

Temasek Polytechnic

School of Informatics and IT

**Diploma in Information Technology (IT)**

Software Test Specifications (STS)

**Project Particulars**

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

**Project Team’s Particulars**

|  |  |
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**Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| 25 May 2016 | 1.0 | Distribution of workload | Nigel |
| 25 May 2016 | 1.1 | Started on Login and User management module | Jun Jie |
| 26 May 2016 | 1.2 | Started on the Housekeeping and staff management module | Riduwan |
| 26 May 2016 | 1.3 | Started on Guest and Booking module | Nigel |
| 26 May 2016 | 1.4 | Started on Reporting module | Zulafandi |
| 26 May 2016 | 1.5 | Created database and populated with data on SQL Management Studio | All |
| 28 May 2016 | 1.6 | Started on login and user management design and codes, Useraccountandlogincreation.cs, login.cs | Jun Jie |
| 29 May 2016 | 1.7 | Started on Guest and Booking module design and codes, Booking.cs | Nigel |
| 30 May 2016 | 1.8 | Started on Housekeeping and staff management design and codes, Housekeeping.cs | Riduwan |
| 30 May 2016 | 1.9 | Started on reporting module codes | Zulafandi |
| 6 June 2016 | 2.0 | Debugging of codes and fixing existing errors | All |
| 8 June 2016 | x | Change from reporting module to restaurant booking module. | Zulafandi |
| 8 June 2016 | 2.1 | Added Model Development & Unit Testing | All |
| 8 June 2016 | 2.2 | Test Log | All |
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# **1. DISTRIBUTION OF WORKLOAD**

|  |  |
| --- | --- |
| **Construction & Testing** | **Members** |
| User Account and login Module | **Sin Jun Jie** |
| Guests, Booking & Room Availability Module | **Nigel Yee Wei Peng** |
| Housekeeping and Staff Management Module | **Muhd Riduwan Bin Zainudin** |
| Booking Restaurant | **Muhammad Zulafandi Bin Yazab** |

# 

# **2.** **MODULE DEVELOPMENT AND UNIT TESTING**

## 2.1 User Account and Login module

The process of module development is done by firstly, separating the functionality of the program into independent, interchangeable modules, such that each contains everything necessary to execute only one aspect of the desired functionality. Secondly, each of us (individual developers) will take a different module and focus on individual module. For this case, I am tasked to develop and work on user account and login module. This is beneficial because it allows our program to be designed more easily because each of us only deals with only a small part of the entire code.

Unit testing is a software testing method by which individual units of source code, sets of one or more computer program modules together with associated control data, usage procedures, and operating procedures, are tested to determine whether they are fit for use.The process of unit testing is done by creating of the test plan for aid in testing the program. We would make use of the test plans and test areas such as test area, use-cases and test cases. This test allows us find problems early in the development cycle, allows programmer to refactor code or upgrade system libraries at a later date, and make sure the module still works correctly and simplifies integration.

We have used GitHub feature in our Visual Studio programming, which allows all our different modules to be integrated and working, and at the same time each of us just have to development and work on our modules, committing and synchronising and pulling changes done from time to time to update the changes. This allows us to work more efficiently in the software development. For testing purposes, we also made sure that we have proper and enough Create, Retrieve, Update, Delete (CRUD) methods for testing purposes.

I have followed the functional testing methodologies. Functional testing is a quality assurance (QA) process and a type of black-box testing that bases its test cases on the specifications of the software component under test. Functions are tested by feeding them input and examining the output, and internal program structure is rarely considered (not like in white-box testing).

## 2.2 Guests, Booking & Room Availability Module

The process of module development involves modules as the basis of a design or construction. In this case we are tasked to individually build each module, for instance, Housekeeping module and Booking module, which will later be collated together into a functional product with different features. It is like a building block. Each module should contain everything necessary to execute an aspect of the desired functionality and have a focus, without jumbling up various features into a single area.

When creating a modular system, instead of creating a monolithic application, several smaller modules are written separately so that, when composed together, they construct the executable application program. Typically these are also compiled separately, via separate compilation, and then linked by a linker (GitHub).

My team has used GitHub in order to ensure version control in our software, it is a repository that stores all the files for our project which can be accessed by a unique URL. It can be implemented in Visual Studio and it will allow my team to collate our projects allows for a more efficient way to store file changes and ensuring file integrity.

