SOEN 343 Project (Hexagon - Sprint 3)

Phase 3: GOF design pattern and class diagram

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SOEN 343: Software Architecture and Design I
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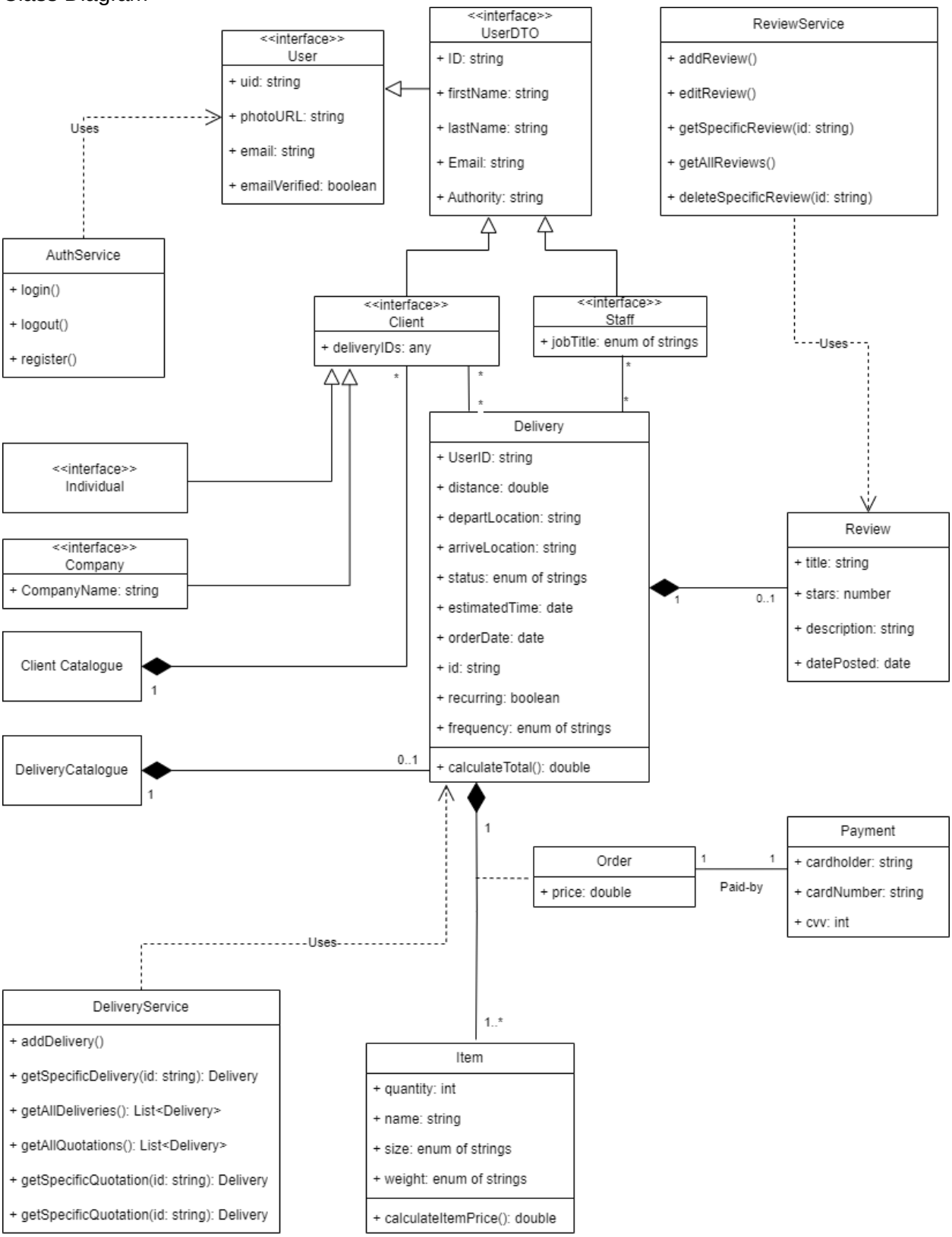
I. Summary of the Project

The system to be developed will be a web application allowing clients to schedule deliveries. An emphasis on design and analysis based on the project's requirements will help build a system better suited to efficiently handle client requests. The code will be based on documentation such as domain model, class diagram, interaction diagrams, use cases, etc. The main functions provided by the web application to its users will be the following: request a delivery, get a proposal of a quotation, receive communication about the service, track the order, pay for the order, and review the service. All services will be developed in an intuitional way in order to heighten the customer experience.

II. Class Diagram



III. Discussion on Class Diagram

***Delivery* Responsibilities:**

- Acts as the Information Expert for Item, computing the total delivery cost by summing item prices.
- Functions as a Creator for *Item* and *Review*, reflecting their whole-part relationship by managing their instantiation within the *Delivery* scope.

Polymorphism Implementation:

- *UserDTO* and *Client* classes embody polymorphism principles. Both *Individual* and *Company* extend from *Client*, differing in attributes like CompanyName. Additionally, the inheritance hierarchy includes *Client* and *Staff*, both extending from *UserDTO* and differing in attributes such as deliveryIDs and jobTitle. The interfaces were primarily employed to customize content for distinct user types.

Protected Variance:

- All the interfaces that we have related to a user reflect protected variance. *UserDTO* is the wrapper interface, while *Individual*, *Company* and *Staff* are all protected variations of said wrapper.

Controller Classes (DeliveryService and ReviewService):

- Serve as intermediaries between the GUI and domain, orchestrating all database-modifying interactions.
- Ensure focused operations on specific entities, such as the DeliveryService for the delivery entity. This approach fosters high cohesion within classes and can be seen as an instance of pure fabrication due to its purposeful design and segregation of concerns.

