

Project – Part 2 (Group Project, 18 Marks)

Group #5:

| Student ID | Name | Surname |
|------------|--------------|---------|
| 202219102 | Xiaoyuanying | Kuang |
| 202219015 | Jun | Qi |
| 202219044 | Yueheng | Wang |
| 202219072 | Fanghua | Dai |
| 202219077 | Jiayi | Li |

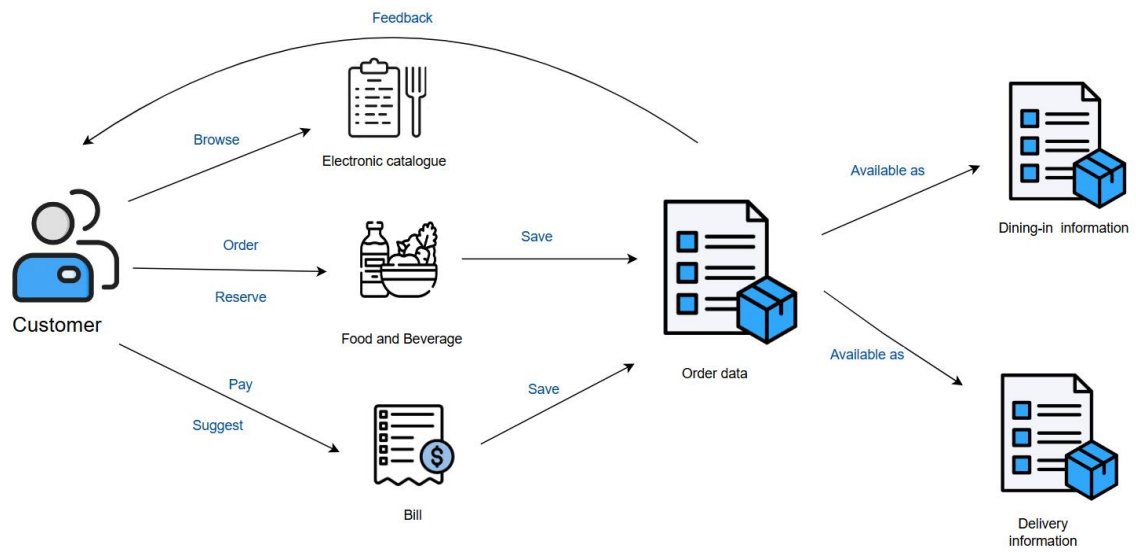
Case Study

High-tech Restaurant.

The restaurant maintains an electronic catalogue for the list of food and beverage items that it provides. Meal customization is supported. Customers are provided by a unique APP to **order food and pay bill** on premises, to order online and to make bookings. An extended customer record is maintained, so it is possible to build a profile for the different customers. **Data collection** includes traditional user data (e.g. requested meals/beverages) integrated with additional data (e.g. time of purchase or visit, number of people attending, etc.) to increase the profile accuracy. Premium customers are awarded with discounts, as well as **customised offers** based on the profile generated are periodically sent to customers. The platform is connected to **suppliers** and provides an automated estimation of food/beverage requests through an external AI-powered service. These requests are validated by the manager in the system and, then, is automatically sent to the different providers. A similar service is available to connect food **delivery** services: a delivery request received through the restaurant APP can be automatically forwarded to the delivery company.