GitHub can be used with any type of files, even a word document, albeit it is not commonly used.

Unit testing is a software testing methodology in which individual units of source code that are the smallest testable parts of an application are individually scrutinized for proper operation of a software. This form of testing is often done automatically but it can also be done manually, it typically involves only those characteristics that are crucial to the performance of the unit under testing. However, the method of testing varies depending on the language, and type of software involved.

I have decided to follow the functional testing route as it is a form of a quality assurance process that bases its test cases on the specifications of the software component under test. Tests such as features/functionality of the system or software, should cover all the scenarios including failure paths and boundary cases. Functional testing is primarily is used to verify that a piece of software is providing the same output as required by the end-user or business. Typically, functional testing involves evaluating and comparing each software function with the business requirements and ensuring that program does not crash or create undesirable errors in business-critical situations.

Steps in Functional Testing:

1. The identification of functions that the software is expected to perform.
2. The creation of input data based on the function's specifications.
3. The determination of output based on the function's specifications.
4. The execution of the test case.
5. The comparison of actual and expected outputs.
6. To check whether the application works as per requirements.

In this type of testing the requirements are prioritized depending on the risk criteria and accordingly the tests are prioritized. This will ensure that the most important and most critical tests are included in the testing effort.

## 2.3 Housekeeping and Staff Management Module

The process of module development is done by isolating the usefulness of a system into free, compatible modules, through this module development process, the work is being split up to different module for each developer which refers to us to work on our individual module, our work is informed continually and compiled using GitHub in order to accomplish an evolving result.

Unit testing involves breaking the program into pieces, and subjecting each piece to a series of tests. Usually tests are run as separate programs, but the method of testing varies, depending on the language, and type of software. Tests are usually run periodically, often after every changes to the source code. The more often the better, as we are able to identify errors, if test were done at a later time, it may also cause problems for the end-users of the software. Some argue that code that is impossible or difficult to test is poorly written, thus unit testing can force developers to structure functions and objects in better ways.

There are various testing methodologies that i follow such as the functional testing and the unit testing. The functional testing is whereby i need to check whether the application works as per the staff need and also the comparison of actual and expected outputs. The unit testing methodologies are basically written and executed to ensure that the code meets its design and requirements and work as expected. This means that for any function or procedure when a set of inputs are given then it should return the proper values and it should handle the failures gracefully during the course of execution when any invalid input is given.

## 2.4 Restaurant booking

The process of module development provide a feature-rich and user-friendly web interface for managing reports. In addition, the Reporting Module provides a flexible and extensible module developers can develop to build their own reports. The core idea behind the Reporting Module is to provide a solid foundation so that other developers can use the framework to implement new features.

We take different module and focus on individual module, the development assures quality. Each line of code either makes the customer experience better or worse. Quality on test devalue the development process. Software teams today involve a number of people: developers, testers, designers, product managers, and executive stakeholders. *All* play a role in the quality of the final application.

The methodologies is Unit tests, Integration tests and Functional tests. Unit test validate the smallest components of the system, ensuring they handle known input and outputs correctly. Unit test individual classes in your application to verify they work under expected, boundary, and negative cases. For Integration test, exercise an entire subsystem and ensure that a set of components play nicely together and functional tests verify end-to-end scenarios that your users will engage in.

# **3.** **S****ystem Integration**

System integration is done by the use of GitHub in each of our visual studio programming software. Since we are making use of GitHub repository to store our project, the program is integrated, we only have to work on our individual parts on the different module. We ensured that each of our team members work can be integrated by making sure that each of us is using the GitHub repository to store our projects.

We also made sure that each of us commits and sync with suitable changes to make changes to the project file as well as pulling to receive the latest edits made to the program. Each user must also include the commit messages to let the team know what changes have been made and it will serve as the change log.

# **4. Justification**

I have made a new recommendation for Mr. Wang which is the two tier architecture. We are using windows form application because, as a company we are giving this software to our staff only, standalone can be two tier, the two tier is easier with windows form as we are already dealing with the client and we don’t have to think about the logic end.

In addition, windows form is much more efficient as the processing time is lower which makes the program runs faster. In windows form, this is where user input their data and also it's where the software processes the logic because there is no server processing it for them. Therefore, we would propose two tier architecture for this standalone software.