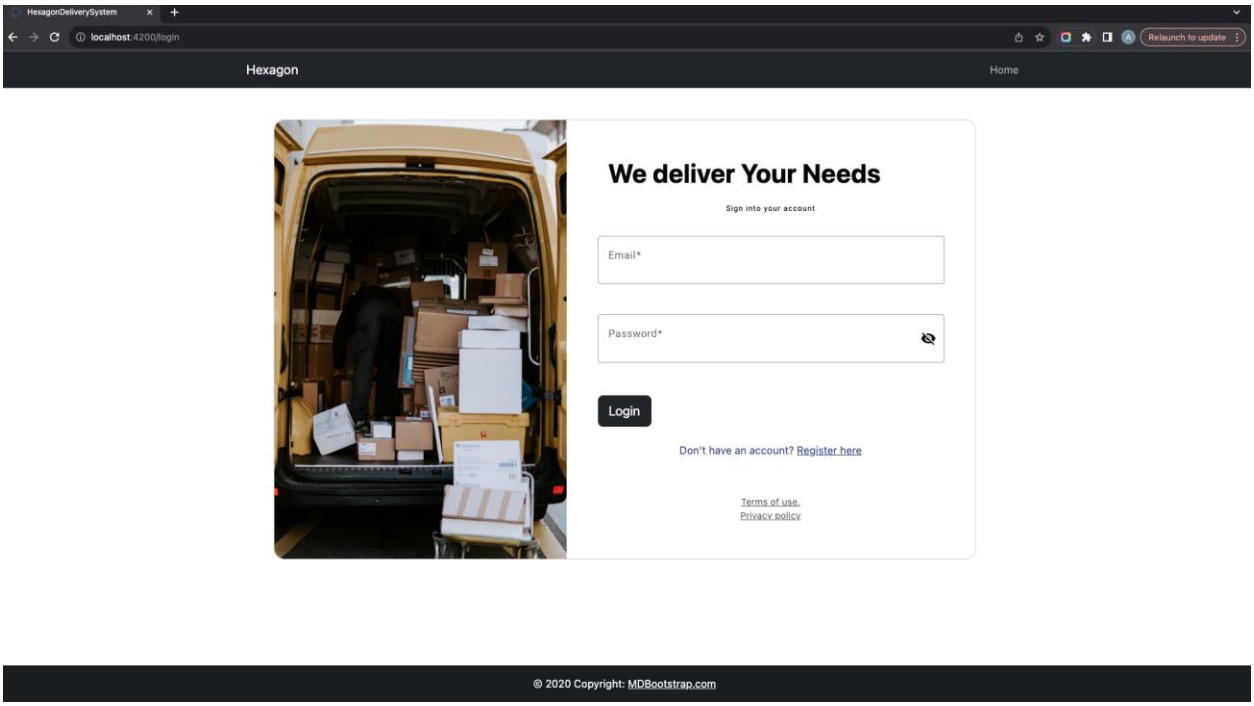
The domain model is created during the initial stages of a project for a specific purpose. It represents key concepts, entities, and the relationships among these entities. Importantly, the domain model maintains simplicity by avoiding the introduction of implementation logic. This intentional simplicity facilitates the domain model's role as a communication tool between developers and project stakeholders. On the contrary, the design class diagram is crafted in later stages and encompasses all essential logic, including attributes, methods, and class associations. Primarily intended for developers, the design class diagram provides a comprehensive view of the software structure. In our specific case, we have illustrated relationships such as whole-part relationships, incorporated attributes and methods into each class, and introduced supplementary classes like service classes for design purposes.

Based on the sequence diagram interactions, we have taken the different parts of the diagram that interact with each other and translated those interactions into a class diagram. By doing so, we also made sure to identify the essential methods and