**Temasek Polytechnic**

**School of Informatics and IT**

**Diploma in Information Technology (IT)**

Software Requirement Specifications (SRS)

**Project Particulars**

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| --- | --- |
| **Tutor** | Mel Goh |
| **Class** | P03 |
| **Project Title** | Delonix Regia Hotel Management System |

**Project Team’s Particulars**

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| --- | --- |
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**1. DISTRIBUTION OF WORKLOAD**

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| --- | --- |
| **Requirement Gathering** | **Members** |
| Distribution of Workload | Vivian |
| System Functions | Vivian |
| User Requirements | Vivian |
| Functional Requirements | Vivian |
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| Data Requirements | Vivian |
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| Operating Environment | Shannon |
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| Security and Access Control Requirements | Shannon |

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# **2. OVERVIEW OF REQUIREMENTS**

## **2.1 System Functions**

The owners of Delonix Regia Hotel, Mr and Mrs Wang, have requested on the development of a Hotel Management System for their hotel. The hotel have not been doing well despite located at a relatively good location. Therefore, by implementing a Hotel Management System, it can help assist Mr and Mrs Wang as well as the staffs in the hotel with the daily operations.

The functions that are going to be implemented into the system are:

1. Room availability and booking module

* Allows the reception staff to check room availability before helping the guests book a room
* Allows the management users and the hotel administrators to manage booking information
* Allows the three level of users to view the hotel room status, whether the room is vacant, occupied or vacant and has been scheduled for cleaning
* Allows the users to be able to search for a particular room by room number or room type
* Room status will change from ‘Vacant’ to ‘Occupied’ when a guest checked into the room
* Invoice will be created when a guest checked out of the room

1. Housekeeping and staff management module

* Allows the three levels of users to access staff information
* Allows the management users and hotel administrators to track housekeeping requests as well as housekeepers’ details such as their contact details
* Guests are able to make special housekeeping requests

1. Reporting module

* Allows the users to generate various types of report for analyzing purposes
* Print report
* Allows the hotel administrator to be able to preview a report before printing

## **2.2 User Characteristics**

There are a total of three levels of users.

The first level of users are the end users who are the reception staff at the front counter. They are able to access selected reports of the reporting module and are given full access to the room availability & booking module.

The second level of users are the management users. The management users have access to all three modules which are room availability and booking module, housekeeping and staff management module and the reporting module.

The third and final level of users are the hotel administrators, Mr and Mrs Wang. They will have access to all parts of the system which are the three modules as well as one other module, the user account and login creation module. This additional module will allow the hotel administrators to create new accounts for new staffs and new users.

## **2.3 General Constraints**

The hotel management system is connected to the data server where it gets all its information. Therefore, a stable Internet connection is necessary and important for the hotel management system.

Only registered staffs who are given special rights by the administrator can access the hotel management system.

## **2.4 Functional Requirements**

**Login and Logout**

The system has a login and logout function for all users.

|  |  |
| --- | --- |
| **Function** | **Description** |
| Log In | * The system will prompt the user for the login details; Staff ID and login password * The system will check if the provided login details match with the login details in the database * If there is a match found, the staff homepage will be loaded * If there is no match found, an error message will be shown to prompt the user to try again |
| Log Out | * The user will be logged out by the system when he/she clicks on the “Logout” button |

