Technical Design

Version 1.2

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1. Preface

1.1 Introduction
You are working for the application and media development department of an IT company. This company is hired to develop a reservation website for **Hotel California**. The website will replace the full paper administration of the reservation desk.

1.2 Hotel California
The company is **Hotel California**. They are a Dutch hotel company that wants to improve their quality and make their customers leave with a big smile. Since they are still using full paper administration for reservations, they wanted to make it faster and easier for both customers and the hotel itself. The hotel keeper has been in the hotel business for 20 years and seen many hotels switch over to an automatic reserving method which has been a success most times.

1.3 Target Audience
The website will be primarily used for customers who want to stay at **Hotel California** for the night. Everyone above 18 years old is allowed to book and reserve a room to stay for the night.

2. Functionalities
- The customer must be able to book a room.
- The customer must be able to select a start date and an end date.
- The customer must be able to select the room type.
- The customer must be able to checkout via the website.
- The hotelkeeper must be able to view a list of reservations.
- The hotelkeeper must be able to add or remove rooms.
- The hotelkeeper must be able to add rooms to a category.

3. Tools

3.1 Why do I need tools?
To fulfill the customer's wishes and deliver an excellent product at the deadline.

3.2 Device
Without a laptop or desktop computer, I will not be able to produce an end product to the customer. I will be working on my laptop and desktop computer during this project.

3.3 Code Editor
Without a functioning code editor, I cannot program to the minimum standards of coding. I will utilize Visual Studio Code as my code editor during this project.

3.4 Local Server
I will need a local server so I can test my web pages, fix bugs, optimize my product, and test PHP code. I will be using XAMPP during this project as my local server.

3.5 Database
To store the data that can be retrieved from the website I will need to store it somewhere. I will use the XAMPP inbuilt database, phpMyAdmin.

3.6 Browser and Internet
I will need an internet connection to get access to google to research for this project. My choice of browser will be Google Chrome and Safari to build my product and test my product compatibility.

4. Development Environment

4.1 My development environment

I will be completing this project at home. I switch between my desktop computer and laptop as my workflow. Most of the time I am programming outside which will help me get more motivated and ideas.

4.2 What do I use?

As for my laptop is it an ASUS VivoBook S14 with Windows 10 v1909 installed as the OS. For my desktop computer, I am using a late 2014 iMac with macOS Catalina 10.15.4 installed as my OS. On both my devices I have Visual Studio Code installed. I am using the GIT client GitHub to synchronize my work into one repository which can be found online. [1]

5. Programming

5.1 Languages

This project will utilize various programming languages. I will be using Object-Orientated PHP and SQL as my Backend. HTML5, CSS3, or sass and a little bit of JavaScript as my Frontend. And vue.js or react as my web framework.

5.2 Others

I will also make use of other programs such as bootstrap studio to build my user interface, this will speed up my process quite a bit and allow me to build fantastic designs. Draw.io [2] will be my application of choice to design UML or other related diagrams. For editing photos, I will be using Adobe Photoshop. And for sketching something I will make use of the application called Figma [3]. Lastly, I will be using Adobe Illustrator for making vectors, logos, etc.

6. Entity Relationship Diagram

6.1 What is an entity relationship diagram? [4]

Entity Relationship Diagram, also known as ERD, ER Diagram, or ER model, is a type of structural diagram for use in database design. An ERD contains different symbols and connectors that visualize two important information: The major entities within the system scope, and the inter-relationships among these entities. When we talk about entities in ERD, very often we are referring to business objects such as people/roles (e.g. Student), tangible business objects (e.g. Product), intangible business objects (e.g. Log), etc. "Relationship" is about how these entities relate to each other within the system.

