ONLINE ROOM MANAGEMENT SYSTEM

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ABSTRACT

This application is specially developed to help hotel staff. The project Online Room Management manages and maintains the records of customers and room in the hotel. The rooms have different categories such as Deluxe, Semi-Deluxe etc., So their charges and records will be maintained accordingly. This software has been made in a user-friendly interface, so that anyone can add, delete the entries of customers and handle all the transactions easily. As a security we have provided Admin & user level authentication for different modules such as set-up-user etc., also the user name and password get stored in the database in encrypted format more dealing with the security. Customer can either make booking in advance, or he can directly Check-In. For the convenience of Administration, we have provided facility to generate report of transactions made in terms of check-in & check-out, bookings by day or specified timespan.

SOFTWARE REQUIREMENT SPECIFICATIONS

1. Introduction

The introduction of the Software Requirements specification will provide a detailed description of the requirements for the online Room booking system. This SRS will allow for a complete understanding of what is to be expected from the newly introduced system is to be constructed. This SRS will provide the foundation for the project. From this SRS the Online Room booking can be designed, constructed, and finally tested.

1.1 PURPOSE

The purpose of this document is to present a detailed Online Room Booking System. It will explain the different functional as well as non-functional requirements of the system, the interfaces of the system, what the system will do or how the system will interact with the external users. This Software Requirement Specification document will provide a clear understanding of what is expected by the client in the proposed Online Room Booking System.

1.2 Document Conventions

* DB Database
* DDB Distributed Database
* E-R Entity Relationship

1.3 Intended Audience and Reading Suggestions

This will help the people of the long distances who would stay in hotels. It would be comfortable for them to search for rooms with their mobiles in there hand.

1.4 Product Scope

It will help the customers to reserve rooms and other facilities of the hotel from anywhere in their rural areas .The core part of the project is the reservation and the booking system to keep track of the reservations and room availability.

1.5 References

www.oyobooking.com

www.tripadviser.com

www.goibibo.com

2. Overall Description

2.1 Product Perspective

The room booking system is an independent stand-alone system. It is totally self-contained. The Room details: It includes the original details of all room details, along with type of bed rooms. Customer Description: It includes customer code, name, address and phone number. This information may be used for keeping the records of customer for any emergency or for any other kind of information. Room Booking Description: It includes customer id number, place, date of booking, type of room.

2.2 Product Functions

Viewing the Room details: The user must have the access to up-to-date information about the Room including ,Room number, Hotel name , Location .

2.3 User Classes and Characteristics

The user have to use the software properly and should be obedient to the owners as to book the room when there is necessary and by not booking un-necessarily.

2.4 Operating Environment

Operating environment for the HOTEL ROOM DATABASE is as listed below

distributed database: client/server system

Operating system : WINDOWS 8.1.

database: SQL+ DATABASE

platform: JAVA

2.5 Design and Implementation Constraints

The global schema, fragmentation schema, allocation schema. Implement the database at least using a centralized database management system.

2.6 Assumptions and Dependencies

Let us assume that this is a hotel database system and it is used in the following Application. A request for booking/cancellation of room in any type.

3. External Interface Requirements

3.1 User Interfaces

Keyboard Mouse Printer

Front-end software: JAVA

Back-end software: SQL

3.2 Hardware Interfaces

Windows 8.1 Browser which supports HTML & Java script Processor : Intel Chipset Memory: 200GB

Hard Drive Capacity: 1 TB, expandable .

3.3 Software Interfaces

It provides best support and user friendlyliness.

3.4 Communications Interfaces

This project supports all types of web browsers. We are using simple electronic forms for room booking system. The system shall be a standalone product that does not require any communication interfaces Software used Description Operating system We have chosen Windows 8.1 operating system for its best support. Database To save the labour records, customer records we have chosen SQL database. JAVA To implement the project we have chosen java language for its more interactive support.

4. System Features

They are many features for the user as they can utilize

4.1 System Feature 1

Anyone can book the room from anywhere they are necessary to book the room

4.1.1 Description and Priority

The online management system maintains information of booking of room. It has a high priority because it is very difficult to maintain the infortion in offline.

4.1.2 Stimulus/Response Sequences

*USER:

>place: User can choose the location of the hotel.

>room facilities: User can choose different room facilities like room dinning, laundry.

4.1.3 Functional Requirements

CLIENT/SERVER SYSTEM

A client/server system is a distributed system in which,

- Some sites are client sites and others are server sites.
- All the data resides at the server sites.
- All applications execute at the client sites.

4.2 System Feature 2

They can book the room by paying cash online only or by paying when they are leaving the room.

5. Other Non-functional Requirements

Functional requirements define the needs in terms of performance, logical database requirements, design constraints, standards compliance, reliability, availability, security, maintainability, and portability.

5.1 Performance Requirements

The steps involved to perform the implementation of Hotel database as listed below. Performance requirements define acceptable response times for system functionality. The load time for user interface screens shall take no longer than two seconds. The log in information shall be verified within five seconds. Queries shall return results within five seconds. E-R DIAGRAM: E-R Diagram constitute a technique for reorienting the logical structure of a database in a pictorial manner. This analysis is then used to organize data as a relation, normalizing relation and finally obtaining a relation database. ENTITIES: Which specify distinct real-world items in an Application. PROPERTIES/ATTRIBUTES: Which specify properties of an entity and Relationships. RELATIONSHIPS: Which connect entities and represent meaningful dependencies

between them.

5.2 Safety Requirements

If there is extensive damage to a wide portion of the database due to catastrophic failure, such as a disk crash, the recovery method restores a past copy of the database that was backed up to archival storage (typically tape) and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed up log, up to the time of failure.

5.3 Security Requirements

Security systems need database storage just like many other applications. However, the special requirements of the security market mean that vendors must choose their database partner carefully. Customer Service Representatives and Managers will be able to log in to the Hotel Management System. Customer Service Representatives will have access to the Reservation/Booking and Food subsystems. Managers will have access to the Management sub system as well as the Reservation/Booking and Food subsystems. Access to the various subsystems will be protected by a user log in screen that requires a user name and password.

5.4 Software Quality Attributes

The Rooms should be available on the specified date and specified time as many customers are doing advance booking reservations. CORRECTNESS: The room should give with in time as your comfortability. MAINTAINABILITY: The Hotels should maintain correct schedules of the bookings. USABILITY: The rooms schedules should satisfy maximum number of customer needs.

5.5 Business Rules

The customer should book the room before two days. The owner should also give the response weather there are room available or not.

PROJECT MANAGEMENT PLAN

1.PROJECT SUMMARY

1.1: Project Review:

The online room booking helps people to book their rooms in an easier manner within less amount of time. This is a user-friendly page where we can easily book.

