Temasek Polytechnic
School of Informatics and IT

Diploma in Information Technology (IT)

Meeting Minutes

Project Particulars

Tutor	Mr Qi Yu Tao
Class	P01
Project Title	Delonix Regia Hotel Management System

Project Team's Particulars

Matric Number	Student Name
1605028H	**Ong Jia Hui**
1600712B	**Joanna Lim Min Le**
1601992I	**Cheong Ming Lun**
1603305B	**Toh Chien Yuan**

Date: 13/11/2017

Venue: Level 5 Meeting Room/Lab 3, 2:30pm

Present: Ong Jia Hui
Cheong Ming Lun
Joanna Lim Min Le
Toh Chien Yuan
Mr. Wong

Absent with apologies:

S/No	Item	Action By
1	Meeting started at 2:30pm Welcome, Introduction from both sides. Ming Lun asked Mr Wong for the main functional requirements for the hotel management system. Mr Wong stated that the system will have **3 notable main functions**: **1) Room Availability & Booking Module** **2) Housekeeping & Staff Management Module** **3) Reporting Module**	**Joanna** (For **2.1** System Functions)
2	Joanna asked Mr Wong about the **users** of the system. Mr Wong replied that there are **3 levels of users** that will be utilizing the system. **1) Reception Staff (end-users)** **Access of System** - Access parts of the reporting module - Full Access to Room Availability & Booking Module **2) Management Staff** **Access of System** **-** Access to all 3 modules	**Joanna** (For **2.2** User Characteristics)

	3) Hotel Administrators (Mr Wong himself) **<u>Access of System</u>** - Access to all 3 modules - User Account/Login Creation Module **(to create accounts for new staffs)**	
3	Jiahui asked Mr Wong regarding the **type of information** that will be captured inside the **Room Availability & Booking Module.** **<u>Types of Information Required</u>** 1) Last Name of Guests 2) First Name of Guests 3) Number of Adult Guests staying 4) Number of Children Guests staying 5) Contact Details 6) E-mail Address 7) Home Mailing Address - Street Address - Block/House Number - Postal Code - Country 8) Payment Details (Credit Card or Cash) *if Credit Card - Credit Card no - Credit Card Holder's name - Expiration Date of Credit Card 9) Accept Check in / Check out Details - Check in Date & Time - Desired Check out Date & Time 10) 'Additional Remarks' - etc. Guest wants King size/ Queen size bed. - etc. Smoking or Non-Smoking Room *We are allowed to include additional features if	**1. Jia Hui & Ming Lun** (**2.4** Functional Requirements & **2.5** Data Requirements) **2. Jia Hui & Joanna** (**2.6**
4	Jia Hui asked about the **process flow** when Hotel Guests check out of the hotel. - Guests are supposed to check-out before 12pm on the day itself. (Stipulated check-out time) - Guests will usually start checking out at 11am onwards. They will bring their baggage etc. to the reception area. Then they will pass the room key to the receptionist. - Ask guests if they have consumed any items from the hotel	

room (mini bar)
- Cleaning staff will come in to check and match with their item list and also to check if there are any missing items.
- Generate payment invoice calculated according to the number of days that the guests have stayed overnight, consumption of items from mini bar.

Information included inside the payment invoice:
- Guest Details
- Check-in Date
- Check-out Date
- No. of nights stayed overnight
- Room rates
- Any Additional costs
- Payment Mode

This invoice will be given to the guest to check, where he/she will confirm all the relevant information and make the actual payment.

5 Jia Hui asked if there were any **additional comments/features** that Mr Wong would like to add to the **Room Availability & Booking Module.**

Notable Comments:
1) Requires the system to let Mr Wong & Reception Staff to edit the guest records as and when they actually come in.

Example: After booking and processing the guest info they first arrive at the counter. It should be possible for the reception staff to change some of that info. (if guests wants to change a room, additional guests coming in for a stay etc.)

All these information should be modifiable.

6 Ming Lun asked about what features Mr Wong wants for the second module, the **Housekeeping Management & Staff Management module.**

2 Key Feature

Feature 1: Keep Records of Information of Each Staff
This feature allows Mr Wong & the other users to check on personal information about their staffs.

Information such as:
- Staff's Team
- Staff Name
- Date of Birth
- Bank Account Number
- Home Address
- Contact Number
- Duties

What kind of duties can Housekeeping Staff be assigned to?
1) General Maintenance
2) Room Maintenance
3) Estate Maintenance
4) Security

7 Joanna asked Mr Wong about the **kind of reports** that will be needed in the **3rd Module, Reporting Module.**

1st Report - Room Status
- List all the rooms that is in the hotel
- Respective room status (vacant, occupied, vacant & scheduled for cleaning etc.)

2nd Report - Guest in each room
- List all the guests in each room (to check who's in which room)

3rd Report - List all the Guests
- List all the guests staying in all the rooms during a specific day.

4th Report - Room Occupancy Report
- Generate Statistics indicating what is the room occupancy on the daily, weekly, monthly, yearly period.
- Only available to management/administration users.

5th Report - Housekeeping Report
- List the duties that a staff have been allocated to (the 4 duties)
- Generate Housekeeping Schedule based on the daily, weekly, monthly, yearly period.
- Only available to management/administration users.

8 Chien Yuan further asks if there is any additional features that Mr Wong would like in the **Reporting Module.**

Mr Wong said:
- Preview Reports (before sending it to the printer)

9 [Miscellaneous] **Ming Lun** (2.3)
1. Joanna asked Mr Wang about his **budget** for the system.

Budget for System: $70,000

2. Joanna then asked about where will be the completed software be installed in.

Mr Wong:
- The software will be installed in a single computer at the reception staff area.
- The computer is fairly old. (Pantheon 4 PC, Windows XP support package 2, 1GB RAM, 160GB hard disk, connected to the internet via broadband connection)
- The computer is also used to maintain the blog site for the hotel.

3. Ming Lun asked if the software must be integrated with any existing software or system.

Mr Wong:
- Due to the budget & development time constraints, integration is not necessary.
- Maybe it's more feasible in a longer term period (next time)

Some of the Integration plans for the future:

Additional Feature 1:
- Potential Guests able to enquire the room availability in the hotel online. (right now they are doing this via email)

Additional Feature 2:
- Reporting Module information to be able to export it to excel, for ease of access to the numerical data for Mr Wong to do his spreadsheets.

- These plans are not in urgent of need at the moment, but if we can accomplish this within the budget & time frame. We may go ahead and include this into the project specifications itself and go through the game plan.

4. Finally, Ming Lun asks if there are any kind of required backups that is needed for the system
- Hotels are operating 24/7 (not many times that the hotel shut down, unless maintenance) System should not go down at all.

Relevant
- Non Peak Hours: 2-3am which is the best time to do backup
- Once a month, maybe every first sunday of every month.
- Backup records to be kept in the system for 5 years before safely discarded.

Additional Information
- Peak Hours: 11-12pm (check-out time)

10 Everyone thanks Mr Wong for his input and agreement to meet up with us to discuss things over.

We agreed to come up with a prototype & demo for him by the end of March.

Mr Wong adds on:
-31st of March (to be done)
-7th of April to be fully employable, installed into the pcs, key users to be trained how to use the system.

Meeting ends at 3:30pm

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Diploma in Information Technology (IT)

Software Requirement Specifications (SRS)

Project Particulars

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Revision History

Date	Version	Description	Author
14/11/17	1.1	Distribution of work	Everyone
16/11/17	1.2	Research	Everyone
18/11/17	1.3	Edit & Update Information	Everyone
20/11/17	1.4	Finalization	Everyone

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1. DISTRIBUTION OF WORKLOAD

This shows the people in charge of the particular segment. However, we did most of the work together.

Requirement Gathering	Members
System Functions	Cheong Ming Lun
User Characteristics	Cheong Ming Lun
General Constraints	Everyone
Functional Requirements	Cheong Ming Lun
Data Requirements	Ong Jia Hui
User Interface Requirements	Joanna Lim Min Le
Interface with Other Systems	Joanna Lim Min Le
Assumptions	Everyone
Operating Environment	Everyone
Development Constraints	Everyone
Performance	Ong Jia Hui
Availability	Ong Jia Hui
Security & Access Control Requirements	Cheong Ming Lun
Special Requirements	Everyone
References	Everyone

2. OVERVIEW OF REQUIREMENTS

2.1 System Functions

These are some of the functions/features for each modules that Mr Wong have assigned us to work on.

- **Room Availability & Booking Module**
  Mr Wong stated that this module is created to **keep track of the availability of the rooms in the hotel.** Also, it allows the receptionists to help customers do booking for the rooms.

  General Functions:
  - Checking In & Out
  - Checking Room Availability & Status
  - Check Room Details
  - Check Guests Details
  - Modify Guests Details
  - Booking Functionality

- **Housekeeping & Staff Management Module**
  Mr Wong stated that this module is created to **keep track of each employee staff** who are working at the hotel. In addition, it also **tells users (Mr Wong & other Hotel Administrators)** which duties each employee staff is taking charge of.

  General Functions:
  - Keep Records of Employee Information
  - Assign Duty
  - View Duty

- **Reporting Module**
  Mr Wong stated that this module is created to **generate reports** for Mr Wong and his personnel so they can review the reports to make future plans.

  General Functions:
  - Generating the 5 reports (Room Status, Guest Room, Guest List, Room Occupancy & Housekeeping.
  - Preview Reports

2.2 User Characteristics

- **Reception Staff (end-users)**
  The **Reception Staffs** will have partial access to the **Reporting Module** and full access to the **Room Availability & Booking Module.** As these will be the people who will be at the front desk, helping customers with services such as checking room availability and booking of rooms. In addition, the purpose behind the access of some parts of the **Reporting Module** is that they will be able to check on room and guests details in case of any emergency or confirmation is needed.

- **Management Staff**
  The **Management Staffs** will have full access to all 3 modules which includes the **Room Availability & Booking Module, Housekeeping & Staff Management Module** and **Reporting Module.** As they are the people who generally manage and oversees the operations in the hotel, distributing duties to staff employees and managing staff's needs (Medical Leave etc.) All these module will be available to them.

- **Hotel Administrators (Mr Wong himself)**
  The **Hotel Administrators** will have full access to all 3 modules which includes the **Room Availability & Booking Module, Housekeeping & Staff Management Module** and **Reporting Module.** The hotel administrators generally does similar things as the Management Staff, but they also make use of all the information that is stored in these modules as decision factors for future plans for the hotel. In addition, **Mr Wong** and his other administrator personals will have an additional feature that allows them to create accounts for new staffs and be stored into the system.

2.3 General Constraints

- **Software Compatibility (with the hotel's PC)**
  The software that we are building must be compatible with the PC that the hotel is using at the reception front desk. The PCs are generally quite old compared to the ones that are available in this current date.

  These are the specifications of the PC that the hotel is currently using:

Operating System	Windows XP Support Package 2
RAM	1GB
Hard Disk Space	160GB
Internet Connection	Broadband Connection

  We are also to devise a suitable backup device for the computer.

  To understand what is compatible and suitable for the PC that the hotel is currently using, we must go online and do some research.

- **Additional Features (Time/Budget Constraint)**
  Mr Wong intended to include additional features in the software that we are building together. However, we might have some time and budget issues to include these additional features.

  - Time Constraint (Done by 31st March - Approx 5 weeks)
  - Budget Constraint (About $70k)

  These additional features include:

  1. Online Room Availability Module
  Mr Wong wanted to have an online web application that potential guests can make use of, as it would be more efficient for potential guests to be able to enquire about room availability online and do booking from there. They are currently making use of emails to do such bookings.

