

Project Title: Custom Bakery Order System

Group Number: 7

Group Members:

Student ID	Student Name	Theory Section
19101320	Sadia Mahmud	10
19101348	Tarannaum Jahan Sultan	7

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Introduction

“Bake & Bake” is an android application which will make a person’s life easier in a dramatic way. If a person wishes to buy a cake, that person just has to go to this system, select any bakery item from a category, provide some important information for a custom order, and complete the payment. The cake would be at their doorstep. Moreover, the system will bring all the authentic home bakers together and offer fresh and tasty baked goods. Furthermore, this system focuses on experimenting with natural ingredients for growing health awareness and providing extra care for their customers. Lastly, in order to make “Bake & Bake” a successful project we must first ensure it’s qualified pictorial representations and analyze the system implicitly.

Motivation

- This covid period has been devastating to our lives but at the same time, it was kind of a bestow for home cooks. This whole lockdown period gave them the space and time for thinking differently and to shine their cooking skills. Considering that, we have come up with our project, an app management system, that aims to bring together all the authentic home bakers. They will be able to register here and sell their baked goods. On the other hand, we also thought of the vast consumers who look for customized bakery items, such as, sugar-free, eggless, low calorie, gluten-free. Basically, they can order here according to preferred size, flavor, ingredients, shapes, types, etc. In short, they will get to invest as their preference.

Project Scenario

- “Bake & Bake” is an online bakery shop platform where anyone can start to sell their baked goods. It has been running since it started the journey. What makes their shop unique is the highly customizable baked goods that they offer. The online platform will provide users to customize their cake, cookies, bread, flavors, sizes, and toppings from their favorite home bakers in their own way to get it delivered to their homes. The mobile application also will give the customers the chance to view their customized order being processed. Customers can track the delivery time too.

System Request

Project Sponsor:

Noor H Zakaria, Vice President of Marketing

Arif Kamal, IT Manager

Business Need:

This Project will bring all the home bakers together in one platform and offer their freshly delicious baked goods to their customers. Nowadays, people do not have time to make freshly home-baked items due to hectic lifestyles. So, this system will enable their customers to order different baking items according to their preferred flavors, sizes, and toppings from their favorite home bakers. Since the order system will be customized, it will be able to improve customer service and sales by ensuring to provide freshly customized baked goods to many people with different taste buds.

Business Requirements:

By using the app, customers should be able to search for varieties of freshly home bakery items from their preferred bakers and place customized orders. The specific functionalities that the system should have are listed below-

- A user-friendly interface for users to place orders in advance.
- Registration and verification for the seller, user, delivery man.
- Users will be able to customize from a vast range of choices, add/delete from the cart and give feedback to the seller and deliveryman.
- Users can order bakery products by customizing such flavors, ingredients, sizes, weights, toppings, quantities.
- Display gallery for the seller to show all the items and customization options.
- Manage available stocks efficiently and be capable of creating an invoice bill.
- Generate a big platform to hire home bakers to serve their freshly home-baked products.
- Generate numerous bakery items from different bakers.

Business Values:

Personalized bakers in this system come up with bakery items with different flavors and packaging. People are becoming more health-conscious and nowadays they prefer their food,

bakery items to be personalized. This system focuses on experimenting with natural ingredients for growing health awareness and providing extra care for their customers. The tangible and intangible benefits are listed below-

Tangible value:

- 20% commission on each order.
- Customer lifetime order count.
- Future collaboration scope.
- 10% from Advertising.
- 10% commission from delivery service.n

Intangible Values:

- Enabling customers with a facility to purchase their favorite bakery items according to their adjustable attributes.
- Exciting offers on favorite items
- Providing surprising offers for regular customers and also announcing winners among the customers with monthly giveaways.
- Increase usage of the app after user satisfaction based on performance and looks.

Special Issues or Constraints:

- Only one ID for one user for avoiding unauthorized transactions.
- Delayed deliveries due to Covid19.
- The system should be in place by 20 September 2021.
- Training admins to update the system properly and keeping it updated 24/7.
- Competition between companies.
- Data security for the privacy of customers and admins.
- Managing the delivery team (for on-time delivery).
- Undamaged parcel delivery guarantee.
- Quality and Taste of food.
- The Advanced UI of the system might be complex for the new users.
- Labor cost.

Requirement Analysis

The functional and non-functional requirements for the custom bakery order system:

1. Authentication

Functional Requirement:

FR1.1: Users will be able to sign up, log in.

FR1.2: Users will be notified through an email or text message after signing up into the system for verification.

Non Functional Requirement:

NFR1.1: The system will allow users to get 4 attempts in order to log in to their profiles.

2. Placing Orders

Functional Requirement:

FR2.1: The system will be a user-friendly interface for users to place orders in advance.

FR2.2: The system will be organized according to different categories of bakery items to enable users to browse items.

FR2.3: The system will allow users to add/delete items from the cart.

FR2.4: The system will allow users to order customizations such as Design, flavors, sizes, weights, toppings, quantities.

FR2.5: The system will allow users to view their order status.

Non Functional Requirement:

NFR2.1: The system will maintain the previous order history of users.

3. Home Bakers Collaboration

Functional Requirement:

FR3.1: The system will enable enthusiastic home bakers to apply for serving freshly home-baked products through passing the hiring interviews and necessary requirements.

Non Functional Requirement:

NFR3.1: The system will generate a big platform for all the home bakers for serving numerous personalized bakery items.

NFR 3.2: The system will ensure to make them familiar with the functionality.

4. Receiving Orders

Functional Requirement:

FR4.1: The system will allow sellers to post product details as in pictures, prices, options and special offers.

FR4.2: The system will enable bakers to add/delete their products.

FR4.3: The system can allow bakers to show time to prepare the customized bakery items.

Non Functional Requirement:

NFR4.1: The system will ensure the standard resolution of the bakery products.

5. Feedback and review:

FR5.1: The system will enable users to give feedback and reviews to the admin.

FR5.2: The system will enable users to rate the sellers, buyers, and delivery man.

FR5.3: The system will allow users to review purchased bakery products including rate value(on a scale of 5) and comments.

Non Functional Requirement:

NFR5.1: The system shall respond to any single customer within five seconds.

6. Payment

FR6.1: The system will allow users to complete the payment through debit/credit/cash on delivery.

Non Functional Requirement:

NFR 6.1: It will provide specific guidelines to users who want to complete the payment online.

7. Update Information:

FR7.1: The system will enable the admin to update information.

FR7.2: The system will allow the admin to view the list of orders and update them if necessary.

Non Functional Requirement:

NFR 7.1: Users will not be able to view other users' information or profile. Only admins can view and update them.

8. Delivery Service:

FR8.1: The system will notify nearby delivery men for fast delivery.

FR8.2: The system should enable route direction for ensuring the delivery service

Non Functional Requirement:

NFR 8.1: The system will generate a map to enable the delivery man to view the exact location of the customer.