6.1 ERD

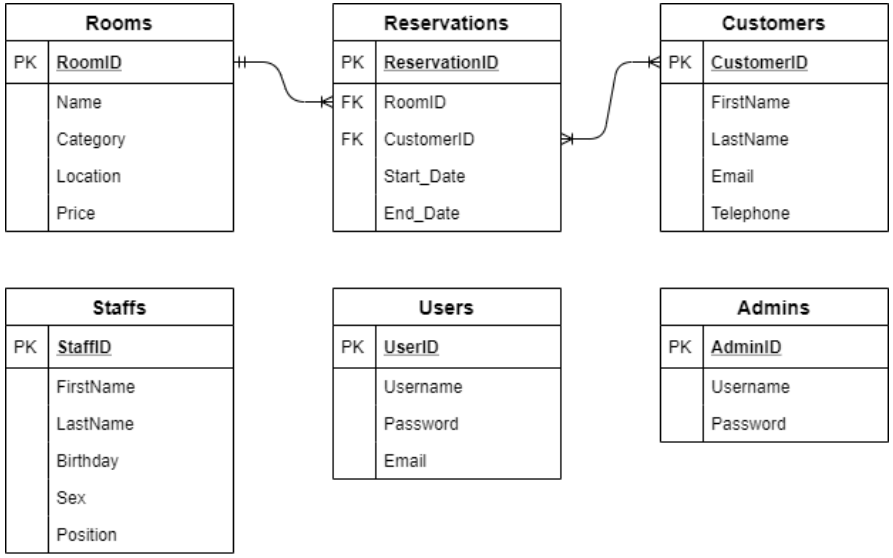

Image 1: Entity Relationship Diagram.

7. Security

7.1 Access

The website can be accessed by **anyone**, however to reserve/book a room **MUST** have an existing account, or you can create a new one. The privileges of an existing member or new member are limited, they can't make any changes to the website. However, with an admin account, it is possible to make changes to the websites. There will only be **1** admin account to decrease hacking possibility.

7.2 The Security

To increase the security on the website each member will be tracked, the admin can see each individual member and what they are doing. When closing / leave the website the tracking will stop. All of the users' actions will be stored in a **LOG.DAT** file. This also applies to the admin account.

8. Maintenance

I will be maintaining the website after the live release, in case of any bugs or something not functioning I will be fixing them. Both Frontend and Backend bugs I will be responsible for and will remove those bugs.

9. Activity Diagram

9.1 What is an activity diagram? [5]

Activity diagram is another important behavioral diagram in the diagram to describe dynamic aspects of the system. Activity diagram is essentially an advanced version of the flow chart that modeling the flow from one activity to another activity.

9.2 Activity Diagram

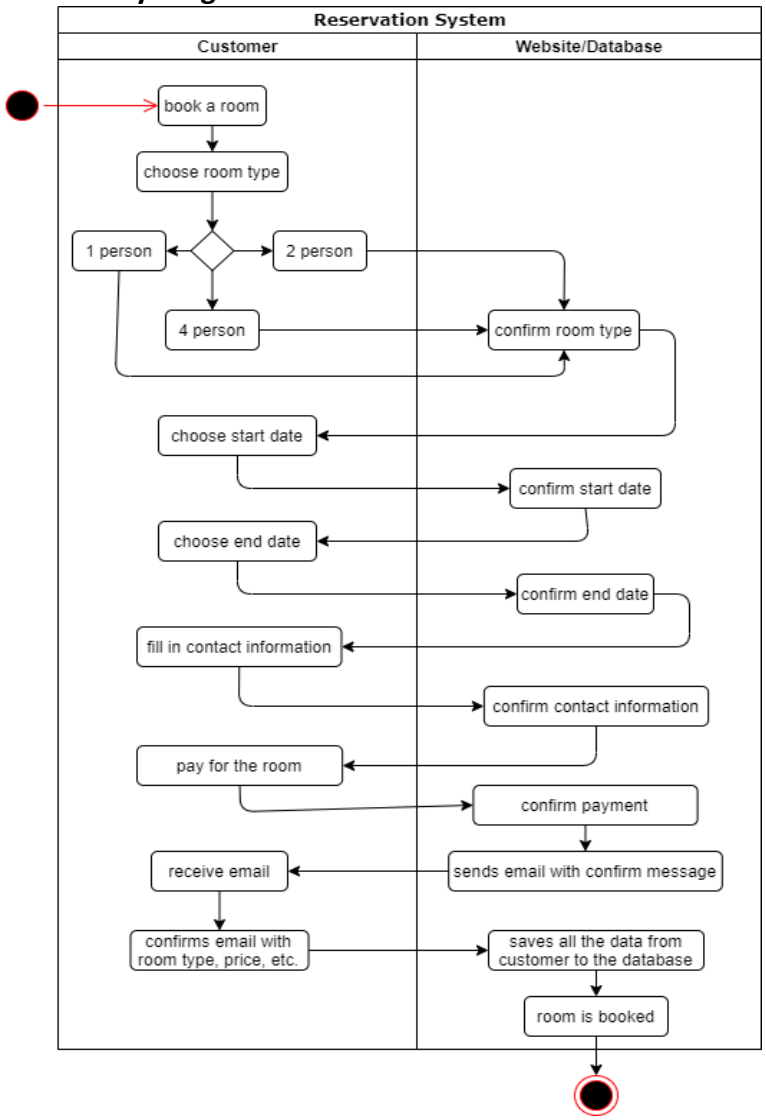

Image 2: Activity Diagram.

