

Web Development and Databases

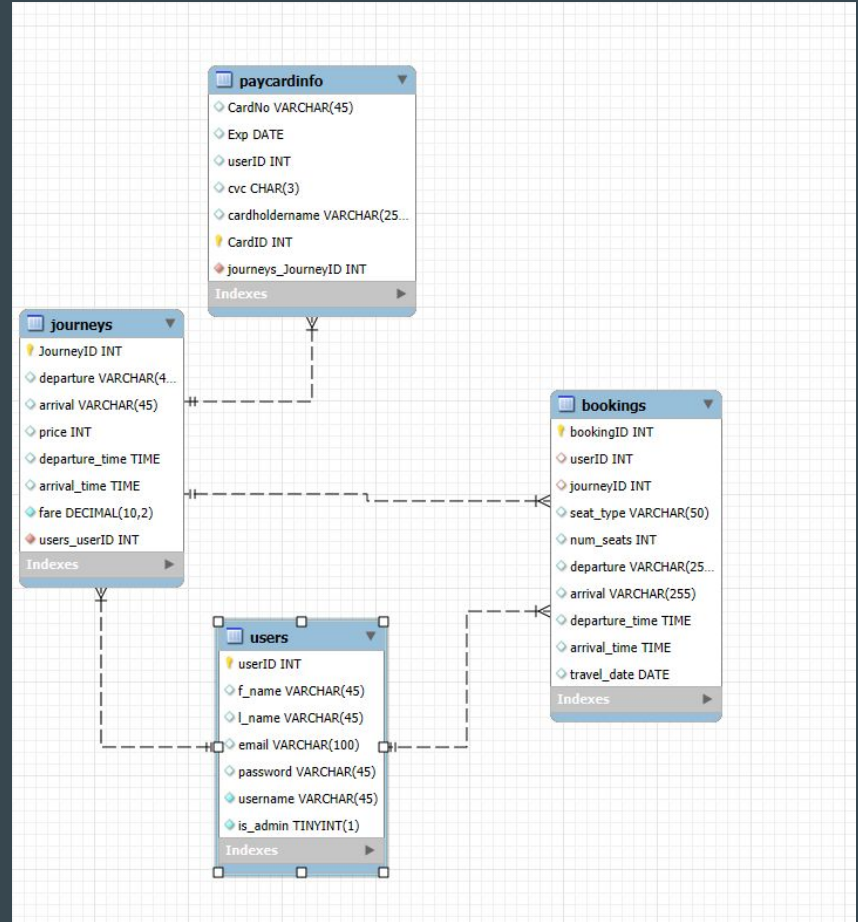
Horizon Travels

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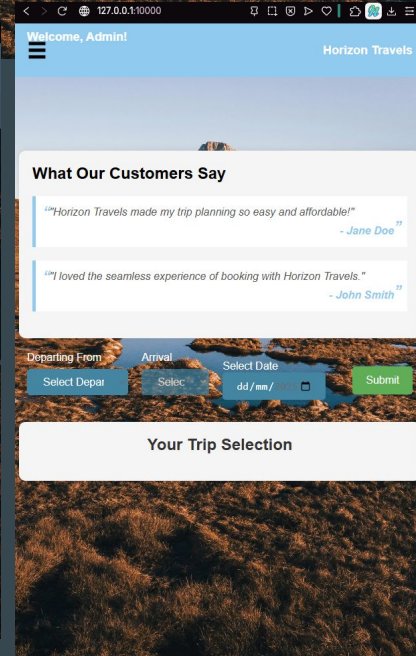
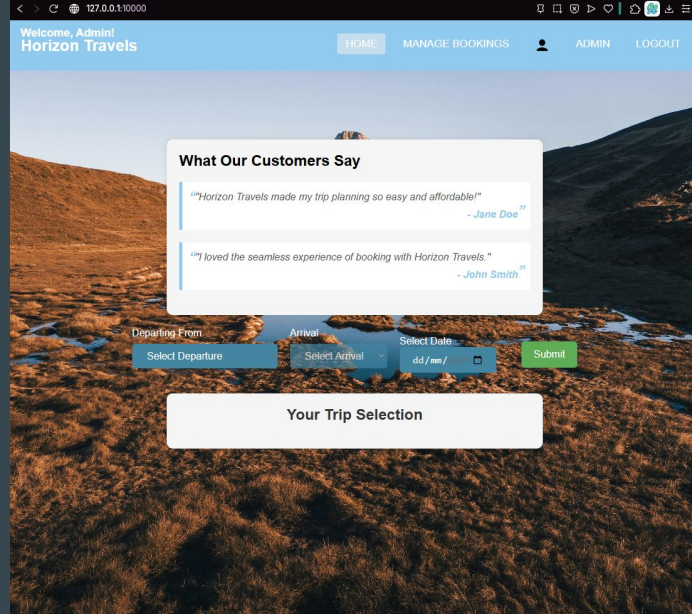
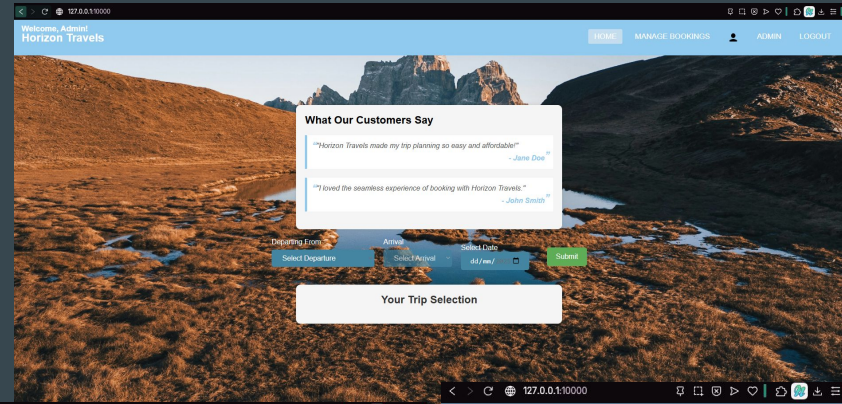
Normalised Database Design