Non-Functional:

1. Operational :

- 1.1: The system should be able to run on android, web, ios.
- 1.2: The system should be able to integrate with the existing order management system.

2. Performance :

- 2.1: The system should be able to maintain coding conventions and follow-up documents.
- 2.2: The system should be able to handle large numbers of users simultaneously.
- 2.3: The system should be user-friendly for users to place orders as well as for sellers to sell their bakery items.
- 2.4: The system should operate 90% of responses within a few seconds.
- 2.5: The system should be available 24/7.

3. Security :

- 3.1: The system should ensure complete security of user's confidential data.
- 3.2: The system should enable admins to monitor sellers, buyers, and delivery men.

4. Cultural and Political :

- 4.1: The system should protect all personal information by the Data Protection Act.
- 4.2: The system would support both English and Bangla language for users as well as sellers.
- 4.3: The system should present a digital legal agreement form to ensure transparency and authenticity.

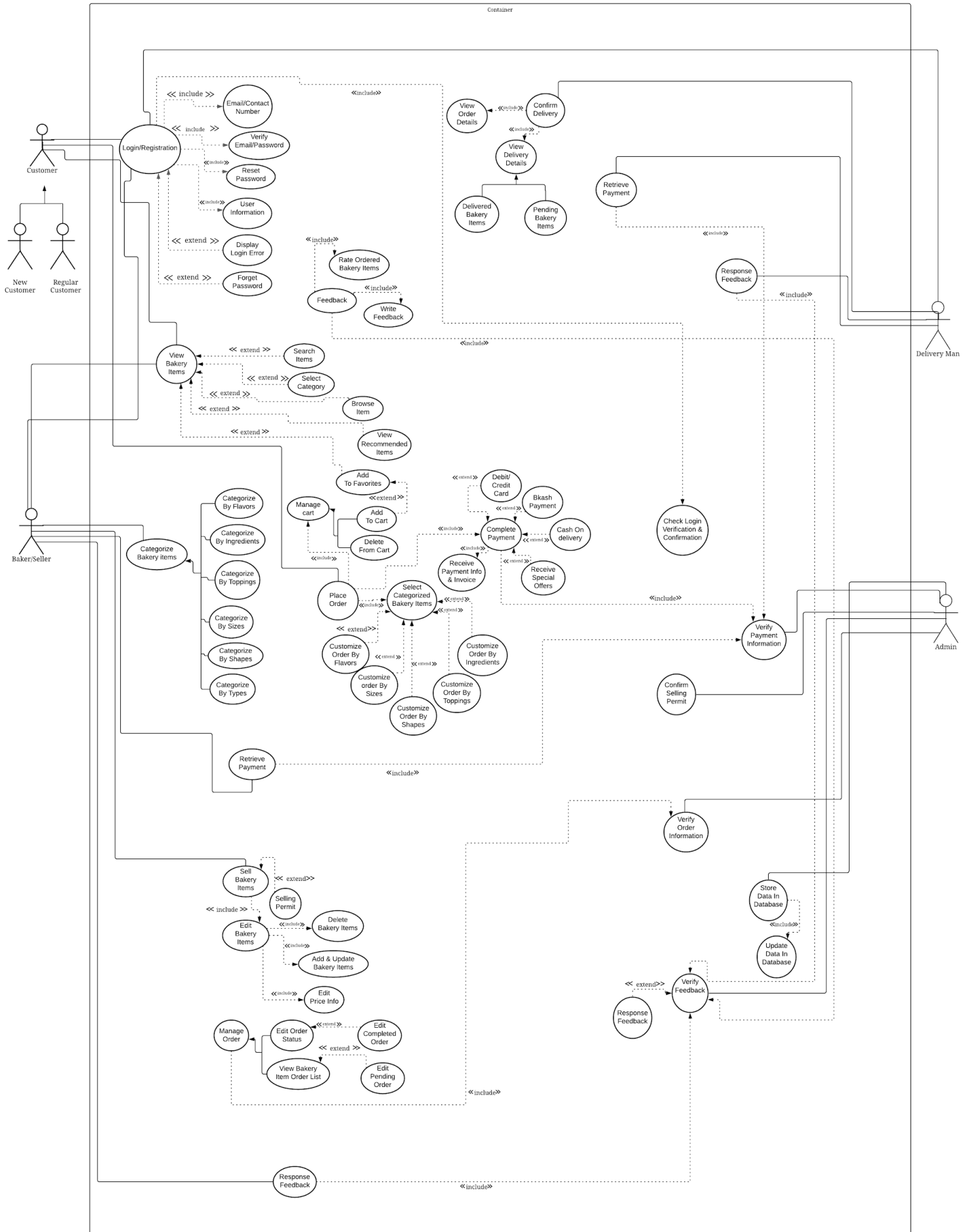
Design Diagrams

1. Use Case Diagram

In our Custom Bakery Order System, there are 4 kinds of actors in the system. The primary actors who will perform the main system are the customers who are generalized to old and new customers and the bakers/ sellers. The secondary actors are the admin who will perform the administrative functions & the delivery man will deal with the delivery functions. In order to use the system functionalities, every user must be logged in to the system. Firstly the user needs to login into the system by entering their email address/ contact numbers. The system will check & verify users' email & passwords. There will be a password reset option in case if the user forgets his previous password input. The customer will be able to view bakery items while searching for his desired items categorically so that they will be able to find items easily. They will also be able to browse & see recommended items. There will also be an option for the customer to manage the cart for managing his selected bakery item. Moreover, the customer will be able to remove or add products if he wants. The customers can place customized orders as there'll be options if they want to select items from the categorized bakery items. They can customize their orders by flavors, shapes, toppings, sizes, ingredients, etc. If they place an order then they must also complete payment via credit/debit card or Bkash or cash on delivery. If there's a new customer or if there are any discount codes or offers then the customer will receive a special offer or discount on his ordered items. After payment & payment verification, they'll automatically receive payment info & invoice. Furthermore, the baker will categorize items based on flavors, ingredients, sizes, types. The bakers can sell bakery items if only they get a confirmed selling permit. They'll be able to edit bakery items which means delete, add, update. They can also edit the price info of their items. If the bakers complete an order, they'll be able to edit the order status. If their order is pending then they will be able to view the bakery item order list. Secondly, the delivery man will automatically view the order details to confirm the delivery process & view delivery details. They can retrieve payment & respond to feedback when necessary. Finally, the admin will check login verification & confirmation. They will confirm the selling permit & verify payment information to retrieve payment. The admin will be able to store data in the database so that he can update and retrieve data. Moreover, the admin verifies feedback and if there's a response then it'll be verified too.