  2. Reporting Module Auto-Transfer to Excel
  Mr Wong wishes for the reporting module to be able to export it out to an excel sheet, so that he would have an easy access to the numerical data which will be used to do his spreadsheets.

**Mr Wong stated that these plans are not urgent at the moment, but if we could accomplish this within the budget & time frame, we may consider going ahead and include these features as part of the software. This includes additional features that we will be suggesting.*

2.4 Functional Requirements

1) <u>Room Availability & Booking Module</u>
This module generally provides all kinds of information regarding the room availability and customer information, and also providing the platform for room booking.

These are some of the functionality that this module has to offer:

- **Checking Room Availability/Status**
  Receptionist Staffs can view the availability and general information about each hotel room through this function. There are a few features available.

  [Room List]
  A list of all the available rooms will be listed accordingly for the user to see and check the room status and information.

  Information that will be displayed:
  - Room Number
  - Room Level
  - Room Type
  - Room Availability (Occupied or Unoccupied)
  - View Occupant Information (this will be a hypertext link that will move the page to another page that shows the occupant(s)' information **if the room is occupied.**)
  - Additional Remarks

  [View Occupant Information]
  This page will show all the information regarding the customer that is occupying a specific room.

  Information that will be displayed:
  - Name of Guests
  - Total Number of Adult Guests staying
  - Total Number of Children Guests staying
  - Contact Details (phone number)
  - E-mail Address
  - Home and Mailing Address (which will include the Street Address, Block/House Number, Postal Code and Country)
  - Additional Remarks
  (etc. Guest requests for King Size/ Queen Size bed)

[Category Filters/Search Bars]
Filters allow receptionists to search the rooms by categories, for easier search of room information.

Categories may include:
- Room Levels
- Room Type
- Available Rooms (unoccupied rooms)

As for search bars, it gives a more custom filter functionality with the same intentions of filtering.

[Booking Button (Booking a Room)]
There will be a button labeled “Book Now!” beside the rooms information for rooms which are unoccupied. After negotiating with the customer and agreeing upon a hotel room, the Receptionists then press the button and which afterwards the customer have to provide and fill up information to complete the room registration.

Information such as:
- All the names of all occupants staying in the hotel (Both First Name & Last Name)
- Personal Contact Details
- Home and Mailing Address (which will include the Street Address, Block/House Number, Postal Code and Country)
- Form of Payment (Cash or Credit Card)
- Credit Card Number
- Credit Card Holder’s Name
- Expiration Date of Credit Card
- Stay Duration
- E-mail Address

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2) Housekeeping & Staff Management Module

Mr Wong explained to us that there are 2 key features in this module which includes the **Keeping Track of Employee Information & Displaying Duty Types of Each Staff** features. (as stated in 2.1) However we are going to include an additional feature for the second feature, enabling a **Assign Duty Functionality.**

- **Keeping Track of Employee Information**
  As mentioned in 2.1, this feature allows users to view all personal information on the hotel staffs working there.

  [Search Forms]
  Search forms allows users to filter out for specific employees to look at their respective information.

  [Name List]
  A list of names will be provided at the first page of this module, allowing users to look into all of the employees personal information in a form of a table.

  Example of Information that will be displayed:
  - Staff's Team
  - Staff Name
  - Date of Birth
  - Bank Account Number
  - Home Address
  - Contact Number
  - Duties

  Types of Duties
  1) General Maintenance
  2) Room Maintenance
  3) Estate Maintenance
  4) Security

- **Assigning/View Duty Types of Each Staff Team (Additional Feature)**

  View Duty
  [Search Forms]
  To filter out for the people that are in charge of a specific duty during a specific day.

  [**Drop Down Option Bar - Filter**]
  Another way to filter out for data that tells which staff is doing which duty on the specific day. The drop down option bar will include all 4 duties available which Mr Wong can use to filter.

  Information will include:
  - Staff Team
  - Duty Type
  - Shift Slot (Time Period)
  - Location
  - Date of Shift
  - Any Descriptions/Comments

  Assign Duty
  [Hypertext Link - Assign Duty]
  This hypertext link will be located at the farmost right of the information table of an employee. This is where management staffs can click on to start assign duty for the staff.

  [User Forms - To Assign Duty]
  This user forms will appear after clicking on the hypertext link which says 'Assign Duty'. It will ask for the following information:

  Information will include:
  - Staff Team
  - Duty Type
  - Location
  - Shift Date
  - Shift Slot (between what time to what time)
  - Any Descriptions/Comments

3) <u>Reporting Module</u>

This Module will generate all kind of reports regarding the hotel itself. There are generally **5 different types of reports to be generated.**

> Mr Wong explained to us that there are a total of 5 different types of reports to be generated. The 5 types of reports are **Room Status, Guest Room, Guest List, Room Occupancy and Housekeeping.**

The system enables the hotel management to gain access to generating reports. The users will choose their desired report to be generated and the system will go through the database to look for the results. Mr Wong requested for an **additional feature**, to have the ability to preview reports before sending it to the printer for printing. This will help him with his paperwork. Therefore, after searching for results, the system will then organize and display the report for preview.

4) <u>User Account/ Login Creation Module(Additional Features)</u>

This feature has 2 parts to it which includes a **Login** and a **Create User Account** component. This module essentially grants Mr Wong the ability to create accounts for new staffs which then the new staffs can use the account to view work information such as checking for shifts, duties and other services.

This Module will include features such as:
- **User Input Forms** (for input of account details during account creation and logging in to an account)
- **Buttons**
- **Session Cookies** (to remember login details such as the username or ID)

2.5 Data Requirements

1) Guests

Name	*Data Type*	*Example*	*What it is*
guestID	varchar(30)	A466789 / A984012	Identification of customer defined by the hotel
guestName	String	John Ng / Mandy Lee	The name of the customer
Contact_number	int	89906443 / 23490567	The contact number of the customer
Age	int	18 / 33	The age of the customer
Address	varchar(150)	892 Tampines Ave 8	The place to send the billing to the customer
Gender	String	Male / Female	The sex of the customer
Nationality	String	Singaporean / Korean	The place of origin of the customer
number_of_children	int	2	The number of customer below age 16 that are checking in
number_of_adults	int	3	The number of customer above age 16 that are checking in
Email_Address	varchar(45)	111111I@yahoo.com.sg	The email address of the registered customer, to confirm payment.
Additional_Remarks	varchar(200)	Guest wants 2 extra pillows	Any remarks/requests regarding that specific guest.
roomID	varchar(3)	T001	The ID tag for the room that the guest is staying in.

2) Staffs

Name	*Data Type*	*Examples*	*What it is*
AccountID	int	018 / 099	Identification of the staff's account.
staffID	Varchar(30)	A63/A04	Identification of the workers
staffName	String	Mary Heng/ Priya Mohammad	Name of the staff
Position	String	Manager / Receptionist	The position of the staff
Duty	String	In charge of the receptionist / Helping the customer's check in and check out	What the staff needs to do
Address	Varchar(150)	805 Hougang Ave 5/ 545 Bedok North St 2	The place Where the staff stays
Age	int	23/ 49	The age of the staff
Contact_number	int	90069595	The contact number of the staff
Bank_number	int	3661239113	The salary will be paid to the staff

3) Housekeeping

Name	*Data Type*	*Example*	*What it is*
staffID	varchar(30)	A03/C34	Identification of staff
staffName	String	Jasmine Goh/ Dickson Lau	Name of staff
RoomID	varChar(30)	S998/K003	Identification of rooms

Time	int	2359 / 2105	Time taken to clean the room
Status	String	Dirty/ cleaned	Show if the room is cleaned or not

