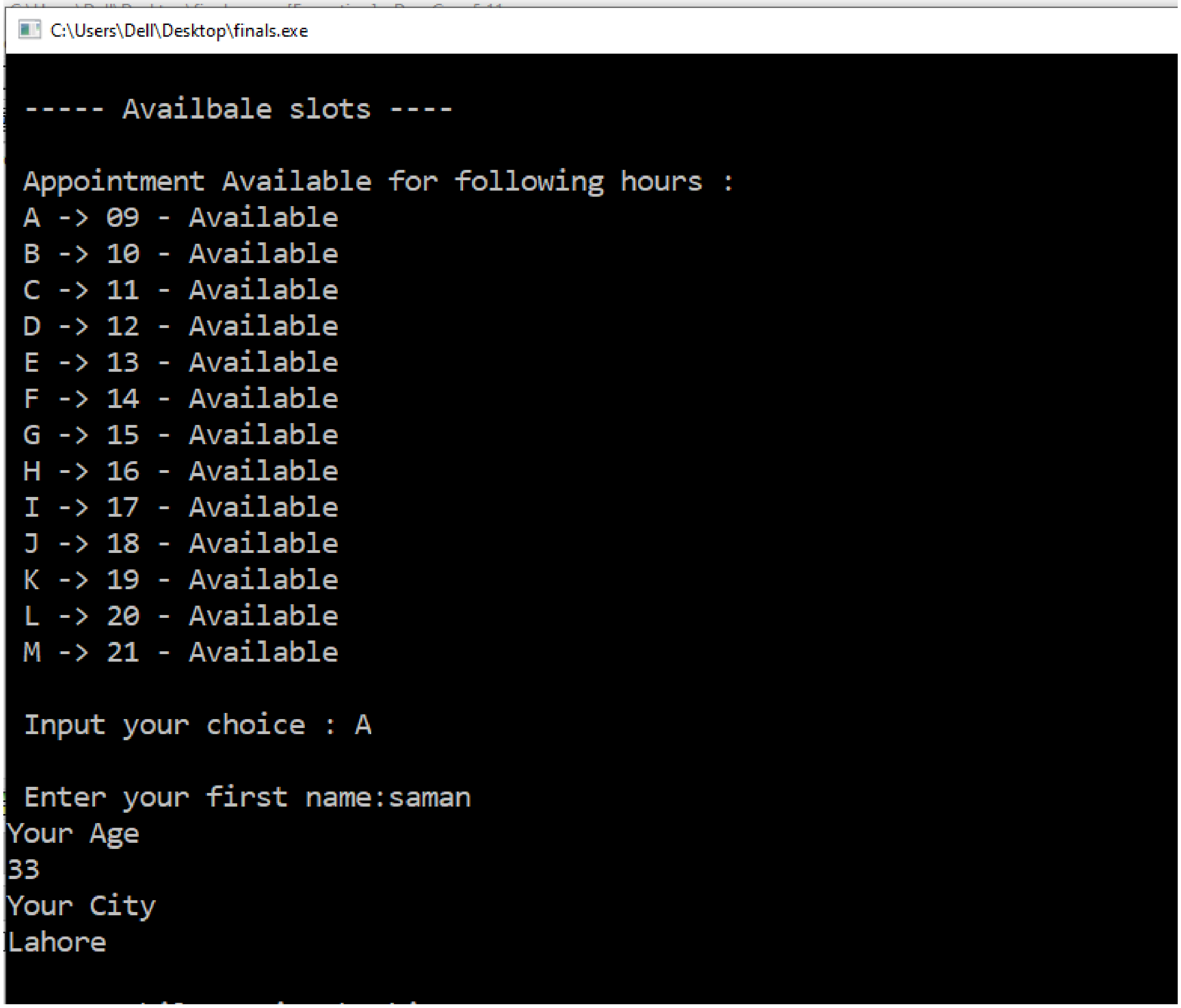
```
void delet()
                        {
                                int op;
                        cout<<"Enter Record number\n";
                cin>>op;
                cout<<"appoint ment Status\n";
                str[op]="0";


                }


                         ~dataclass()
                         {
                                ofstream out;
                                 out.open(fname.c_str(), ios::app);


  for(int i=0;i<13;i++)
  {


          out<<str[i]<<"\n";


                         }
                }
```

**Output:**

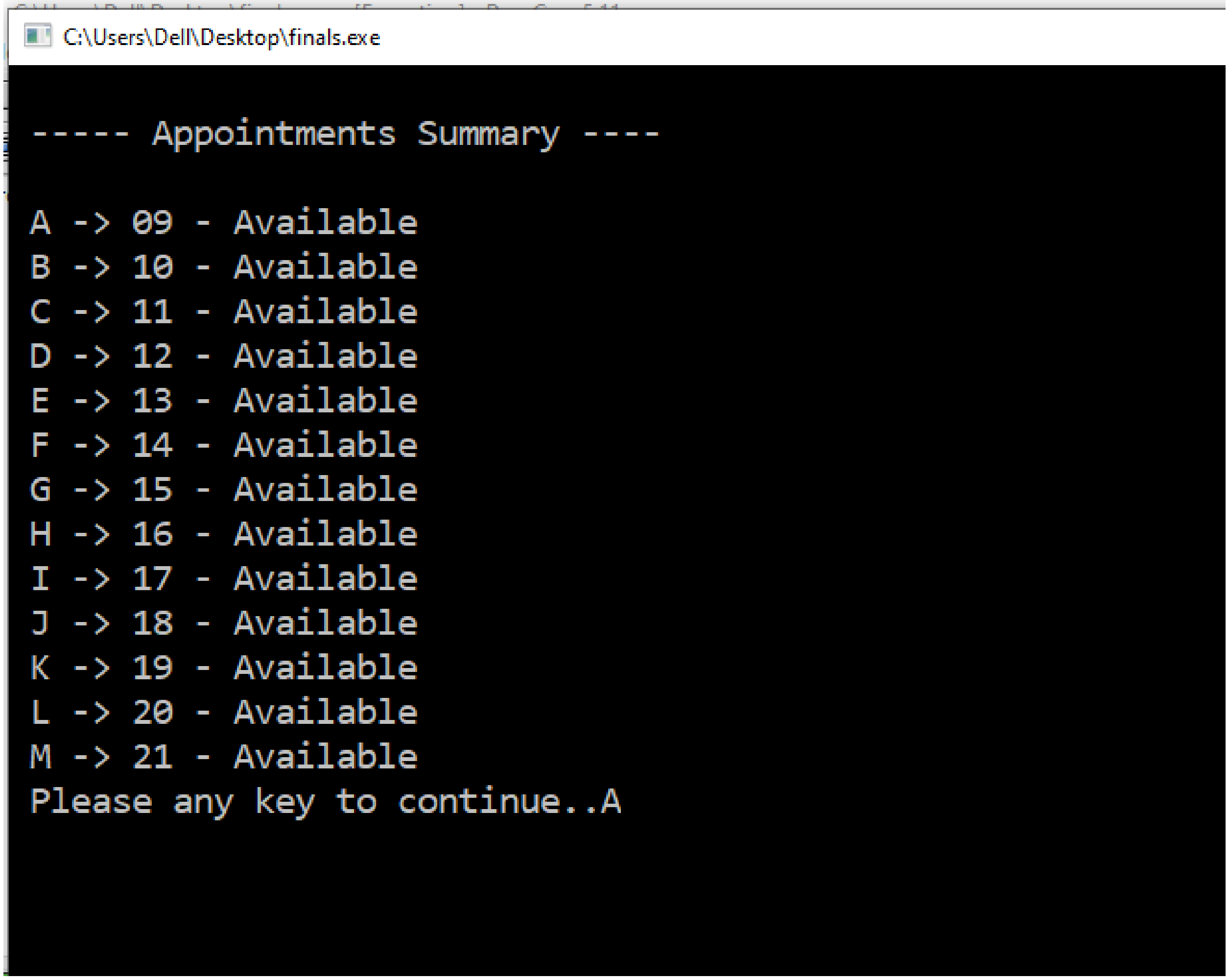


C:\Users\Dell\Desktop\finals.exe

```
                        Patient  Appointment System
----------------------------------------


1. Book Appointment
2. Check Existing Appointment
0. Exit

 Enter you choice:
```



```
 ----- Availbale slots ----

 Appointment Available for following hours :
 A -> 09 - Available
 B -> 10 - Available
 C -> 11 - Available
 D -> 12 - Available
 E -> 13 - Available
 F -> 14 - Available
 G -> 15 - Available
 H -> 16 - Available
 I -> 17 - Available
 J -> 18 - Available
 K -> 19 - Available
 L -> 20 - Available
 M -> 21 - Available

 Input your choice : A

 Enter your first name:saman
Your Age
33
Your City
Lahore
```



```
----- Appointments Summary ----

A -> 09 - Available
B -> 10 - Available
C -> 11 - Available
D -> 12 - Available
E -> 13 - Available
F -> 14 - Available
G -> 15 - Available
H -> 16 - Available
I -> 17 - Available
J -> 18 - Available
K -> 19 - Available
L -> 20 - Available
M -> 21 - Available
Please any key to continue..A
```

