Senior Project Defense

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Expected Graduation: May 2024

Best Beach Rentals

Statement of Purpose

When I was looking for a new job, I had an interview with a small business owner. They owned multiple properties that were sprawled out all along the beaches of Charleston. The few employees that were on duty at time were constantly on the move from one location to the next. This made it difficult to keep track of all the guests they had at their properties. This presented me with a real life example of taking a problem that somebody had and making a solution. A web application would free up time for the staff to work on other things that need to be addressed. They can put the properties on established rental websites, but they would have to pay a fee for doing it. It would also give them less freedom to address things they way that they wanted to.

Project Description

Best Beach Rentals is the solution to help manage this. Customers would be able to get information about the rentals. They would also be able to make or edit reservations for themselves on the website instead of having to call one of the staff members to set it up. It gives them the option to manage their own booking and see their past, present, and future reservation they have. For staff members, it provides information about each property and about each of the guests and their reservations. It shows the employees who are scheduled to arrive and depart for the day, and it gives them an interface to see who is where. The employees are about to make and edit reservations for any of the customers.

Manager level staff members can create and edit other staff members. They are also able to add and edit properties.

Project Language(s), Software, and Hardware

Languages:

Django (Python) – Used to handle the back end logic and database during development.

Vue3, Axios (Javascript) – Used to create the front end views and initiate the HTTP requests from the back end.

HTML – Used to structure the front end views.

Tailwind (CSS) – Used to modify the front end view.

Software:

Visual Studio Code – Used as the code editor.

Ubuntu on the WLS – Used for file management.

Digital Ocean – Used as the server after production.

Project Implementation Description & Explanation

Source Code: emphillips07/rental_app (github.com)

1. Home Page
   The homepage and the hub of the website are first displayed when getting the application. It presents all the rentals in a grid with a profile picture and with a little bit of information about the property. When a rental is hovered over, the image magnifies and the cursor changes. This helps indicate it's a like to more information about the specific property.
2. Navigation Bar
   The navigation bar is simple, containing only a few things. The top left is the name of the website that includes a link back to the home page. The top left changes depending on who is currently using the sight. If the user is not logged in, it is a sign up and login in button. If the user is logged in, it turns into a drop down menu. The menu has features based on the type of user that is logged in.
3. Rental Details
   This is the profile page for the specific rental. It contains more information about it and contains more images. On the far left, there is a form that allows the user to create a reservation for that property. If it is just a regular user, they only have to fill out the dates. Staff and manager users will also specify who the reservation is for. If the user is a manager user, there will also be a button that takes them to the page where the rental's details can be changed.
4. Create Forms
   There are three areas where a create form is used. The first being the sign up button on the navigation bar. This allows a customer to make themselves an account. Managers are able to staff members. This includes choosing the initial access that the new employee gets. Managers also can create a rental.
5. Edit Forms

There are two different forms that allow the information about a user to be changed. Customer level users can change their own information, including their password. Staff and manager level users can edit any customer level user. Manager level users can edit staff information as well. Managers have access to edit information about the rentals. This includes adding and updating images for the properties.

6. User and Reservations List

   There are two kinds of reservation lists that both function the same. One is for a customer level user that displays information about their own reservations. The table also includes links to edit and cancel reservations. These links are only available if the reservation is upcoming. Staff and manager level users see the same table but can see the information for all guests.

   Staff and managers can see a list of all the customers and include all the information that is tied to them. There is a link to and edit form for each of the users on the table. Managers get access to filter the table for customers to staff members. The table also includes a button to edit the user's details.

7. In house Page

   This page is available for staff and managers. It includes a grid of all the properties that are there. Each item has the property name, and a link to that property's details. On the right hand side, there is an arrivals and departures list. These list out all the arrivals and departures for the day and offers the ability to check in and check out customers. When a customer is checked in, they are moved from the list to the property item that they are staying in. It then displays some basic information about the reservation. Checking out a guest will remove the customer from the grid and the departures list.

8. Reservation Create and Edit Form

   The forms for the reservations are dynamically input. The dates that the specific property is occupied are greyed out and unable to be selected when creating or editing a reservation. Arrival dates before today's date are not able to be selected. The departure date has a minimum of the following date of the arrival if a new reservation is being created, and can be the same date as arrival if it is already checked in. This always for customers to check out early if needed. The disabled dates are updated every time an arrival or departure date is selected to make sure a reservation is not booked outside of an existing one.

9. Permissions

   Custom user permissions were implemented for each level of user. These were implemented on the front and back ends of the application. This gives an added layer of protection to the details of users.

Test Plan and Results

ID	CASE	RESULTS
1	User is able to log in and log out	PASS
2	Correct permissions are assigned when logged in. Navbar displays the correct options	PASS
3	All rentals are displayed on the home page with the correct information	PASS
4	Link to rental details goes to the correct rental and displays the correct information	PASS
5	Customers are able to see only their reservation on their list, appropriate edit and cancel options are presented	PASS
6	Staff are able to see all users on user list, appropriate edit and cancel options are presented	PASS
7	Managers have access to user and staff list, appropriate edit and cancel options are presented	PASS
8	Editing user data is sent to back end and stored	PASS
9	Editing rental data is sent to back end and stored	PASS
10	Only mangers are able to edit staff and rental items	PASS
11	Only mangers are able to create staff and rental items	PASS
12	Rental images are stored in the database and are able to be retrieved.	PASS
13	Reservations can be cancelled, and updates front/back end information accordingly	PASS
14	Editing a reservation to todays will make it appear to the arrivals/departures list accordingly	PASS
15	Checking in/out a reservation will move/remove it into the inhouse list	PASS
16	only one reservation can be checked into a property at a time	FAIL -creating reservations in the database allowed for more than one reservation at a time

17	Arrival date cannot before today	PASS
18	departure date cannot be before arrival date	PASS
19	Disabled dates are presented accordingly	PASS for create, FAIL for edit - disabled dates periodically do not load into the edit form
20	Reservations cannot be make surrounding another reservation	PASS

Challenges Overcome

There were many challenges that I faced during this project. First and foremost, was time management. I completed most of the project in short sprints without looking at it in between those sprints. This caused me to spend a lot of wasted time trying to pick up where I left off. It also put me at a time crunch at the end.

Another challenge was creating the actual design of the user interface. I went though about three to four times and changed the entire look of the app because I was not happy with the way it looked. I ended up having to watch graphic design lectures and look through existing hotel/rental applications so I could figure out what worked and what didn't.

The biggest challenge had to be working with the dates. The front end and back end dates handle them differently, so they needed to be converted before they could be transferred between the two. The biggest part of this application is making the reservation and making it so dates become available/blocked off as things change. Neither of the languages had inherent was to handle this, so I had to find a component that would allow me to handle this. The one that worked for me was designed with using Typescipt in mind, which I did not included in my project. I had to make a lot of changes to the component to make everything work.

Future Enhancements

The application could get and store more information about the user, rentals, and reservations. Its current state takes minimal information and has room to handle quite a bit more.

The tables that store the user and reservation could offer ways to filter and search through the table.

The application could be adjusted so it functions well on mobile devices. This would mean the structure of the views would be altered depending on the screen sizes so it could accommodate the smaller screens. It could even be made into a phone app.

An email server could be hooked up to it to allow for two factor authentication, and to allow information to be sent out to the customers.

It could ultimately be used as a point of sale system. It would manage the bills for the reservations and process the payment.