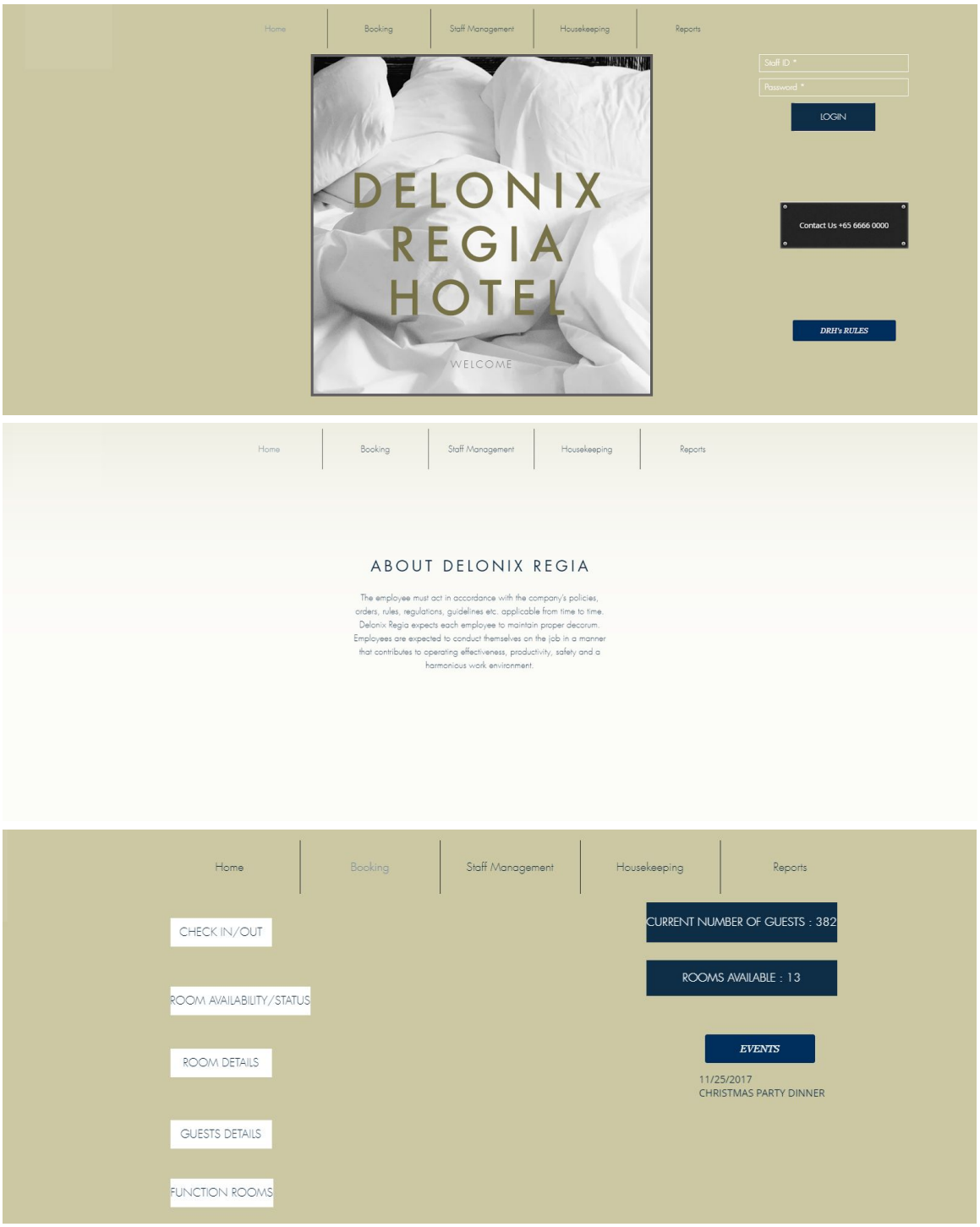
4) Rooms

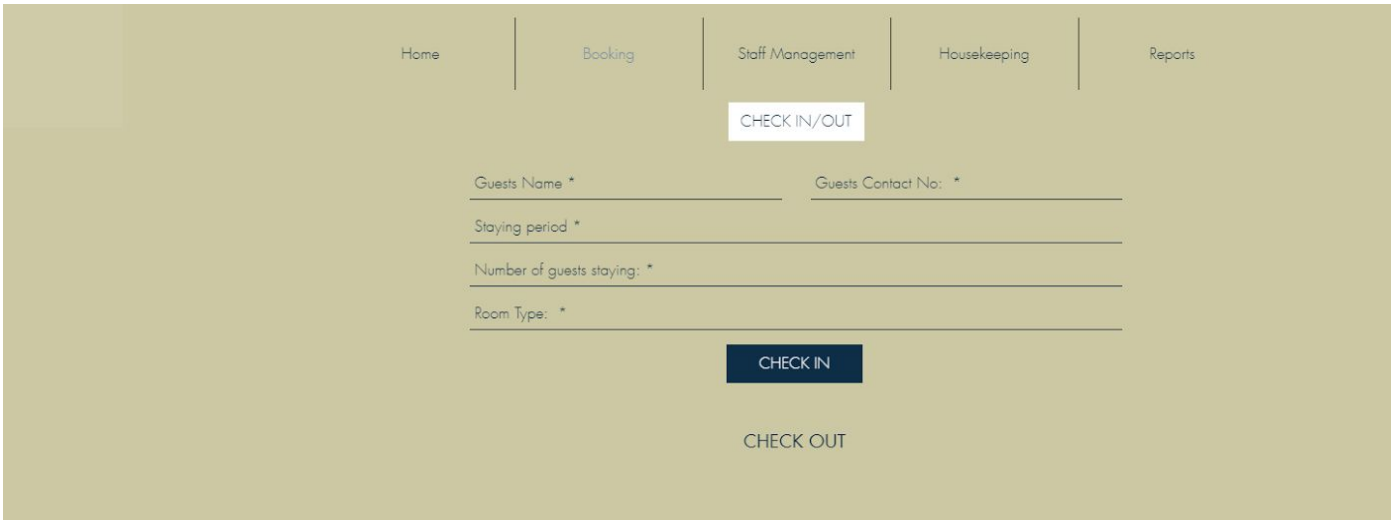
Names	*Data Types*	*Examples*	*What it is*
RoomID	varChar(150)	RD0965/ RS9999	Identification of the room
RoomFloor	int	3	The floor level of the room
total_price	double	400.25 / 800.70	The total price of the stay
status	String	occupied/ clean / dirty	The room if is occupied, free or needs cleaning.
num_of_guests	int	3	number of people staying
check_in_date	date	13/9/17	The date when the room is booked and occupied
check_out_date	date	17/9/17	The date when the room does not have anymore guest

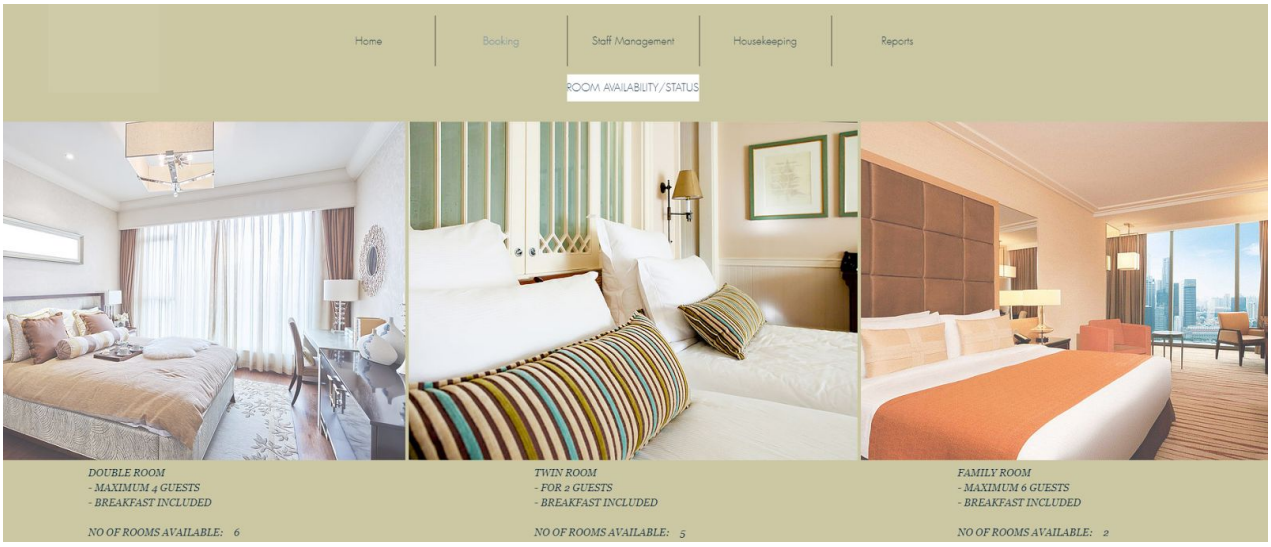
5) Payment

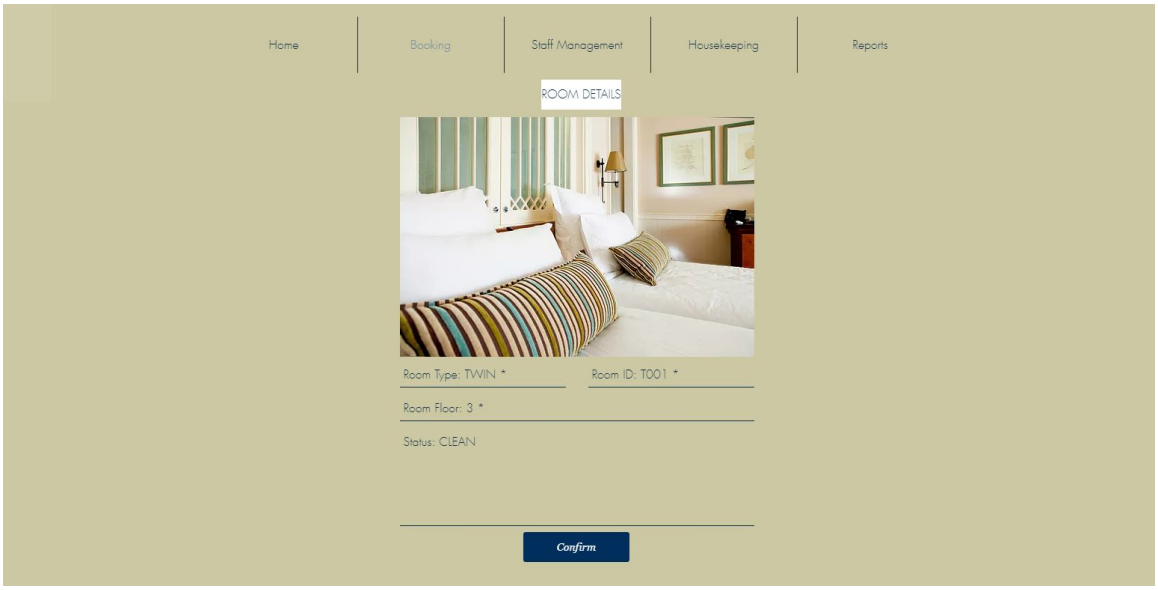
Names	*Data Types*	*Examples*	*What it is*
customerID	varchar(30)	A899	identification of guests
customer_name	String	David Beckham	name of guest
paymentID	varchar(50)	A888999023	identification of payment made by different groups
payment_date	date	13/9/18	the date when the payment is made
total_price	double	300.00/700.50	the total price of the stay
paymentStatus	boolean	true / false	whether the bill is paid or not

2.6 User Interface Requirements




Home
Booking
Staff Management
Housekeeping
Reports
CHECK IN/OUT
Guests Name *
Guests Contact No: *
Staying period *
Number of guests staying: *
Room Type: *
CHECK IN
CHECK OUT


Home
Booking
Staff Management
Housekeeping
Reports
ROOM AVAILABILITY/STATUS
DOUBLE ROOM
- MAXIMUM 4 GUESTS
- BREAKFAST INCLUDED
NO OF ROOMS AVAILABLE: 6
TWIN ROOM
- FOR 2 GUESTS
- BREAKFAST INCLUDED
NO OF ROOMS AVAILABLE: 5
FAMILY ROOM
- MAXIMUM 6 GUESTS
- BREAKFAST INCLUDED
NO OF ROOMS AVAILABLE: 2


Home
Booking
Staff Management
Housekeeping
Reports
ROOM DETAILS
Room Type: TWIN *
Room ID: T001 *
Room Floor: 3 *
Status: CLEAN
Confirm