# **5** **TEST LOG**

## **Sin Jun Jie (User account and Login Test Log)**

## **1.1 User account and login creation / Login**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | Enter username | MrWang | - | - |  |
| 2 | Enter password | Best hotel in singapore | - | - |  |
| 3 | Select option to show or hide password | - | The textbox will show or censored password according to option | The textbox will show or censored password according to option |  |
| 4 | Click login | - | User will be led to User account and login creation module page | User will be led to User account and login creation module page | Login process is then successful and user is led to account and login creation module page |

## **1.2 User account and login creation / Create account**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | Enter username | test | - | - | - |
| 2 | Enter password | test | - | - | - |
| 3 | Select if the account has administrator privileges | true | - | - | - |
| 4 | Click create | - | Message box “details has been created” will pop out | Message box “details has been created” will pop out | Create account process is now done and the account is created |

## **1.3 User account and login creation / Retrieve account information**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | Enter Account id | 17 | - | - | Selecting the account we want to retrieve by account Id |
| 2 | Click on retrieve |  | Username “MrWang” , password “MrWang”, isAdmin”true” will be displayed | Username “MrWang” , password “MrWang”, isAdmin”true” will be displayed |  |

## **1.4 User account and login creation / Update account information**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | Enter AccountId to update | 17 | - | - | - |
| 2 | Enter username | MrWang | - | - |  |
| 3 | Enter password | hi | - | - |  |
| 4 | Select if the account has administrator privileges | True | - | - |  |
| 5 | Click update | - | The password will be updated from MrWang to hi | The password is updated from MrWang to hi | user account is updated with the changes |

## **1.5 User account and login creation / Delete account**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | Enter the Account id to delete | 19 | - | - | - |
| 2 | Clock delete | - | Account id with “19” will be deleted | Account id with “19” is deleted |  |

## **Nigel Yee (Guest & Booking Test Log)**

## **2.1** **Retrieving existing Guest ID**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | Enter existing guest ID number to check for existing guest ID. | 8 | The list of guest details should be populated in the textboxes below if existing guest id is found in the database | Correct data is displayed in various textboxes. I.e. Name, phone number, guest address. | Success |
| 2 | Click “Check ID”. |  |

## **2.2** **Retrieving non-existing guest id (alternate flow)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | Enter a non-existing guest ID number to check if the guests actually exist in the database. | 99 | Error message should pop up as the guest id does not exist in the database. | Error message pops up to tell the user that there is no guests with this ID. | Success |
| 2 | Click “Check ID”. |  |

## **2.3 Create new guest details and id**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | Leave guest id empty while creating new guest details |  | If all data values are input correctly, program should capture the details and store them in the database. Success pop up box would also be displayed. A guest id should be generated after successful creation. | The program displays a successful pop up box to show that values are correct and data is collected and stored in the database.  A guest id is also generated and created for the guest | Success |
| 2 | Input the various information:  First Name, Last Name, Phone Number, Email, Guest Address, Country of Origin | Paul, McLaren, 94321567, paulmclaren@gmail.com,  MTC center #01-111, London |
| 3 | Click “Create” button after inputting the data |  |

## **2.4** **Updating an existing guest detail**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | Enter existing guest ID number to check for existing guest ID. | 2 |  |  |  |
| 2 | Click “Check ID”. |  | Guest details should populated and allow for editing. | Existing guest details are populated. |
| 3 | Make changes to information, i.e. guest’s phone number | Make changes to guest’s phone number “91234321” to “ 96385274” |  |  |
| 4 | Click “Update” |  | Pop up message will show up to show that changes have been made. | Pop up messages appears to show that changes have been made and data is reflected in the database | Success |

## **2.5 Booking a room for the guest**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | Guest id should exist before creating a booking. |  |  |  | Guest ID is by existing guest or newly created guest |
| 2 | Enter existing guest ID and click “Check ID” and ensure details are populated in text boxes on the left. | 20 | All details should be displayed | Guest details are displayed and is ready to make a booking |
| 3 | Select period of stay using the date selection calendar and preferred room type | 10 June 2016 to 17 June 2016,  6. Premium Suite | The program should display the available rooms during that period of stay for that particular type of room. | The program dynamically displays which rooms are vacant and which rooms are occupied using green and red to highlight their status. |
| 4 | Select a vacant room to book | Room 602 | The program should display the summary such as room type, room number, price per night information | Selecting a room displays the various information of the room and price etc. |  |
| 5 | Select the number of occupants, Adults and children. | 2 Adults |  |  |  |
| 6 | Click on “Book Room” to confirm the booking of the room |  | The program should book the room for that period of time and change its status to occupied. | The program books the room and the status of the selected room has been change to occupied, indicated with the red highlight | Success |