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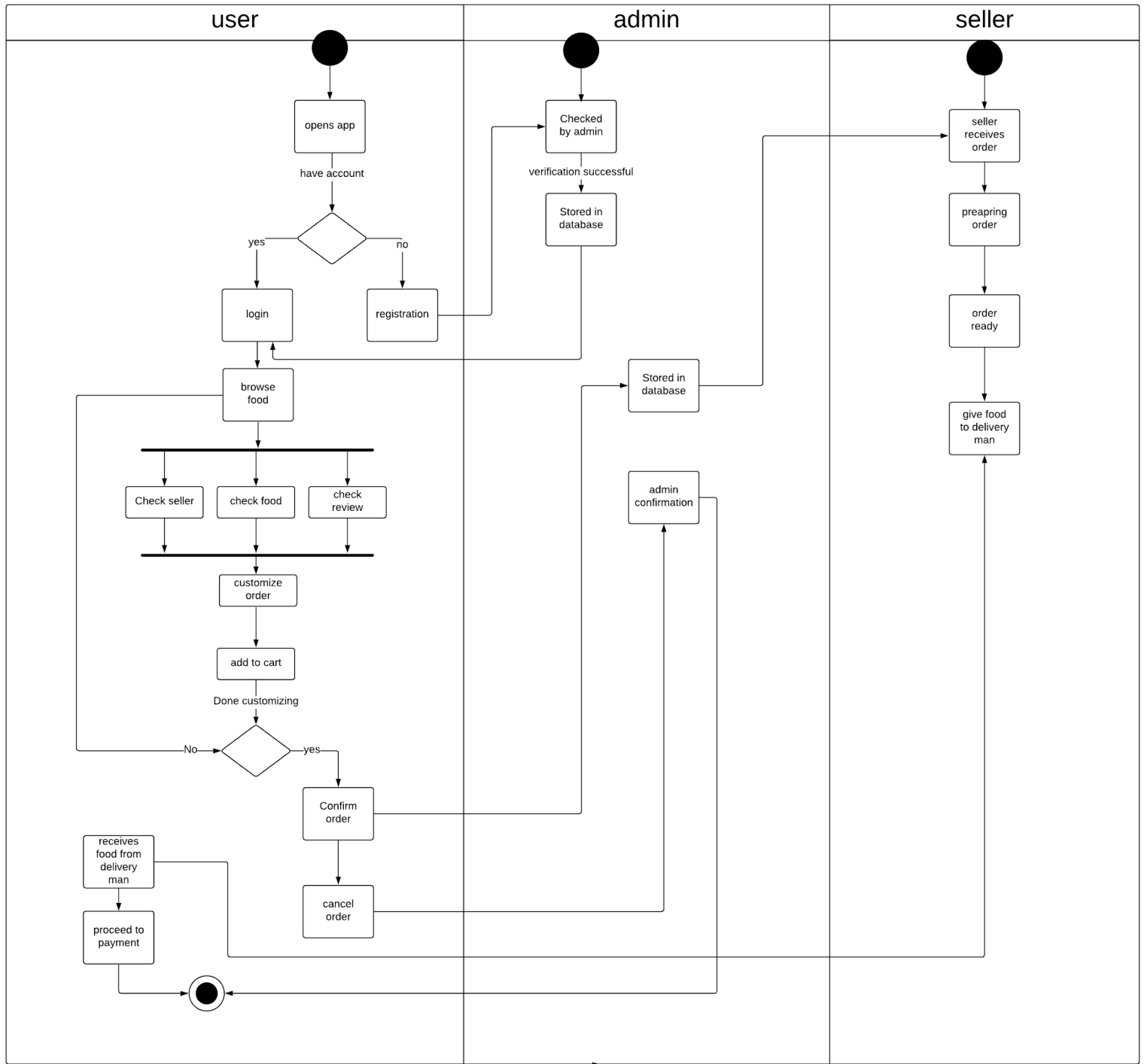
2. Activity Diagram

Activity Diagram: Order Place & Manage

The first activity diagram is the part where use is registering and logging in. Admin is verifying and storing user data. The user is browsing the menu and can see the seller, food and review then customize and place an order. The admin is managing the order and passing it to the seller.

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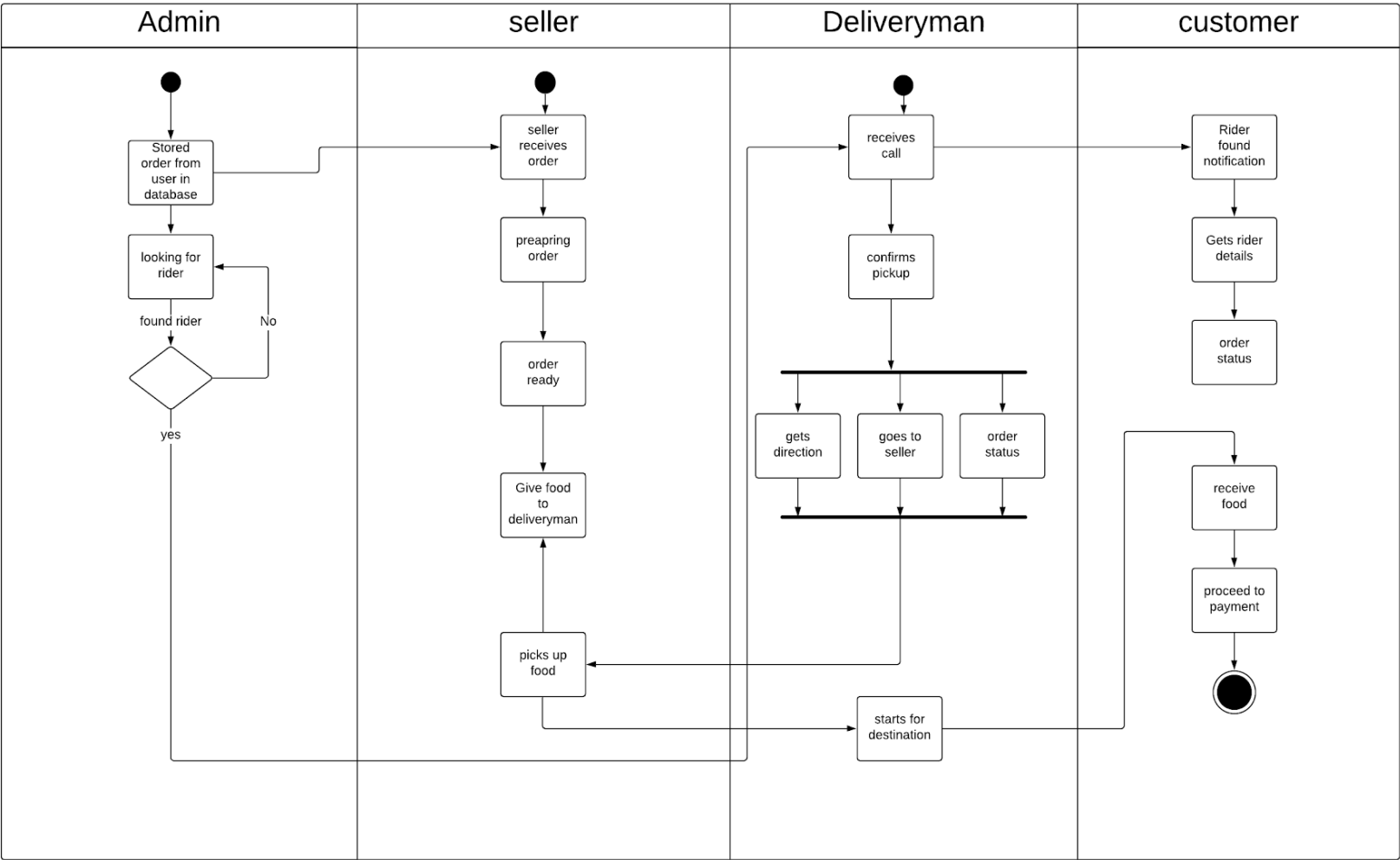


