

Q1:

```
#include <iostream>
#include <string>

using namespace std;

// Forward declaration of Room class
class Room;

class Radiator {
private:
    static int num;
    string radiatorid;
    string ison;

public:
    Radiator() {
        if (num < 1) {
            string name = "22k-4777";
            name = name.substr(name.length() - 3, 3);
            num = std::stoi(name);
        }
        radiatorid = to_string(num);
        ison = "Off";
        num = num + 15;
    }

    string getRadiatorId() {
        return radiatorid;
    }

    void setRadiatorId(string id) {
        radiatorid = id;
    }

    void setIsOn() {
        ison = "On";
    }

    string get_status() {
        return this->ison;
    }

    void Heat(Room *ob);
```

```

};

int Radiator::num = 0;

class Room {
private:
    string roomName;
    int seating_capacity;
    int numRadiator;
    Radiator *R1;
    Radiator *R2;

public:
    Room() {
        seating_capacity = 12;
        numRadiator = 0;
        roomName = "None";
    }

    void is_heatedBY(Radiator& r1, Radiator& r2) {
        if (numRadiator >= 2) {
            cout << "Room at full capacity" << endl;
            return;
        }
        if ((&r1 == R1) || (&r1 == R2)) {
            cout << "Radiator " << r1.getRadiatorId() << " already added" <<
endl;
            return;
        }
        R1 = &r1;
        cout << "Radiator " << r1.getRadiatorId() << " added successfully" <<
endl;
        r1.setIsOn();
        ++numRadiator;

        if ((&r2 == R1) || (&r2 == R2)) {
            cout << "Radiator " << r2.getRadiatorId() << " already added" <<
endl;
            return;
        }
        R2 = &r2;
        cout << "Radiator " << r2.getRadiatorId() << " added successfully" <<
endl;
    }
};

```

```

        r2.setIsOn();
        ++numRadiator;
    }

    void set_name(string name) {
        roomName = name;
    }

    void set_seating_capacity(int n) {
        seating_capacity = n;
    }

string get_roomname()
{
    return roomName;
}
int getseat()
{
    return seating_capacity;
}
};

void Radiator::Heat(Room *ob) {
    ob->set_name("Haris's Room");
    ob->set_seating_capacity(99);
}

int main() {
    cout << "Muhammad Haris 22k-4777" << endl;
    cout << "*****" << endl;
    Radiator r1;
    Radiator r2;
    Room R1;
    r1.Heat(&R1);
    cout<<"Room Name "<<R1.get_roomname()<<"Sitting capacity
"<<R1.getseat()<<endl;
    //R1.is_heatedBY(r1,r2);
    R1.is_heatedBY(r1,r1); //both can be checked i am commenting it
    //R1.is_heatedBY(r1,r2); // same for this one i showed in outputs pics

    cout<<"Radiator "<<r1.getRadiatorId()<<" is "<<r1.get_status()<<endl;
    cout<<"Radiator "<<r2.getRadiatorId()<<" is "<<r2.get_status()<<endl;
    return 0;
}

```

Output Of Q1:

```
F:\oop THEORY\Oop_Theory_assignment\Oop.Q1.exe
Muhammad Haris 22k-4777
*****
Room Name Haris's RoomSitting capacity 99
Radiator 777 added successfully
Radiator 792 added successfully
Radiator 777 is On
Radiator 792 is On

-----
Process exited after 0.1322 seconds with return value 0
Press any key to continue . . .

F:\oop THEORY\Oop_Theory_assignment\Oop.Q1.exe
Muhammad Haris 22k-4777
*****
Room Name Haris's RoomSitting capacity 99
Radiator 777 added successfully
Radiator 792 added successfully
Room at full capacity
Radiator 777 is On
Radiator 792 is On

-----
Process exited after 0.1264 seconds with return value 0
Press any key to continue . . .

F:\oop THEORY\Oop_Theory_assignment\Oop.Q1.exe
Muhammad Haris 22k-4777
*****
Room Name Haris's RoomSitting capacity 99
Radiator 777 added successfully
Radiator 777 already added
Radiator 777 is On
Radiator 792 is Off

-----
Process exited after 0.1308 seconds with return value 0
Press any key to continue . . .
```

Q2:

```
#include<iostream>
#include<vector>
using namespace std;
class Admin;
class DataScientist{
    private:
string  firstname,lastname,highereduction,country;
int age,number_of_answer,number_of_question,Id;
public:
DataScientist()
{
    number_of_answer=0;
    number_of_question=0;
}
DataScientist(string f,string l,string h,string c,int age,int id)
{
    firstname=f;
    lastname=l;
    highereducation=h;
country=c;
this->age=age;
Id=id;
}
void set_name(string name,int a)
{
    data[a].firstname=name;
}
void set_last(string name,int a)
{
    data[a].lastname=name;
}
void set_country(string name,int a)
{
    data[a].country=country;
}
string get_first(int a)
{
```

```

        return data[a].firstname;
    }
    string get_last(int a)
    {
        return data[a].lastname;
    }
    string get_country(int a)
    {
        return data[a].country;
    }
    void set_age(int ag,int a)
    {
        data[a].age=ag;
    }
    int get_age(int a)
    {
        return data[a].age;
    }
    static const int max=200;
    static DataScientist data[max];
    static int size;
    int check(int id)
    {
        for(int i=0;i<size;i++)
        {
            if(data[i].Id==id)
            {
                cout<<"*****"
*****"<<endl;
                cout<<"Your Name "<<data[i].firstname<<endl<<"Last Name
:"<<data[i].lastname<<endl<<"ID :"<<data[i].Id<<endl<<"Number Of Question Asked
"<<data[i].number_of_question<<endl<<"Number Of Answer You Gave:
"<<data[i].number_of_answer<<endl;
                return i;
            }
        }
        return -1;
    }
    void question(int id)
    {
        string question;
        cout<<"Enter Your Question"<<endl;
        cin>>question;
        data[id].number_of_question++;
    }