## Code :

```
#include <iostream>

#include <string>

#include <fstream>

#include <cstring>


using namespace std;


class appointement{
        private:

                string fname;
int     age ;
string  city ;
char    phone_number[13]  ;
int     appointment_number;
string  appointement_status;
int     hours;

                int hoursbook;
                string name;

public:
        appointment()
{
        hoursbook = 8;
        fname=fname;

}
string agetter()
                {
                        return fname;
                        }
//
int bookAppointment()
{
    system("cls");

    cout<<"\n ----- Book Your Appointment ---- \n";
    cout<<"\n ----- Availbale slots ---- \n";

    //check if record already exist..
    ifstream read;
    read.open(fname.c_str());



    int arr[13] = {0,0,0,0,0,0,0,0,0,0,0,0,0};
    int recordFound =0;

    if(read)
    {
        string line;
        char key = 'A';
        int i = 9;
```

```
while(getline(read, line)) {
char temp = line[0];
int index = (temp - 65);
arr[index]=1;
recordFound = 1;
}
if(recordFound == 1)
{
cout<<"\n Appointment Summary by hours:";
char key = 'A';
int hours = 9;
for(int i = 0; i<=12; i++)
{
if(i == 0){
if(arr[i] == 0)
cout<<"\n "<<key<<"-> 0"<<hours<<" - Available";
else
cout<<"\n "<<key<<"-> 0"<<hours<<" - Booked";
}

else
{
if(arr[i] == 0)
cout<<"\n "<<key<<"->"<<hours<<" - Available";
```

```
        else
        cout<<"\n "<<key<<"->"<<hours<<" - Booked";
        }
        hours++; key++;
        }

        }

        read.close();
    }
        if(recordFound == 0){
        cout<<"\n Appointment Available for following hours :";