1.2: Project scope:

It will help the customers to reserve rooms and other facilities of the hotel from anywhere in their rural areas .The core part of the project is the reservation and the booking system to keep track of the reservations and room availability.

1.3: Development Process:

We follow waterfall model of software development as it is simple and

small.

1.4: Effort, Schedule and Team:

The team comprises of following 2 persons

1. Indukuri Venkat Pranav Kumar
2. Gadusu Teja Swaroop Reddy

Total Effort: 2.4 persons month (53- person days)

Project Duration: 3.5 months

1.5: Assumptions made:

No major assumptions beyond what is stated in SRS.

2.DETAILED EFFORT AND SCHEDULE:

The phase wise estimates were obtained earlier and given in the book. To summarize the total effort is 53 person days. Of this the distribution is design: 0.4 (9 days), detailed design: 0.6 (13 days), coding: 1.0 (22 days), and integration: 0.4 (9 days). As the project staff (students) are spending on the project about 1/4th to 1/3rd of their total time, the durations of the task have to be suitably fixed. The overall schedule for the project is given below.

S.NO	TASK	Estimated Effort (Person-days)	Start Date (dd/mm/yyyy)	End Date (dd/mm/yyyy)	Person	Actual Effort (man hrs)
1	System design	9	18/01/2020	01/02/2020	A, B	4
2	Detailed design	13	01/02/2020	28/02/2020	A, B	8
3	Coding input module	8	1/03/2020	31/03/2020	A	8
4	Coding scheduling module	8	1/03/2020	31/03/2020	A	8
5	Coding output module	6	1/03/2020	31/03/2020	A	8
6	Test planning	3	15/03/2020	31/03/2020	A, B	4
7	Testing and integration	5	15/04/2020	15/04/2020	A, B	1
8	Rework and final	3	25/04/2020	25/04/2020	A, B	1

The total estimated effort in person-days is: 53

3.Team Organization:

We will have a small team of 2 persons as mentioned, we use a flat team structure of peers, with one person having additional role of project manager.

The assignment of tasks to them will be maintained in the detailed schedule, a high-level view of which is given above.

4.Hardware and software required:

The only hardware resource required is a workstation with java development kit and c/c++ compiler**.**

5.Quality Plan:

The quality control process for this project will consist of the following:

- SRS Review**:** The SRS will be reviewed by a team
- Design Review: Design document will be reviewed by the project team.
- Unit Testing: Each programmer is responsible for Unit Testing his module.
- System Testing: Will be done according to the system test plan,which will be reviewed.

6.Risk Management:

There are no risks with this project that might need any explicit migration.

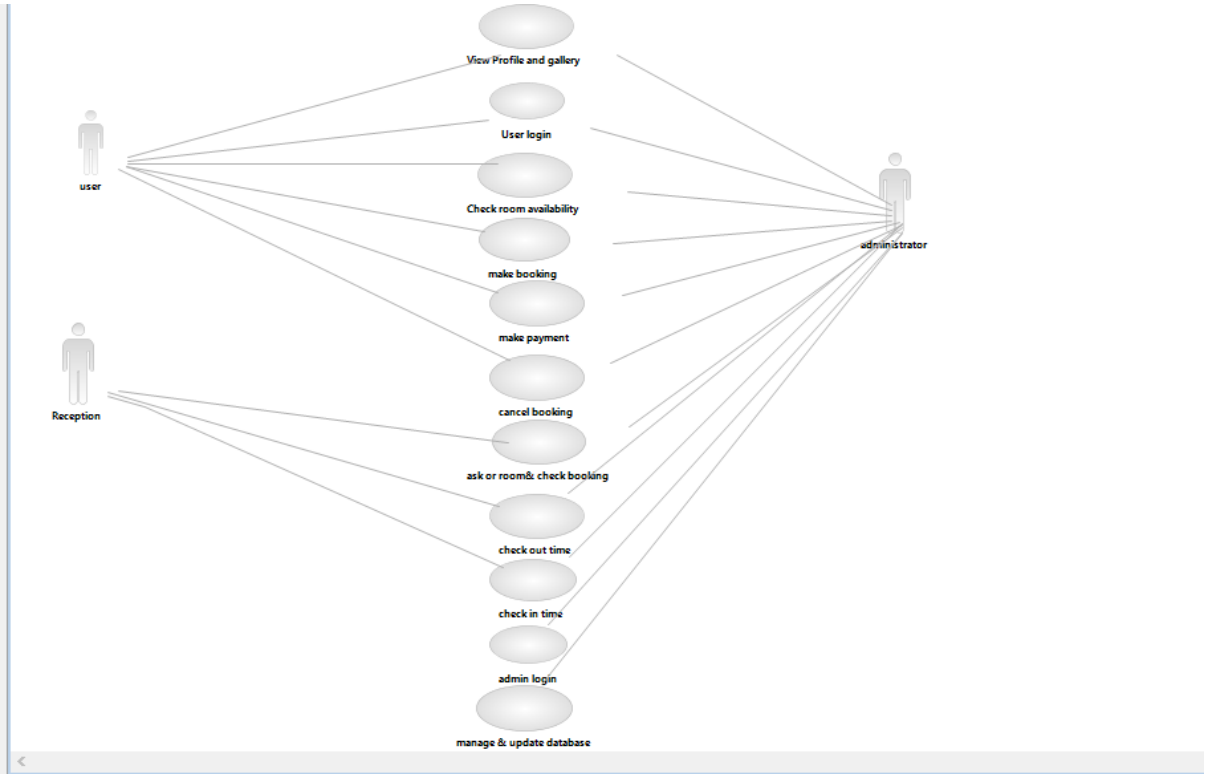
7.Project Tracking:

Three basic methods will be used for monitoring- project logs, weekly meeting, and reviews. As there is no time sheet system, each project member will record his activity in a project notebook and report the hours for each activity in the meetings.

Reviews will be held as per the quality plan.