```

```

void answer(int id)
{
    string ans;
    cout<<"Which is Better Cyber Security Or Data Science (Obviously Cyber ) But  

    You Your Answer"<<endl;
    cin>>ans;
    data[id].number_of_answer++;
}

static int append(string name,string l,string h,string c,int age,int id)
{
    int flag=0;

    if(size>=max)
    {
        cout<<"Out Of Capacity User"<<endl;
        return -1;
    }
    else{
        for(int i=0;i<size;i++)
        {
            if(id==data[i].Id)
            {
                cout<<"ID Already Exist"<<endl;
                flag=1;
                return -3;
            }
        }
    }

    if ((size < max)&&(flag!=1)) {
        data[size]=DataScientist(name,l,h,c,age,id);

        size++;
        cout<<"User Added Successfully"<<endl;
        return 0;
    }
    return 0;
}

};

class Admin
{
    private:
    int admin_id;
    string first_name,last_name,country;
    int age;
    static int total_user;
}

```

```
string pass;
public:
    Admin()
    {
    }
Admin(string f,string l, string c,int age,string pass1)
{
    this->admin_id=4777;
    this->first_name=f;
    this->last_name=l;
    this->age=age;
    this->country=c;
    this->pass=pass1;
}
void increase()
{
    total_user++;
}
int check(string pass2)
{
    if(pass==pass2)
    {
        return 0;
    }
    else return -1;
}
void set_firstname(string name)
{
    first_name=name;
}
void set_lastname(string name)
{
    last_name=name;
}
void set_country1(string name)
{
    country=name;
}
void set_age1(int ag)
{
    age=ag;
}
string get_first()
{
    return first_name;
}
```



```

    }
    string get_last()
    {
        return last_name;
    }
    string get_country()
    {
        return country;
    }
    int get_age()
    {
        return age;
    }
    int get_user()
    {
        return total_user;
    }
    int get_id()
    {
        return admin_id;
    }
};
DataScientist DataScientist::data[DataScientist::max];
int DataScientist::size=0;
int Admin::total_user=0;
int main(){
    cout<<"Muhammad Haris 22k-4777"<<endl;
    cout<<"*****"<<endl;
    Admin a1;
    string pass1;
    DataScientist s;
string f,l,h,c,rollno;

int age;
int id;
string choice;
char ch;

cout<<"Enter Your First Name"<<endl;
cin>>f;
cout<<"Enter Your Last Name"<<endl;
cin>>l;
cout<<"Enter Your Age"<<endl;
cin>>age;
cout<<"Create A Password"<<endl;

```

```

cin>>pass1;

cout<<"Enter Your Country"<<endl;
cin>>c;
rollno="22k-4777";
a1=Admin(f,l,c,age,pass1);
cout<<"Admin ID Created Succesfully"<<endl;
cout<<"*****"<<endl;
while(1){
cout<<"If You are Admin Enter (Admin)"<<endl;
cout<<"*****"<<endl;
cout<<"If You are (User) Enter User"<<endl;
cout<<"*****"<<endl;
cout<<"If You Want to create Your Account As a User Enter (Create)"<<endl;
cout<<"*****"<<endl;
cout<<"If You Want to end the program enter Y/y"<<endl;
cin>>choice;
if((choice == "y")||(choice=="Y"))
{
    cout<<"By"<<endl;
    return 0;
}
while(1){
    if((choice=="admin")||(choice=="Admin")||(choice=="Create")||(choice=="create")
    )||(choice=="User")||(choice=="user"))
        break;
    else{ cout<<"Wrong Choice Enter Correctly(Also Case Sensitive)"<<endl;
cin>>choice;
    }
}
if((choice=="User")||(choice=="user"))
{
cout<<"Enter Your Roll No Ex:22k-4777 "<<endl;
cin>>rollno;
id = std::stoi(rollno.substr(4, 7));
int a=s.check(id);
if(a<0)
{
    cout<<"Cannot Find Your Id Or May Be You Did Not Create Account"<<endl;
}
else{
cout<<"Do You Want Ask Question Or Answer Question if Yes Enter Question If You
Want to Answer The Question Enter Answer"<<endl;
cin>>choice;