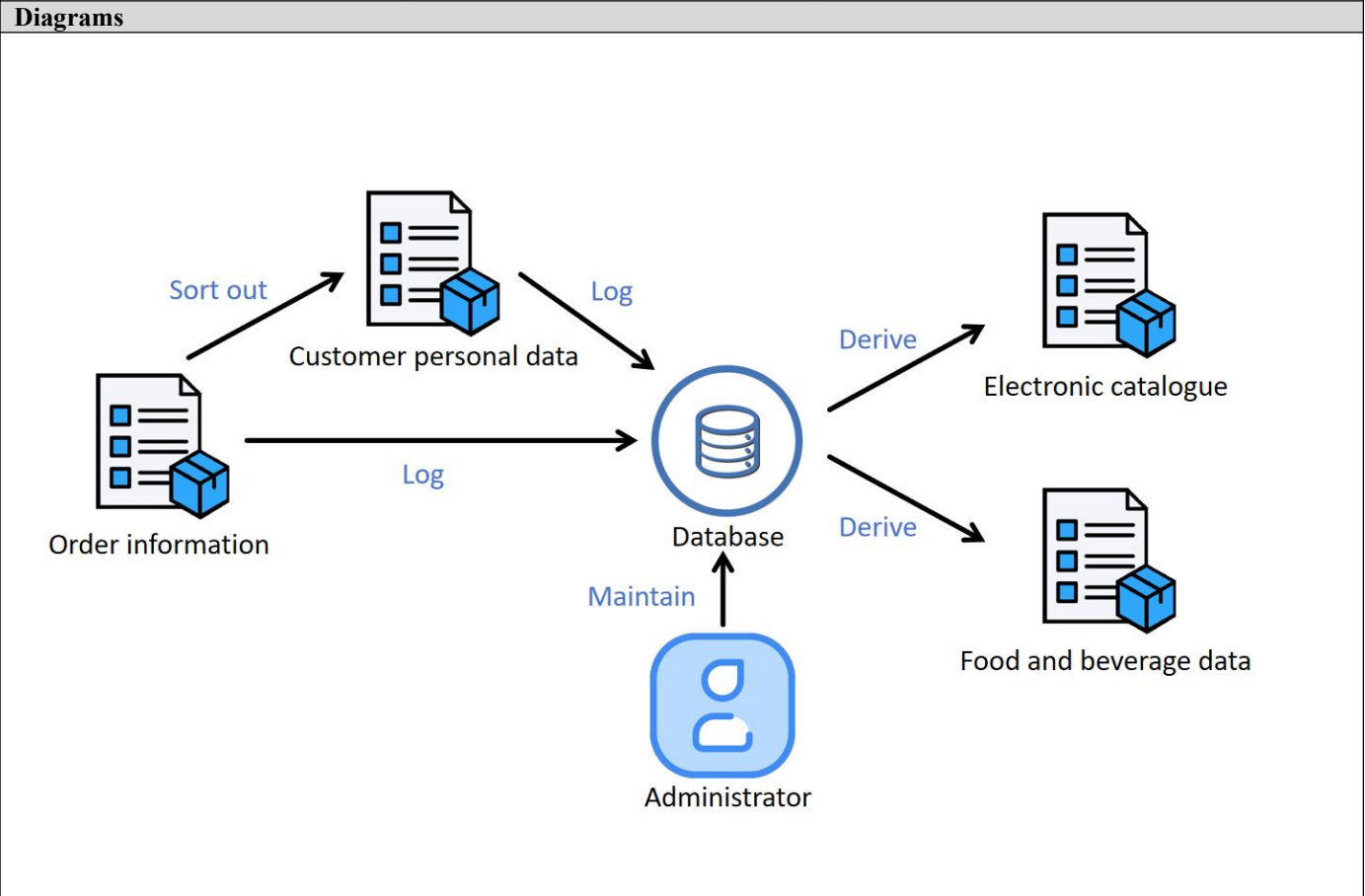
1.1 Key Operations (Individually assessed, 1 marks)

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| Sub-system ID: #5-1 <i>Ordering and Reservation System</i> | | Student: Jun Qi (202219015) |
| Epic: As a customer , I want to use the app for ordering and reservations so that I can enjoy a seamless dining experience. | | |
| User Story ID | User Story | Functionality |
| Restaurant.Order.us1 | <i>As a customer, I want to browse the electronic menu in the app so that I can see the food and beverage options available at the restaurant.</i> | RestaurantCustomer.MealSelection |
| Restaurant.Order.us2 | <i>As a customer, I want to securely pay my bill through the app so that I can complete the transaction quickly and avoid waiting in line.</i> | RestaurantCustomer.SafePay |
| Restaurant.Order.us3 | <i>As a customer, I want to place online orders through the app and customize my meals as needed so that my personal preferences are accurately conveyed to the kitchen.</i> | RestaurantCustomer.MealSelection |
| Restaurant.Order.us4 | <i>As a customer, I want to reserve a table through the app and receive confirmation so that I can easily plan my visit.</i> | RestaurantCustomer.Reserve |
| Restaurant.Order.us5 | <i>As a customer, I want to provide feedback on my dining experience through the app so that the restaurant can improve its service.</i> | RestaurantCustomer.Feedback |
| Restaurant.Order.us6 | <i>As a customer, I want the app to recommend dishes based on my order history and preferences so that I can discover more foods that I might like.</i> | RestaurantCustomer.MealSelection |
| Restaurant.Order.us7 | <i>As a customer, I want to modify my food selections before confirming the order so that I can ensure I get the food I want.</i> | RestaurantCustomer.MealModification |
| Restaurant.Order.us8 | <i>As a customer, I want to view my order history in the app so that I can quickly repeat my previous favorite orders.</i> | RestaurantCustomer.OrderHistory |
| Restaurant.Order.us9 | <i>As a customer, I want to receive push notifications in the app about my reservation confirmation and the status of my food preparation so that I can stay informed.</i> | RestaurantCustomer.Notification |
| Restaurant.Order.us10 | <i>As a customer, I want to choose different payment methods (such as credit card, Alipay, or WeChat Pay) when paying the bill so that I can select the most convenient payment option.</i> | RestaurantCustomer.PaymentOptions |
| Diagrams | | |