2.1 Activity Diagram

Activity Diagram: Delivery Process

The second diagram shows how the admin is simultaneously searching for a deliveryman and passes the user order data to the delivery man who receives the call. Along with that, the admin also sends the data of the delivery man to the customer. Delivery man receives the call and can also see the direction plus order details.

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3. Sequence Diagram

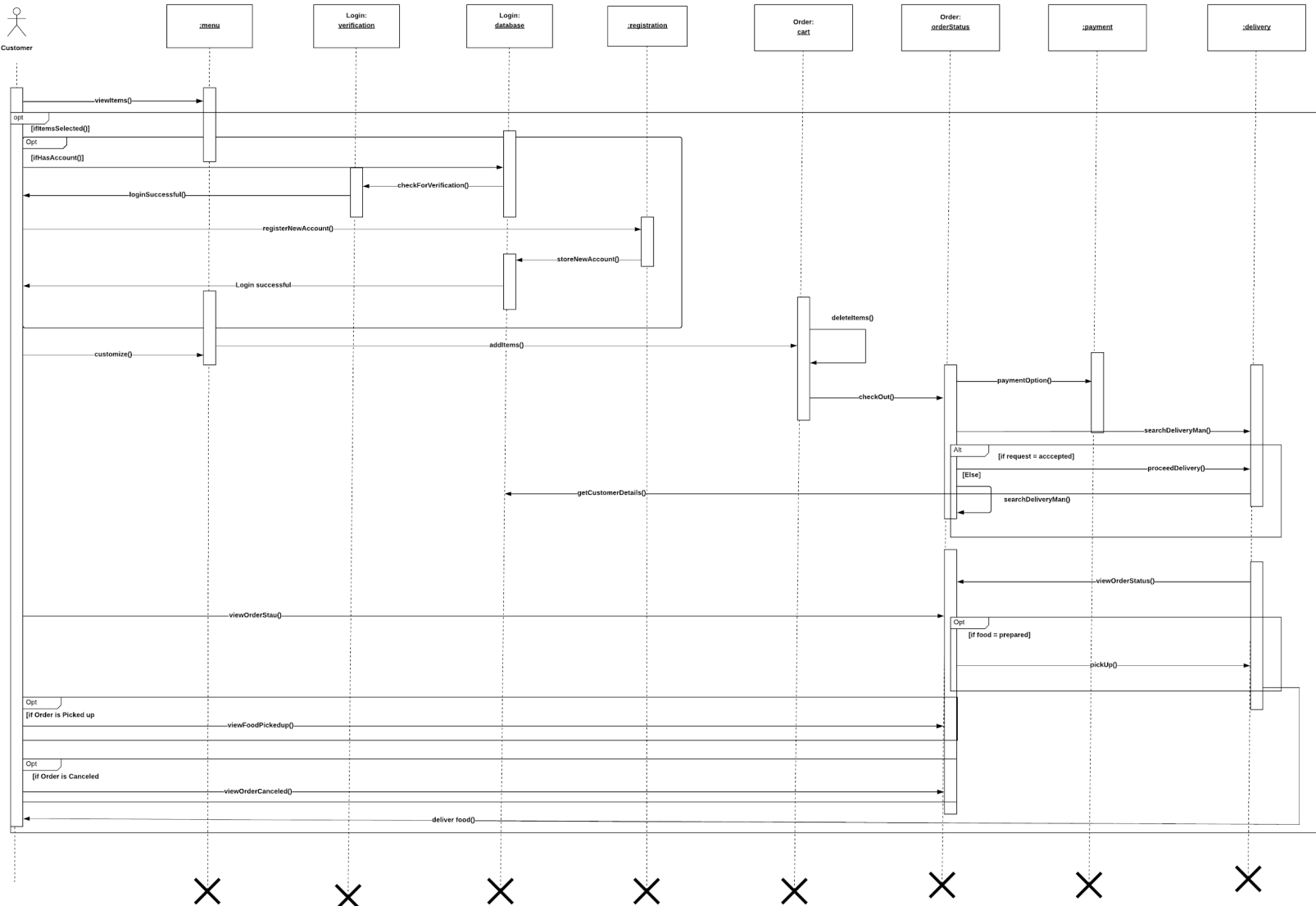
Sequence Diagram: Login, Order Place & Manage

The first sequence diagram shows the calls from user to admin. The user is creating an account, placing orders, customizing, and can cancel orders too. On the other hand, the admin is storing data, looking for a delivery man.

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SEQUENCE DIAGRAM [for customization and order]