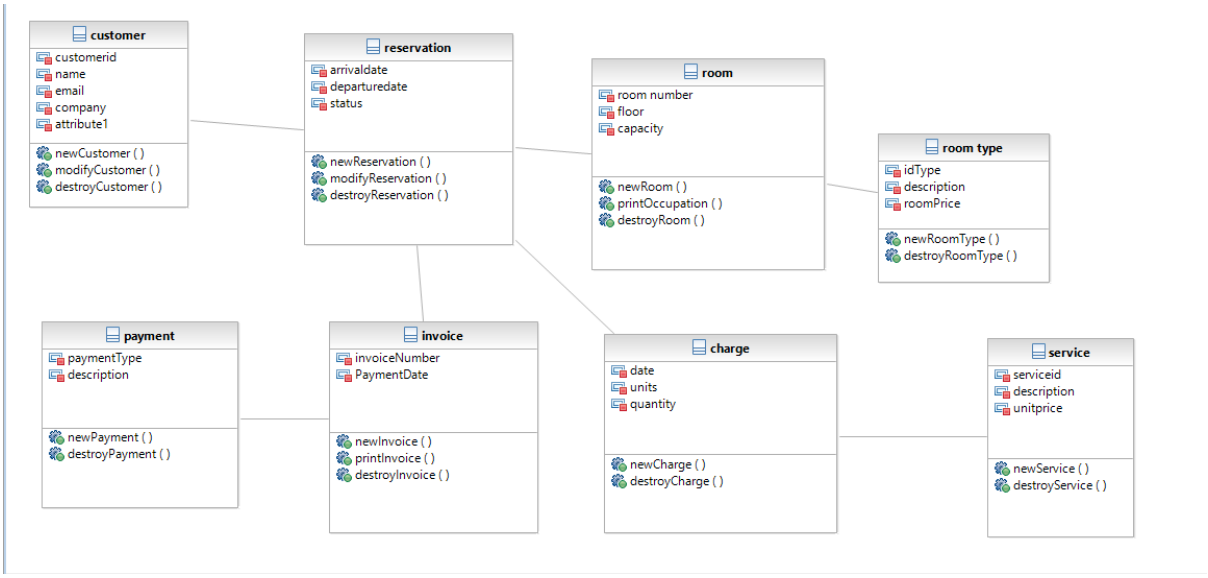
UML Diagrams:

USE CASE DIAGRAM



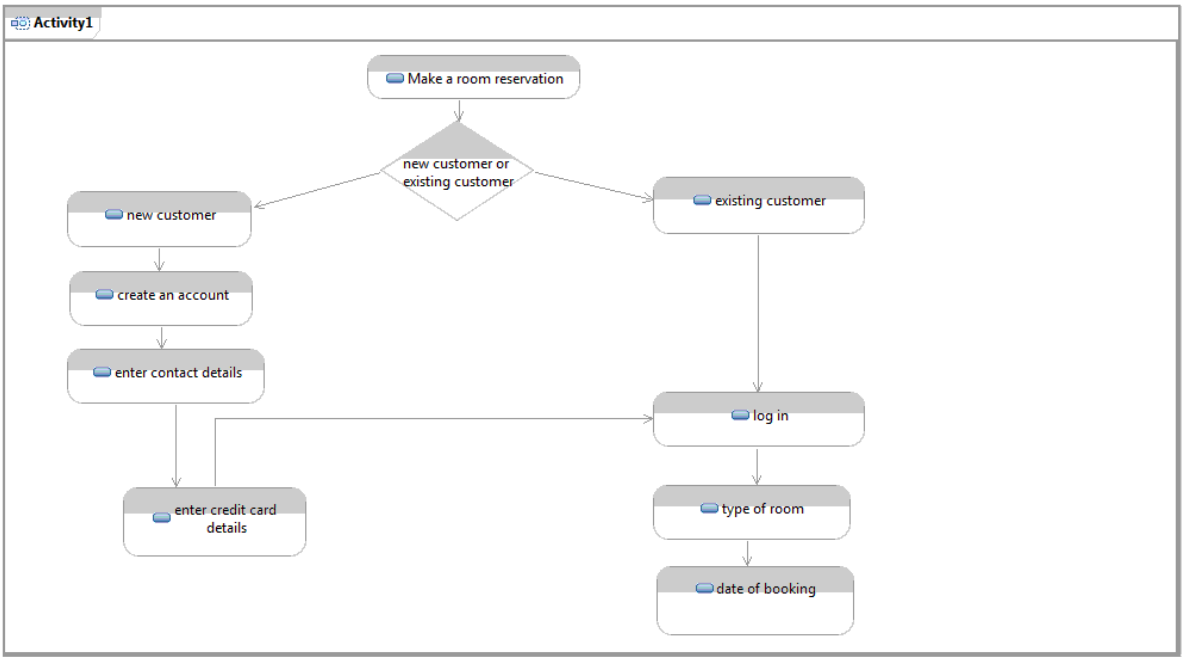
CLASS DIAGRAM

The class diagram is the main building block of object-oriented modeling. It is used for general conceptual modeling of the structure of the application, and for detailed modeling translating the models into programming code. Class diagrams can also be used for data modeling.