10. Data Dictionary

10.1 Rooms

Field Name	Data Type	Field Size	Description
Room ID	Integer	11	Primary key of table
Name	Text	50	Name of Room
Category	Varchar	50	Category of Room
Location	Varchar	15	Location of Room
Price	Decimal	10,2	Price of Room

10.2 Reservations

Field Name	Data Type	Field Size	Description
Reservation ID	Integer	11	Primary key of table
Room ID	Integer	11	Foreign key of table
Customer ID	Integer	11	Foreign key of table
Start Date	Date	10	Start date of reservation
End Date	Date	10	End date of reservation

10.3 Customers

Field Name	Data Type	Field Size	Description
Customer ID	Integer	11	Primary key of table
First Name	Varchar	50	First Name of Customer
Last Name	Varchar	50	Last Name of Customer
Email	Varchar	100	Email of Customer
Telephone	Integer	10	Number of Customer
Age	Varchar	5	Age of Customer

10.4 Staffs

Field Name	Data Type	Field Size	Description
Staff ID	Integer	11	Primary key of table
First Name	Varchar	50	First Name of Staff
Last Name	Varchar	50	Last Name of Staff
Birthday	Date	10	Birthday of Staff
Sex	Varchar	1	Sex of Staff
Email	Varchar	100	Email of Staff
Position	Varchar	100	Position of Staff
Telephone	Integer	10	Number of Staff
Address	Varchar	50	Address of Staff

10.5 Users

Field Name	Data Type	Field Size	Description
User ID	Integer	11	Primary key of table
Username	Varchar	50	Username of User
Password	Varchar	50	Password of User
Email	Varchar	100	Email of User

10.6 Payments

Field Name	Data Type	Field Size	Description
Payment ID	Integer	11	Primary key of table
Reservation ID	Integer	11	Foreign key of table
Miscellaneous	Decimal	10,2	Miscellaneous charges
Method	Varchar	50	Payment Method
Status	Varchar	20	Status of Payment

11. Summary

A quick summary of what is described in this document. In the preface it is a quick overview. Also, in this document is a list of functionalities. There is also a section where I describe what I will use, for example, code editor, localhost server, and a database. These tools are all essential to use to create this website. I have also written something about my environment, where I code and finish my stuff, what I use to accomplish that, and more. There is also a list of programming languages and applications I will use. Some programming languages are HTML5, CSS3, Objected-Orientated PHP, and SQL. As for applications, those are Adobe Photoshop, Draw.io, and Adobe Illustrator. With Draw.io I have created some UML (Unified Modeling Language) or other kinds of diagrams to visually explain how the database will look like or how the reservation system will work. For example, in my ERD (Entity Relationship Diagram) there is a list of all the tables that will be in the database. The Activity Diagram shows you how the customer will book a room and what the server will do. I have also written about security; this will give you a brief explanation of how I will be handling the security side of the website. And lastly, there is a data dictionary, in this table you will find all the information you will need on the database, it shows the data type of each column, how long the data type is and a description of what it is used for.

12. Version Management

Version	Date
1.0	23 April 2020
1.1	30 April 2020
1.2	1 May 2020

13. Disclaimer

13.1 Privacy

Personal data is processed by Hotel California in accordance with the Personal Data Protection Act. The information that is provide on the website will be treated confidentially and carefully.

13.2 Rights

Hotel California cannot be held responsible for the content of any internet site that is linked to this internet site via a link. All texts and images on this website are owned by Hotel California.

14. Sources

14.1 Origin

- GitHub Repository [1]: https://github.com/junyi-xie/hotelcalifornia
- Draw.io [2]: https://draw.io/
- Figma [3]: https://www.figma.com/
- Entity Relationship Diagram [4]: https://www.visual-paradigm.com/guide/data-modeling/what-is-entity-relationship-diagram/
- Activity Diagram [5]: https://www.visual-paradigm.com/guide/uml-unified-modeling-language/what-is-activity-diagram/

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