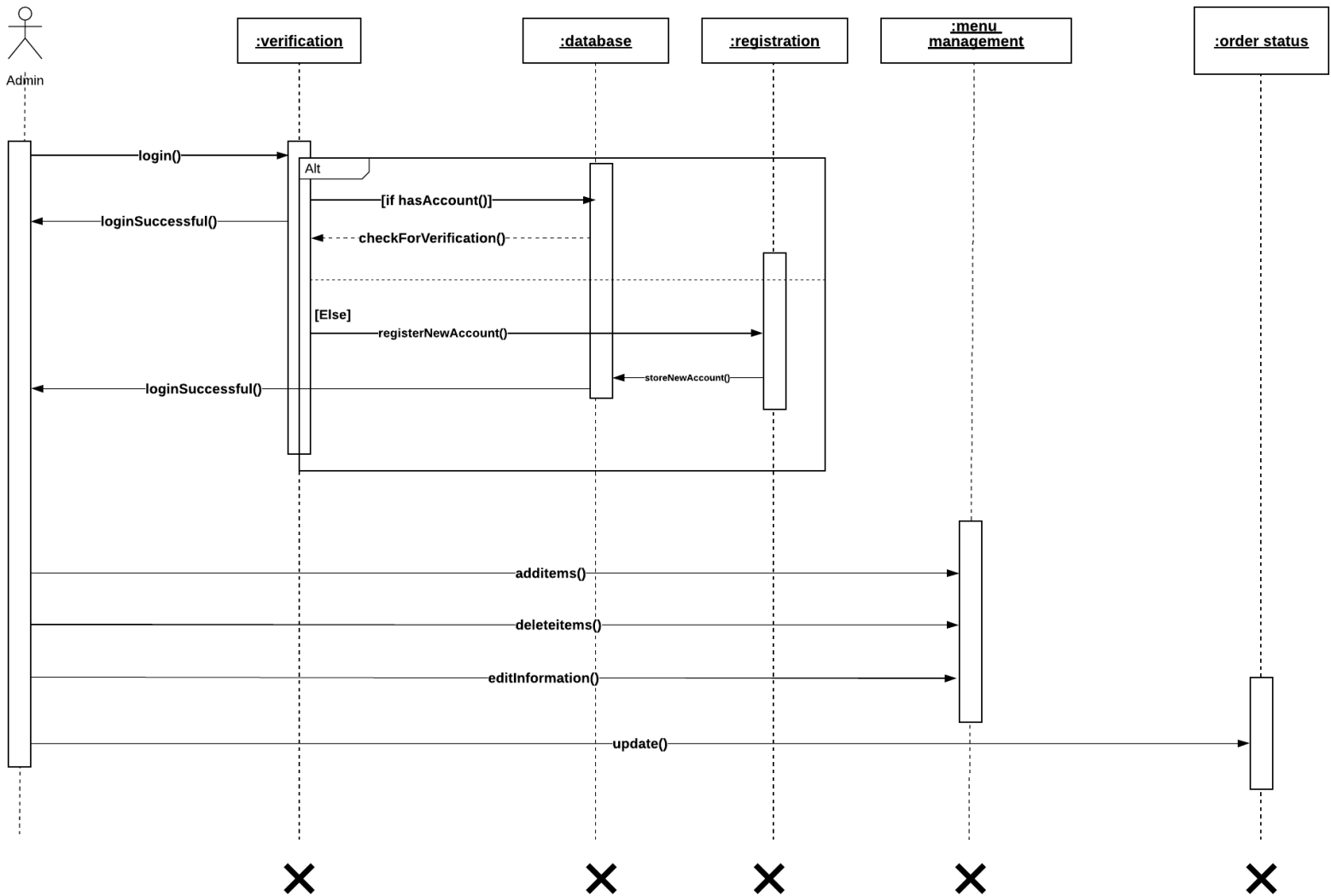
3.1 Sequence Diagram

Sequence Diagram: Admin Managing The System

The second diagram is about the admin managing the system. From data storing to managing, menu management, and everything here is controlled by admin.

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SEQUENCE DIAGRAM (for Admin)

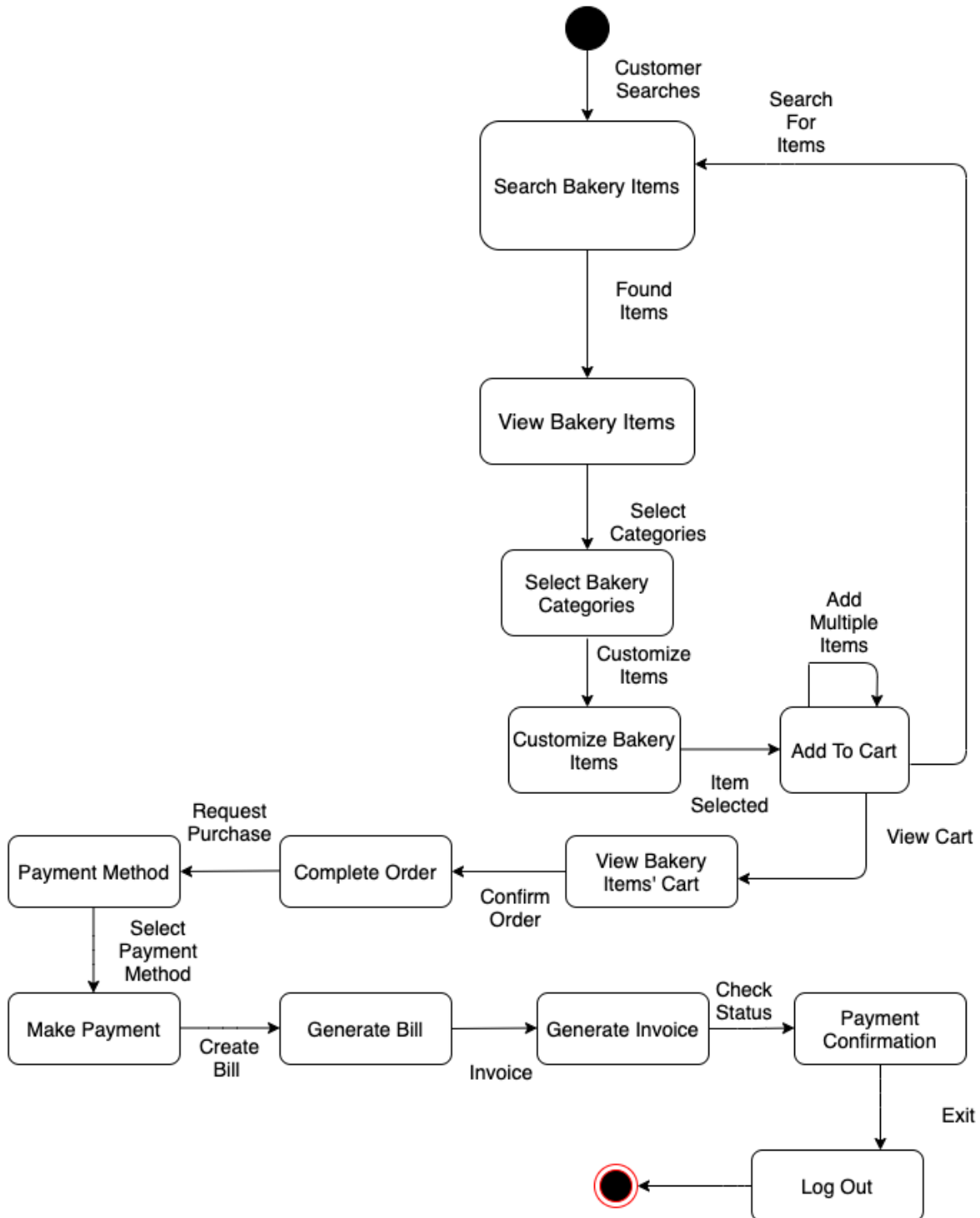


4. State Machine Diagram

This diagram represents the custom order by viewing & selecting items categorically and the payment process of the Custom Bakery Order System. After a customer visits the Custom Bakery Order site by logging in, the customer will be able to view all the items after searching for bakery items. whenever a customer searches for an item & when the item is found they'll go to the 'view item' state. After selecting bakery categories, there is a new state named 'customize bakery item' where they can easily place custom orders according to their suitable preferences. Right after selecting customize bakery items, they'll go to another state where they can add items to their cart & if they want more items, they can go back to the 'search bakery item' state for searching those items to place custom orders. Then when the customer is done with adding bakery items to the cart, he can view his cart & then complete the order, which is another state in the diagram. Furthermore, after completing the order, the customer can request for a payment method. When a payment method is selected, the customer is able to go to the 'make payment' state and complete his payment. Adding to that, the customer can proceed to the 'generate bill' & 'generate invoice' states. Finally, completing the payment procedure, the customer can check payment confirmation & then he can log out from the system.