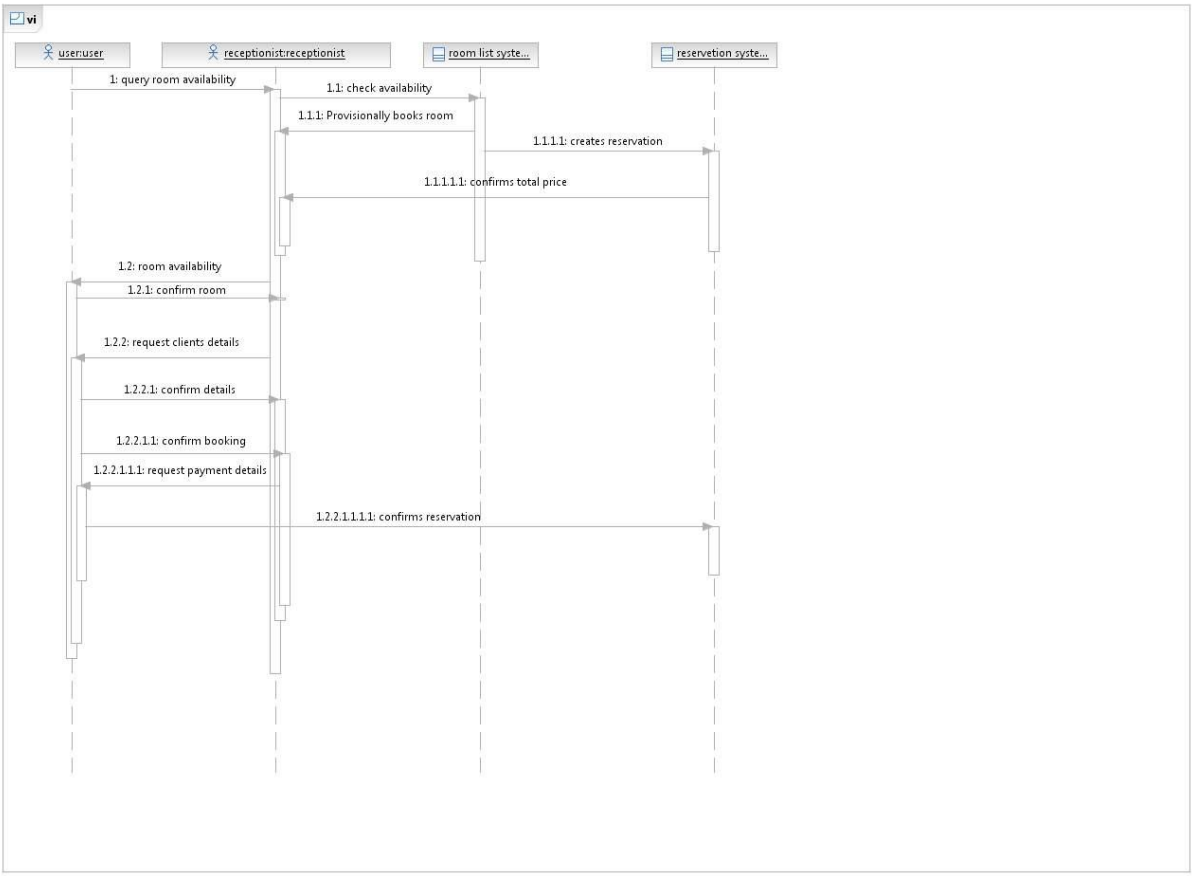
ACTIVITY DIAGRAM

An activity diagram is a behavioural diagram i.e. it depicts the behaviour of a system. An activity diagram portrays the control flow from a start point to a finish point showing the various decision paths that exist while the activity is being executed.



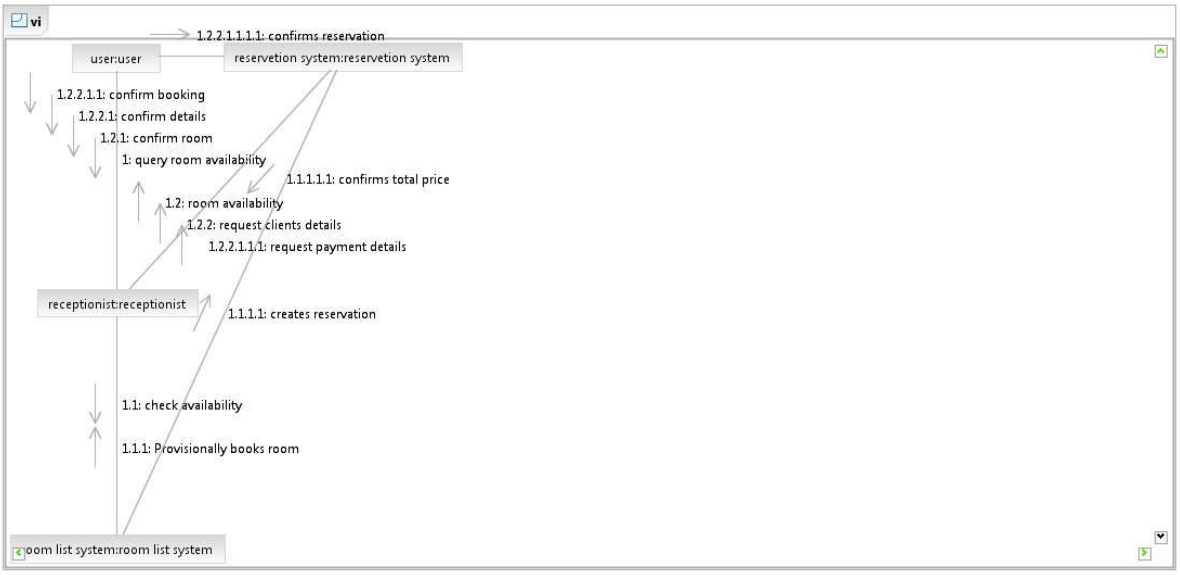
SEQUENCE DIAGRAM

A sequence diagram simply depicts interaction between objects in a sequential order i.e. the order in which these interactions take place. We can also use the terms event diagrams or event scenarios to refer to a sequence diagram. Sequence diagrams describe how and in what order the objects in a system function



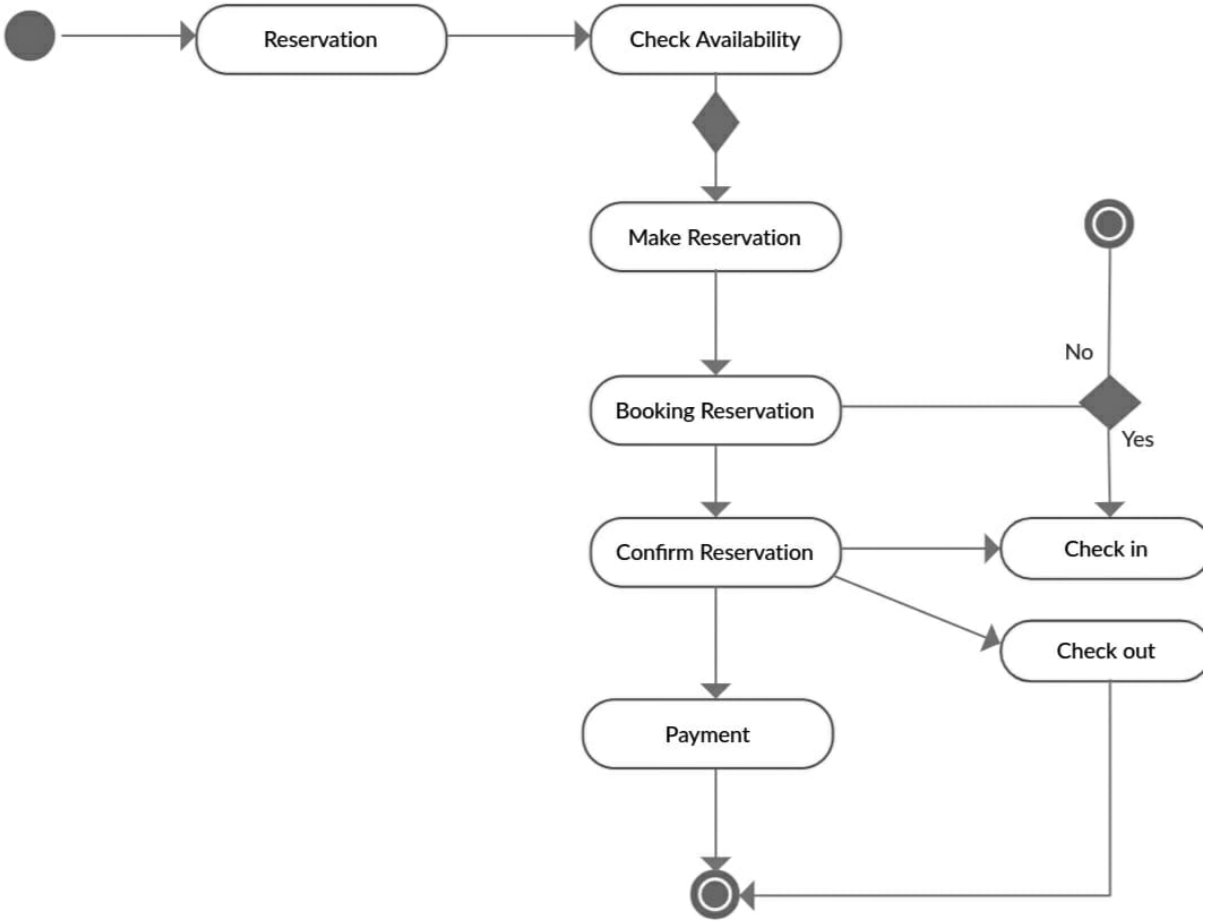
COLLABORATION DIAGRAM

collaboration diagram shows the relationships among the objects. Sequence diagrams and collaboration diagrams express similar information, but show it in different ways.