```

```

if(choice=="Answer" || choice=="answer")
{
    s.answer(a);
}
if(choice=="Question" || choice=="question")
{
    s.question(a);
}
cout<<"Do You Want To Update Your First Name Enter (First) If Last Name Enter (Last) if Country Enter Country(Country) Or Age Enter (Age)\n For Exit Enter No::"<<endl;
cin>>choice;
while(1)
{
    if((choice=="First" || (choice=="first" || (choice=="Last" || (choice=="last" || (choice=="country" || (choice=="Country" || (choice=="Age" || (choice=="age"))
    {
        break;
    }
    else if((choice=="No" || (choice=="no"))
    break;
    else{ cout<<"Wrong Choice Enter Correctly(Also Case Sensitive)"<<endl;
cin>>choice;
    }
}
if((choice=="First" || (choice=="first"))
{
    cout<<"Enter First Name"<<endl;
    cin>>f;
    s.set_name(f,a);
    cout<<"Your Name Was Updated to : "<<s.get_first(a);
}
else if((choice=="last" || (choice=="Last"))
{
    cout<<"Enter last Name"<<endl;
    cin>>f;
    s.set_last(f,a);
    cout<<"Your Last Name Was Updated to : "<<s.get_last(a);
}
else if((choice=="Country" || (choice=="country"))
{cout<<"Enter Country Name"<<endl;
    cin>>f;
    s.set_country(f,a);
    cout<<"Your Country Was Updated to : "<<s.get_country(a);
}

```

```

else if((choice=="Age")||(choice=="age"))
{
    cout<<"Enter Age:"<<endl;
    cin>>age;
    s.set_age(age,a);
    cout<<"Your Age Was Updated "<<s.get_age(a)<<endl;
}
}
}
if((choice=="Create")||(choice=="create"))
{
    cout<<"Enter Your First Name"<<endl;
    cin>>f;
    cout<<"Enter Your Last Name"<<endl;
    cin>>l;
    cout<<"Enter Your Higher Education"<<endl;
    cin>>h;
    cout<<"Enter Your Country"<<endl;
    cin>>c;
    cout<<"Enter Your Age "<<endl;
    cin>>age ;
    cout<<"Enter Your Role No:"<<endl;
    cin>>rollno;
    id = std::stoi(rollno.substr(4,7));

    if(DataScientist::append(f,l,h,c,age,id)>=0)
    {
        DataScientist::append(f,l,h,c,age,id);
        cout<<"*****"<<endl;
        a1.increase();
    }
}
if((choice=="Admin")||(choice=="Admin"))
{
    cout<<"Enter Password"<<endl;
    cin>>pass1;
    if(a1.check(pass1)==0){
        cout<<"*****"<<endl;
        cout<<"First Name "<<a1.get_first()<<endl<<"Last Name
"<<a1.get_last()<<endl<<"Age "<<a1.get_age()<<endl<<"Country
"<<a1.get_country()<<endl<<"ID"<<a1.get_id()<<endl;
        cout<<"Numbers Of Users Are "<<a1.get_user()<<endl;
        cout<<"*****"<<endl;
        cout<<"Enter y if you want to Update Your Info"<<endl;
    }
}

```

```

cin>>choice;
if((choice=="Y")||(choice=="y"))
{
    cout<<"What Do You want to Update Your Information\nTo Update Name
Enter(Name)\nTo Update Last Name Enter (Last)\nTo Update Enter Country Enter
Country\nTo Update Age Enter (Age)"<<endl;
    cin>>choice;
    while(1){
        if((choice=="Name")||(choice=="name")||(choice=="last")||(choice=="Last")
||(choice=="country")||(choice=="Country")||(choice=="Age")||(choice=="age"))
        {
            break;
        }
        else{
            cout<<"Enter Correct Also Case Sensitive"<<endl;
            cin>>choice;
        }
    }
}
cout<<"*****"<<endl;
if((choice=="Name")||(choice=="name"))
{
    cout<<"Enter New Name"<<endl;
    cin>>f;
    a1.set_firstname(f);
    cout<<"Name Was Changed to "<<f<<endl;
}
else if((choice=="Last")||(choice=="last"))
{
    cout<<"Enter Last Name"<<endl;
    cin>>l;
    a1.set_lastname(l);
    cout<<"Name Was Changed to "<<l<<endl;
}
else if((choice=="Country")||(choice=="country"))
{
    cout<<"Enter Country"<<endl;
    cin>>c;
    a1.set_country1(c);
    cout<<"Name Was Changed to "<<c<<endl;
}
else if((choice=="age")||(choice=="Age"))
{
    cout<<"Enter Age"<<endl;
    cin>>age;
}

```

```

        a1.set_age1(age);
        cout<<"Age Was Changed to "<<age<<endl;
    }
}
}
}
}

```

```

Muhammad Haris 22k-4777
*****
Enter Your First Name
Haris
Enter Your Last Name
Shahid
Enter Your Age
22
Create A Password
Haris
Enter Your Country
Pakistan
Admin ID Created Successfully
*****
If You are Admin Enter (Admin)
*****
If You are (User) Enter User
*****
If You Want to create Your Account As a User Enter (Create)
*****
If You Want to end the program enter Y/y
Create
Enter Your First Name
Mansoor
Enter Your Last Name
Iqbal
Enter Your Higher Education
Bs
Enter Your Country
Pak
Enter Your Age
22
Enter Your Role No:
22k-4747
User Added Successfully