attributes needed for the communication represented in the sequence diagrams and added them to our class diagram. It is important to note that the class diagram not only maps those interactions, but also illustrates how different components of our app relate to each other, including their relationships, associations, dependencies, and multiplicity. This way, the class diagram displays all the necessary items and connections needed to be able to build the system and operations depicted in the sequence diagrams.

IV. Some GUI

The graphical user interface can be generated through the code located in our GitHub Repository: Hexagon-DeliverySystem. The design and look for all the pages have been completed. Below are screenshots of our web application from various sections.

Login Page


HexagonDeliverySystem
localhost:4200/login
Relaunch to update
Hexagon
Home
We deliver Your Needs
Sign into your account
Email*
Password*
Login
Don't have an account? Register here
Terms of use.
Privacy policy
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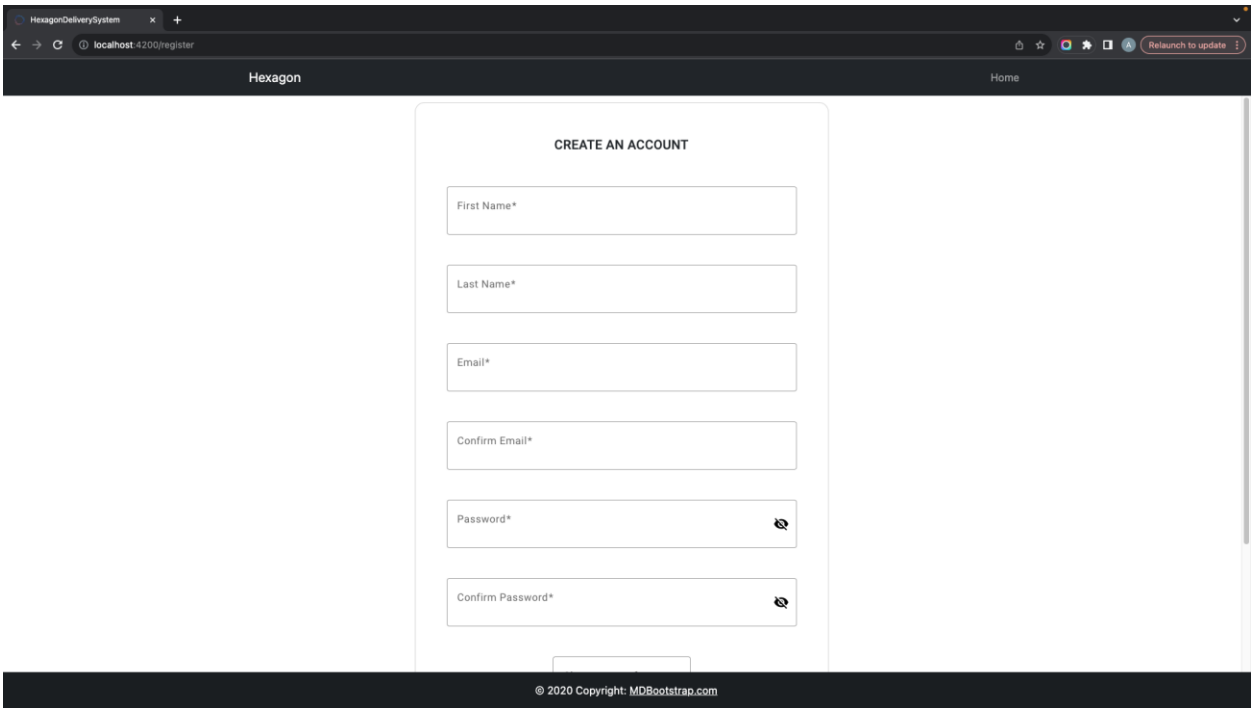
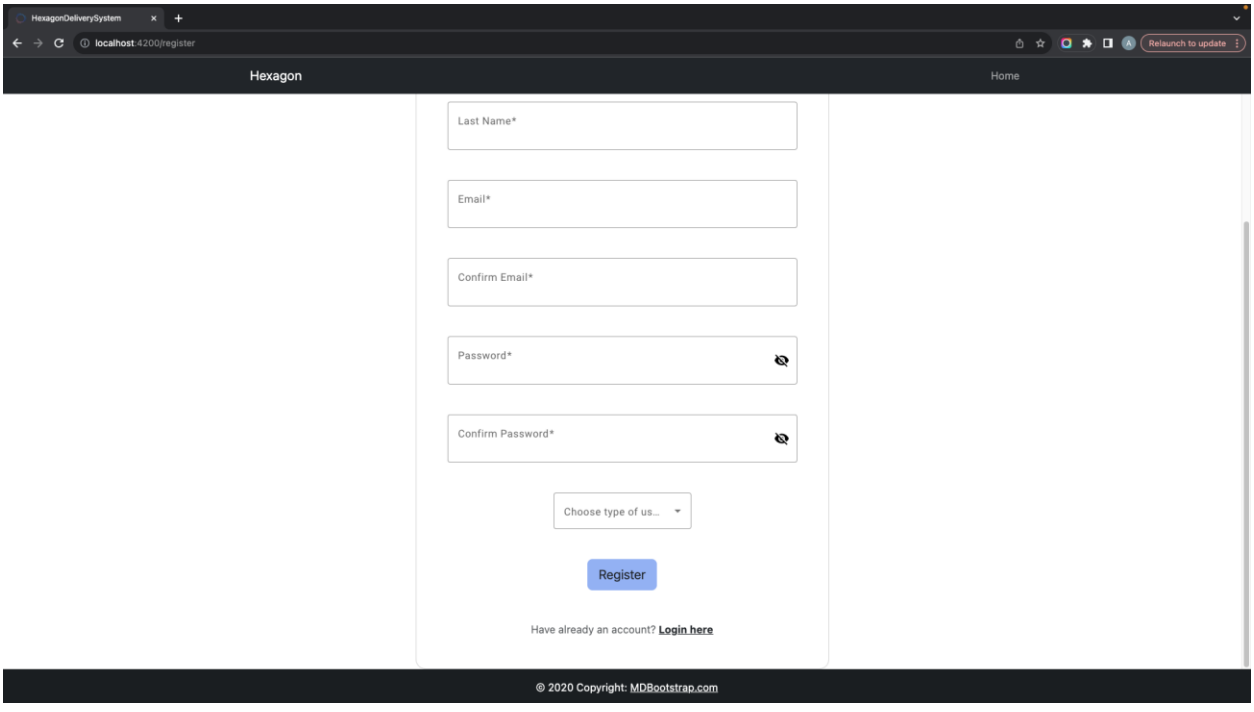
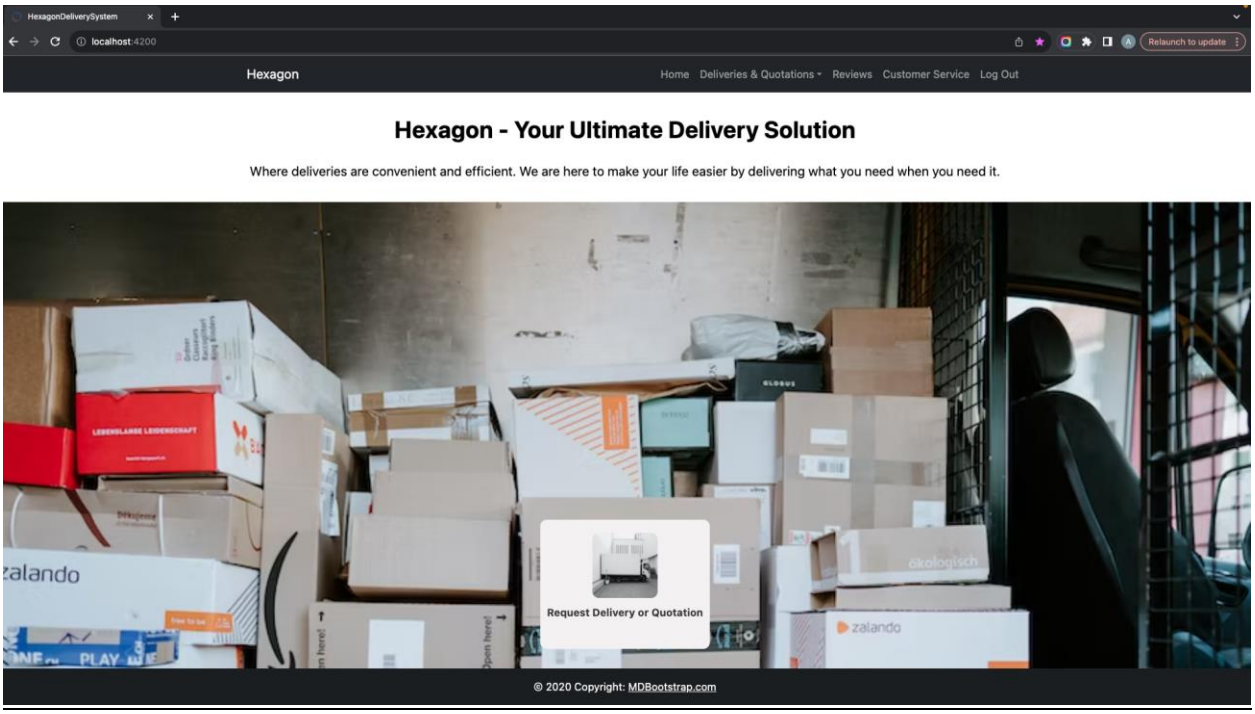
Registration Page