STATE DIAGRAM

A state diagram is a type of diagram used in computer science and related fields to describe the behaviour of systems. State diagrams require that the system described is composed of a finite number of states; sometimes, this is indeed the case, while at other times this is a reasonable abstraction.



Sample Code:

```
public class Invoice {


public int CalBill(int days, String type) {
        int bill=0;
        if(days>=0)
        {
                if (type.compareTo("single")==0)
                {
                        bill=2500*days;
                }
                else if(type.compareTo("twin bed")==0)
                {
                        bill=3500*days;
                }
                else if(type.compareTo("suite")==0)
                {
                        bill=10000*days;
                }
                return bill;
                }
        }
        else
        {
                        return -1;
        }


}
```

SCM VERSION MANAGEMENT

Description:

Configuration management helps in maintaining consistency of the project's

functionalities with respect to its requirements.

The screenshots below show two versions of code

Every addition from the previous commit is shown in green colour and every

Deletion or change form the previous commit is shown in red colour.

With every version the efficiency of the code is improved further, and the

functionalities are served better.

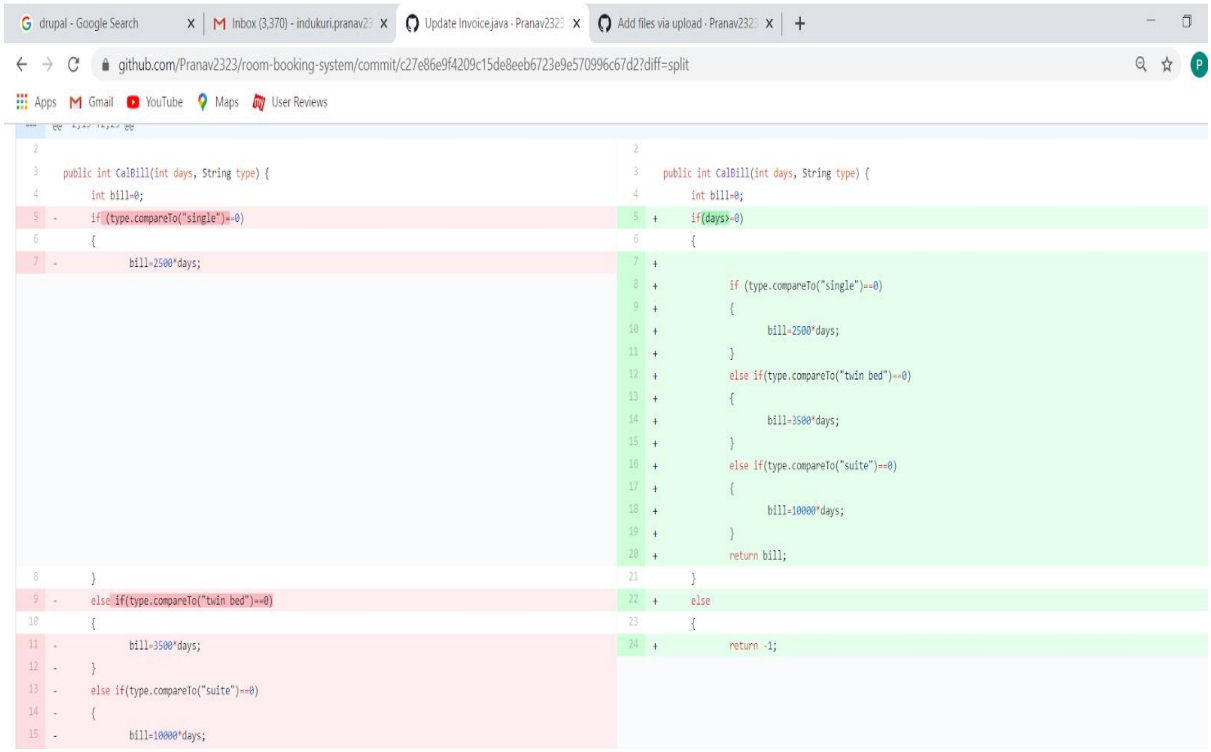
VERSION 1:

19 Invoice.java

```
@@ -0,0 +1,19 @@
+ public class Invoice {
+
+ public int CalBill(int days, String type) {
+       int bill=0;
+       if (type.compareTo("single")==0)
+       {
+              bill=2500*days;
+       }
+       else if(type.compareTo("twin bed")==0)
+       {
+              bill=3500*days;
+       }
+       else if(type.compareTo("suite")==0)
+       {
+              bill=10000*days;
+       }
+       return bill;
+       }
+ }
```

In this version 1 we have calculated the bill for number of days and given type of room. The code is works efficiently and error free when we give correct number of days. If we give negative of days, then the estimated value is wrong.

VERSION 2:



In this version 2 the previous bug in the version 1 i.e., when a negative number of days are given is fixed by changing the by inserting a if and else block.

Sample Test Cases

Description:

Given below are the sample test cases for the major use cases in our project. The two use cases are namely, book a room and cancel a room. Our project is essentially an online platform where we can book a room.

Each of the two use cases have two test cases each and the details about each test case is discussed in brief below. The pre and post conditions of these test cases are also discussed below.

Test cases under each use case:

- For book a room use case
  - To test if a certain type of room is available for the allocated dates by the user
  - Suggestion for other type of room available for the given dates.
- For cancel a room use case
  - Check the possibility of cancelling a room before the specified date with zero cancellation fee.
  - Cancelling a room beyond the specified date with given cancellation fee.

1. Room Booking Use Case:

#Test case 1

Test Case ID: 1.1

Test case name: To test if a certain type of room is available for the allocated dates by the user.