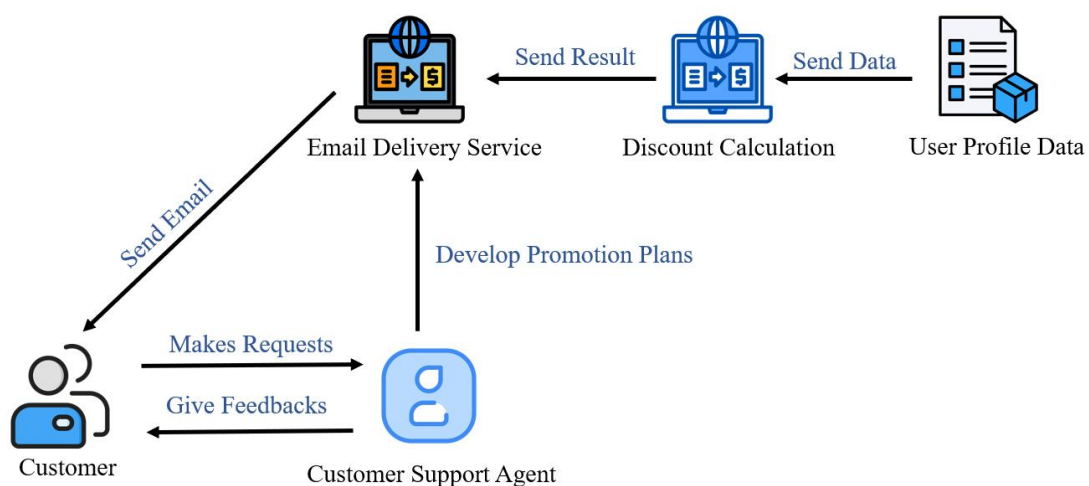
Ordering and Reservation Subsystem

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| Sub-system ID: #5-2 <i>Database Subsystem</i> | | Student:Fanghua Dai (202219072) |
| Epic: As an administrator, I want to be able to store and export information efficiently and securely so that the restaurant can operate more rationally, while improving productivity and preventing data loss or leakage. | | |
| User Story ID | User Story | Functionality |
| Restaurant.Database.us1 | <i>As an administrator, I want to be able to view order information in real time, including order number, customer name, menu list, order time, estimated delivery time, etc., so that I can assign tasks as needed.</i> | Restaurant.Database.OrderReview |
| Restaurant.Database.us2 | <i>As an administrator, I hope to export data from the database in real time, so that I can view or update the restaurant's data in time.</i> | Restaurant.Database.Real-timeOperation |
| Restaurant.Database.us3 | <i>As an administrator, I want to be able to store customer profiles in the database in order to develop personalized marketing strategies and increase customer loyalty.</i> | Restaurant.Database.FileStorage |
| Restaurant.Database.us4 | <i>As an administrator, I want to be able to export food and beverage information in the database so that I can quickly find and verify the safety of ingredients when needed, ensure that the food served by the restaurant meets safety standards, and be able to quickly trace the source of food safety problems when they occur.</i> | Restaurant.Database.DataExport |
| Restaurant.Database.us5 | <i>As an administrator, I hope I can easily maintain the database to ensure the accuracy and security of the data in the database.</i> | Restaurant.Database.DataMaintenance |

