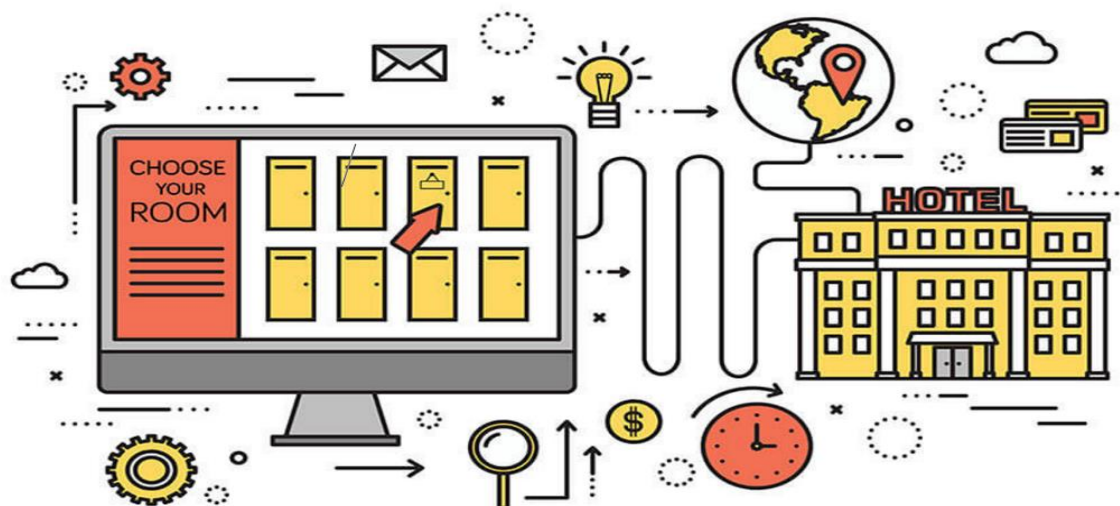




# HOTEL ROOM BOOKING PROGRAM



# **Programming languages 1 -Final Assignment**

## **Purpose of the assignment**

The purpose is to assemble all the topics in this course together with a well-designed c++ program executed in a command line environment.

## **Hotel room booking program: Welcome to the Grand Hotels!!!**

## **Function of the program**

### **Main Menu**

\*\*\* MAIN MENU \*\*\*

What would you like to do?

1. List of room types and rates
2. Book a hotel room
3. Search information of bookings
4. Quit Grand Hotels

This menu asking the requirement from user. User can choose any of this and proceed with the menu by pressing relevant number and pressing enter key.

### **1. Menu no. 1**

\*\*\* MENU 1 \*\*\*

Room types and prices per night:

Single Room 100 euros per night.  
Double Room 150 euros per night.

User can see the list of room types and rates of the rooms by this menu.

### **2. Menu no. 2**

\*\*\* MENU 2 \*\*\*

Select the room type:

1. Single Room
2. Double Room

User can select required room type from this menu. Then User need to enter preferred room number from the room numbers list and then the program asks the full name and no of nights that user planned to stay. After entering the information, the program lists all information related to the booking and asks confirmation to proceed the booking. Then user can proceed or deny the booking and get back to the main menu.

### 3. Menu no. 3

\*\*\* MENU 3 \*\*\*

Select the room type:

1. Search by Reservation Number
2. Search by Full Name
3. Search by Room Number

User can search for booked information by using this menu. First user needs to confirm some bookings and then the user can check booked information by entering the reservation number or full name or room number. User needs to just select the correct menu by pressing 1,2 or 3 and enter the required information there. Then program will show the booking information if there are any bookings available.

### 4. Menu no. 4

This menu will stop the program and user can exit from the running menu.