To bring my database from 1st and 2nd Normal Form to 3rd Normal Form, I removed partial and transitive dependencies. I eliminated partial dependencies by ensuring that all non-key attributes were fully functionally dependent on the entire primary key, not just part of it. Then, to achieve 3rd Normal Form, I identified and removed transitive dependencies by moving attributes that depended on other non-key attributes into separate related tables. This restructuring ensured that all non-key attributes depend only on the primary key, improving data integrity and reducing redundancy.



Responsive Web Design

I have a responsive web design that supports three display sizes being large screens(monitors) , medium(tablets) and small(phones) when you go to phone size the navigation bar condenses into a hamburger menu.



Features

Booking Features:

- Book a flight
- Cancel a flight resulting in a refund
- Update a flight

Admin features:

- View all users
- Change users passwords
- View all bookings
- Cancel any bookings
- View sales reports

Standard user features:

- View user details like emails and username
- Change password
- Read customer reviews

Other features:

- Dynamic web design
- Database consistency
- Smooth gui
- Easy to follow website

Testing

Test case	Subject	Purpose	Expected result	Input data	Actual result
1	Login form	Ensure login error message is displayed when its incorrect username or password	The error message is displayed “Invalid username or password “	Submitting an incorrect email or password	Success
2	Booking a flight	Booking a flight should work so the website can function	Enter all details of flight I want to book will result in adding it to my booking page.	Enter all details	Succes

Testing

Test case	Subject	Purpose	Expected result	Input data	Actual result
3	Payment authorisation	Ensure user are logged in before they can make a payment	An error message will be displayed if they are not logged in. "Error confirming payment"	Clicking "confirm payment" when not logged in	Success
4	An admin can change user passwords and cancel bookings	Ensure an admin can properly maintain the website	It will correctly update the database accordingly	Cancelling a booking and updating a user password on the admin page.	Success

Evaluation: LESP Issues

Admin Tool Access Control:

To maintain security and proper access control, users cannot see or interact with admin tools unless they are logged in as an administrator. Role-based permissions are implemented to ensure that only authenticated admin users have access to sensitive features and management functionality.

2. Password Security Management:

Password security is handled through best practices such as hashing user passwords before storing them in the database. This ensures that even if the database is compromised, raw passwords remain protected, reducing the risk of unauthorized access.

3. Copyright

All images and icons I have used are royalty-images therefore no copyright backlash will occur.

Evaluation - Room for improvement

1. CSS and Design Aesthetics:

While the core functionality and backend systems were prioritized, the CSS styling could be improved to create a more visually appealing user interface. Due to time constraints, the focus remained on building a robust and functional application, but future updates could enhance the design for a better user experience.

2. Implementing 2FA via Email:

Currently, the system lacks two-factor authentication, which would improve security. A planned improvement is to implement 2FA by sending a confirmation email to users during login or sensitive actions, adding an extra layer of protection to user accounts.

3. Booking Status Column:

To improve the clarity and management of booking records, a "status" column could be added to the bookings table. This would allow the system to track whether a booking is active, cancelled, or refunded, making it easier to manage bookings and generate more informative reports.