**Room Availability and Booking Module**

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| --- | --- |
| **Function** | **Description** |
| Check-in | * The system will prompt the user for the guest identification number * The user will be able to view the booking that was made by the guest with the identification number. The booking includes the booking id, first name, last name, contact number, home and mailing address, email address, number of adults, number of children, type of room, check-in date and time, checkout date and time, payment type, credit card type, credit card number, credit card expiry date as well as additional remarks * If there is no booking made using the identification number, an error message will be shown * If there is a booking made using the identification number, the guest will be able to check into the room and the status of that particular room will change from ‘Vacant’ to ‘Occupied’ |
| Check-out | * The system will prompt the user for the guest identification number * The user will be able to view the room rates after entering the identification number * Upon checking out, the booking will be deleted from the system and an invoice will be generated * After the guest has checked out, the room status will change from ‘Occupied’ to ‘Vacant’ |
| Create Booking | * The system will display the following details when the user wants to create a new room booking; first and last name, contact number, home and mailing address, email address, number of adults, number of children, type of room, check-in date and time, checkout date and time, payment type, credit card type, credit card number, credit card expired date and additional remarks. * Users will be able to view and choose among the different room types and their respective rates * Upon choosing the room type, the room rate will automatically be displayed on the web page * After entering all the necessary details, the system will generate a booking ID * The generated booking ID, together with the information provided above, will be saved into the Booking database table * The system will proceed on to the next step of the booking if the payment type chosen is not by credit card * The system will only accept inputs of a regular expression for credit card number (16 numeric digits) and credit card CVC code (3 numeric digits). Failing which, an error message will be displayed to the user regarding the number of digits * Upon creating a new booking, the user is required to verify themselves with a PIN number that will be sent to their email address * The booking will be stored as a log file after it is made |
| Edit Booking | * The user will have to provide the system with a booking id before being able to view, update or delete the booking. * As long as the booking has not reached the check-in date, the users are able to update or delete the booking. * Once the user clicks on the delete button, the booking will be deleted from the database table and system as well. * The user will have to verify themselves once again with a PIN number that will be sent to their email address if they decide to update the booking. * The system will display an error message if the user does not select a particular booking id before clicking on the update or delete button. * Once the information is updated, the new information will overwrite the old one in the database and the system as well. |

**Housekeeping and Staff Management Module**

|  |  |
| --- | --- |
| **Function** | **Description** |
| Guest housekeeping Requests | * The system will allow for the guests to make special housekeeping requests. * The system will allow for the housekeepers to track and monitor these housekeeping requests for completion. * As they finish the housekeeping of each room, they will be able to update the status too. * The guests will be able to check the housekeeping status of their own rooms * The request will contain of the following information; request date and time, room number and request |
| Housekeeper Schedules | * The system will allow the user to add new staff schedule, view, update or remove existing ones. * The information required for new staff schedule are staff ID, staff name, duty type, room number and duty date and time * The system will then generate a housekeeping id which will be stored in the database using the above information * The system will reduce user inputs to prevent mistakes made by human error, by retrieving information from the staff database table after the staff ID is entered * When the user wishes to edit or delete the staff schedule, the user will have to provide the housekeeping id * If the housekeeping id is recognized by the database, the update or delete will be successful * If the housekeeping id is not recognized by the database, an error message will be shown |
| Hotel Staff | * The system will prompt the user for staff details when adding a new hotel staff. The details that have to be provided are staff name, login password, dob, bank type, bank account number, home and mailing address, email address, contact number, staff duty type and the user access level * After entering all these details, the system will generate a staff id for the new staff and save it together with the above information * The system will only allow for the login password to be entered if the user is the administrator. * When the user wants to view, update or delete a hotel staff, they will need to provide the system with the staff id. * If the staff id does not exist in the database, an error message will be displayed. * If the staff id exist in the database, they will be able to view, update or delete the staff information successfully |

**Reporting Module**

* The system will display all the reports available to generate on this page. Nonetheless it will rely on the user's access level.

All users:

o Room Status Report

o All guests in a room report

o All guests in all rooms report

Management users & administrators:

o Room Occupancy Report

o Housekeeping Report

* Before loading this page, the system will confirm the type of user and its access level, thus giving options, which are available to them only.
* The system will load the particular report after generating it.
* The user will also have an option to preview the report and then to print it as well.
* The report will have additional information; report generated date and report date range.

## **User account and login creation Module**

* The system will only allow administrators to manage the user accounts and login creations
* Only the hotel administrators (i.e. Mr Wang) has the authority to register new staff and guest accounts as well as editing or deleting them

## **2.5 Data Requirements**

**Guest**

* Guest ID
* First Name
* Last Name
* Identification Number
* Country
* Home Address
* Phone Number
* Email
* Gender
* Additional Remarks

**Staff**

* Staff ID
* Name
* Position
* Bank Account Number
* Date of Birth
* Home Address
* Email
* Phone Number
* Type of Access Granted

**Room**

* Room Number
* No of Adult
* No of Child
* Room Type
* Status
* Cost
* Book ID

**Booking**

* Book ID
* Date Of Birth
* Room No
* Room Type
* Guest ID
* First Name
* Last Name
* Phone Number
* Email
* Home Address
* No of Adults
* No of Children
* Check in Time and Date
* Check out Time and Date
* Payment Type
* Name of Card
* Expiry Date of Card
* Card Number
* Card Type
* Remarks
* Staff ID