#### Programme code:

```
/*
This is a program which helps the user to book a hotel room.
*/

#include<iostream>
#include<iomanip>
#include<string>
#include<ctime>

using namespace std;

struct Roominfo //This is the structure which collect booking data.
{
    string type; //The room type (single or double).
    string name; //Booking name.
    int noofdates; //The number of nights staying.
    int roomnumber; //Room number of booking.
    int book; //This is boolean type "1" for confirmed booking and "0" for not
booked rooms.
    int reservationnumber; //This is the reservation number. This is between 9999 - 100000 and automatically
generate the reservation number when the booking confirmed.
    double price; //This is the final invoiced price of the room.
};

const int noofRoom = 401; //There are 300 rooms in the hotel.
//Room numbers starting from 101 and ends 400.
//Room numbers 101 - 250 are single rooms.
//Room numbers 251 - 400 are double rooms.
```

```

/*****/
void resetRoomNumbers(Roominfo room[]) // This function is for setting the boolean type of room bookings.
//At the beginning all rooms setting
to booking value as "0" by this function.
{

    for (int i = 101; i < noofRoom; i++)
    {
        room[i].book = 0;
    }

}

/*****/
void checkRoomNumbersSin(Roominfo room[]) //This function checks Single rooms list.
//what are the booked
rooms (booking value 1) and what are the not booked rooms (Booking value 0).
{

    cout << "Available single rooms: " << endl;

    for (int i = 101; i < (noofRoom - 150); i++) //This loop creates a list of not booked single rooms
(Booking value 0)
//And prints
a list.
{
    if (room[i].book == 0)

        cout << i << ", ";

}

    cout << endl;

    for (int i = 101; i < (noofRoom - 151); i++) ////This loop create a list of booked single rooms (Booking
value 0)
//And prints
a list.
{
    if (room[i].book == 1)

        cout << "Room number " << i << " reserved, " << endl;

}

    cout << endl;

}

/*****/
void checkRoomNumbersDou(Roominfo room[]) //This function checks Double rooms list.
//what are the booked
rooms (booking value 1) and what are the not booked rooms (Booking value 0).
{

```

```

    cout << "Available double rooms: " << endl;

    for (int i = 251; i < noofRoom; i++)    //This loop creates a list of not booked double rooms (Booking value
0)
                                                //And prints a list.
    {
        if (room[i].book == 0)

            cout << i << ", ";

    }

    cout << endl;

    for (int i = 251; i < noofRoom; i++)    //This loop creates a list of booked double rooms (Booking value 0)
                                                //And prints a list.
    {
        if (room[i].book == 1)

            cout << "Room number " << i << " reserved, " << endl;

    }

    cout << endl;

}

/*****/
int bookSingleRoom(Roominfo room[], int reservationnum)    //This function process the whole booking part of
Single rooms.
{
    int menu2roombook;
    string menu3;

Loop7:
    checkRoomNumbersSin(room);    //This function checks Single rooms list and prints the lists of -
                                    //what are the booked rooms (booking
value 1) and what are the not booked rooms (Booking value 0).

    cout << endl;

    cout << "Enter the room number you want to book: ";    //Let user to input the room number from the list.
    cin >> menu2roombook;
    if (menu2roombook > 100 && menu2roombook < 251 && room[menu2roombook].book != 1)    //This
condition checks the entered number is -

                                                //within the Single rooms list and

                                                //Within the not not booked list.

    {

```

```

        room[menu2roombook].type = "Single"; //Save the room
type as "Single".
        room[menu2roombook].roomnumber = menu2roombook; //Save the room
        number user requested.
        cout << "Enter your full name: ";
        cin.ignore();
        getline(cin, room[menu2roombook].name); //Save the full name
of the booking.
        cout << "How many nights you are planning to stay? : ";
        cin >> room[menu2roombook].noofdates; //Save the no of
nights of the booking.
        cout << endl;

        int discountType = rand() % 3; //Select the random discount for the final invoice.
        string discountMsg; //Discount message.

        if (discountType == 1) //Discount message for 10% off.
        {
                discountMsg = "You've been selected for an Exclusive Offer!!! Enjoy an Extra 10% off of your
final invoice";
        }
        else if (discountType == 2) //Discount message for 20% off.
        {
                discountMsg = "You've been selected for an Exclusive Offer!!! Enjoy an Extra 20% off of your
final invoice";
        }
        else //No discount message for 0% off.
        {
                discountMsg = "";
        }

        //Below calculation calculate the invoice amount with discount (Calc. = Room price * no of nights -
(no of nights * discount%)
        room[menu2roombook].price = 100 * room[menu2roombook].noofdates - (100 *
room[menu2roombook].noofdates * discountType*10 / 100);

        Loop8:
        //Here prints the booking details and ask the booking confirmation.
        cout << "Please check the information and confirm the booking:" << endl;
        cout << "Room no: " << menu2roombook << endl
                << "Booking name: " << room[menu2roombook].name << endl
                << "Room type: " << room[menu2roombook].type << endl
                << "No of nights staying: " << room[menu2roombook].noofdates << endl
                << discountMsg << endl
                << "Final invoice amount: " << room[menu2roombook].price << " euros." << endl
                << "\nPress 1 to confirm the booking, Press 2 to clear booking details and book again or
Press 0 to go to main menu \nPress 1,2 or 0: ";
        cin >> menu3;
        cout << endl;

        if (menu3 == "1") //1. Confirms the booking
        {
                room[menu2roombook].book = 1;

