A picture containing text, table, indoor, wooden

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**Hotel Management Software Development Project**

**[Deliverable 6: Database design]**

**OCTOBER 31st , 2022**

**Client Information :   
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Description automatically generated with low confidence Date: 2022-10-31

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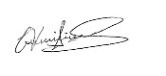
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1. **Statement of Prior Work**

The work herein is possible in part due cumulative learning assignments and projects undertaken in the past, as part of the team’s Software Development curriculum. As such, some of the ideas or technical skills used in this project originate partially from prior work. The table below lists past projects undertaken by members of the Red Team, which may contribute in part to elements found in the scope of this project.

|  |  |  |
| --- | --- | --- |
| Past Projects | Tools Used | Contributor(s) |
| Mock-ups for personal websites, Application Dev 1 | Adobe Photoshop, Cava, Figma | All membres |
| Simulation Program | Java and Java Swing | Chi-Tao Li |
| Car Rental System | MS SQL Server | All members |
| Inventory Management System | Apache Derby Database, Java, and Java Swing | Patrick Larocque |
| Issue Tacker | C#, Google API, .NET, Firebase | Patrick Larocque |
| Added Prior Works  used for this deliverable | Tools Used | Contributor(s) |
| Deliverable 1 Report | MS Word, Instagantt.com (for Gantt Chart) | All members |
| Deliverable 2 Report | MS Word | All members |
| Database course | Draw.io, Lucidchart | All members |
| Deliverable 3 Report | MS Word, Draw.io | All members |
| Deliverable 4 Report | Miro | All members |
| Deliverable 5 Report | MS Word, Miro | All members |

1. **Executive Overview**

The following document outlines the red team’s efforts and activities aimed at collecting system requirements for a new information system, designed to solve the business problems that is identified throughout the scope of this project. These requirements were gathered through a series of interviews with Manoir Ramezay.

Using the existing User Stories from the previous deliverable, we modified it to develop a revised version of the User Story Map based on our future information system. We were always in contact with the client as we revised the User Stories, Acceptance Tests, and User Story Map. From there, we developed hand-drawn prototypes in front of the client and later developed a digital version of the prototype based on the client’s comments. Throughout this deliverable, the process used to interact with the client will be mentioned. Overall, many of the tasks, actions and features built into the system will be derived from these User Stories that were gathered over the course of this deliverable.

As with previous reports, the reader will find a statement of their business problems. Next, the reader will find a summary narrative description of the project, indicating what has changed or has been added since the last deliverable. In addition, we’ve applied 10 usability guidelines and their explanations for the prototypes that were designed for the client. A copy of these prototype interfaces is included in hand-drawn and digital format.

1. **Business Problem**

Hotel Manoir Ramezay is a 3-star hotel located in Marieville with 14 rooms in total. Clients can make a reservation through hotel website, Expeida, booking.com, telephone and walking in.

Right now, Hotel Manoir Ramezey doesn’t have an efficient system in place to keep track of room availability across available booking channels. To keep a running total of past reservations, the front desk employees must update a physical ledger or print out a confirmation from an email issued by a third-party platform whenever a room is booked via one of their platforms. To prevent duplicate reservations and to reflect actual availability, front desk employees must manually alter room availability across all other platforms. This is a very inefficient process, especially when the hotel is busy, during the summer months. This problem will be solved by the new system, which will enable hotel staff to get up-to-date room availabilities through an API. The new system will also enable hotel staff to fulfil reservation requests from clients who make direct hotel reservations, whether they do so over the phone, by email, in person, or online.

Another problem of Hotel Manoir Ramezey is writing down all guests’ information on paper is a slow and error prone process. Booking and customer information is dispersed over several tools and platforms, all of which must be cross-referenced each time a booking is made. However, front-desk staff needs to be able to quick verify the guests’ personal information for the check-in and check-out process. Additionally, the front-desk staff must consult the physical ledger or papers to locate a repeat a client’s personal information or preferences if he returns to the hotel to make a reservation (if any were noted). This often results in the client being required to repeat a lot of the information that was provided during their previous appointments. The new system will provide a quick searching, modifying and deletion of guests’ information and reservations. This will improve the experience for repeat guests especially, and if it will allow the hotel staff to work in a more efficient and organized manner.

Furthermore, considering the computer skills of the hotel owners and staff, we decide to design a system which is easy to use, which will save time to learn and teach for new staff.

1. **Narrative description of the Database Design**

We create two primary roles relevant to the system. The first role is the receptionist, who will function as a generic user. The receptionist needs basic authorization, sufficient to create, modify and delete reservations, as well as browse, and update availabilities. The second role is a manger role. The manager will have admin privileges within the system. In addition to being able create, modify, and delete reservations, as well as read and update availabilities, the administrator will be able to create, read, update, and delete users on the system. The administrator will be able to manage user privileges, and the scope of their access to the system.

Both the user and administrator will begin at a login screen, where they will enter their usernames and password. Should they enter valid credentials, they will be logged in, and taken to the home screen with account privileges matching their account credentials. Should they enter invalid credentials, they will be shown an error message. Upon a successful login, the system will initiate API calls to retrieve up-to-date availabilities from third-party booking platforms. As a note, different screens will be used for the administrator as compared to the receptionist, and this is seen after the log in.

Once at the home screen, the user and the admin both will see some statistics amount the day’s availabilities. The user will have the option to navigate to a reservation’s menu, allowing the user to create a new reservation. Initiating a new reservation will also necessitate payment functionality. They may navigate to a calendar view of the month’s current availabilities. Another view option would be in a form of a list that shows either past, current, or future reservations. From here, the user may be able to search, modify, or delete reservations. There will be a button to refresh availabilities, which will make a series of new API calls to retrieve the most up-to-date booking history. The administrator will have access to the same functionality, however, they will additionally be able to navigate to a user’s tab, where they will be able to create, read, update, or delete users. At any moment, the user and the administrator both should be able to exit the application by clicking a button.

1. **Block Diagram**
2. **Appendix 1 – Data Dictionary**
3. **Appendix 2 – ER Diagram**
4. **Appendix 3 – Descriptions and Explanations**

*• (2 marks) Indexes and the database architecture of your design. What indexes are you going to be using in which tables, and why?*

*• (2 marks) Query optimization in your design. There are going to be many queries. Do you need to optimize them? If so, why and how? If not, why not?*

1. **Appendix 4 – The Project size of the Database**

*The projected size of the database (in MB or GB), now and for the next three to*

*five years. For each table, determine the maximum size of each record. Then, estimate the maximum number of records per table, and then come up with a value for the maximum size of the table. This will give you the maximum size of the database now. Make assumptions about how the number of entries in*

*the database will grow, and then use that number to determine the future size of the database. Show the detailed calculations and assumptions made to arrive at your estimate.*

1. **Appendix 5 – The Access Speed Required**

*Explain the access speed required, and how your design will permit this. How*

*often will the database be accessed? How much data will need to be stored or retrieved? What kind of response time will be necessary?*

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