        char key = 'A';
        for(int i = 9; i<=21; i++)
        {
                if(i==9)
                cout<<"\n "<<key<<" -> 0"<<i<<" - Available";
                else
                cout<<"\n "<<key<<" -> "<<i<<" - Available";
                key++;
        }

        }
```

```
char choice;
cout<<"\n\n Input your choice : ";
cin>>choice;

if( !(choice >= 'A' && choice <='Z'))
{
        cout<"\n Error : Invalid Selection";
        cout<<"\n Please selction correct value from menu A- Z";
        cout<"\n Press any key to continue";
        getchar();getchar();
        system("cls");
        bookAppointment();
}

int index = (choice-65 );
int isBooked = 1;
if(arr[index] == 0)
  isBooked = 0;

if(isBooked ==1)
{
        cout<<"\n Error : Appointment is already booked for this Hour";
        cout<<"\n Please select different time !!";
        cout<<"\n Press any key to continue!!";
        getchar();getchar();
        system("cls");
        bookAppointment();
}


cout<<"\n Enter your first name:";
cin>>name;
cout<<"Your Age\n";
cin>>age;
cout<<"Your City\n";
cin>>city;
ofstream out;
out.open(fname.c_str(), ios::app);

if(out){
        out<<choice<<":"<<name.c_str()<<" "<<age<<" "<<city<<"\n";
        out.close();
        cout<<"\n Appointment booked for Hours : "<< (choice-65) + 9 <<" successfully !!";
 }
 else
 {
        cout<<"\n Error while saving booking";
 }
```

```
    cout<<"\n Please any key to continue..";
        getchar(); getchar();
        return 0;
}

int existingAppointment()
{
    system("cls");
    cout<<"\n ----- Appointments Summary ---- \n";
    //check if record already exist..