```

```

        room[menu2roombook].reservationnumber = reservationnum + 1;
        cout << "Room " << menu2roombook << " Booked!!!" << endl
            << "Your reservation number is " << room[menu2roombook].reservationnumber <<
            " ." << endl << endl;

        return 1;
    }

    else if (menu3 == "2") //1. Cancel the booking and let user to choose another single room.
        goto Loop7;

    else if (menu3 == "0") //1. Cancel the booking and take user back to the Main menu.
        return 0;

    else //If user enters wrong number this will guide the user.
    {
        cout << "You've entered wrong number please try again!!!" << endl;
        goto Loop8;
    }

    cout << endl;

}

else //If user enters wrong number this will guide the user.
{
    cout << "You've entered wrong number please try again!!!" << endl;
    goto Loop7;
}
} //END OF SINGLE ROOM BOOKING FUNCTION

/*****/
int bookDoubleRoom(Roominfo room[], int reservationnum) //This function process the whole booking part of
Double rooms.
{
    int menu2roombook;
    string menu3;

Loop7:
    checkRoomNumbersDou(room); //This function checks Double rooms list and prints the lists
of -
    //what are the booked rooms (booking value 1) and what are the not booked rooms (Booking value 0).

    cout << endl;

    cout << "Enter the room number you want to book: "; //Let user to input the room number from the list.
    cin >> menu2roombook;
    if (menu2roombook > 250 && menu2roombook < 401 && room[menu2roombook].book != 1) //This
condition checks the entered number is -
        //within the Single rooms list and
        //Within the not not booked list.

```

```

{

    room[menu2roombook].type = "Double";                                //Save the room
type as "Double".
    room[menu2roombook].roomnumber = menu2roombook;                    //Save the room
number user requested.
    cout << "Enter your full name: ";
    cin.ignore();
    getline(cin, room[menu2roombook].name);                            //Save the full name
of the booking.
    cout << "How many nights you are planning to stay? : ";
    cin >> room[menu2roombook].noofdates;
    cout << endl;                                                        //Save the no of nights of the booking.

    int discountType = rand() % 3; //Select the random discount for the final invoice.
    string discountMsg;                                                  //Discount message.

    if (discountType == 1) //Discount message for 10% off.
    {
        discountMsg = "You've been selected for an Exclusive Offer!!! Enjoy an Extra 10% off of your
final invoice";
    }
    else if (discountType == 2) //Discount message for 20% off.
    {
        discountMsg = "You've been selected for an Exclusive Offer!!! Enjoy an Extra 20% off of your
final invoice";
    }
    else //No discount message for 0% off.
    {
        discountMsg = "";
    }

    //Below calculation calculate the invoice amount with discount (Calc. = Room price * no of nights -
(no of nights * discount%)
    room[menu2roombook].price = 100 * room[menu2roombook].noofdates - (100 *
room[menu2roombook].noofdates * discountType * 10 / 100);

    Loop8:
    //Here prints the booking details and ask the booking confirmation.
    cout << "Please check the information and confirm the booking:" << endl;
    cout << "Room no: " << menu2roombook << endl
        << "Booking name: " << room[menu2roombook].name << endl
        << "Room type: " << room[menu2roombook].type << endl
        << "No of nights staying: " << room[menu2roombook].noofdates << endl
        << discountMsg << endl
        << "Final invoice amount: " << room[menu2roombook].price << " euros." << endl
        << "\nPress 1 to confirm the booking, Press 2 to clear booking details and book again or
Press 0 to go to main menu \nPress 1,2 or 0: ";
    cin >> menu3;
    cout << endl;

    if (menu3 == "1") //1. Confirms the booking
    {