Home | Booking | Staff Management | Housekeeping | Reports

GUESTS DETAILS

Guest Name: John Ng *

Guest ID: A466789 *

Contact No: 8990 6443 *

Age: 18 *

Address: 892 Tampines Ave 8 *

Gender: Male *

Nationality: Singaporean *

Email: 111111l@yahoo.com.sg *

Room ID: T001 *

Confirm

Home | Booking | Staff Management | Housekeeping | Reports

FUNCTION ROOMS

Guest Name: Kathy Hwang, Dc

Room ID: FR02 *

Room Floor: 1 *

Number of guests: 120 *

Event purpose: Wedding *

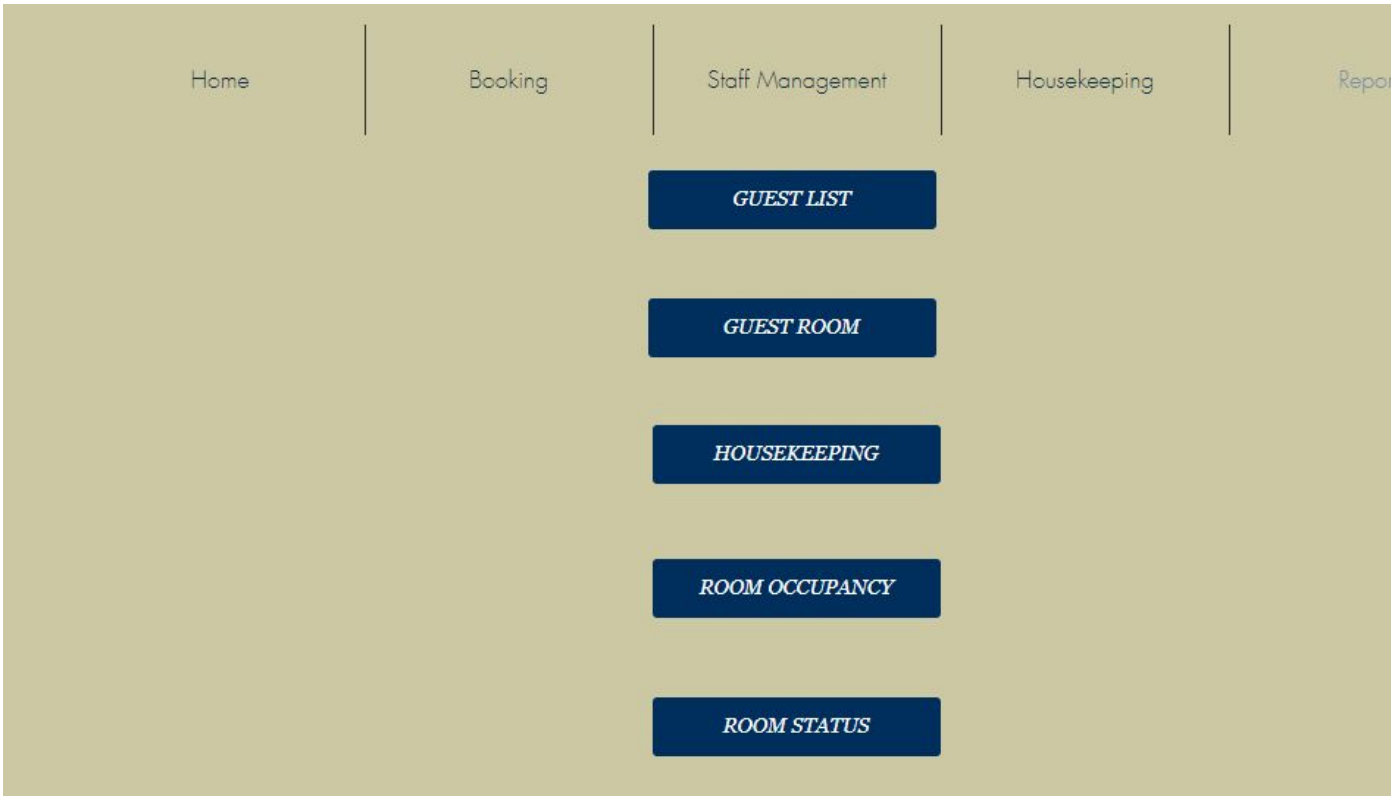
Time: 11/11/2017, 7PM - 12AM *

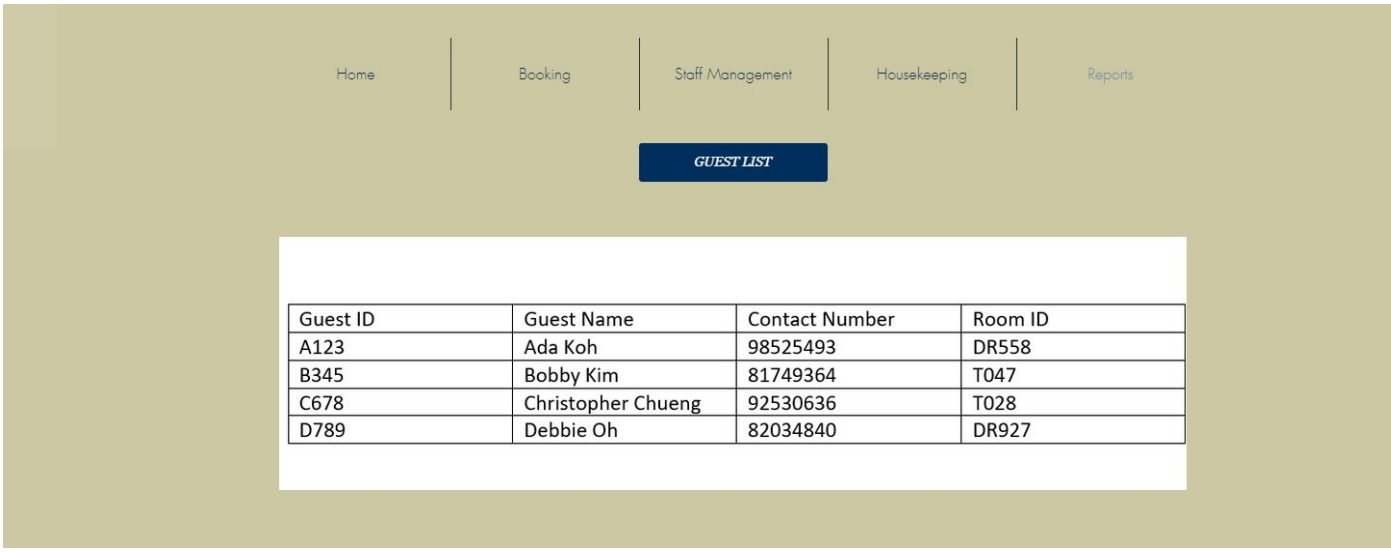
Confirm

Home | Booking | Staff Management | Housekeeping | Reports

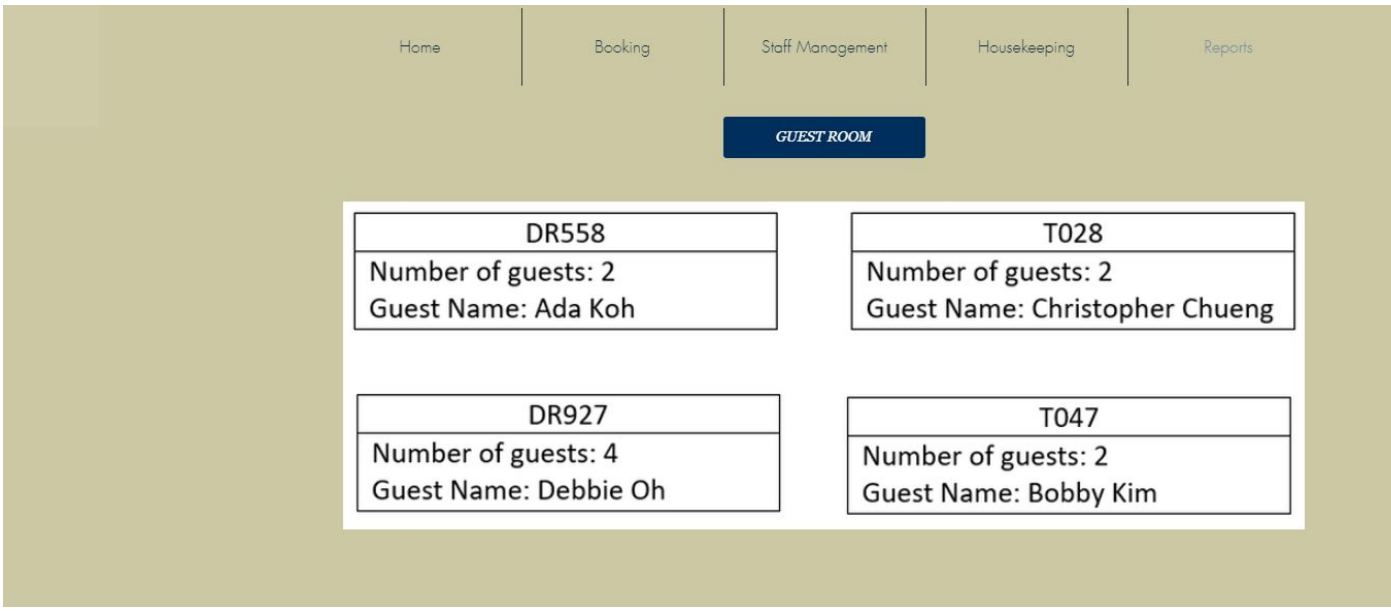
Account ID	Staff ID	Staff Name	Age	Address	Contact Number	Bank Number	Position	Duty
018	A36	Mary Heng	23	805 Hougang Ave 5	90069595	3661239113	Manager	In charge of the receptionist
033	C11	Chua Ah Lian	58	118 Toa Payoh Drive 70	88813546	2102947358	Cleaner	Clean the hotel area
067	B73	Tan Ah Shen	40	365 Woodlands Drive 30	93246679	5838146439	Assistant Chef	Help the Chief to make sure the kitchen operation is in order
099	A04	Priya Mohammad	49	545 Bedok North St 2	81167785	8815497600	Receptionist	Helping the guest's check in and out

Staff ID	Staff Name	Room ID	Time	Status
A03	Jasmine Goh	S998	2359	Dirty
C34	Dickson Lau	K003	2105	Cleaned
C11	Chua Ah Lian	T001	1253	Cleaned
E45	Tan Yu Jin	D223	1608	Dirty

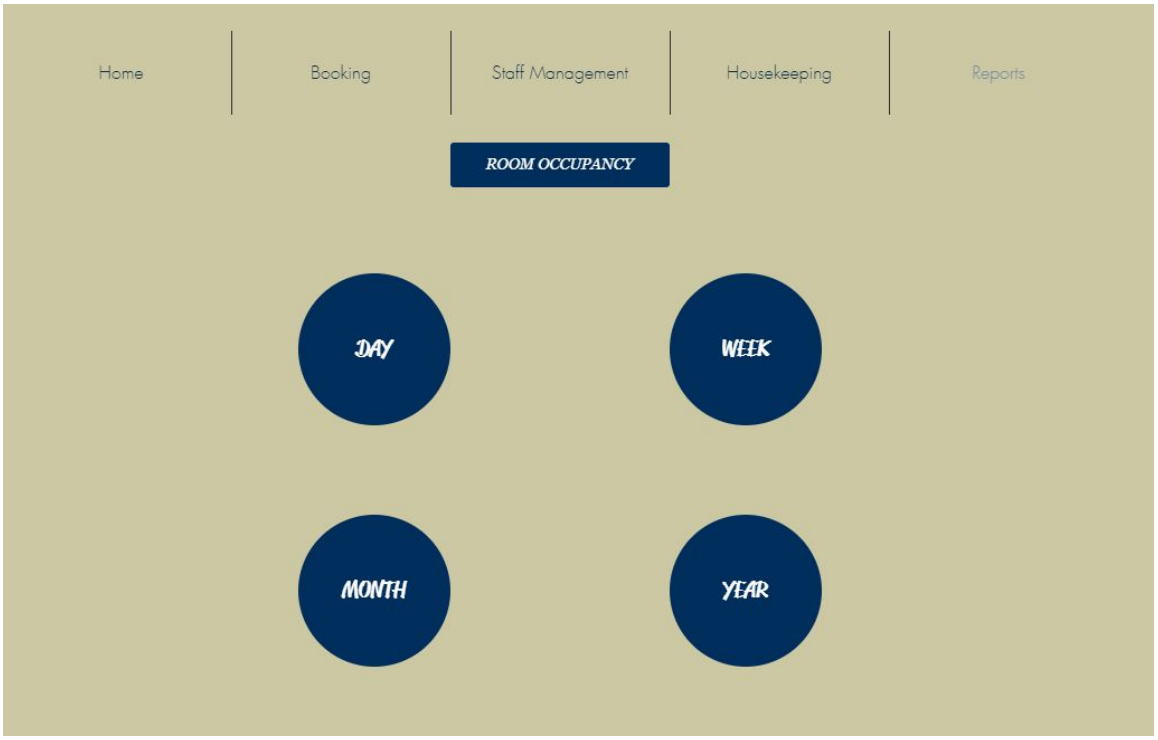


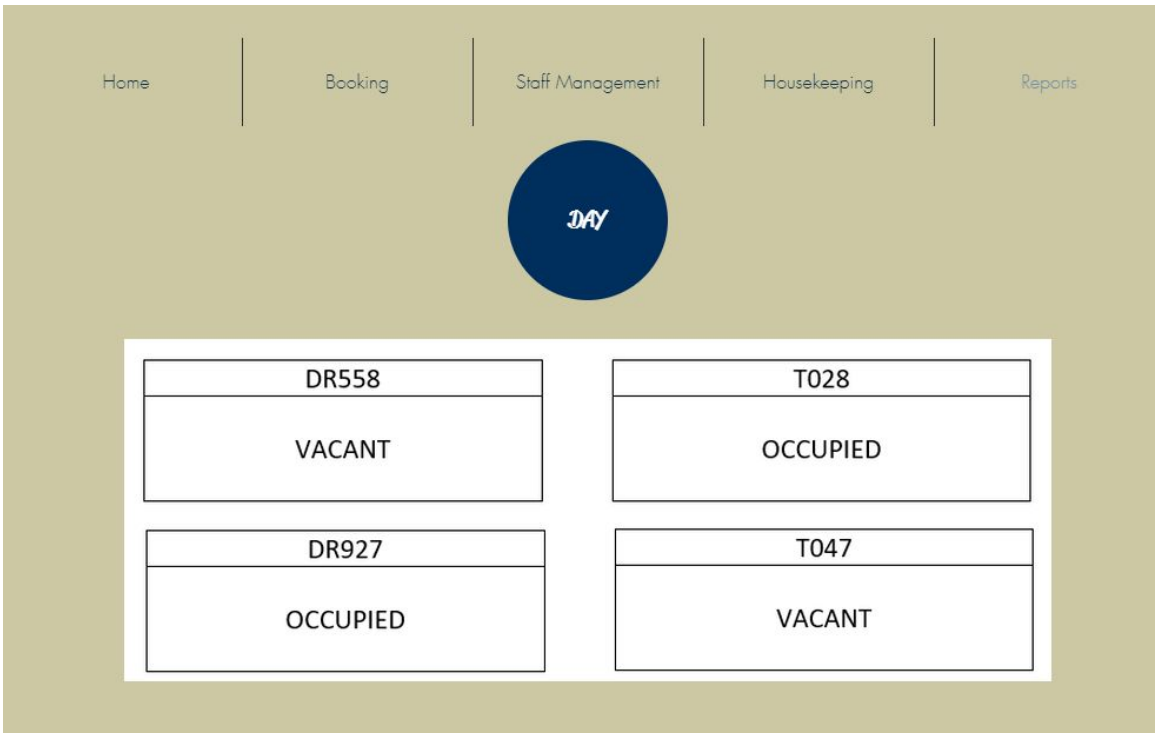


Guest ID	Guest Name	Contact Number	Room ID
A123	Ada Koh	98525493	DR558
B345	Bobby Kim	81749364	T047
C678	Christopher Chueng	92530636	T028
D789	Debbie Oh	82034840	DR927