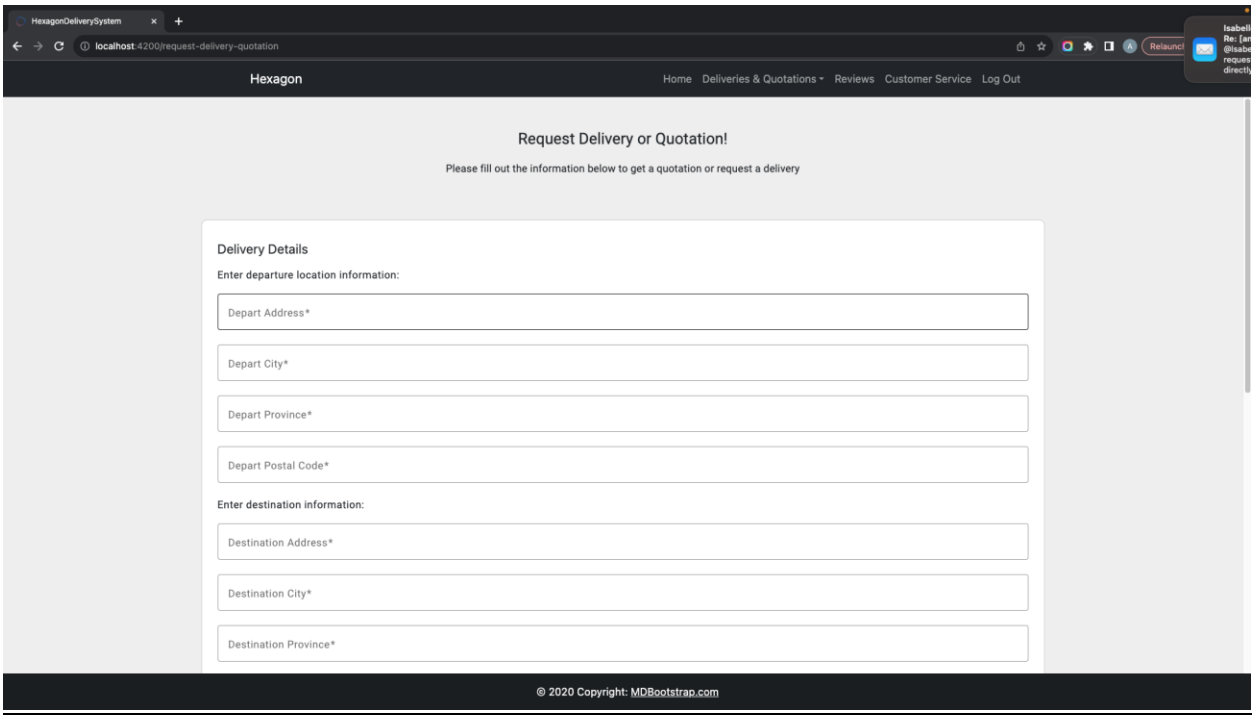


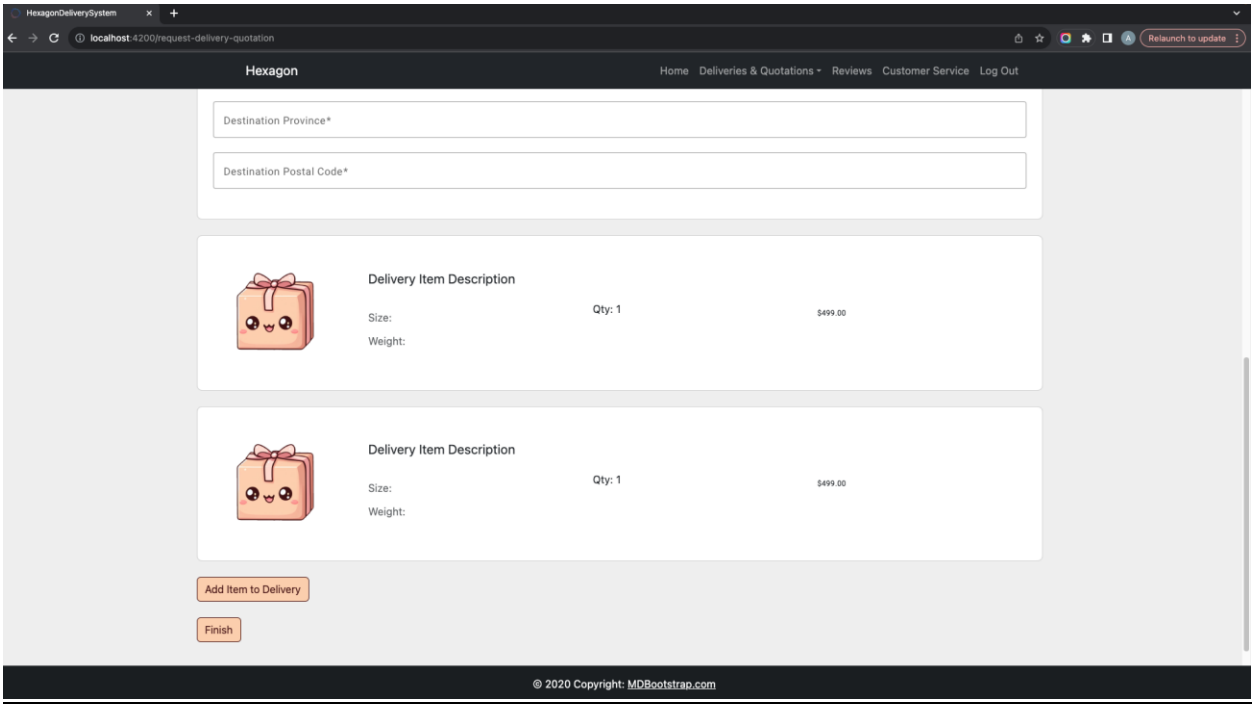
Landing Page



Request for Delivery & Quotation Page

A client can request a quotation or request a delivery by filling out all the required fields from this page and clicking on “Finish”. Upon clicking the “Finish” button, the client has the option to proceed to payment or save the quotation.