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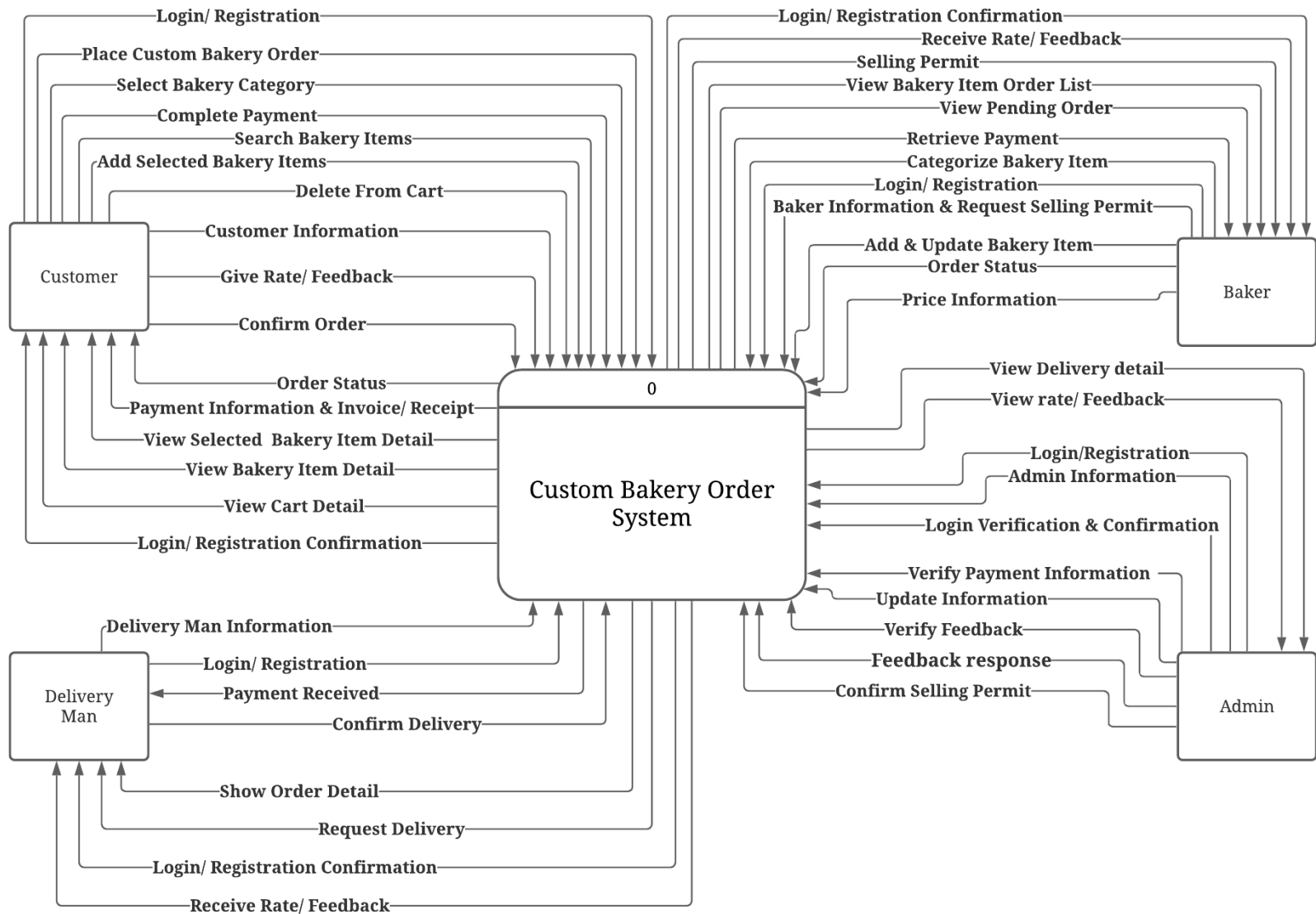


5. Data Flow Diagram (Context):

This diagram represents the process of the Custom Bakery Order System and how the data flow is distributed to different external agents(customer, admin, baker, delivery man). In the below DFD(context) diagram, the customer, baker, delivery man & admin provide login/ registration & their necessary information to the Custom Bakery Order System. The system provides each user with a login confirmation to access the site. The customer will be able to search bakery items & select their desired category & add them. The system will show selected bakery items and all the bakery item details. Additionally, it will show the cart details while confirming their final order. Payment information will be generated & the site will generate an invoice/ receipt user. Customers will be able to give rates/ feedback. Moreover, bakers will also be able to login/ registration & the system will provide a login confirmation. The baker will give the necessary information & request for selling permits to the system. The system will generate a selling permit to confirm a baker to sell their baked items. The system will show the bakery items order list as well as pending orders. The baker needs to categorize bakery items in the system. As the bakers are in charge of selling their items so they should also be able to add & update bakery items. They can update the order system & price information into the system. Furthermore, the delivery man can log in/ registration into the system & will get login confirmation. The system will receive information from the delivery man. The system will generate a request for the delivery to the delivery man by providing order details. After the delivery, the delivery man will confirm the delivery process to the system & confirm his received payment. Lastly, the admin will give login/registration & provide information. Moreover, he will provide login verification & confirmation to the system. Verification of payment information & feedback will be provided by the admin. The system will receive confirmation of selling permit from the admin & the admin will continuously update the information to the system. On the other hand, the system will show delivery details & will also show rate/ feedback to the admin.