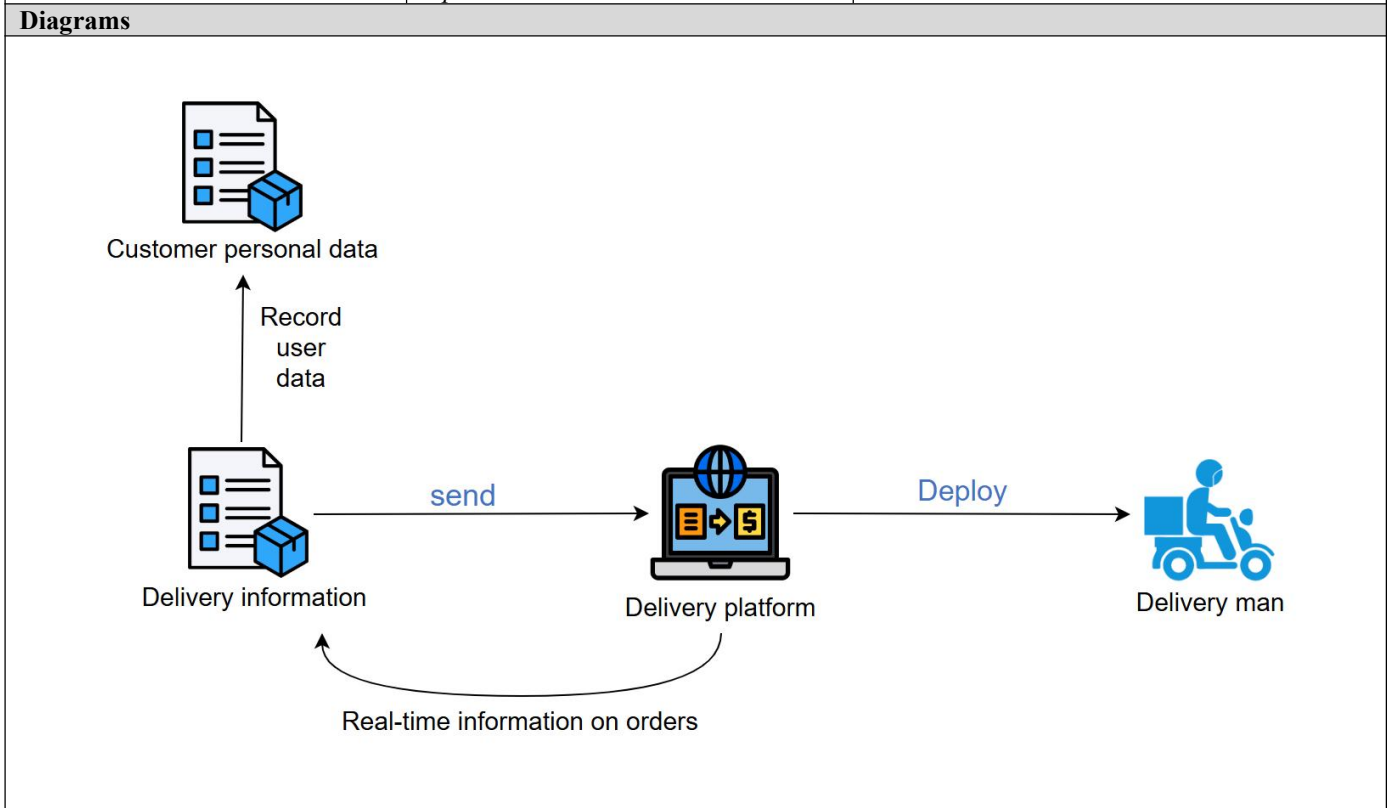


| Sub-system ID: #5-3 <i>Customer Service Subsystem</i> | | Student: Jiayi Li (202219077) |
|---|--|--|
| Epic: As a customer , I want the restaurant to provide high-quality and efficient customer service so that I can enjoy a good dining experience and save my time . | | |
| User Story ID | User Story | Functionality |
| Restaurant.Customer Service.us1 | <i>As a customer, I hope that the restaurant will regularly send me discounts or new product promotion information via email so that I can participate in the activities I want to participate in in time.</i> | Restaurant.Customer Service.SendDiscounts |
| Restaurant.Customer Service.us2 | <i>As a customer, I want to receive personalized offers from restaurants so that I can save money.</i> | Restaurant.Customer Service.ProvidePersonalizedOffers |
| Restaurant.Customer Service.us3 | <i>As a customer, I want to quickly get answers to the questions about the restaurant so that I can make decisions quickly and save my time.</i> | Restaurant.Customer Service.HandleQueries |
| Restaurant.Customer Service.us4 | <i>As a customer, I want my complaints to be quickly resolved so that I can maintain a good mood and enjoy a good dining experience.</i> | Restaurant.Customer Service.ResolveComplaints |
| Restaurant.Customer Service.us5 | <i>As a customer, I hope to be able to propose my customized needs to the restaurant, so I can enjoy a dining experience fitted to my specific preferences.</i> | Restaurant.Customer Service.ProposeCustomizedDemands |
| Restaurant.Customer Service.us6 | <i>As a customer, I hope to receive the customized needs solution formulated by the restaurant customer service in a timely manner, so I can plan my dining experience without unnecessary delays</i> | Restaurant.Customer Service.ProvidePlan |