HexagonDeliverySystem
localhost:4200/request-delivery-quotation
Relaunch to update
Hexagon
Home
Deliveries & Quotations
Reviews
Customer Service
Log Out
Destination Province*
Destination Postal Code*
Delivery Item Description
Size:
Weight:
Qty: 1
$499.00
Delivery Item Description
Size:
Weight:
Qty: 1
$499.00
Add Item to Delivery
Finish
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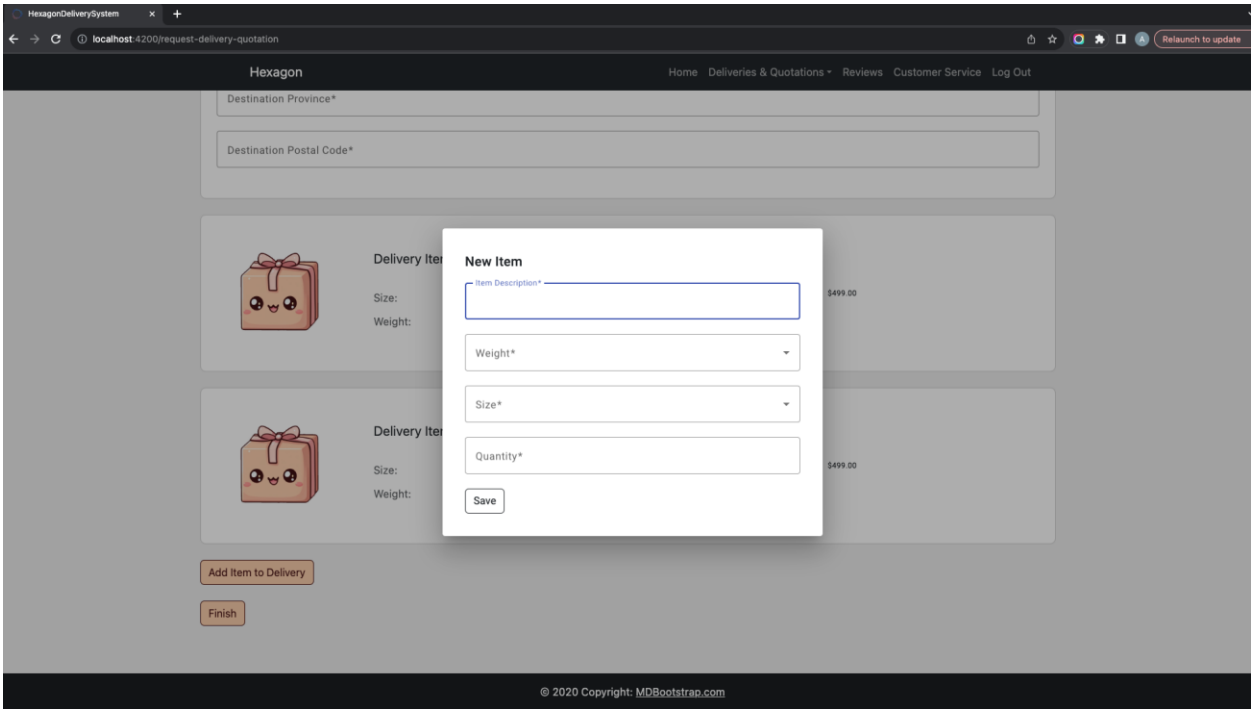
HexagonDeliverySystem
localhost:4200/request-delivery-quotation
Relaunch to update
Hexagon
Home
Deliveries & Quotations
Reviews
Customer Service
Log Out
Destination Province*
Destination Postal Code*
Delivery Item
Size:
Weight:
$499.00
Delivery Item
Size:
Weight:
$499.00
New Item
Item Description*
Weight*
Size*
Quantity*
Save
Add Item to Delivery
Finish
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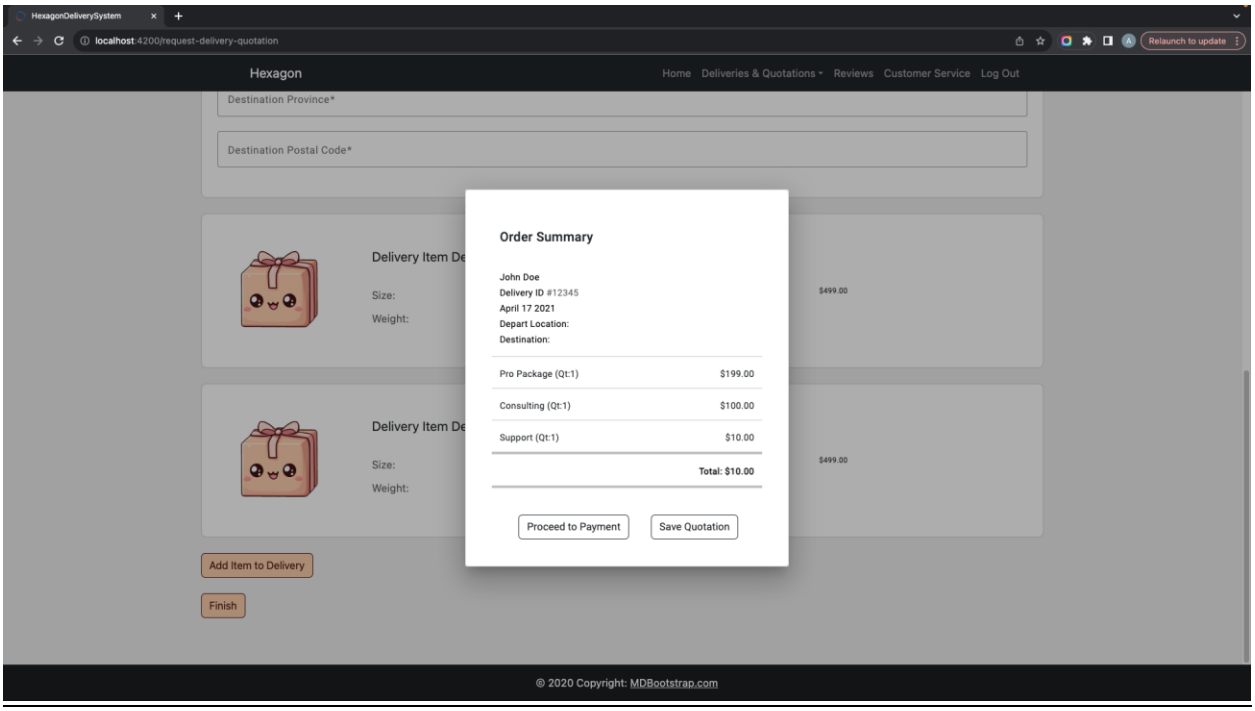
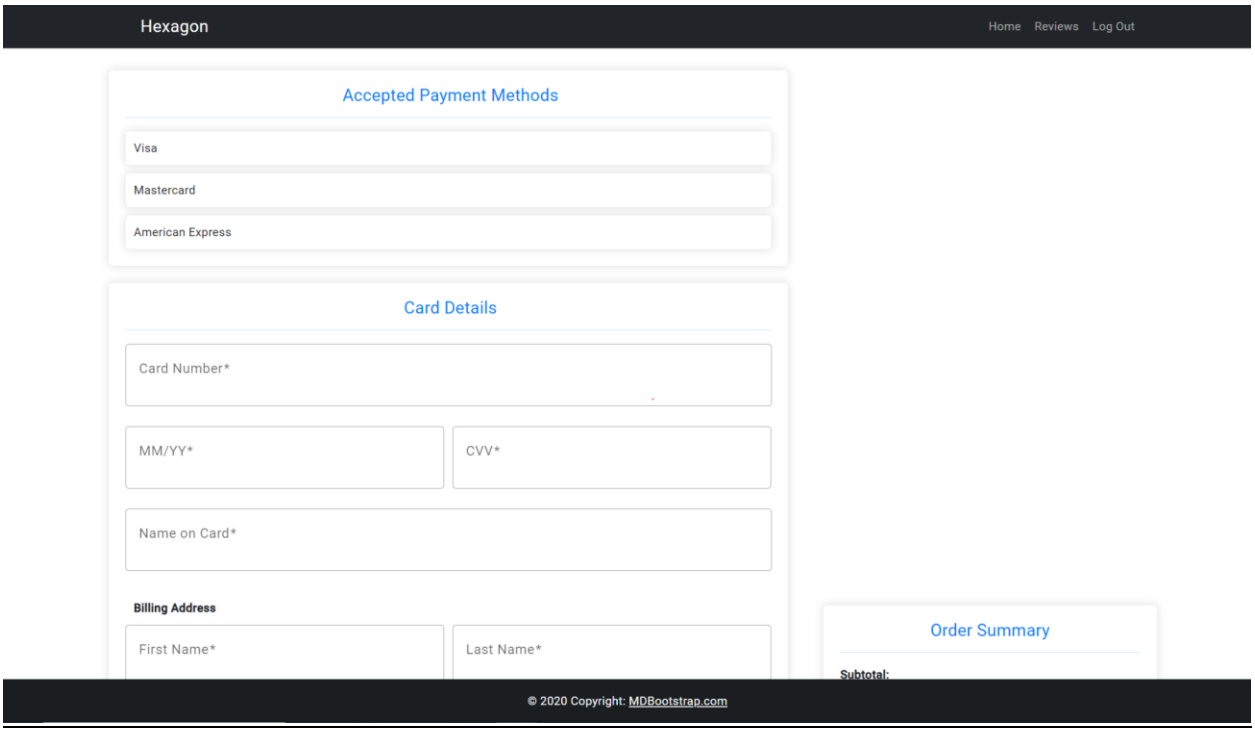
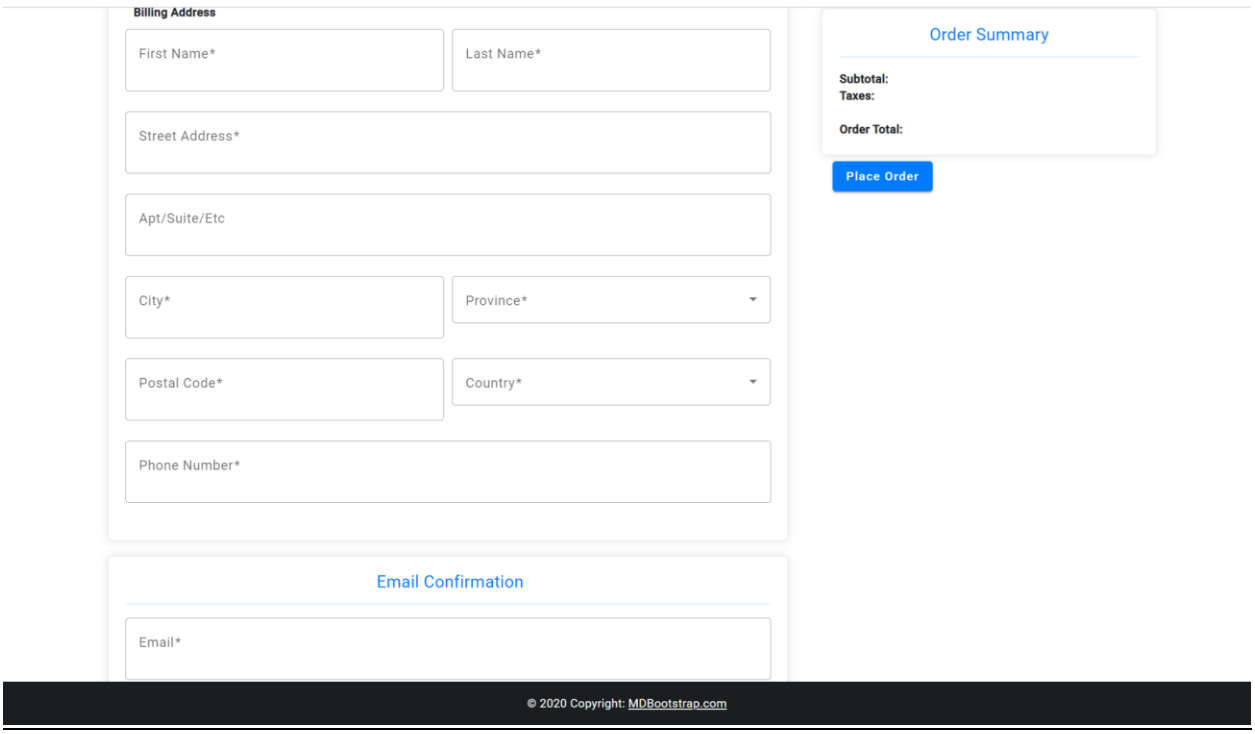