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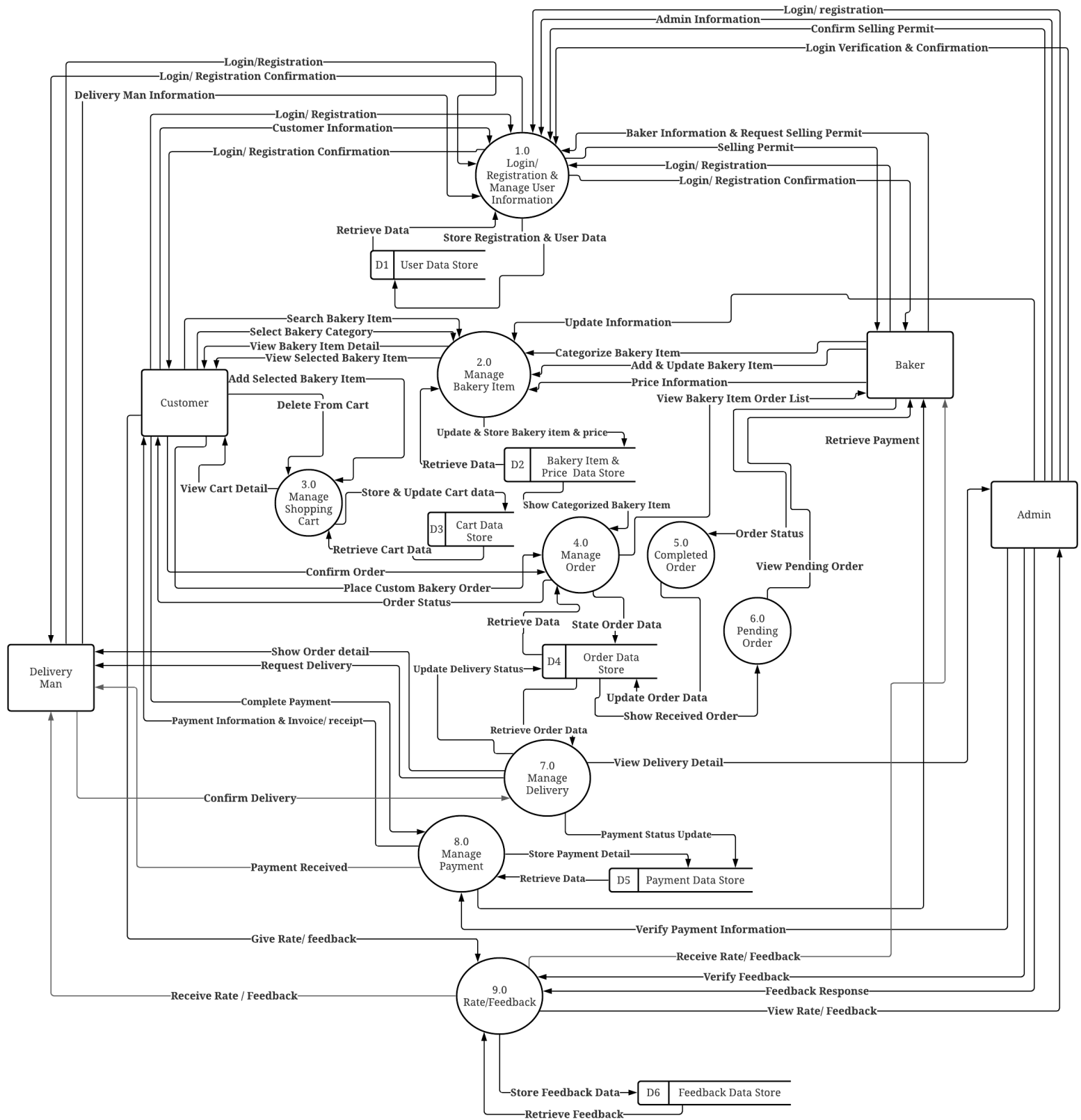


5.1 Data Flow Diagram (Level 1):

This diagram represents the process of the Custom Bakery Order System and how the data flow is distributed to different external agents(customer, admin, baker, delivery man) and data stores. The Level 0 diagram has been decomposed to level 1 DFD and then for necessary data flow distributions we needed to decompose level 1 DFD into several sub-processes. In level 1, the user(customer, baker, delivery man, admin) all provide login/ registration information in the login/ registration process & it gets stored sequentially in the user database. The admin will provide login/ registration verification & the system will retrieve data from the user database. After login confirmation, the customer will be able to view and select items. They can place custom orders & complete payments. They can also give feedback to the system. The bakers can edit items categorically, price info, order status. They can only sell bakery items when they get a selling permit from the process. They can receive feedback from the process. The system will request for the delivery man to confirm delivery by providing order details. The delivery man will be able to retrieve payment and receive feedback. The admin will check and verify important information, perform the administrative functions and provide information to the system. Lastly, Data can be retrieved from the data stores and necessary data can be stored and updated in the data stores.

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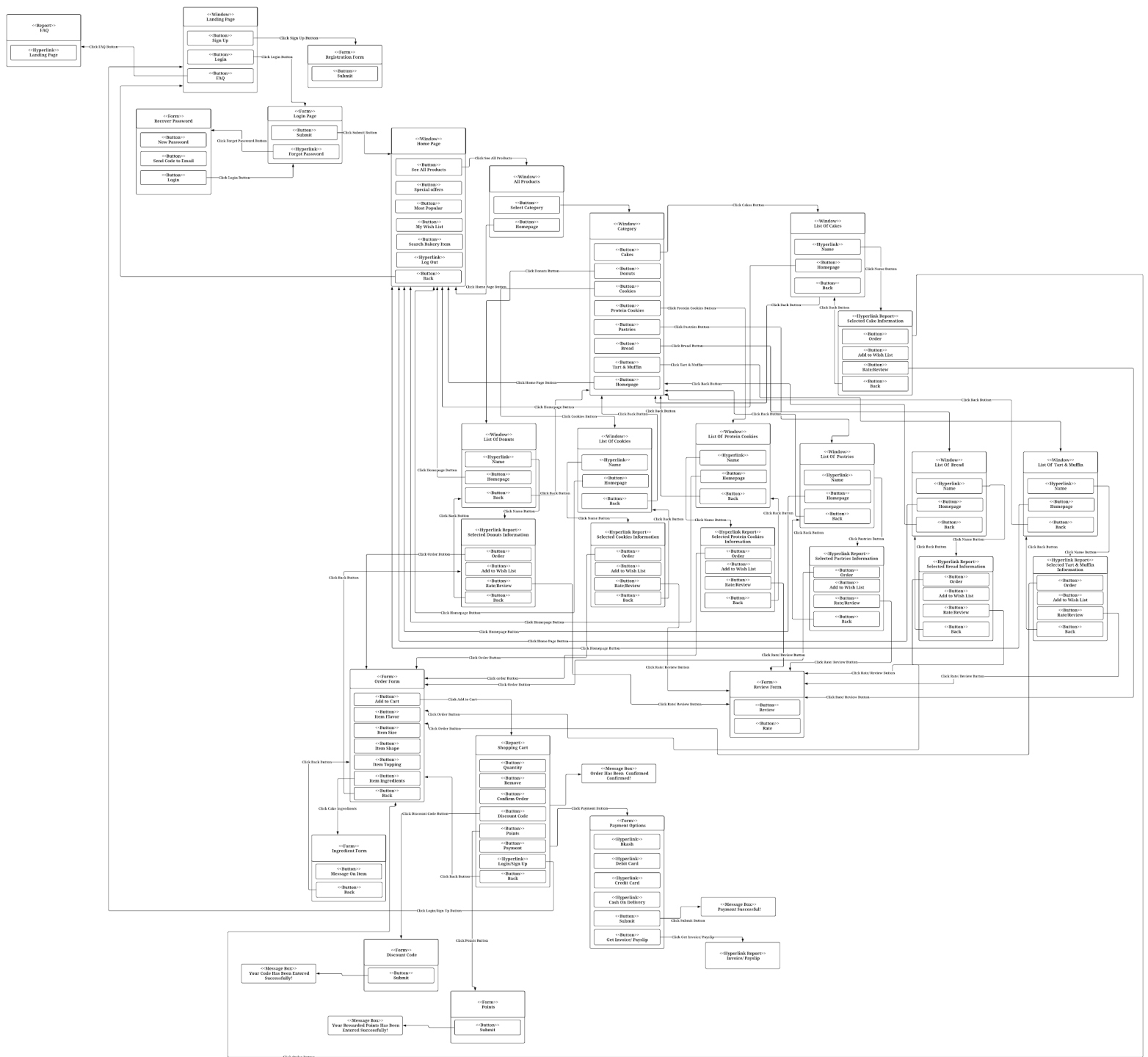
6. Windows Navigation Diagram