**Management**

* Management ID
* Username
* Password
* Email
* Name
* Address
* Date of Birth
* Gender
* Phone Number
* Bank Account Number

**Admin**

* Admin ID
* Password
* Email
* Name
* Identification Number
* Address
* Date of Birth
* Gender
* Phone Number

**AuditLog**

* Date and Time
* Username
* Password
* Report Type
* Details

## **2.6 User Interface Requirements**

Homepage User Interface

The homepage allows the staffs to navigate around the system. It consists of all the available functions like booking, check in, check out and housekeeping.

Login user Interface

The login page will allow the users to log in by entering their staffID and password

Booking Interface

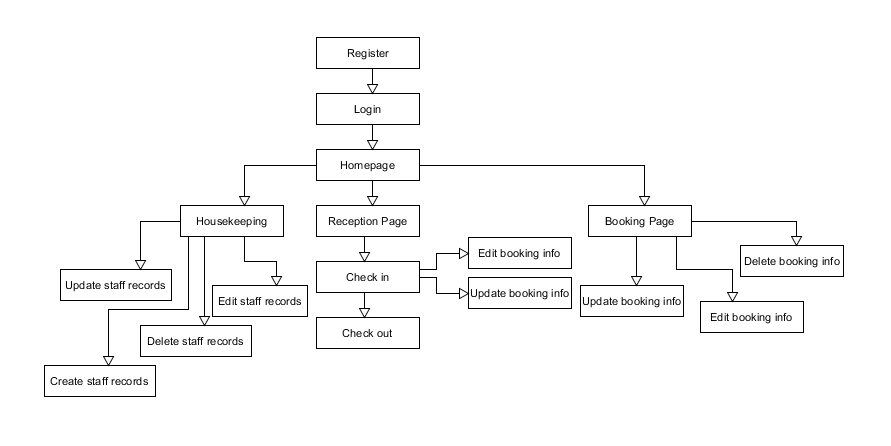
This page allows the receptionist to make booking for guests. They will be able to check their booking, edit and cancel their booking from this page. This page will also show the availability of the rooms. To make a booking, the receptionist will have to get personal particulars like their name, mobile no, address and etc from the guests.

Check in/check out interface

This page is required when the receptionist needs to check the guest in or out of the hotel.

Housekeeping user interface

This page allows the administrator to create, edit, update and delete all the staff records.



**2.7 Interface with other systems**

No interfaces with other systems due to the limited time and resources available

**2.8 Assumptions**

No assumptions were made

**Operational and System Requirements**

**3.1 Operating environment**

The hotel management system operating environment will be deployed on :

· Integrated Development Environment

1. Visual Studio 2012

2. Android studio and SDK tools (Android Platform)

3. OS and IOS (Apple Mac Platform)

4. GetPantheon Systems

· Hardware

**1.** **Fully compatible with HP Pavilion 23**

-Runs on Genuine windows 8 architecture

-64-bit

-Operating system is installed in the only computer in Mr Wang’s hotel

**2.** **Any android mobile devices**

-Android OS, Jellybean v4.3

-1080 x 1920 pixels

**3.** **Any Mac OS & IOS devices**

- Mac OS x 10.68

- IOS 7 and above

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· Operating system

1. Windows

2. Android system (In the near future, Webpage will still be able to view on mobile devices)

3. Mac OS (Will be implemented will be together with android system)

· Web Services and Network

1. Internet connection must be present

2. VPN is only for hotel staff to access management modules anytime and anywhere

· Database server

1. Microsoft SQL Server management studio 2014

**3.2 Development constraints**

1. Coding Language

- All codes will be done in C# in visual studios and only have upgrades such as AJAX

2. Complicated and multiple searches

- If searches are that are done in complicated combinations or multiples combinations, it will not be able to search

**3.3 Performance**

|  |  |  |
| --- | --- | --- |
| **Functions** | **Average response time** | **Peak hour response time** |
| Room availability & Booking module | 5-10seconds | 10-15 seconds |
| Housekeeping & Staff Management Module | 7-10 seconds | 10-15seconds |
| Reporting Module | 5-7seconds | 7-10seconds |