Payment Page




Billing Address
First Name*
Last Name*
Street Address*
Apt/Suite/Etc
City*
Province*
Postal Code*
Country*
Phone Number*
Email Confirmation
Email*
Order Summary
Subtotal:
Taxes:
Order Total:
Place Order
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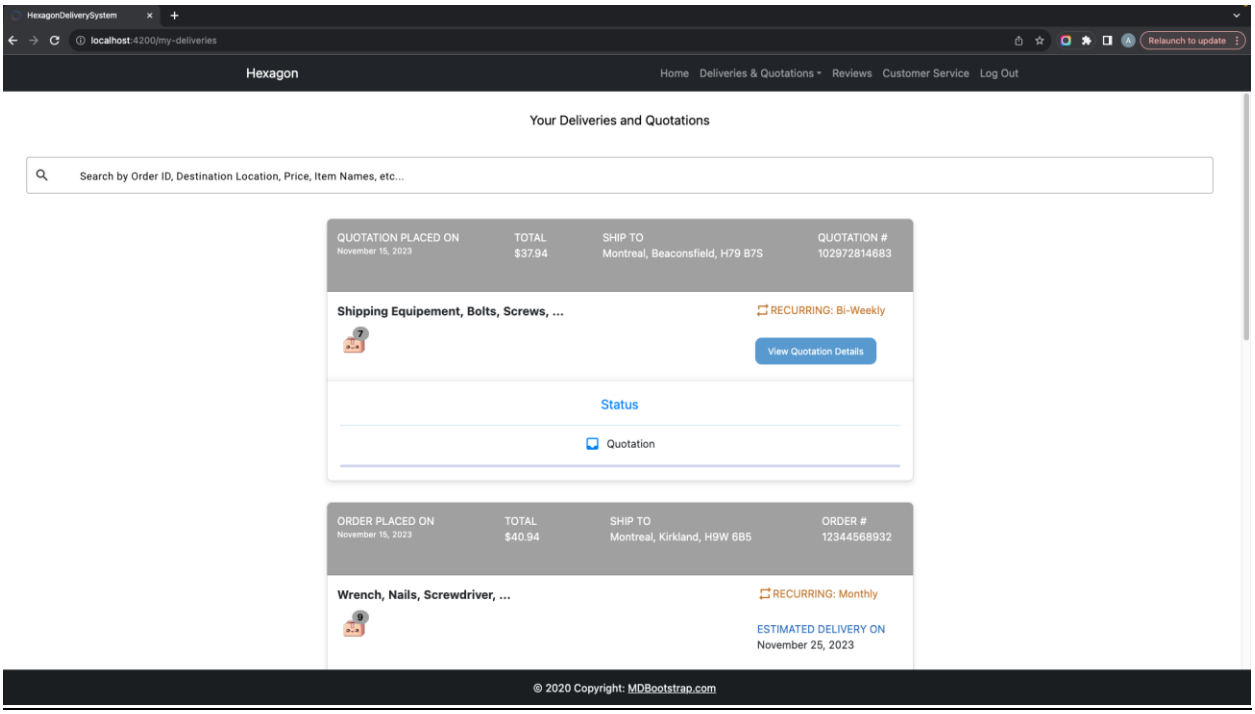
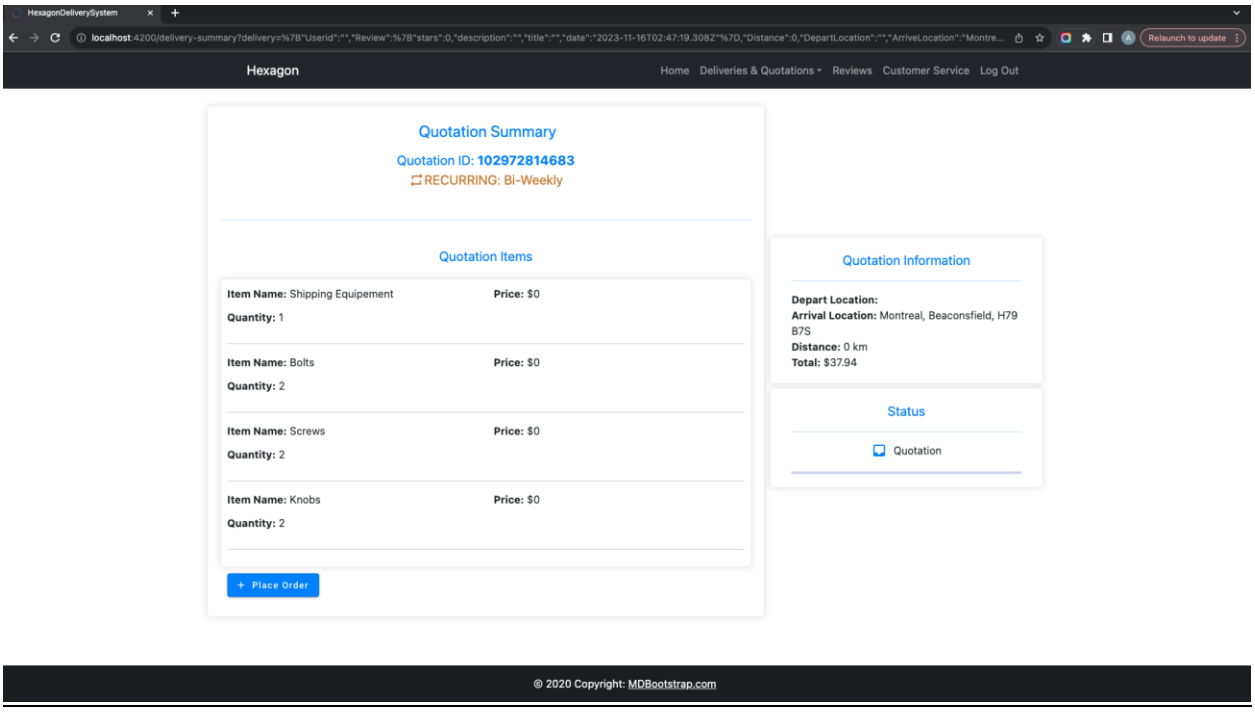
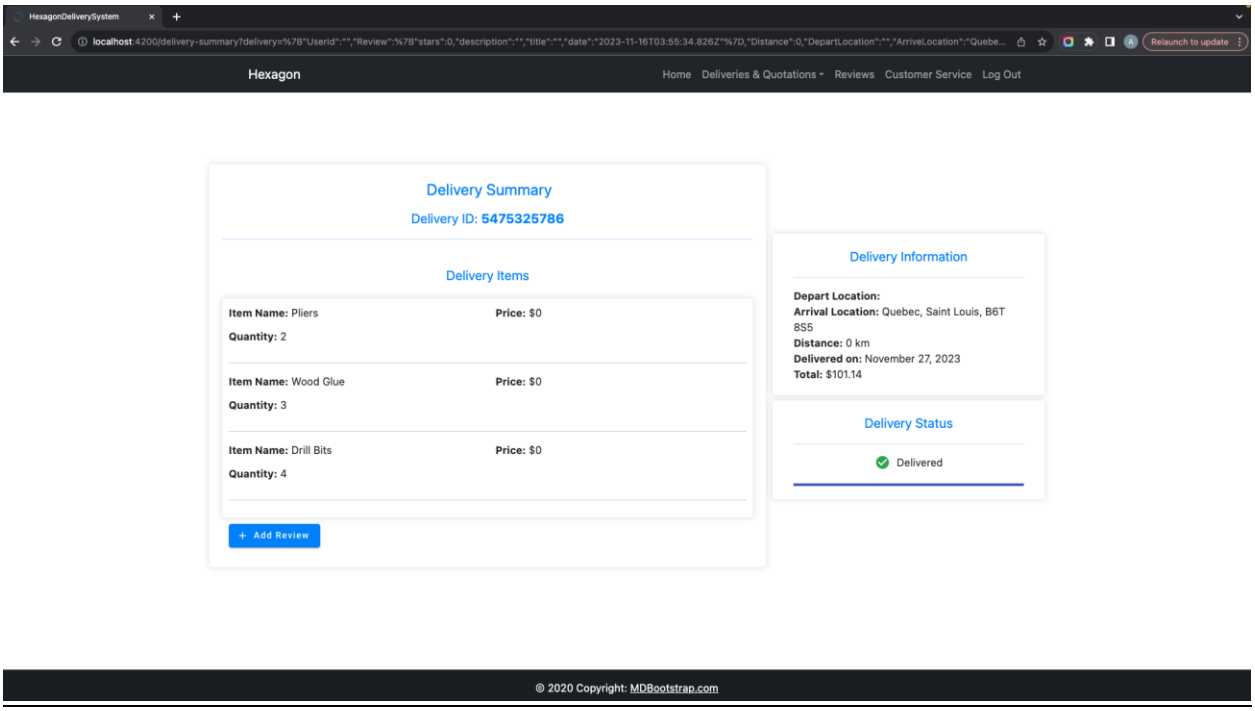
My Deliveries & Quotations Page