Windows Navigation Diagram(For Customer):

The first WND diagram shows the system from the customer's point of view. The diagram represents how a customer can log in/register into the system & search for bakery items to select and place a custom order by completing the payment procedure and receiving an invoice/ receipt from the system. Firstly, the WND diagram shows a landing page where a user can either log in or sign up for a new account and view the FAQ page for any queries. Then the customer can view the home page of the "Bake & Bake" application. On the homepage, he can view all the bakery products, most popular items, special offers and search for more bakery items. By selecting the "See all Products" button, he will be able to go to a window interface where he can select categories of bakery items. If he selects a category, then he will be taken to a window where he can only view his selected category item list. If he presses any item's name he will be redirected to a hyperlink report where can view all the necessary information regarding that bakery item. There he can also place a custom order by visiting an order form where he can actually be able to order by flavors, toppings, sizes, shapes, and even by writing a short message where he can write his preferred ingredients. After confirming his order he can view his cart and get ready for selecting a payment method. Furthermore, after completing payment he can get the invoice automatically. Adding to this, necessary confirmation, for example, order confirmation message, payment confirmation message, as well as discounts code/ points confirmation message, will be seen by the customer for convenience.

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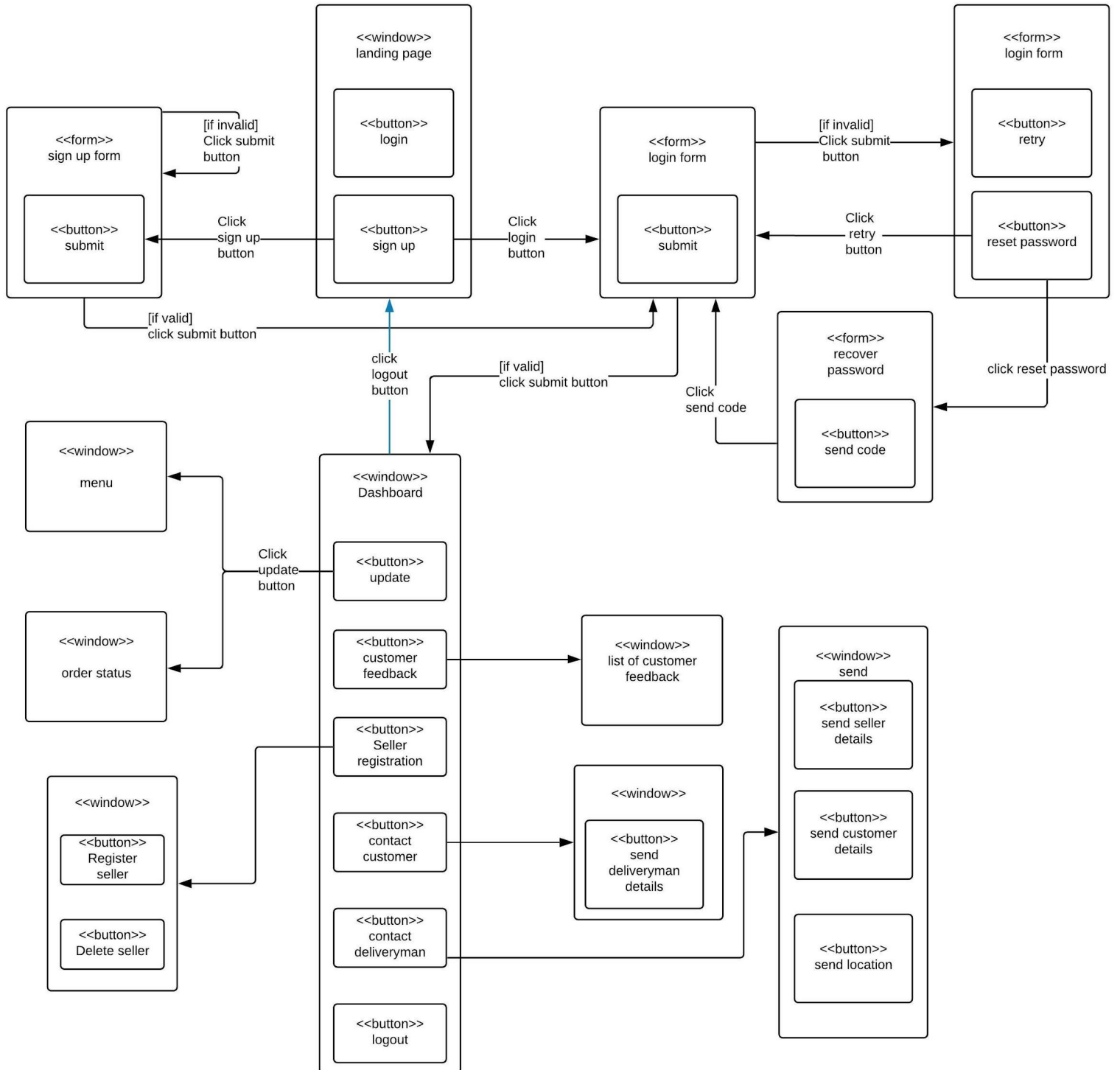


6.1 Windows Navigation Diagram

Windows Navigation Diagram (For Admin):

This WND shows the system from the admin's perspective. Here, the admin is doing registration and login and then can view the dashboard where all of his works are shown with proper buttons and windows.

WND diagram for Admin



Conclusion

“Bake & Bake” is an online bakery shop platform where anyone can start to sell their baked goods. What makes their baked goods unique is the highly customized baked goods that they offer. The online platform will provide users to customize their different types of bakery items by flavors, toppings, sizes, and even by ingredients so that all kinds of people can enjoy their favorite homemade bakery products. Moreover, many talented home bakers can get recognition for their amazing baking talent. “Bake & Bake” prides itself in exceptional customer service for being able to make delicious custom-made-to-order different types of bakery items for all kinds of events & gatherings. In conclusion, we need to pay attention to our customers’ needs & their feedback in order to make the platform more sustainable & successful.

-Thank You-