Subsystem: Book Room

Tester's Name: Pranav

Software Version: 1.O

Operating System: Windows

Date of Test: 05-05-2020

Initial setup:

The idea of this test case is to check the availability of certain type of room for the allocated days by the user. So the initial step would be, the user needs to search for the type of the room and then enter to check the availability of the room for those days.

Input:

Details of the type room, available days, and the number of the guests should be given by the user.

Expected results:

The result is expected to be, book “available” if the room is available for the given necessaries. If the given inputs aren’t satisfied, then the output is expected to display “unavailable”.

Actual Results:

The test case was successfully executed.

#Test case 2

Test Case ID: 1.2

Test Case name: Suggestion for other type of room available for the given dates.

Subsystem: Book Room

Tester’s Name: Pranav

Software Version: 1.O

Operating System: Windows

Date of Test: 05-05-2020

Initial setup:

The initial step in this test case will be the user searching for the type of room he/she interested in. Then, they will have to select the dates and check for

availability as per the number of rooms needed. If the type of room is not available, then it will show suggestion of other type of room available for those days.

Input:

The user will have to check for availability of the type of room by entering the details and then if the room is unavailable for those days then they will show few other suggestions.

Expected results:

The expected result of this test case is for a message that states," other few suggestions asper your requirement" should be displayed.

Actual results:

This test case passed the review and the expected result was obtained.

2. Cancel A Room Use Case:

#Test case 1

Test Case ID: 2.1

Test Case Name: Check the possibility of cancelling a room before the specified date with zero cancellation fee.

Subsystem: Cancel A Room

Tester's Name: Teja swaroop

Software Version: 1

Operating System: Windows

Date of Test: 07-05-2020

Initial Setup:

So, basically the idea of this test case is to check the possibility of cancelling a room before a specified date with zero cancellation fee. The user should login and choose his booked room and check whether he/she cancelled it before.

Input:

The input should be the details of the booked room.

Expected Results:

When the users cancel its before the specified date then there will be zero cancellation fee.

Actual Results:

Pass

#Test case 2

Test Case ID: 2.2

Test Case Name: Cancelling a room beyond the specified date with given cancellation fee.

Subsystem: Cancel A Room

Tester's Name: Teja swaroop

Software Version: 1

Operating System: Windows

Date of Test: 08-05-2020

Initial Setup:

So, basically the idea of this test case is to check the possibility of cancelling a room after a specified date with a certain cancellation fee. The user should login and choose his booked room and check whether he/she cancelled it before or not.

Input:

The input should be the details of the booked room.

Expected Results:

When the users cancel its after a specified date then we need check whether cancellation fee is in the picture or not.

Actual Results:

Pass

Unit Testing through Junit

Description:

Use case being tested: Invoice

Tester's name:Teja Swaroop

About the testing:

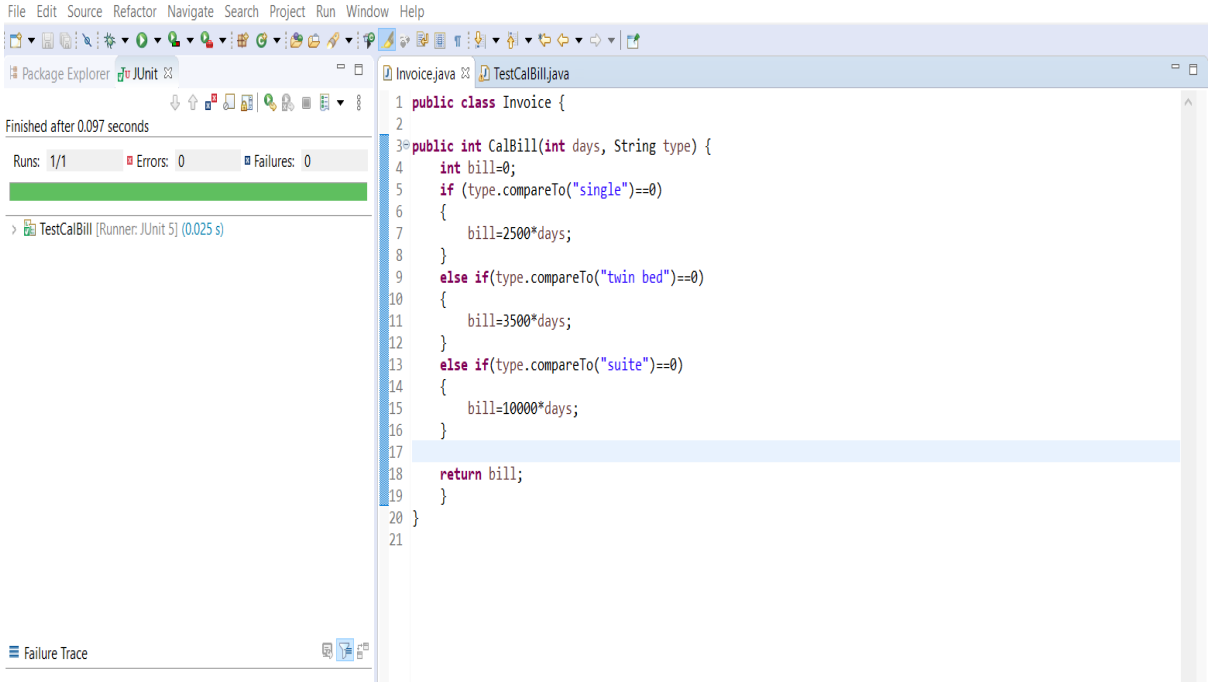
For the use case of invoice, we are creating a simple junit test case for working of the code. This of the code is being checked by passing the number days and type of room booked. The is being checked after calculating the bill.

The test case is success if the estimated value for the given number days and type of room is equal to the expected value.

The test case is failed if the estimated value for the given number days and type of room is not equal to the expected value.