Delivery & Quotation Summary Page




HexagonDeliverySystem
localhost:4200/delivery-summary?delivery=%7B"Userid":"","Review":%7B"stars":0,"description":"","title":"","date":"2023-11-16T03:55:34.826Z"%7D,"Distance":0,"DepartLocation":"","ArriveLocation":"Quebe...
Relaunch to update
Hexagon
Home
Deliveries & Quotations
Reviews
Customer Service
Log Out
Delivery Summary
Delivery ID: 5475325786
Delivery Items
Item Name: Pliers
Price: $0
Quantity: 2
Item Name: Wood Glue
Price: $0
Quantity: 3
Item Name: Drill Bits
Price: $0
Quantity: 4
+ Add Review
Delivery Information
Depart Location:
Arrival Location: Quebec, Saint Louis, B6T 8S5
Distance: 0 km
Delivered on: November 27, 2023
Total: $101.14
Delivery Status
Delivered
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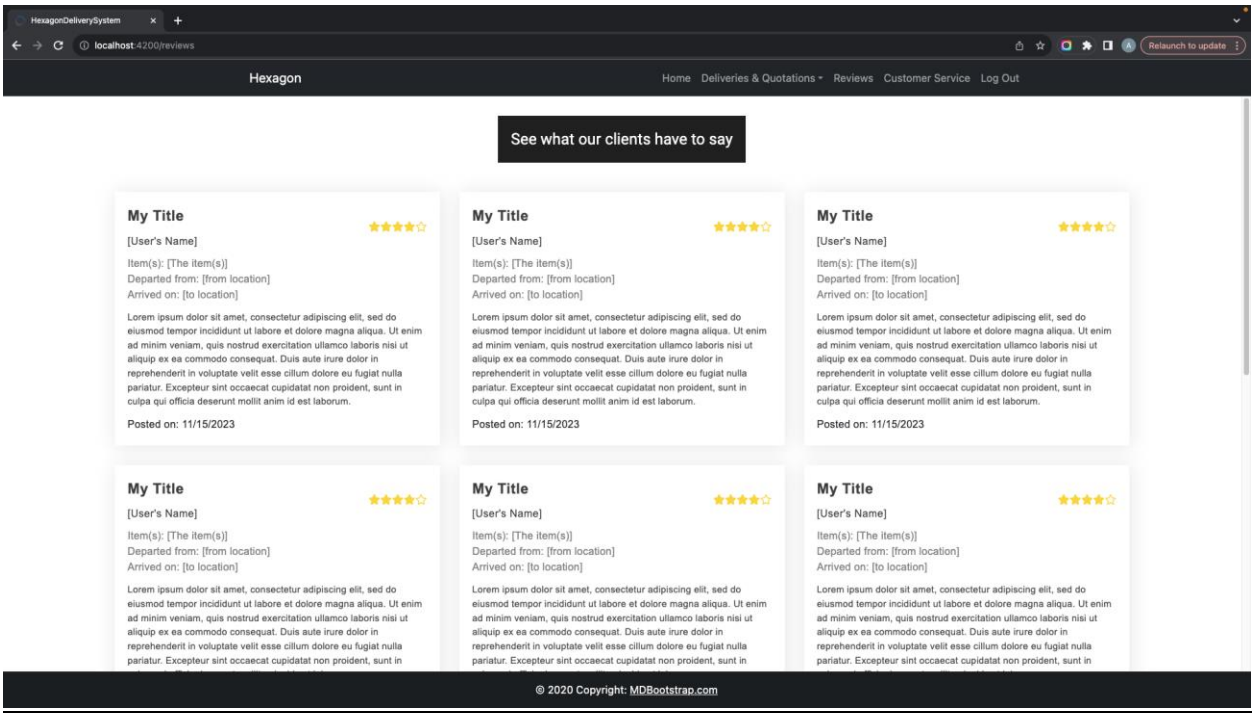
Review Page