**3.4 Availability**

As Mr Wang runs a hotel business , it is normal for customers from all around the world to check in at a different and weird timings therefore the systems must be functional 24 hours a day which means it must be up the whole day. Maintenance for the system is crucial as Mr Wang hotel will not be able to proceed with its daily functions such as checking for room availability etc. Therefore Maintenance will be done every monthly to minimise the system from failing. Apart from maintaining , we will also implement data backup in case in any situation where data is lost, we will still have a backup copy even though it might not be that updated, the data backup will only be missing several data. The data backup will be done daily during the off-peak hours . The data backup will be conducted during early mornings during 2am-3am. The backup data will be preserved for 5 years before it will be deleted from the system.

**3.5 Security and Access Control Requirements**

Access

The three main functions for the hotel management system are the Room availability & Booking module, Housekeeping & Staff management module and lastly Report module. Different modules will give different access privileges to the user over the system.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Users** | **Room Availability & Booking** | **Housekeeping & Staff management** | **Reporting** | **User account & login creation** |
| Reception Staff Members | Full access granted | - | Parts of Access Granted | - |
| Management Staff Members | Full access granted | Full access granted | Full access granted | - |
| Administrators | Full access granted | Full access granted | Full access granted | Full access granted |

**Users**

Reception Staff Members

The reception staff members have access to part of the reporting module

The parts of the report they are in charge are:

· Room status report

-List all the rooms in the hotel and the respective room status(Vacant/Occupied/Vacant and scheduled for cleaning)

· Guest in a specific room report

-List all the guest in that specific room and view occupants in the room

· Guest in all rooms report

-List all the guest in all the rooms at any given point in time

Apart from this given access , the reception staff members are also given full access to room availability and booking module. Reception staff would be able to have full information in room availability and booking module. For example viewing of room availability, booking of rooms etc.

The features for the reception staff includes :

· Editing of guest information

· Editing of room occupancy

· Editing of room number

Management Staff Members

The management staff have full access to all the three modules.

The parts of the report they are in charge are:

· Room occupancy report

-Use to generate statistic indicating what was the room occupancy on a daily weekly monthly and yearly basis.

· Housekeeping report

-List the duties the staff are allocated to and generate housekeeping schedule on a daily, weekly, monthly and yearly basis

Administrators

The management staff have full access to all the three modules.

The parts of the report they are in charge are:

· Room occupancy report

-Use to generate statistic indicating what was the room occupancy on a daily weekly monthly and yearly basis.

· Housekeeping report

-List the duties the staff are allocated to and generate housekeeping schedule on a daily, weekly, monthly and yearly basis

Apart from that, the administrators are give additional functions and have complete control over all the staff or guest accounts .The functions are:

· Creating new user

· Editing user

· Removing user

Auditing and Logging

· Registration made

- System will log the date , time and all information that have been inputted.

· Login into account

- System will log the data , time and user of the login.

· Edit of information

-System will log the date , time and changes made

· Booking

-System will log the date, time and booking details.

· Generating of reports

-System will log the date, time and the report that is generated.

**Security**

For Mr Wang hotel management system, we have implemented a few security features . The security features are :

· Encryption

-Encryption is the conversion of electronic data into another form, called ciphertext, which cannot be easily understand by anyone except authorised parties. This is important for users to have secure accounts. Therefore ,with the use encryption of all passwords and sensitive information are safe.

· Authentication

-Authentication is implemented so that the user can identify his or herself to our system. In addition, with authentication, it can also prevent unnecessary account creation from hackers.

· Session Timeout

-Session time-out is when the user is away from his computer for a period of time , the system will automatically log out of the system for the user. He/she will then be prompt to re-enter his information to log in to his account. This will improve server performance and if session does not expires there is a vulnerability of session hijacking.

· Disabled account

-There will be a limit of times when a user can try to log in to his or her account before it may be disabled. The limit we have set to is five tries, if all five attempts are incorrect, the account will be disabled and handled by the administrators.

# **4 SPECIAL REQUIREMENTS**

*[Any other requirements that are not included in the above headings, like data archival, etc.]*

# **5 REFERENCES**

<http://www.pantheoncomputers.com/>

<http://www.hotelcomputers.com/>

<http://www.apple.com/sg/osx/>

<https://www.android.com/>