    ifstream read;
    read.open(fname.c_str());

    int hoursbook = 8;

    int arr[13] = {0,0,0,0,0,0,0,0,0,0,0,0,0};
     int recordFound =0;

    if(read)
    {
        string line;
        char key = 'A';
        int i = 9;
    while(getline(read, line)) {
            char temp = line[0];
            int index = (temp - 65);
            arr[index]=1;
            recordFound = 1;
    }
if(recordFound == 1)
{
cout<<"\n Appointment Summary by hours:";
char key = 'A';
int hours = 9;
for(int i = 0; i<=12; i++)
{
  if(arr[i] == 0)
  cout<<"\n "<<key<<"->"<<hours<<" - Available";
  else
  cout<<"\n "<<key<<"->"<<hours<<" - Booked";
  hours++; key++;
}

  }

  read.close();
```

```
    }
    else
    {
    char key = 'A';
            for(int i = 9; i<=21; i++)
            {
            if(i==9)
            cout<<"\n "<<key<<" -> 0"<<i<<" - Available";
            else
            cout<<"\n "<<key<<" -> "<<i<<" - Available";
            key++;
            }
    }

    cout<<"\n Please any key to continue..";
    getchar(); getchar();
    return 0;
}

void  menu ()
{
            while(1)
            {
                        system("cls");
```

```
cout<<"\t\t\tPatient  Appointment System\n";
cout<<"---------------------------------------\n\n";

cout<<"1. Book Appointment\n";
cout<<"2. Check Existing Appointment\n";
cout<<"0. Exit\n";
int choice;

cout<<"\n Enter you choice: ";
cin>>choice;

switch(choice)
{
    case 1: bookAppointment(); break;
    case 2: existingAppointment(); break;
    case 0:
   while(1)
   {
        system("cls");
    cout<<"\n Are you sure, you want to exit? y | n \n";
    char ex;
    cin>>ex;
    if(ex == 'y' || ex == 'Y')
        exit(0);
```

```
            else if(ex == 'n' || ex == 'N')
            {
             break;
            }
        else{
          cout<<"\n Invalid choice !!!";
          getchar();
        }
          }      break;

    default: cout<<"\n Invalid choice. Enter again ";
        getchar();


         }


    }
}



};

class dataclass:public  appointement
{
    string str[13];
```

```
        string fname;
        int size ;
        public:
                string datagetter()
               {
                        return *str;

               }
               void setter()
               {
                        bookAppointment();

               }
               dataclass()
               {
                        this->fname=agetter();

               size=0;
ifstream read;
   read.open(fname.c_str());
  while(!read.eof()){
                        getline(read,str[size]);
                        size++;
               }
        }

        int idgetter(string line)
        {
                 int recordFound;
                 int index;
                 ifstream read;
read.open(fname.c_str());
                 while(getline(read, line)) {
                    char temp = line[0];
                    index = (temp - 65);
                    recordFound = 1;
                    break;
         }
         return index;
        }

        void update()
        {
                 int op;
                 cout<<"Enter Record number\n";
                  cin>>op;
                  cout<<"appoint ment Status\n";
                  cin>>str[op];
                      }


                      void delet()
                      {
                          int op;
                      cout<<"Enter Record number\n";
                  cin>>op;
                  cout<<"appoint ment Status\n";
                  str[op]="0";

                  }


                       ~dataclass()
                       {
                           ofstream out;
                            out.open(fname.c_str(), ios::app);

          for(int i=0;i<13;i++)
          {

              out<<str[i]<<"\n";

                       }
```

```
                    }


};




int main() {


appointement obj;

obj.menu();

          return 0;

}
```

**Github link:**

**https://github.com/samanabdulrehman/18321519-113.git**