```



```

        room[menu2roombook].book = 1;
        room[menu2roombook].reservationnumber = reservationnum + 1;
        cout << "Room " << menu2roombook << " Booked!!!" << endl
              << "Your reservation number is " << room[menu2roombook].reservationnumber <<
        "." << endl << endl;
        return 1;
    }

    else if (menu3 == "2") //1. Cancel the booking and let user to choose another double room.
        goto Loop7;

    else if (menu3 == "0") //If user enters wrong number this will guide the user.
        return 0;

    else
    {
        cout << "You've entered wrong number please try again!!!" << endl;
        goto Loop8;
    }

    cout << endl;

}

else //If user enters wrong number this will guide the user.
{
    cout << "You've entered wrong number please try again!!!" << endl;
    goto Loop7;
}
} //END OF DOUBLE ROOM BOOKING FUNCTION

```

```

/*****
*****/

```

```

int main()
{
    string mainmenu, menu1return, menu2roomtype, menu3searchtype, searchname;
    int returnvalue, searchnumber, reservationnum = 9999;

    Roominfo room[noofRoom];

    cout << "Welcome to the Grand Hotels!!!\n" << endl;

    resetRoomNumbers(room); // This function is for setting the boolean type of room bookings.
    //At the begining all rooms setting to booking value as "0" by this function.
    {

    Loop1:

```

```

//Main Menu
cout << "\n*** MAIN MENU *** \n"
    << "What would you like to do?\n"
    << "1. List of room types and rates\n"
    << "2. Book a hotel room\n"
    << "3. Search information of bookings\n"
    << "4. Quit Grand Hotels\n" << endl;
cout << "Enter number 1, 2, 3 or 4: ";
cin >> mainmenu;

```

Loop2:

```

if (mainmenu == "1") // List of room types and rates of the rooms Menu.
{
    cout << left
        << setw(17) << "\n*** MENU 1 ***\n"
        << setw(17) << "Room types and prices per night:\n"
        << setw(17) << "* Single Room" << "100 euros per night\n"
        << setw(17) << "* Double Room" << "150 euros per night\n\n"
        << setw(17) << "Press 0 to go previous menu : ";

```

Loop3:

```

    cin >> menu1return;
    cout << endl;

    if (menu1return != "0") //If user enters wrong number this will guide the user.
    {
        cout << "You've entered wrong key!!! Press 0 to go previous menu : ";
        goto Loop3;
    }

    else goto Loop1;
}
//End of Menu No. 1

```

Loop4:

```

if (mainmenu == "2")
{
    // Book a hotel room Menu
    cout << "\n*** MENU 2 ***\n"
        << "Select the room type:\n"
        << "1. Single Room\n"
        << "2. Double Room\n"
        << "Press 0 to go previous menu : \n"
        << endl;
    cout << "Enter number 1, 2 or 0 : ";
    cin >> menu2roomtype;
    cout << endl;

    if (menu2roomtype == "0") //Return to previous menu
    {
        goto Loop1;
    }
}

```

```

else if (menu2roomtype == "1")
{
    returnvalue = bookSingleRoom(room, reservationnum);

    if (returnvalue == 0)    //Return to previous menu
        goto Loop1;

    else if (returnvalue == 1)
        reservationnum++;
}

else if (menu2roomtype == "2")
{
    returnvalue = bookDoubleRoom(room, reservationnum);

    if (returnvalue == 0)    //Return to previous menu
        goto Loop1;

    else if (returnvalue == 1)
        reservationnum++;
}

else    //If user enters wrong number this will guide the user.
{
    cout << "You've entered a wrong number!!! Try again." << endl
        << endl;
    goto Loop4; // Return to " Book a hotel room Menu"
}

}
//End of menu 2

if (mainmenu == "3")
{
    Loop5:
    //Search information of bookings Menu
    cout << "\n*** MENU 3 ***\n"
        << "Select the room type:\n"
        << "1. Search by Reservation Number\n"
        << "2. Search by Full Name\n"
        << "3. Search by Room Number\n"
        << "Press 0 to go previous menu\n"
        << endl;
    cout << "Enter number 1, 2, 3 or 0 : ";
    cin >> menu3searchtype;

    if (menu3searchtype == "0")
    {
        goto Loop1;    //Return to previous menu
    }
}