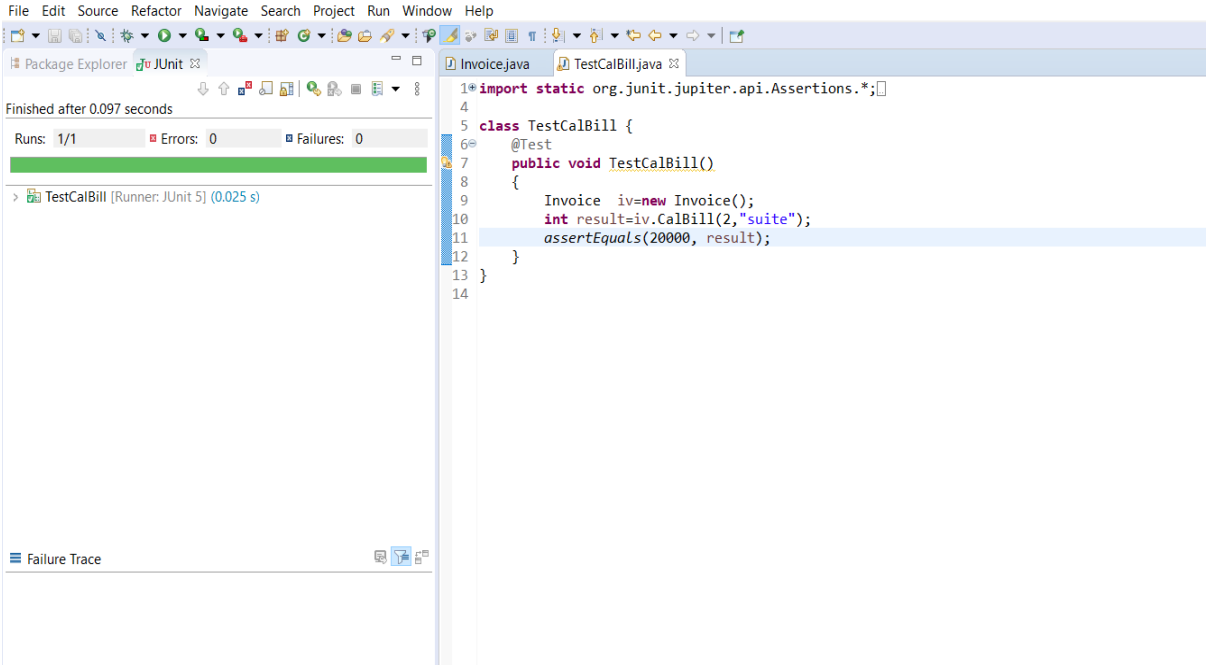
CODE EVALUATION FOR INVOICE:

This the code for calculating the bill with passing number of days and type of room as arguments.



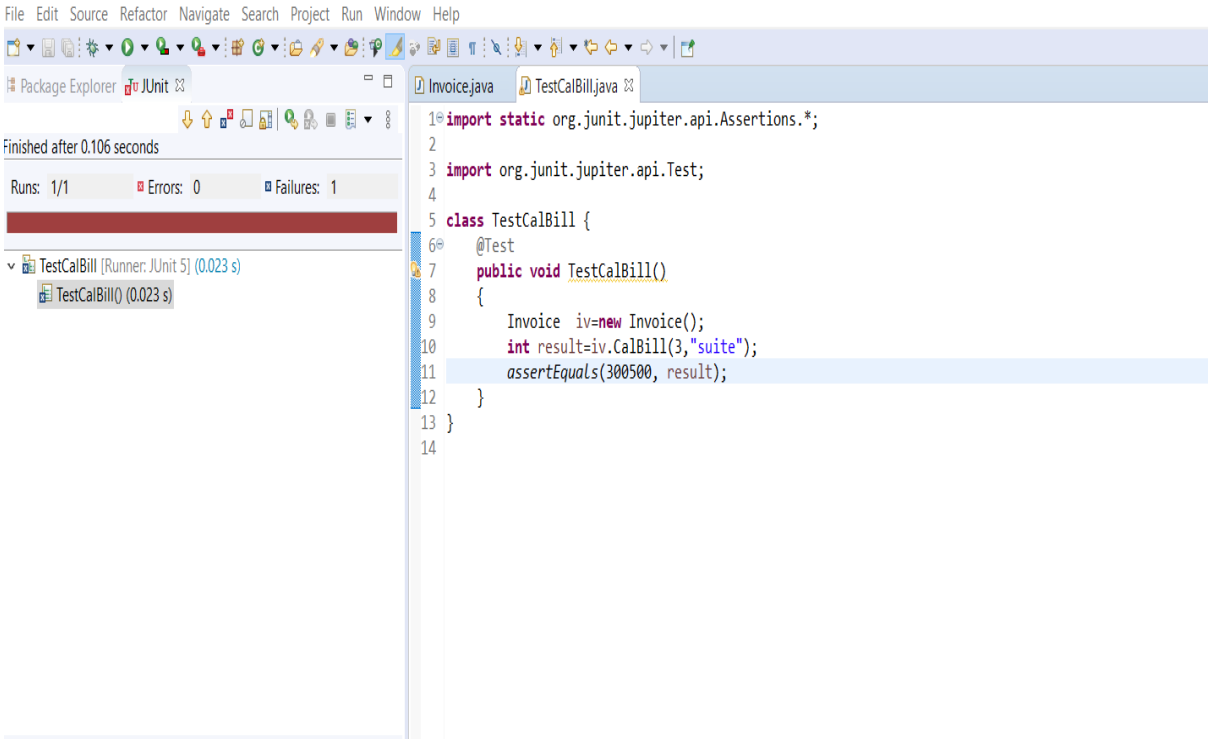
WHEN WE GET CORRECT ESTIMATED AMOUNT:

Here the use case is tested by passing number of days as 2 and type of room as suite so the estimated value of the bill 20000 and we are checking it with correct value(20000) so it is true and show green color towards the left side in the screenshot.



WHEN WE GET WRONG ESTIMATED AMOUNT:

Here the use case is tested by passing number of days as 3 and type of room as suite so the estimated value of the bill 30000 and we are checking it with wrong value(300500) so it failed and shows red color towards the left side in the screenshot.



Content Management

Description:

The content management done using Drupal is a pictorial representation of how we want our system to look like. There is nothing over the top about it, we just wanted it to be as user friendly as possible.

So, when the user logs in, he/she will be directed to the home page. Here in the 'about' section the user will get a brief idea about the page, what it is all about and what it has to offer.