Staff ID	Staff Name	Position	Working Hours	Leave Period	Leave Status
A03	Jasmine Goh	Housekeeper	34	23/11/2017-28/11/2017	Declined
C34	Dickson Lau	Housekeeper	50	03/01/2018-09/01/2018	Pending
A36	Mary Heng	Manager	62	20/05/2018-30/05/2018	Pending
A04	Priya Mohammad	Receptionist	68	02/03/2018-08/03/2018	Approved


Home
Booking
Staff Management
Housekeeping
Reports
ROOM OCCUPANCY
DAY
WEEK
MONTH
YEAR


Home
Booking
Staff Management
Housekeeping
Reports
DAY
DR558
VACANT
T028
OCCUPIED
DR927
OCCUPIED
T047
VACANT

2.7 Interface with Other Systems

There will not be any interface with other external systems.

2.8 Assumptions

- **Housekeeping & Staff Management Module (Assigning Function)**
  Mr Wong only requested to be able to view staff personal information and which duties (4 general duty types stated on 2.4.1) they are assigned to during a specific period. However, did not state anything about having the ability to assign roles to staffs during specific days/time periods. We felt that this would be a very useful feature to add into the application, especially when there is a sudden manpower issue during a specific day. As Mr Wong have mentioned that we are allowed to include additional features to improve the application, we are going to go ahead and implement this, as we assume that Mr Wong would require this particular feature.

- **Login Module**
  Mr Wong only mentioned having a feature that creates user accounts for the new employee who are just joining the hotel roster. However, did not talk about the log in aspect of the feature. As such, we assume that a Login feature will be required and essential to the application.

  **For 2.8.2 Login Module Assumption, please refer to 2.4.4.*

3 OPERATIONAL AND QUALITY REQUIREMENTS

3.1 Operating Environment

- **Front-End Design & Programming**

Software for Mockup Design

a) Moqups

Moqups is a UI/UX wireframe software which allows us to prototype the general architecture of the front-end side of the software and how it looks.

Why Moqups?

+ There is a free plan for it, so no money will be required to make use of this program.
+ Simple & Clean designing experience, there are multiple UI templates for us to choose from making prototyping much easier and faster.
+ Allows uploading of personal images/icons for prototyping use.
+ Good for quick sketch/prototyping ideas.

Drawbacks

- Limited Templates for use (although it'll be sufficient for just prototyping)
- Little to no notation tools, making collaboration harder. However, this is just a minor issue since we are working in a small group.

Software for UI/UX Design
b) Adobe Photoshop

Adobe Photoshop is a graphics editor developed by Adobe Systems on both macOS and Windows platform. We will be using this software to really go in depth with our front end design and polish its looks and usability.

Why Adobe Photoshop?
+ Abundance of Tools and Plugins to make use of, meaning thousands of design possibilities for our UI/UX design.
+ Familiar tool, has Online Support & Huge Community. Can find inspiration on the internet.
+ Provides better visual representation of what the application can look like.
+ Built in CSS tools which synergizes with Angular 2.

Drawbacks
- Not a Free Software, requires money. However, there is a 90 days trial option for us to make use of.
- Quite Expensive to buy the full software, and its subscription based. (Might have some impact on our budget, but not much)

c) Angular 2

We have agreed to make use of HTML, CSS and TypeScript to create this application As such, we decided to make use of Angular 2 as our application platform. Angular 2 is also very intuitive as it makes use of HTML as a declarative language, making it easier to understand as long as there is some knowledge in HTML. It also has a variety of other plugins and frameworks for us to make use of.

- **Visual Studio Code (IDE)**

We have chosen Visual Studio Code as our source code editor. As it supports the languages that we will be using (HTML, CSS, TypeScript etc.) and includes many other great web tools.

- **MySQL (Database Server)**

We will be using MySQL to store all our information that is required for the hotel. As most the information needed to be stored are inter-relational with one another, MySQL serves as the best option as compared to any other database software out there in the market.

- **Windows XP Support Package 2 (Operating System)**

We will be using the Windows XP Support Package 2 as for the operating system to run this application. To achieve compatibility with the PCs that are being used in the hotel at a more optimum performance.

** Please check part 2.3 under 'Software Compatibility (with the hotel's PC)' for this part.*

3.2 Development Constraints

1) The different schedules and timetable may cause the time of the development of the system to be lengthened.
2) There might be software changes from the initial plan of the softwares based on the SDLC cycle may cause a delay in the development of the system.
3) The different platforms of ideas may caused a lengthened schedule of development.

3.3 Performance

The system response time for each function are:

1) For the staff to choose the room to start checking in for the guest may take around 3 to 5 seconds
2) To view which room is empty or not will take 3 to 4 seconds as well.

3.4 Availability

The system availability requirements is to to run 24/7. However backup of data will be on every bi-weekly 15th and last day of the month from 2-4AM. It's usually this timing that is most convenient to do the maintenance as it is the non-peak hour. However, in times when there are unforeseen circumstances during timings that are not for maintenance, or if it is in the midst of maintenance of the system or in the data backup, the technicians will need a longer time to fix the issue causing 3 hours more if it is a breakdown during a normal timing or fixing it for 2 hours more than the actual time during the period of maintenance time. The system then can proceed to use normally again.

3.5 Security and Access Control Requirements

All information about who being able to access to which features of the application can be found at *Part 4. Program Design* of the Software Design Specifications document below.

4 SPECIAL REQUIREMENTS

There will not be any special requirements.

5 REFERENCES

1) MongoDB vs MySQL:
https://www.mongodb.com/compare/mongodb-mysql?jmp=docs
2) Visual Studio Code
https://code.visualstudio.com/docs/editor/whyvscode
3) Moqups
https://moqups.com/
4) Photoshop Comparisons
https://www.youtube.com/watch?v=W33fJKUlTho
5) 2-tier Software Architecture vs 3-tier Software Architecture
http://www.softwaretestingclass.com/what-is-difference-between-two-tier-and-three-tier-architecture/

Temasek Polytechnic
School of Informatics and IT

Diploma in Information Technology (IT)

Software Design Specifications (DS)

Project Particulars

Tutor	Mr Qi Yu Tao
Class	P01
Project Title	Delonix Regia Hotel Management System

Project Team's Particulars

Matric Number	**Student Name**
1605028H	**Ong Jia Hui**
1600712B	**Joanna Lim Min Le**
1601992I	**Cheong Ming Lun**
1603305B	**Toh Chien Yuan**

Revision History

Date	Version	Description	Author
16/11/17	1.1	Program Design	Cheong Ming Lun
17/11/17	1.2	Database Design	Ong Jia Hui
18/11/17	1.3	Architecture Design	Cheong Ming Lun
18/11/17	1.4	User Interface Design	Joanna Lim Min Le

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1. DISTRIBUTION OF WORKLOAD.. 4
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3. USER INTERFACE (UI) DESIGN.. 4
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5. DATABASE DESIGN.. 4

1. DISTRIBUTION OF WORKLOAD

Design	Members
Architecture Design	**Cheong Ming Lun**
User Interface Design	**Joanna Lim Min Le**
Program Design	**Cheong Ming Lun**
Database Design	**Ong Jia Hui**

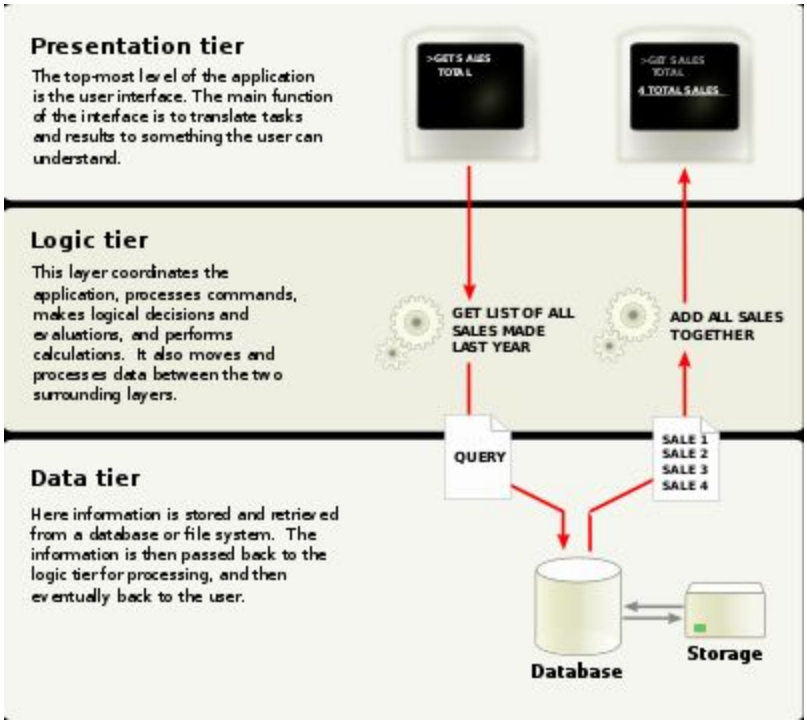
2. ARCHITECTURE DESIGN

We will be using the 3-tier architecture for our application platform which comprises of the presentation-logic-data layers.

- **Presentation Layer (end-user screen)**
  This layer will consist of all the user interfaces for the application. This layer provides information and data for the hotel staffs to use.