```

```
.....
Your Name Mansoob
Last Name :Iqbal
ID :4555
Number Of Question Asked 0
Number Of Answer You Gave: 0
Do You Want Ask Question Or Answer Question if Yes Enter Question If You Want to Answer The Question Enter Answer
Answer
Which is Better Cyber Security Or Data Science (Obviously Cyber ) But You Your Answer
Cyberbetter
Do You Want To Update Your First Name Enter (First) If Last Name Enter (Last) if Country Enter Country(Country) Or Age Enter
For Exit Enter No::
No
If You are Admin Enter (Admin)
*****
If You are (User) Enter User
*****
If You Want to create Your Account As a User Enter (Create)
*****
If You Want to end the program enter Y/y
User
Enter Your Roll No Ex:22k-4777
22k-4555
*****
Your Name Mansoob
Last Name :Iqbal
ID :4555
Number Of Question Asked 0
Number Of Answer You Gave: 1
Do You Want Ask Question Or Answer Question if Yes Enter Question If You Want to Answer The Question Enter Answer
```

```
If You are Admin Enter (Admin)
*****

If You are (User) Enter User
*****

If You Want to create Your Account As a User Enter (Create)
*****

If You Want to end the program enter Y/y
Admin
Enter Password
Haris
*****

First Name Haris
Last Name Shahid
Age 13
Country Pak
ID4777
Numbers Of Users Are 1
*****

Enter y if you want to Update Your Info
y
What Do You want to Update Your Information
To Update Name Enter(Name)
To Update Last Name Enter (Last)
To Update Enter Country Enter Country
To Update Age Enter (Age)
Country
*****

Enter Country
India
Name Was Changed to India
If You are Admin Enter (Admin)
*****

If You are (User) Enter User
*****

If You Want to create Your Account As a User Enter (Create)
*****

If You Want to end the program enter Y/y
y
By
```


Q3:

```
#include<iostream>
using namespace std;
#include<string>
#include<ctime>
class HeartRates{
private:
string name;
string id;
int day;
int year;
int month;
public:
HeartRates(string name, int d,int m,int y) {
    day=d;
    month=m;
    year=y;
this->name = name;
string roll_no="22k-4777";
this->id = roll_no.substr(4,7);
}
int calculate_age() {
int current_year = 2023;
int age = current_year - year;
return age;
}
int maximum_heart_rate()
{
return 220-calculate_age();
}
string target_heart_range()
{
int first;
int second;
first=maximum_heart_rate()*0.5;
second=maximum_heart_rate()*0.85;
return to_string(first)+"->" +to_string(second);
}
string get_info()
{
    string date_of_birth=to_string(day)+"/"+to_string(month)+"/"+to_string(year);
```

```

return name+"\n"+id+"\n"+date_of_birth+"\n"+"Age :
"+to_string(calculate_age())+"\n"+"Maximum Heart Rate
:"+to_string(maximum_heart_rate())+"\n"+"Target Heart Range "+
target_heart_range();
}
};
int main() {
    cout<<"Muhammad Haris 22k-4777"<<endl;
    cout<<"*****"<<endl;
    string name;
    int day,month,year;
    cout << "Enter your name: " << endl;
    cin >> name;
    cout << "Enter your date of birth in this format DD/MM/YYYY: First Enter Date
    Then Enter Month Then Year for ig 2004 " << endl;
    cin >> day>>month>>year;
    // Validate input format
    while (1) {

        if((day>31)|| (month>12)|| (year<1111)|| (year>=2023))
        {
            cout<<"Enter Correctly"<<endl;
        }
        else
            break;
    }

    HeartRates h1(name,day,month,year);
    //cout<<h1.calculate_age();
    cout<<h1.get_info();

    return 0;
}

```

Q3 Outputs:

```
F:\ooP tHEORY\Oop_Theory_assignment\Q3.exe
Muhammad Haris 22k-4777
*****
Enter your name:
Haris
Enter your date of birth in this format DD/MM/YYYY: First Enter Date Then Enter Month Then Year for ig 200
02
12
2003
Haris
4777
2/12/2003
Age : 20
Maximum Heart Rate :200
Target Heart Range 100->170
-----
Process exited after 10.09 seconds with return value 0
Press any key to continue . . .
```

Q4 Code:

```
#include <iostream>
#include <string>
#include<cstdlib>
#include<ctime>
using namespace std;

class Movie {
private:
    string movies[9] = {"Avengers End Game", "Infinity War", "Civil War", "Khan",
"Jawani Phir Nahi Aani", "Life At Fast", "Dday", "CivilWar", "Harley Queen"};
    int array[9] = {2, 12, 3, 2, 4, 5, 7, 7, 9};
public:
    void show() {
        for (int i = 0; i < 9; i++) {
            cout << "Movie Name: " << movies[i] << " is shown at time: " <<
array[i] << ":00 PM" << endl;
        }
    }
};
```

```

    }
}
string get_movies(int name) {
    if(name<10)
    {
        // cout<<array[name];
        return movies[name];
    }

    return "UnexpectedError"; // return -1 if the movie name is not found
}
int gettime(int name)
{
    return array[name];
}
};

class Ticket {
private:
    int row_num;
    int seat_num;
    int ticket_id;
    bool sold;
    string movie;
    int time;
public:
Ticket()
{

}

Ticket(int r, int s,int id,string m,int t) {
    row_num = r;
    seat_num = s;
    ticket_id=id;
    sold = false;
    this->movie=m;
    this->time=t;
}

static const int MAX_TICKETS = 100;
static Ticket tickets[MAX_TICKETS];
static int num_tickets;
void append_record(int r, int s, int id,string movie,int time) {