HexagonDeliverySystem
localhost:4200/reviews
Relaunch to update
Hexagon
Home
Deliveries & Quotations
Reviews
Customer Service
Log Out
See what our clients have to say
My Title
[User's Name]
Item(s): [The item(s)]
Departed from: [from location]
Arrived on: [to location]
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
Posted on: 11/15/2023
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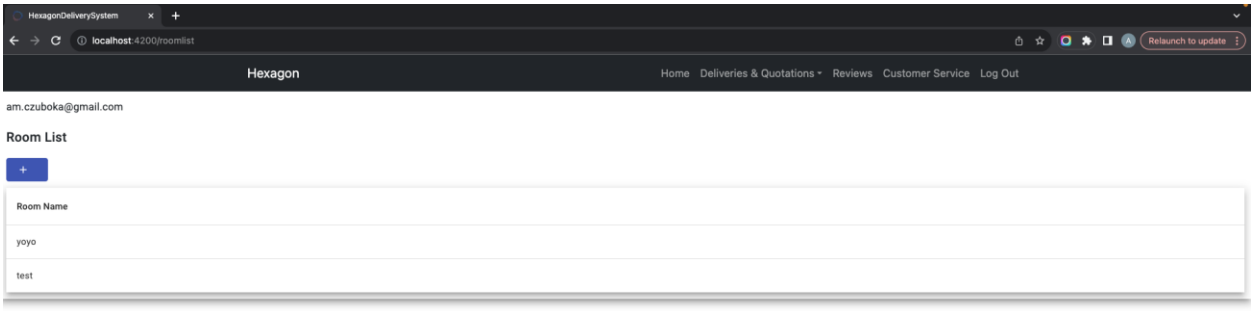
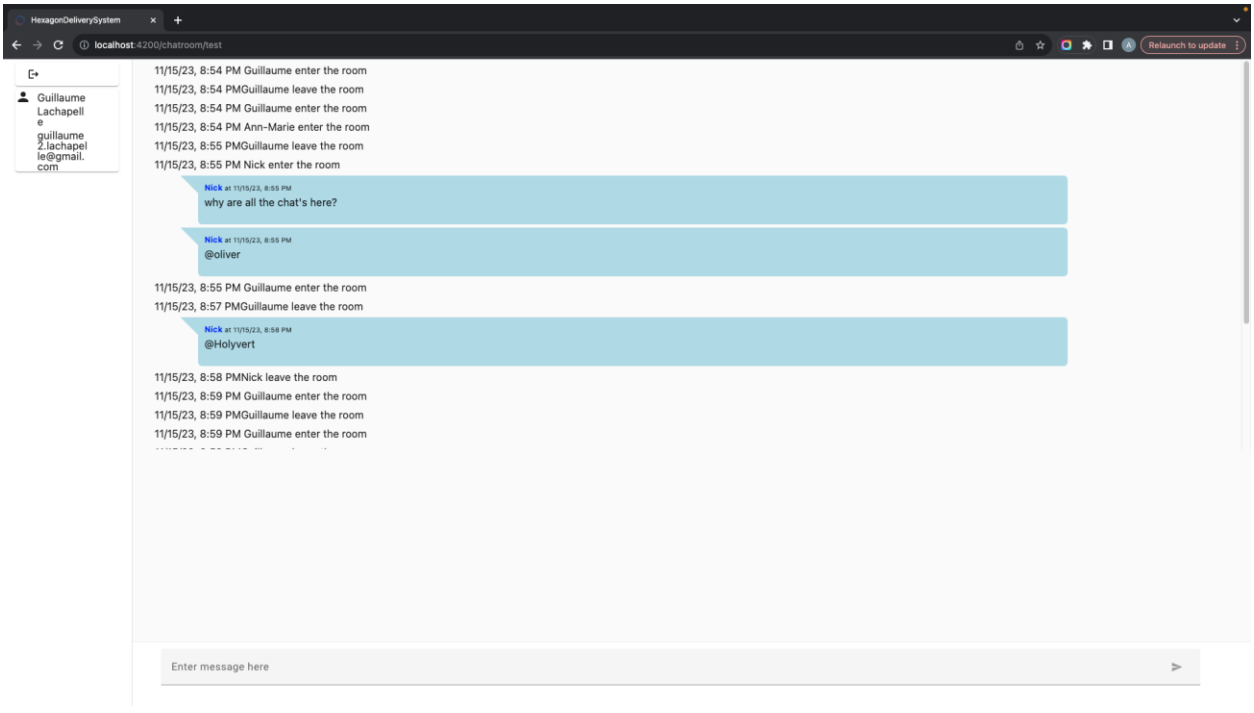
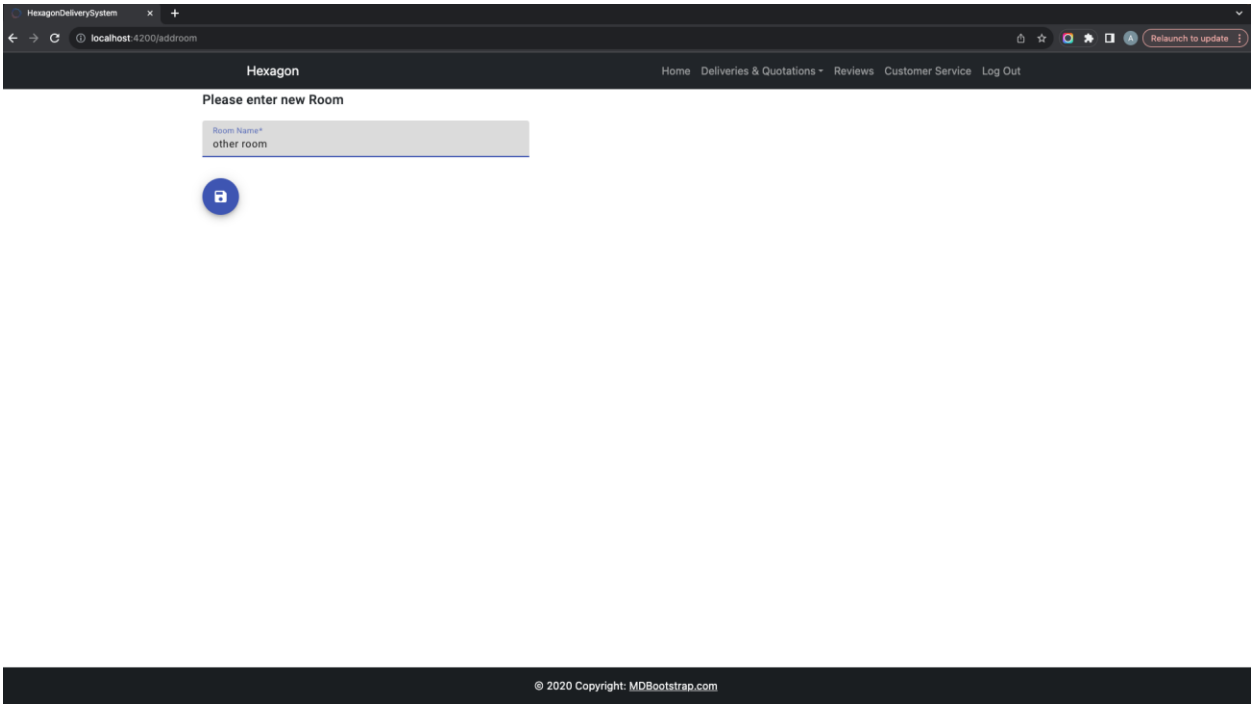
Customer Support Page






HexagonDeliverySystem
localhost:4200/addroom
Relaunch to update
Hexagon
Home
Deliveries & Quotations
Reviews
Customer Service
Log Out
Please enter new Room
Room Name*
other room
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