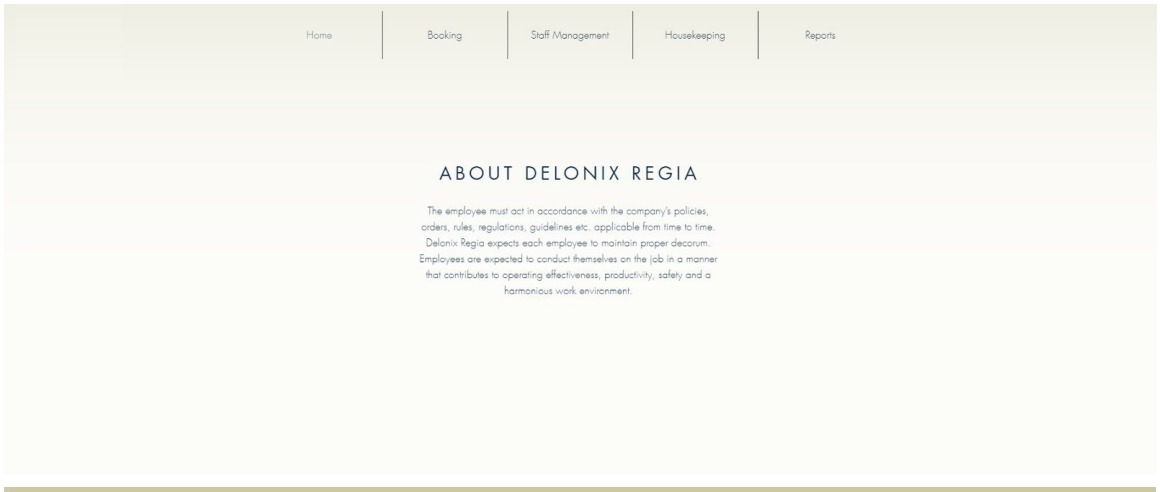
- **Logic Layer**
  This layer consist of all business logic written such as validation, calculation of data or calculations. By including this layer, it makes our application more functional and useful. Especially when we are handling a lot of data and numbers.

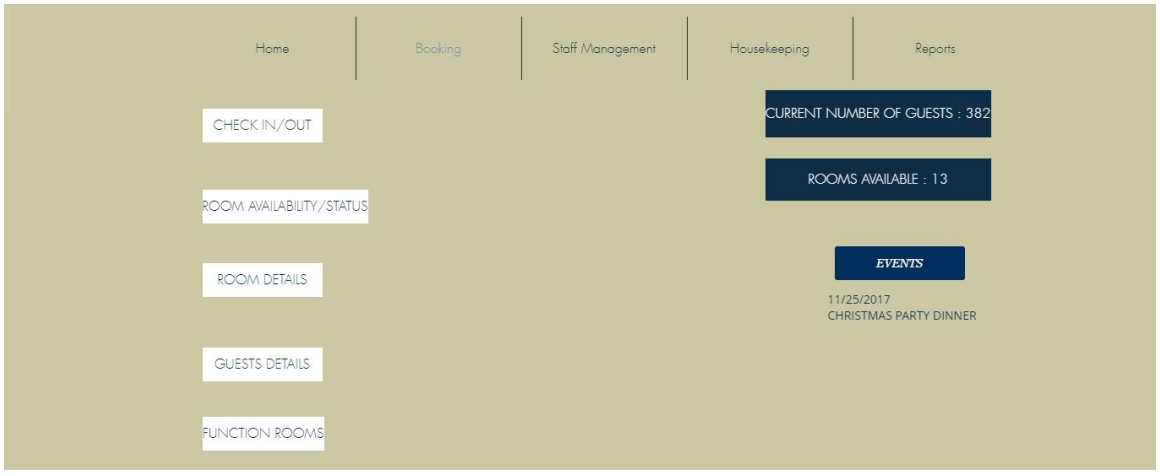
- **Data Layer**
  This is the database of our application, it stores all forms of important information such as customer details, employee details, business reports etc. The other layers will contain methods to connect with this database layer to perform insert, update, delete, retrieve data.