```

```

else if (menu3searchtype == "1")
{

Loop6:
    cout << "Enter reservation number or enter 0 to go back to the previous menu: ";
    cin >> searchnumber;
    cout << endl << endl;

    if (searchnumber == 0)
    {
        goto Loop5;    //Return to previous menu
    }

    else
    {
        for (int i = 101; room[i].reservationnumber != searchnumber + 1; i++)
        {

            if (room[i].reservationnumber == searchnumber)

            {
                //Prints booking information
                cout << "Room no: " << room[i].roomnumber << endl
                    << "Booking name: " << room[i].name << endl
                    << "Room type: " << room[i].type << endl
                    << "No of nights staying: " << room[i].noofdates <<

endl
                    << "Reservation Number: " <<

room[i].reservationnumber << endl

                    << "Invoiced amount: " << room[i].price << endl
                    << endl;

                goto Loop1;    //Return to Main menu
            }

            else if (i == 401) //If user enters wrong number this will guide the
user.
            {
                cout << "You've entered a wrong number!!! Try again." <<

endl
                << endl;
                goto Loop6;    //Return to previous menu
            }

        }
    }

}

else if (menu3searchtype == "2")
{
Loop7:
    cout << "Enter full name or enter 0 to go back to the previous menu: ";

```

```

cin.ignore();
getline(cin, searchname);
cout << endl << endl;

if (searchname == "0")
    goto Loop5;    //Return to previous menu

else
{
    int namecalc = 100;
    do
    {
        namecalc++;

        if (namecalc == 401)    //If user enters wrong name this will guide
            {
                cout << "You've entered a wrong name!!!" << endl
                    << endl;
                goto Loop5;    //Return to previous menu
            }

    } while (room[namecalc].name != searchname);

    //Prints booking information
    cout << "Room no: " << room[namecalc].roomnumber << endl
        << "Booking name: " << room[namecalc].name << endl
        << "Room type: " << room[namecalc].type << endl
        << "No of nights staying: " << room[namecalc].noofdates << endl
        << "Reservation Number: " << room[namecalc].reservationnumber

        << "Invoiced amount: " << room[namecalc].price << endl
        << endl;

    goto Loop1;    //Return to Main menu

}

}

else if (menu3searchtype == "3")
{
    Loop8:
    cout << "Enter room number or enter 0 to go back to the previous menu: ";
    cin >> searchnumber;
    cout << endl << endl;

    if (searchnumber == 0)
        goto Loop5;    //Return to previous menu

```

the user.

<< endl

```

else if (searchnumber < 401 && searchnumber > 100 && room[searchnumber].book
== 1)

    {        //Prints booking information
        cout << "Room no: " << room[searchnumber].roomnumber << endl
            << "Booking name: " << room[searchnumber].name << endl
            << "Room type: " << room[searchnumber].type << endl
            << "No of nights staying: " << room[searchnumber].noofdates <<
endl
            << "Reservation Number: " <<
room[searchnumber].reservationnumber << endl
            << "Invoiced amount: " << room[searchnumber].price << endl
            << endl;

        goto Loop1;    //Return to Main menu
    }

    else    //If user enters wrong number this will guide the user.
        cout << "You've entered a wrong number!!! Try again." << endl << endl;
        goto Loop8;    //Return to previous menu
    }

    else
        goto Loop5;    //Return to previous menu
}
//End of menu 3

else if (mainmenu == "4")
{
    return 0;
}
//End of menu 4

else    //If user enters wrong number this will guide the user.
{
    cout << "You've entered a wrong number!!! Try again." << endl << endl;
    goto Loop1;    //Return to Main menu
}

return 0;

}
}

```