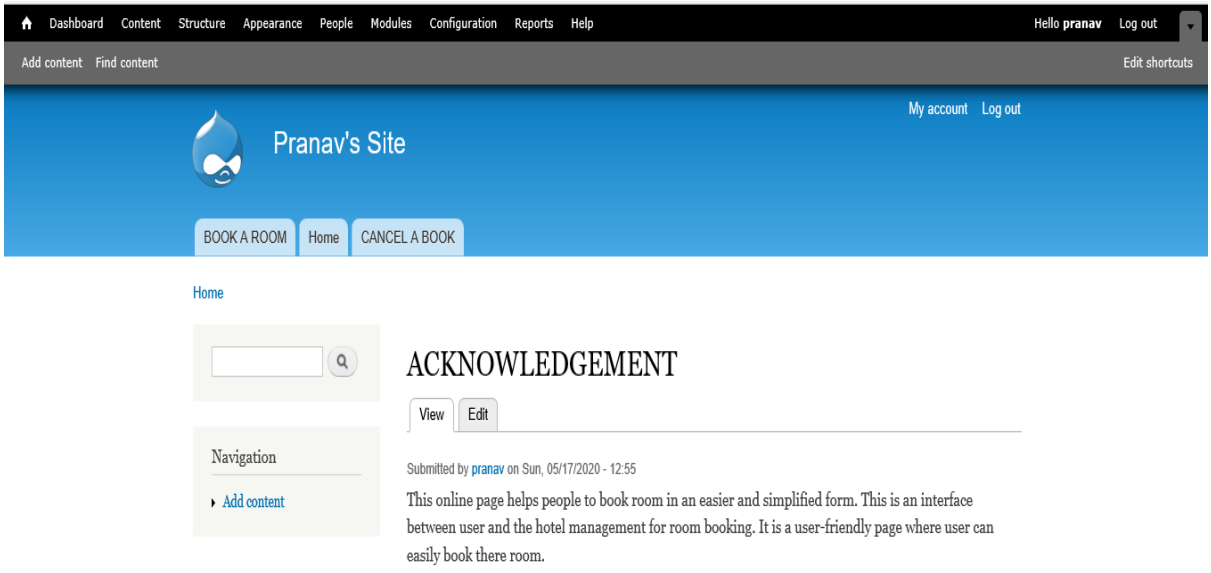
Other than this there are various tabs which make it easier for the user to browse through. A search bar is also available which aids the user in searching for any specific information he/she may want.

There are functionally specific tabs so that the users can have a clear picture.

For example, book a room tab provides the details how to book and what are the things needed to book it.

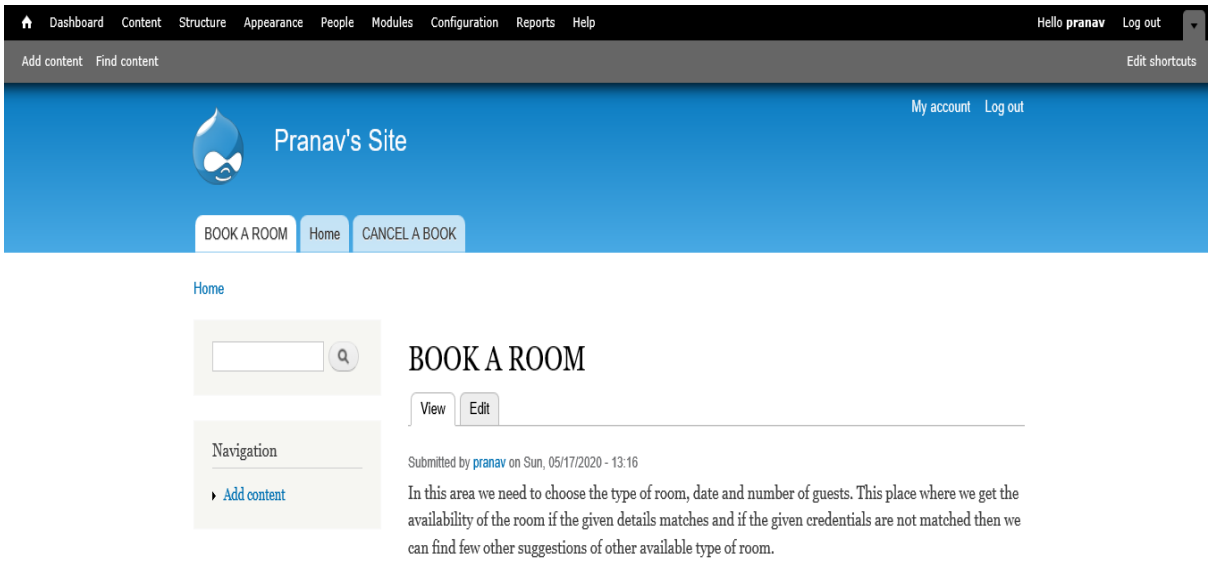
The cancel room tab gives information about to cancel a room.

A picture of how we want our system to look like:

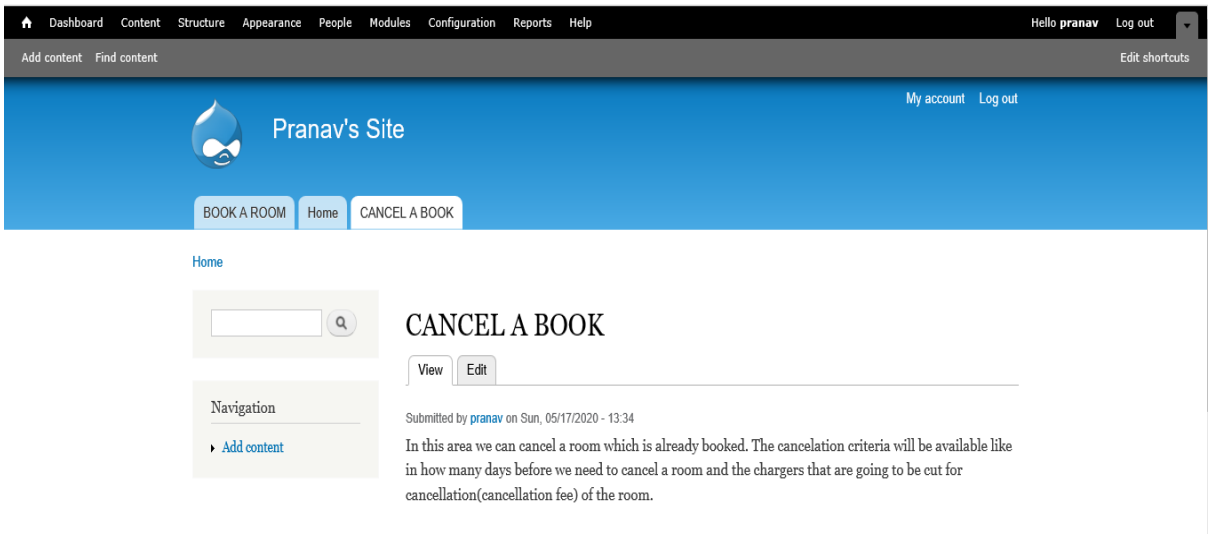


This is the home page containing the title, menu bar with other available tabs.

Other tabs:



The above screenshot shows the book a room tab and a brief description about it.



The above screenshot shows the cancel a room when and a brief description of it.

This a short sample how are website would be looking like.

Conclusion:

Finally, in Online Room management system, We have developed a secure, user-friendly Room Management System. This System can take care of each member whether its Owner or Customer.

This System will Help them to properly Manage their Hotel and help in growth without creating any hassle. This System is completely secure since every user is provided with user ID and Password so there is no chance of any unauthorised access. Online Payment, Booking and cancellation make it easier to use.

References:

www.youtube.com

www.google.com

www.ieee.org

www.wikipedia.com

www.github.com