```

```

        for (int i = 0; i < num_tickets; i++) {
            if (tickets[i].ticket_id==id && tickets[i].sold ==true) {
                cout << "Sorry, seat is already booked by ticket with ID " <<
tickets[i].ticket_id << endl;
                return;
            }
        }

        if (num_tickets < MAX_TICKETS) {
            tickets[num_tickets] = Ticket(r, s, id,movie,time);
            tickets[num_tickets].sold=true;

            num_tickets++;

            cout << "Ticket booked successfully" << endl;
            this->check(id); // Add the function call to check the ticket record
        } else {
            cout << "Sorry, no more tickets available" << endl;
        }
    }

void check(int id)
{
    for (int i = 0; i < num_tickets; i++) {
        if (tickets[i].ticket_id==id && tickets[i].sold ==true) {
            cout<<"*****"<<endl;
            cout<<"ID == "<<tickets[i].ticket_id<<endl;
            cout<<"Booked Seat No : "<<tickets[i].seat_num<<endl;
            cout<<"Booked Row No : "<<tickets[i].row_num<<endl;
            cout<<"Booked Movie "<<tickets[i].movie<<" at This Time
:"<<tickets[i].time<<endl;
            cout<<"*****"<<endl;
        }
    }
}

};

Ticket Ticket::tickets[Ticket::MAX_TICKETS];
int Ticket::num_tickets = 0;

int main() {
    cout<<"Muhammad Haris 22k-4777"<<endl;
    cout<<"*****"<<endl;

```

```

Ticket t1;
    Movie my_movie;
    string name;
    string movie;
    int time;
    int r,s;
    int id;
    int num;
    char ch;

    while(1){

        cout<<"Enter Your Name: Means Your Role No in the format 22k-4777"<<endl;
        cin>>name;
        id = std::stoi(name.substr(4, 2));
        cout<<"These Movies Are Available"<<endl;
        my_movie.show();
        cout<<"Which Movies You Wanna to see "<<endl;
        cout<<"Enter Number"<<endl;
        cin>>num;
        if(my_movie.get_movies(num) == "UnexpectedError")
        {
            cout<<"Not Available Or Entered Wrong"<<endl;
            return 0;
        }
        else
        {
            cout<<"This Movie: "<<my_movie.get_movies(num)<<" Is Shown On Time:
"<<my_movie.gettime(num)<<":00 PM"<<endl;
            movie=my_movie.get_movies(num);
            time=my_movie.gettime(num);
        }
        s=(rand()%100-10+1)+10;
        //cout<<"Enter Row Number"<<endl;
        r=(rand()%50-10+1)+1;

        Ticket ticket;
        ticket.append_record(r, s, id, movie, time);

        cout<<"Do You Wanna to Buy more tickets"<<endl;
        cout<<"If Yes Enter Y/y else no enter N/n"<<endl;
        cin>>ch;
        if((ch=='n')||(ch=='N')){

```

```
        break;
    }
}
char chic;
cout<<"Do You Want To see Ticket Info"<<endl;
cout<<"If Yes Enter Y else no"<<endl;
cin>>chic;
switch(chic)
{
    case 'Y':
        case 'y':
            cout<<"Enter ID"<<endl;
            cin>>id;
            t1.check(id);
            break;
}
return 0;
}
```

Q4 Outputs:

F:\ooP tHEORY\Oop_Theory_assignment\Q4.exe

```
Muhammad Haris 22k-4777
*****
Enter Your Name: Means Your Role No in the format 22k-4777
22k-4777
These Movies Are Available
Movie Name: Avengers End Game is shown at time: 2:00 PM
Movie Name: Infinity War is shown at time: 12:00 PM
Movie Name: Civil War is shown at time: 3:00 PM
Movie Name: Khan is shown at time: 2:00 PM
Movie Name: Jawani Phir Nhi Aani is shown at time: 4:00 PM
Movie Name: Life At Fast is shown at time: 5:00 PM
Movie Name: Dday is shown at time: 7:00 PM
Movie Name: CivilWar is shown at time: 7:00 PM
Movie Name: Harley Queen is shown at time: 9:00 PM
Which Movies You Wanna to see
Enter Number
3
This Movie: Khan Is Shown On Time: 2:00 PM
Ticket booked successfully
*****
ID == 47
Booked Seat No :42
Booked Row No :9
Booked Movie Khan at This Time :2
*****
Do You Wanna to Buy more tickets
If Yes Enter Y/y else no enter N/n
y
Enter Your Name: Means Your Role No in the format 22k-4777
22k-4779
These Movies Are Available
Movie Name: Avengers End Game is shown at time: 2:00 PM
Movie Name: Infinity War is shown at time: 12:00 PM
Movie Name: Civil War is shown at time: 3:00 PM
Movie Name: Khan is shown at time: 2:00 PM
Movie Name: Jawani Phir Nhi Aani is shown at time: 4:00 PM
Movie Name: Life At Fast is shown at time: 5:00 PM
Movie Name: Dday is shown at time: 7:00 PM
Movie Name: CivilWar is shown at time: 7:00 PM
Movie Name: Harley Queen is shown at time: 9:00 PM
Which Movies You Wanna to see
```



```
Movie Name: Harley Queen is shown at time: 9:00 PM
Which Movies You Wanna to see
Enter Number
2
This Movie: Civil War Is Shown On Time: 3:00 PM
Sorry, seat is already booked by ticket with ID 47
Do You Wanna to Buy more tickets
If Yes Enter Y/y else no enter N/n
y
Enter Your Name: Means Your Role No in the format 22k-4777
22k-1923
These Movies Are Available
Movie Name: Avengers End Game is shown at time: 2:00 PM
Movie Name: Infinity War is shown at time: 12:00 PM
Movie Name: Civil War is shown at time: 3:00 PM
Movie Name: Khan is shown at time: 2:00 PM
Movie Name: Jawani Phir Nhi Aani is shown at time: 4:00 PM
Movie Name: Life At Fast is shown at time: 5:00 PM
Movie Name: Dday is shown at time: 7:00 PM
Movie Name: CivilWar is shown at time: 7:00 PM
Movie Name: Harley Queen is shown at time: 9:00 PM
Which Movies You Wanna to see
Enter Number
3
This Movie: Khan Is Shown On Time: 2:00 PM
Ticket booked successfully
*****
ID == 19
Booked Seat No :70
Booked Row No :16
Booked Movie Khan at This Time :2
*****
Do You Wanna to Buy more tickets
If Yes Enter Y/y else no enter N/n
n
Do You Want To see Ticket Info
If Yes Enter Y else no
y
Enter ID
19
*****
```

Select F:\oop THEORY\Oop_Theory_assignment\Q4.exe

```
Movie Name: Civil War is shown at time: 3:00 PM
Movie Name: Khan is shown at time: 2:00 PM
Movie Name: Jawani Phir Nhi Aani is shown at time: 4:00 PM
Movie Name: Life At Fast is shown at time: 5:00 PM
Movie Name: Dday is shown at time: 7:00 PM
Movie Name: CivilWar is shown at time: 7:00 PM
Movie Name: Harley Queen is shown at time: 9:00 PM
Which Movies You Wanna to see
Enter Number
3
This Movie: Khan Is Shown On Time: 2:00 PM
Ticket booked successfully
*****
ID == 19
Booked Seat No :70
Booked Row No :16
Booked Movie Khan at This Time :2
*****
Do You Wanna to Buy more tickets
If Yes Enter Y/y else no enter N/n
n
Do You Want To see Ticket Info
If Yes Enter Y else no
y
Enter ID
19
*****
ID == 19
Booked Seat No :70
Booked Row No :16
Booked Movie Khan at This Time :2
*****
-----
Process exited after 45.76 seconds with return value 0
```

Q5 Code:

```
#include<iostream>
#include<string>
using namespace std;
class User;
class User{
    private:
        int id;
        string name;
        int age;
        float height;
        string gender;
        float shoe_size;
    public:
        User(){

        }
        User(int id,string n,float f,string g,float s,int a)
        {
this->id=id;
name=n;
age=a;
height=f;
gender=g;
shoe_size=s;
        }
        void set_name(string name)
        {
            this->name=name;
        }
        void set_age(int a)
        {
            age=a;
        }
        void set_height(float h)
        {
            height=h;
        }
        void set_gender(string Gender)
        {
            gender=Gender;
        }
    }
```

```

    }
    void set_shoe_size(float s)
    {
        shoe_size=s;
    }
    string get_name()
    {
        return name;
    }
    int get_age()
    {
        return age;
    }
    float get_height()
    {
        return height;
    }
    string get_gender()
    {
        return gender;
    }
    float get_shoe_size()
    {
        return shoe_size;
    }
    int get_id()
    {
        return id;
    }
};

class Shoe{
private:
float size;
float width;
string style;
string brand;
string demographic;
public:
    Shoe()
    {

    }
    Shoe(float s ,float w,string style,string brand)
    {
        size=s;