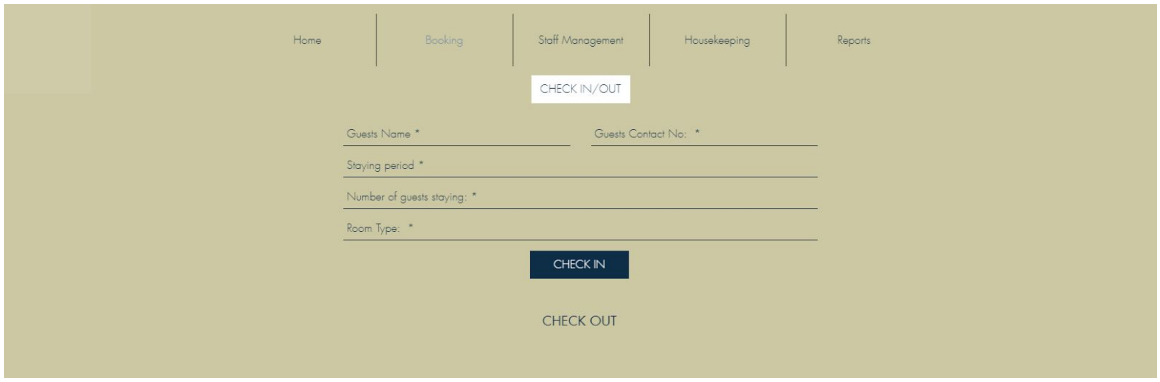


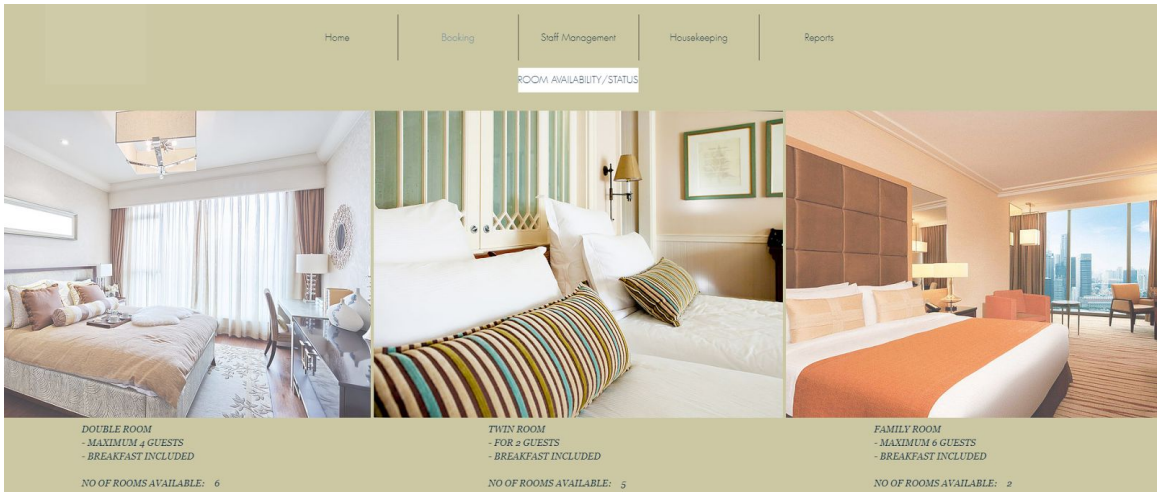
**Example of a 3-tier Architecture*

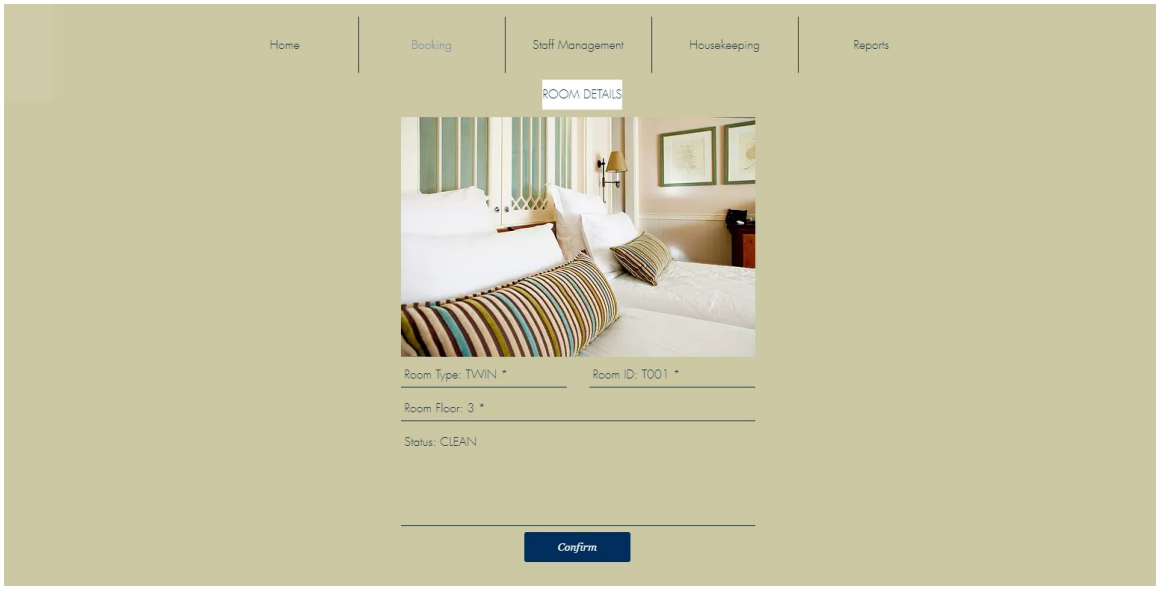
3. USER INTERFACE (UI) DESIGN

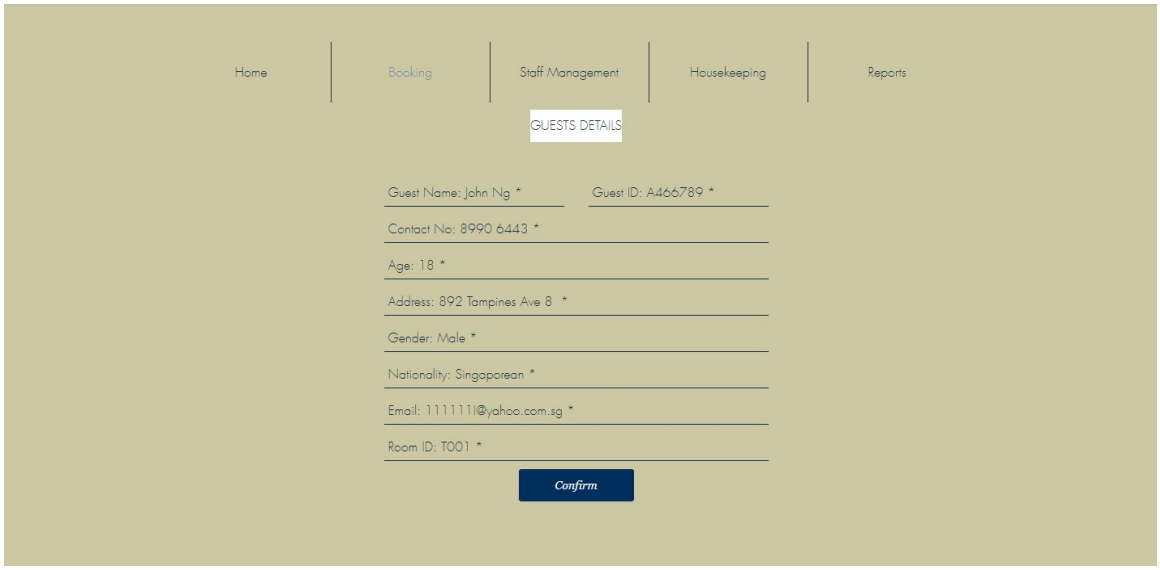


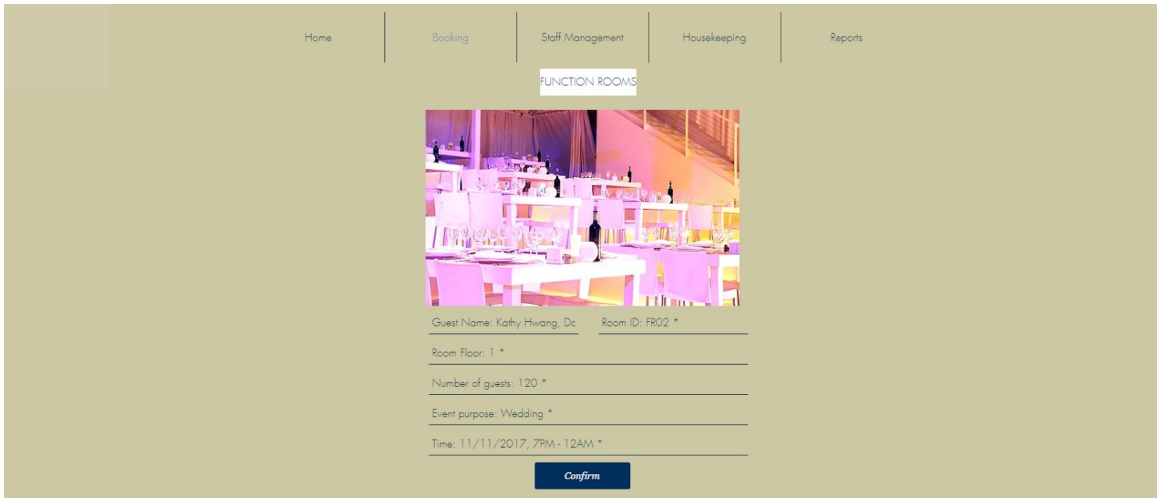



Home
Booking
Staff Management
Housekeeping
Reports
CHECK IN/OUT
Guests Name *
Guests Contact No: *
Staying period *
Number of guests staying: *
Room Type: *
CHECK IN
CHECK OUT


Home
Booking
Staff Management
Housekeeping
Reports
ROOM AVAILABILITY/STATUS
DOUBLE ROOM
- MAXIMUM 4 GUESTS
- BREAKFAST INCLUDED
NO OF ROOMS AVAILABLE: 6
TWIN ROOM
- FOR 2 GUESTS
- BREAKFAST INCLUDED
NO OF ROOMS AVAILABLE: 5
FAMILY ROOM
- MAXIMUM 6 GUESTS
- BREAKFAST INCLUDED
NO OF ROOMS AVAILABLE: 2

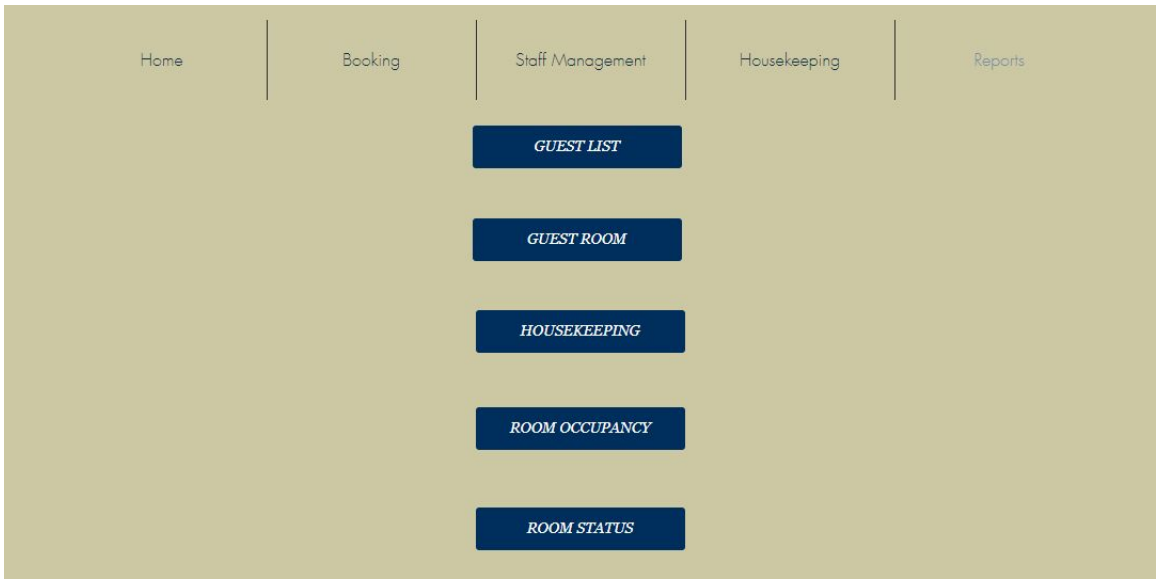

Home
Booking
Staff Management
Housekeeping
Reports
ROOM DETAILS
Room Type: TWIN *
Room ID: T001 *
Room Floor: 3 *
Status: CLEAN
Confirm

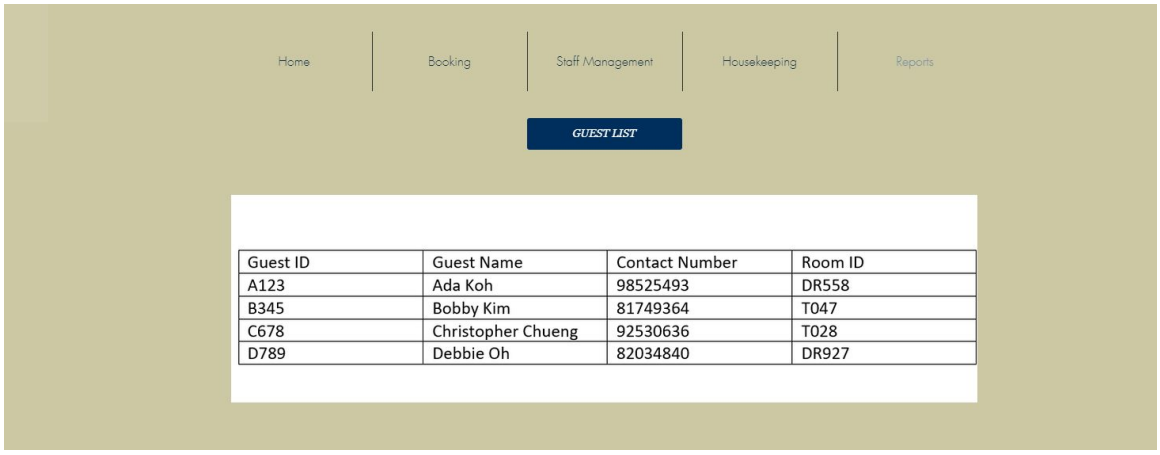




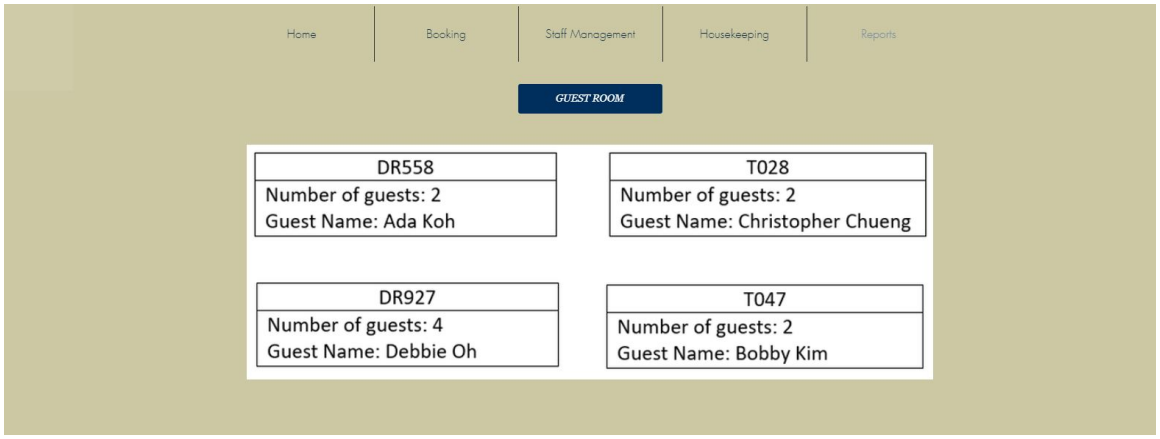
Account ID	Staff ID	Staff Name	Age	Address	Contact Number	Bank Number	Position	Duty
018	A36	Mary Heng	23	805 Hougang Ave 5	90069595	3661239113	Manager	In charge of the receptionist
033	C11	Chua Ah Lian	58	118 Toa Payoh Drive 70	88813546	2102947358	Cleaner	Clean the hotel area
067	B73	Tan Ah Shen	40	365 Woodlands Drive 30	93246679	5838146439	Assistant Chef	Help the Chief to make sure the kitchen operation is in order
099	A04	Priya Mohammad	49	545 Bedok North St 2	81167785	8815497600	Receptionist	Helping the guest's check in and out

Staff ID	Staff Name	Room ID	Time	Status
A03	Jasmine Goh	S998	2359	Dirty
C34	Dickson Lau	K003	2105	Cleaned
C11	Chua Ah Lian	T001	1253	Cleaned
E45	Tan Yu Jin	D223	1608	Dirty