## 

## **Riduwan (Housekeeping and staff management Test Log)**

## **3.1 Creating Housekeeping Staff Record**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | Open Delonix Regia Hotel Management System | Not applicable | User should be able to open up the program. | The program runs successfully. | Success |
| 2 | Click on Housekeeping and Staff Management | Not applicable | User would be brought into the next page. | The user is brought to the next page successfully. | Success |
| 3. | User input information and click the create button | StaffByID: 27  FirstName: Rachel  LastName:How  DateOfBirth: 1997-01-01  BankAccountNumber:323-42353232  Staff Address: Blk 36, Tampines Ave 6, 05-12  Phone Number:98498432  Duty Id: 3  Account Id:3 | New user will be created inside the database. | New user has successfully been created inside the database. | Success |

## **3.2 Retrieving Housekeeping Staff Record**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | User input staff id number and click the retrieve button. | StaffById: 27 | This should retrieve the staff information from the database. | Successfully retrieve the information from the database and the staff records is being displayed into the system. | Success |

## 

## **3.3 Updating Housekeeping Staff Record**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | User will first retrieve the staff information by staff id. | StaffById: 27 | This will show the staff information | Successfully display staff information | Success |
| 2 | User update their information, for example their phone number and click update | PhoneNumber:98498432 | Updated phone number is shown. | Successfully updated the staff phone number and information is received from the database | Before:  PhoneNumber: 98498432  After:  PhoneNumber: 87873212 |

## **3.4 Delete Housekeeping Staff Record**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | User first retrieve the staff information that wants to be deleted. | StaffByID:27 | Staff information is retrieved, | Successfully retrieved and displayed the staff information. | Success |
| 2 | User input the staff id number and click on the delete button | StaffByID: 27 | The information about the staff should be deleted. | Successfully deleted the staff records from the database. | Success |

## 

## **Zulafandi (Restaurant reservation booking Test Log)**

## **4.1 Create Booking Restaurant Table**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | First user will enter the system | - | - | - | - |
| 2 | Than user will select Restaurant Booking Table | - | - | - | - |
| 3 | User will have to enter booking id, first name, last name, hp number, num of child, num of adult email |  |  |  |  |

## **4.2 Create Booking Restaurant Table (alternate flow)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | First user will enter the system | - | - | - | - |
| 2 | Than user will select Restaurant Booking Table | - | - | - | - |
| 3 | User will have to enter booking id, first name, last name, hp number, num of child, num of adult email | 20,vivian,teo,9456a6233,4,5,teo@gmail.com | Error message should pop up when the handphone number is not enter correctly. | Error message pops up tell user that Handphone number is invalid. | (success) |

## **4.3 Retrieved Booking Restaurant Table**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | User will enter their booking Id | 25 | - | - | - |
| 2 | User will click the check booking table | 25 | It will show the user details on the texbox if they have existing booking Id | Correct data displayed in textboxes. I.e. Name, phone number, num of adult, num of child | (Succes) |

## **4.4** **Retrieving non existing booking id (alternate flow)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | Enter a non existing booking id number to check if the guests exist in the database. | 50 | Error message should pop up when the booking id does not exist in database. | Error message pops up tell user that there is no booking with this id . | Success |
| 2 | Click “Check ID”. |  |

## **4.5 Update Booking Restaurant Table**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/No** | **Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Remarks** |
| 1 | Enter existing guest ID number to check for existing guest ID. | 30 | - | - |  |
| 2 | Click “Check booking table”. |  | Guest details should be shown and allow for user to edit them. | Existing guest details are being shown. |
| 3 | Make changes to information, e.g. name phone number | Make changes to guest’s phone number “96870921” to “ 92718603” |  |  |
| 4 | User than Click “Update” | than been shown to user that user information has been updated. | Pop up message will show up to show that changes have been made. | Pop up messages will be shown to user that user information has been updated.  and data is reflected in database | Success |

## 

## 