```

```
        width=w;
        this->style=style;
        this->brand=brand;
    }
    void set_size0(float l)
    {
        size=l;
    }
    void set_width(float l)
    {
        width=l;
    }
    void set_style(string s)
    {
        style=s;
    }
    void set_brand(string b)
    {
        brand=b;
    }
    void set_demographic(string d)
    {
        this->demographic=d;
    }
    float get_size()
    {
        return size;
    }
    float get_width()
    {
        return width;
    }
    string get_style()
    {
        return style;
    }
    string get_brand()
    {
        return brand;
    }
    string get_demographic()
    {
        return demographic;
    }
    void set_dem(User *U1)
```

```

{
    if((U1->get_age()>=0)&&(U1->get_age()<=2))
        this->demographic="toddler";
    else if((U1->get_age()>=6)&&(U1->get_age()<=9))
    {
        this->demographic="Process To Child";
    }
    else if((U1->get_age()>=10)&&(U1->get_age()<=12))
    {
        this->demographic="child";
    }
    else if((U1->get_age()>=13)&&(U1->get_age()<=19))
    {
        this->demographic="teenager";
    }
    else if(U1->get_age()>19)
    {
        this->demographic="Adult";
    }

    else {
        cout<<"Enter Wrong Age"<<endl; return;
    }
}
};

void print(User *u1,Shoe *s2)//global function
{
    cout<<"Name : "<<u1->get_name()<<endl;
    cout<<"ID"<<u1->get_id()<<endl;
    cout<<"Age"<<u1->get_age()<<endl;
    cout<<"Height : "<<u1->getheight()<<endl;
    cout<<"Gender : "<<u1->get_gender()<<endl;
    cout<<"Shoe Size: " <<u1->get_shoe_size()<<endl;
    cout<<"Shoe Width: " <<s2->get_width()<<endl;
    cout<<"Shoe Style : "<<s2->get_style()<<endl;
    cout<<"Shoe Brand : "<<s2->get_brand()<<endl;
    cout<<"Shoe Demographic : "<<s2->get_demographic()<<endl;
}

int main()
{
    cout<<"Muhammad Haris 22k-4777"<<endl;
    cout<<"*****"<<endl;
    Shoe s1;
    User u1;

```

```

string choice;
string roleno;
int id[2];
string name;
float height;
string gender;
float shoe_size;
float size;
float width;
string style;
string brand;
int age;
char cho;
cout<<"Enter Your Name : "<<endl;
cin>>name;
cout<<"Enter Your Role_No : "<<endl;
cin>>roleno;
id[0]=stoi(roleno.substr(0,2));
id[1]=stoi(roleno.substr(4));
cout<<"Enter Your Height"<<endl;
cin>>height;
cout<<"Enter Your Gender"<<endl;
cin>>gender;
cout<<"Enter Your Age"<<endl;
cin>>age;
cout<<"Enter Shoe_size : "<<endl;
cin>>shoe_size;
size=shoe_size;
cout<<"Enter Width of Shoe"<<endl;
cin>>width;
cout<<"Enter Style of Your Shoe"<<endl;
cin>>style;
cout<<"Enter Brand Of Your Shoe"<<endl;
cin>>brand;
u1=User(id[0],name,height,gender,shoe_size,age);
s1=Shoe(size,width,style,brand);
s1.set_dem(&u1);
cout<<"*****"<<endl;
while(1){
    cout<<"*****"<<endl;
    cout<<"You Have Three Option IF You Want to see The Information Of Shoe and User
Enter S\nElse If You Wanna to Update Record Of Shoe Enter P "<<endl;
    cout<<"else you want to update the information of user Enter U"<<endl;
    cout<<"Enter N For Ending Program"<<endl;
    cin>>cho;

```

```

if((cho=='N')||(cho=='n'))
{
    cout<<"Good Byyyy"<<endl;
    return 0;
}
while(1){
if((cho=='S')||(cho=='s')||(cho=='p')||(cho=='P')||(cho=='U')||(cho=='u'))
{
    break;
}
cout<<"Enter Correctly"<<endl;
cin>>choice;
}
switch(cho){
case 'S':
    case 's':
print(&u1,&s1);
break;
case 'U':
    case 'u':
    do{
        cout<<"Which Thing You Want To Update You Can Update Your Name Age Gender
Shoe Size Or Height"<<endl;
        cout<<"For Update Enter Their Name Ig For Shoe Size Enter Shoe\nFor Name
Enter Name\nFor Age Enter Age\n For Gender Enter Gender"<<endl;
        cin>>choice;
        if((choice=="Name")||(choice=="name"))
        {
            cout<<"Enter Name"<<endl;
            cin>>name;
            cout<<"Name Changed This ->"<<u1.gat_name();
            u1.set_name(name);
            cout<<": To This "<<u1.gat_name();
        }
        else if((choice=="Age")||(choice=="age"))
        {
            cout<<"Enter Age"<<endl;
            cin>>age;
            cout<<"Age Changed This -> "<<u1.get_age();
            u1.set_age(age);
            cout<<": To This "<<u1.get_age();
        }
        else if((choice=="Gender")||(choice=="gender"))
        {
            cout<<"Enter Gender"<<endl;