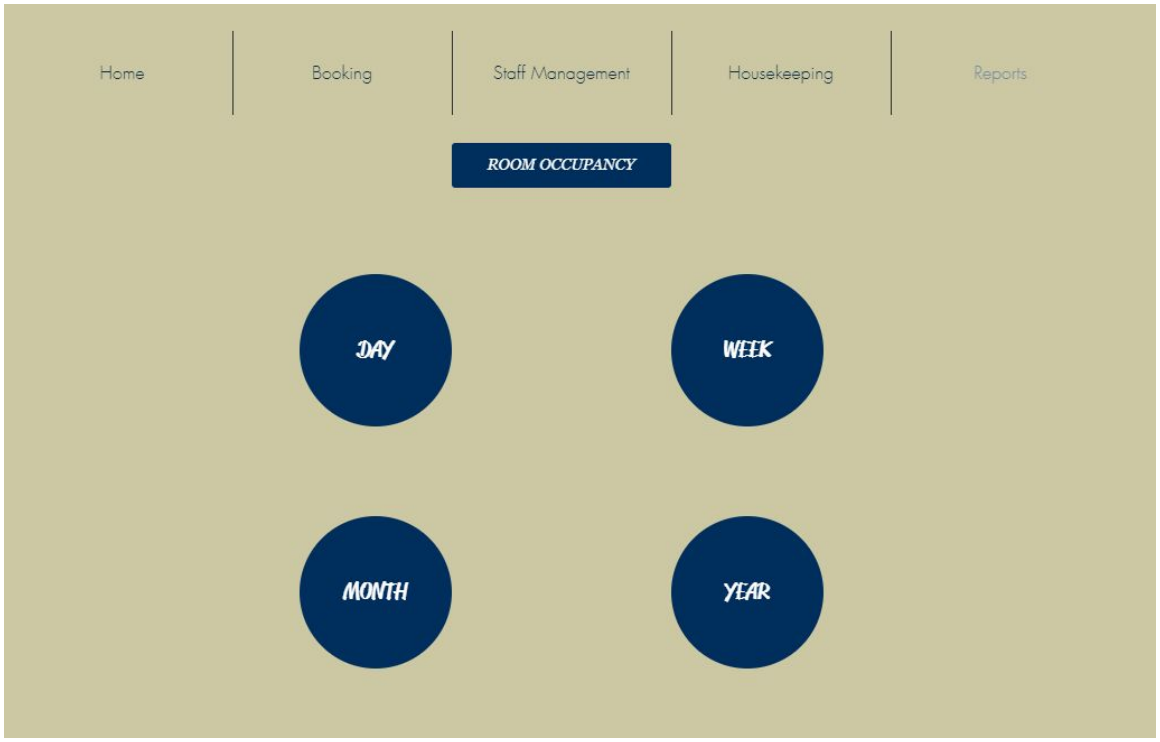


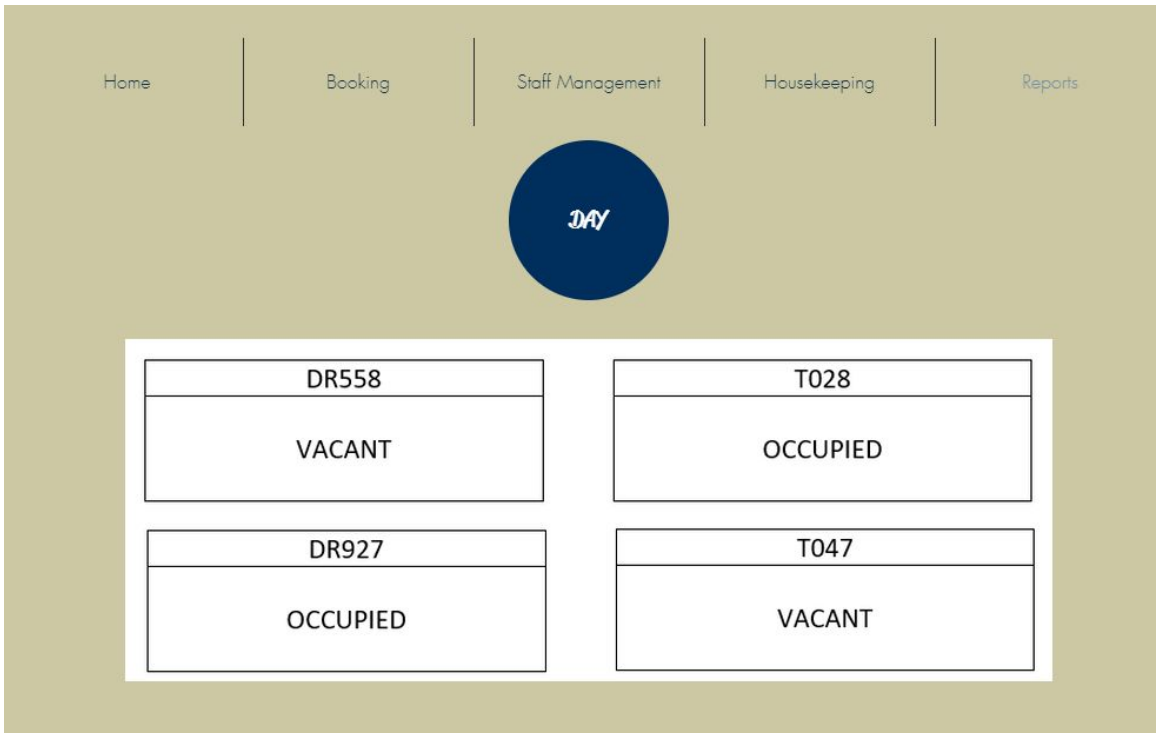


Guest ID	Guest Name	Contact Number	Room ID
A123	Ada Koh	98525493	DR558
B345	Bobby Kim	81749364	T047
C678	Christopher Chueng	92530636	T028
D789	Debbie Oh	82034840	DR927



Staff ID	Staff Name	Position	Working Hours	Leave Period	Leave Status
A03	Jasmine Goh	Housekeeper	34	23/11/2017-28/11/2017	Declined
C34	Dickson Lau	Housekeeper	50	03/01/2018-09/01/2018	Pending
A36	Mary Heng	Manager	62	20/05/2018-30/05/2018	Pending
A04	Priya Mohammad	Receptionist	68	02/03/2018-08/03/2018	Approved


Home
Booking
Staff Management
Housekeeping
Reports
ROOM OCCUPANCY
DAY
WEEK
MONTH
YEAR


Home
Booking
Staff Management
Housekeeping
Reports
DAY
DR558
VACANT
T028
OCCUPIED
DR927
OCCUPIED
T047
VACANT

1. **Usability**

Usability is the foundation of a successful user interface and is the easiest process for creating a positive user experience. A positive user experience is a critical part of the overall customer experience. When the user is able to use the system at ease, they are able to operate without much or no problems. This reduces the time wasted on figuring how to use the system.

2. **Logical Flow**

Having a logical flow is a must for any UI design. It was because if the flow is unlogical this creates confusion in the user's' mind. For example, a manager selects day report of room occupancy. He or she expects the system to display the information on the day's room occupancy and not the guest list. A logical flow allows users to finish their work smoothly and on time.

3. **Organized**

One UI design have to be organized. Be it with the words used or the pictures display on screen. Based on the K.I.S.S. (Keep It Simple, Stupid) principal, restrain from providing all of the information you want to get out there - too many alternatives or too much information is often a deterrent. Simplify information and enhance site structure by effectively grouping tabs and labels, for example the menu bar. In addition, avoid confusion by maintaining consistency with colour, the placing of tabs and how tabs operate.

4. PROGRAM DESIGN

- **Checking for Available Rooms (Room Availability & Booking Module)**

  Brief Description: This feature of the Room Availability & Booking Module generally allows Receptionists Staffs to check for available and unoccupied rooms in the hotel.

  Actors: Receptionist Staff & Hotel Administrators

  Scenario Text

  Main Flow

  1. The user arrives at the Room Availability & Booking Module page. There is a list of rooms presented to the user. Information about a room is presented in rows in a table like manner.

  2. User can use the drop down option selector labelled 'Sort By:' beside it and clicks on the option 'Available/Unoccupied Rooms'.

3. Now only rooms that are available will be displayed for the receptionist user to see.

- **Check for Room Information (Room Availability & Booking Module)**

  Brief Description: This feature of the Room Availability & Booking Module generally allows Receptionists Staffs to check for specific room information if needed. There are 3 ways for this use case.

  Actors: Receptionist Staff & Hotel Administrators

  Scenario Text

  Main Flow

  1. The user arrives at the Room Availability & Booking Module Page. There is a list of rooms presented to the user. Information about a room is presented in rows in a table like manner.

  2. The user scrolls down and finds the room that he wants information about.

  3. The user clicks on the room number and all specific information will be revealed to the user to read.

  Alternate Flow - Category Check Box

  1. The user arrives at the Room Availability & Booking Module Page. There is a list of rooms presented to the user. Information about a room is presented in rows in a table like manner.

  2. User can make use of a tick box category beside and tick the categories that he/she want to filter by. (example: 'Only Show: Luxury Rooms')

  3. The list of rooms will update and only show a list of rooms that fits under that category.

  4. The user clicks on the room number and all specific information will be revealed to the user to read.

  Alternate Flow - Search Forms

  1. The user arrives at the Room Availability & Booking Module Page. There is a list of rooms presented to the user. Information about a room is presented in rows in a table like manner.

2. User can make use of the search form to filter out his room search results.

3. The list of rooms will update and only show a list of rooms that fits the search form input

4. The user clicks on the room number and all specific information will be revealed to the user to read.

- **Book A Room (Room Availability & Booking Module)**

  Brief Description: This feature of the Room Availability & Booking Module generally allows Receptionists Staffs to book a room.

  Actors: Receptionist Staff

  Scenario Text

  Main Flow

  1. The user arrives at the Room Availability & Booking Module Page. There is a list of rooms presented to the user. Information about a room is presented in rows in a table like manner.

  2. The user finds the room that the customer wants and clicks the button beside all the room information that says “Book Now!”

  3. It will redirect the page to another page where it asks for customer personal information with user input forms.

  4. The user asks the customer for his/her information and helps him/her fill up the forms.

  5. The user clicks the submit button.

  6. The information is now updated into the Rooms Database.

- **View Employee Information (Housekeeping & Staff Management Module)**

  Brief Description: This feature of the Housekeeping & Staff Management Module generally allows Management Staffs and Hotel Administrators view all information concerning their employees. There are 2 ways for this use case.

  Actors: Management Staff & Hotel Administrators

Scenario Flow

Main Flow

1. The user arrives at the Housekeeping & Staff Management Module page. A list of employees is being shown on the screen The list includes their picture with along side their name

2. The user chooses the employee that they want to view.

3. It will redirect the current screen to another page where it shows all information regarding that particular employee.

Alternate Flow - Search Forms

1. The user arrives at the Housekeeping & Staff Management Module page. A list of employees is being shown on the screen The list includes their picture with along side their name

2. User can make use of the search form to filter out the information employee that he/she wants to see.

3. The user clicks on the employee's name

4. It will redirect the current screen to another page where it shows all information regarding that particular employee.

- **View Duties of Staff (Housekeeping & Staff Management Module)**

  Brief Description: This feature of the Housekeeping & Staff Management Module generally allows Management Staffs and Hotel Administrators to view duties of all hotel staffs.

  Actors: Management Staff & Hotel Administrators

  Scenario Flow

  Main Flow

  1. The user arrives at the Duties Assignment Page which shows the 4 duty types and how many people are going on these duty today.

  2. The user can click on a specific duty (example: Security) to check who is in

serving this duty today and their shift timing.

3. After clicking, the page will be redirected to another page which it will show all the staffs that are in charge of this duty today and when to when.

- **Assign Duties of Staff (Housekeeping & Staff Management Module)**

  Brief Description: This feature of the Housekeeping & Staff Management Module generally allows Management Staffs and Hotel Administrators to assign duties of all hotel staffs. This is a Continuation from View Duties of Staff.

  Actors: Management Staff

  Scenario Flow

  Main Flow

  1. The user arrives at the Duties Assignment Page which shows the 4 duty types and how many people are going on these duty today.

  2. The user can click on a specific duty (example: Security) to check who is in serving this duty today and their shift timing.

  3. After clicking, the page will be redirected to the page which shows all duties and there will be some user forms that will be required to fill up to assign the duties to the staff.

  4. The user will be required to include details like the specific staff name, duty type and duty location.
  5. When all user inputs have been filled up, the user can click the button ‘Assign Shift’

  6. The page will refresh and update with the new duty entries for viewing.

- **Generate Reports (Reporting Module)**

  Brief Description: This feature of the Reporting Module generally allows Management Staffs and Hotel Administrators to generate the various reports for company uses.

  Actors: Management Staffs & Hotel Administrators

  Scenario Text

Main Flow

1. The user arrives at the Report Module Page which shows 5 options boxes that are labelled with the respective 5 types of reports.

2. The user can click and tick on the report which he/she wants to generate.

3. After selecting the reports that the user wants to generate, the user clicks the button ‘Generate Now’.

4. The page will redirect to another page which displays all the generated report files.

5. The user has an option to preview the report documents, by clicking on the button that states ‘preview now’.

6. After previewing, the user can send it for printing by clicking the button ‘print now’.

5. DATABASE DESIGN

Customers (customerID, customerName, handphone No, age, home Address, gender, nationality, number_of_children, number_of_adults, email Address, roomID, Additional_Remarks)

Rooms (roomID, room Floor, total_price, status, num_of_guests, check_in_date , check_out_date)

Payment (customerID, customerName, paymentID, payment_date, total_price, paymentStatus)

Housekeeping (staffId, staffName, RoomID, Time , Status)

Duties (dutyID, dutyName, dutyDescription)

Staff (staffId, staffName, staffAge, dutyType, dutyLocation, shiftDate, shiftSlot, remarks)

Location(locationID, locationName)

We analysed the system requirements and gathered the data requirements in *2.5.* As such to come up with this database schema that covers all the general data needed for the application.