```



```

        cin>>gender;
        cout<<"Gender Changed This ->"<<u1.get_gender();
        u1.set_gender(gender);
        cout<<" : To This " <<u1.get_gender();
    }
    else if((choice=="Shoe")||(choice=="shoe"))
    {
        cout<<"Enter New Size"<<endl;
        cin>>shoe_size;
        cout<<"Size Changed This ->"<<u1.get_shoe_size();
        u1.set_shoe_size(shoe_size);
        cout<<" : To This " <<u1.get_shoe_size();
    }
    else if((choice=="Height")||(choice=="height"))
    {
        cout<<"Enter New Height"<<endl;
        cin>>height;
        cout<<"Height Changed This ->"<<u1.getheight();
        u1.set_height(height);
        cout<<" : To This " <<u1.getheight();
    }
    cout<<"Do You Want to Update Again If Yes Enter Yes Else No"<<endl;
    cin>>choice;
    }while((choice=="Yes")||(choice=="yes"));
    break;
case 'P':
    case 'p':
    do{
        cout<<"Which Thing You Want To Update You Can Update Your Shoe Size,
Width,Style,Brand Demographic will be set automatically"<<endl;
        cout<<"For Update Enter Their NameIg For Size Enter Size (Case
Sensitive)"<<endl;
        cin>>choice;
        if((choice=="Size")||(choice=="size"))
        {
            cout<<"Enter Size"<<endl;
            cin>>size;
            cout<<"Size Changed This ->"<<s1.get_size();
            s1.set_size0(size);
            cout<<" : To This " <<s1.get_size();
        }
        else if((choice=="Width")||(choice=="width"))
        {
            cout<<"Enter Width"<<endl;
            cin>>width;

```

```

        cout<<"Width Changed This ->"<<s1.get_width();
        s1.set_width(width);
        cout<<" : To This " <<s1.get_width();
    }
    else if((choice=="Style")||(choice=="style"))
    {
        cout<<"Enter Style"<<endl;
        cin>>style;
        cout<<"Style Changed This -> " <<s1.get_style();
        s1.set_style(style);
        cout<<" : To This " <<s1.get_style();
    }
    else if((choice=="Brand")||(choice=="brand"))
    {
        cout<<"Enter Brand"<<endl;
        cin>>brand;
        cout<<"Size Changed This ->"<<s1.get_brand();
        s1.set_brand(brand);
        cout<<" : To This " <<s1.get_brand();
    }
    cout<<" Do You Want to Update Again If Yes Enter Yes Else No"<<endl;
    cin>>choice;
}while((choice=="Yes")||(choice=="yes"));
break;
}
}
}

```

Q5 Output:

F:\00P THEORY\oop_theory_assignment\Q5.exe

Muhammad Haris 22k-4777

Enter Your Name :

Haris

Enter Your Role_No :

22k-4444

Enter Your Height

5.5

Enter Your Gender

Male

Enter Your Age

13

Enter Shoe_size :

10

Enter Width of Shoe

4

Enter Style of Your Shoe

Joggers

Enter Brand Of Your Shoe

Styloo

You Have Three Option IF You Want to see The Information Of Shoe and User Enter (See)

Else If You Wanna to Update Record Of Shoe Enter (UpdateShoe)

else you want to update the information of user Enter (UpdateUser)

Enter N For Ending Program

see

Name :Haris

ID22

Age13

Height :5.5

Gender Male

Shoe Size: 10

Shoe Width: 4

Shoe Style :Joggers

Shoe Brand :Styloo

Shoe Demographic :teenager

```
*****
You Have Three Option IF You Want to see The Information Of Shoe and User Enter (See)
Else If You Wanna to Update Record Of Shoe Enter (UpdateShoe)
else you want to update the information of user Enter (UpdateUser)
Enter N For Ending Program
updateuser
Which Thing You Want To Update You Can Update Your Name Age Gender Shoe Size Or Height
For Update Enter Their Name Ig For Shoe Size Enter Shoe
For Name Enter Name
For Age Enter Age
For Gender Enter Gender
Age
Enter Age
24
Age Changed This -> 13: To This 24Do You Want to Update Again If Yes Enter Yes Else No
no
*****
You Have Three Option IF You Want to see The Information Of Shoe and User Enter (See)
Else If You Wanna to Update Record Of Shoe Enter (UpdateShoe)
else you want to update the information of user Enter (UpdateUser)
Enter N For Ending Program
see
Name :Haris
ID22
Age24
Height :5.5
Gender Male
Shoe Size: 10
Shoe Width: 4
Shoe Style :Joggers
Shoe Brand :Styloo
Shoe Demographic :teenager
*****
```

```
Enter Brand Of Your Shoe
Stylo
*****
*****
You Have Three Option IF You Want to see The Information Of Shoe and User Enter S
Else If You Wanna to Update Record Of Shoe Enter P
else you want to update the information of user Enter U
Enter N For Ending Program
P
Which Thing You Want To Update You Can Update Your Shoe Size, Width,Style,Brand Demographic will be set automatical
For Update Enter Their NameIg For Size Enter Size (Case Sensitive)
Brand
Enter Brand
Nickee
Size Changed This ->Stylo: To This Nickee Do You Want to Update Again If Yes Enter Yes Else No
no
*****
You Have Three Option IF You Want to see The Information Of Shoe and User Enter S
Else If You Wanna to Update Record Of Shoe Enter P
else you want to update the information of user Enter U
Enter N For Ending Program
s
Name :Hari
ID22
Age10
Height :6
Gender Male
Shoe Size: 20
Shoe Width: 4
Shoe Style :Jogger
Shoe Brand :Nickee
Shoe Demographic :child
*****
You Have Three Option IF You Want to see The Information Of Shoe and User Enter S
Else If You Wanna to Update Record Of Shoe Enter P
else you want to update the information of user Enter U
Enter N For Ending Program
n
Good Byyyy
-----
```