Diagrams



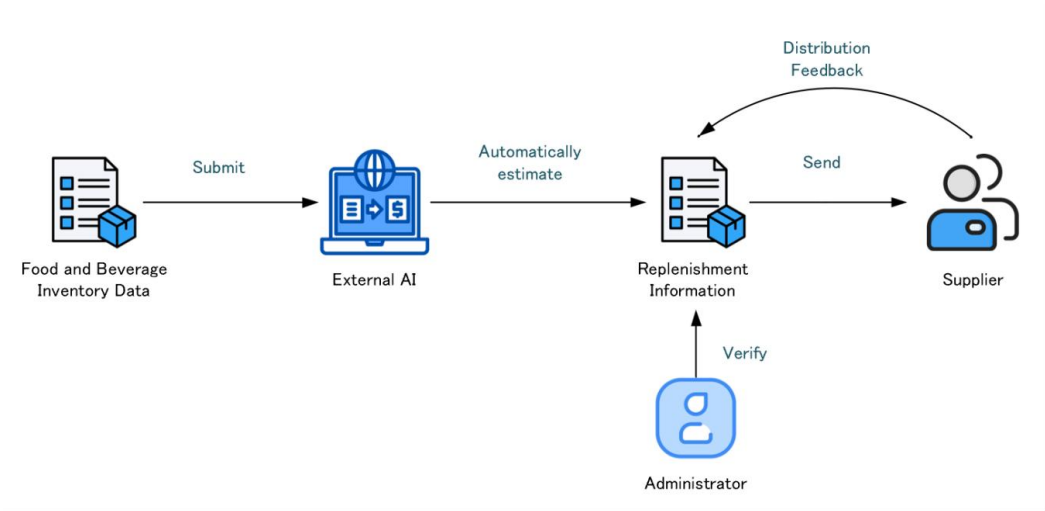
| | | |
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| Sub-system ID: #5-4 Delivery System | | Student: Yueheng Wang(202219044) |
| Epic: As a customer,I want to have the same quality of service and convenience as I order in the restaurant. I hope I can easily browse the menu, place orders and track my orders on the restaurant app, and enjoy efficient and satisfactory delivery services. | | |
| User Story ID | User Story | Functionality |
| Restaurant.Delivery.us1 | <i>As a customer, I want to be able to view all of the restaurant's dishes on the app when I order takeout.</i> | Restaurant.Delivery.ViewDetails |
| Restaurant.Delivery.us2 | <i>As a customer, I want to be able to see the estimated delivery time and delivery cost before I place an order so I can make a more informed choice.</i> | Restaurant.Delivery.ViewDetails |
| Restaurant.Delivery.us3 | <i>As a customer, I would like to be able to modify my order information, such as the delivery address and contact number, after the order is placed, and correct any errors before the delivery arrives.</i> | Restaurant.Delivery.ModifyInformation |
| Restaurant.Delivery.us4 | <i>As a customer, I hope to see the real-time status of my order, such as whether the order has been served and the current location of the order, so as to reduce my anxiety in waiting for the order, unnecessary communication with the restaurant, and improve my convenience.</i> | Restaurant.Delivery.ChechStatus |
| Restaurant.Delivery.us5 | <i>As a customer, I hope to evaluate the restaurant and delivery staff after the order is completed, so as to help more users understand the relevant service experience.</i> | Restaurant.Delivery.Feedback |



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| Sub-system ID: #5-5 <i>Supply Management Subsystem</i> | | Student: Xiaoyuanying Kuang (202219102) |
| Epic: As a supplier , I want to receive timely and accurate replenishment requests from the restaurant system so that I can fulfill replenishments efficiently , maintain a good business relationship, and optimize my delivery schedule . | | |
| User Story ID | User Story | Functionality |
| Restaurant.Supply.us1 | <i>As a supplier, I want to receive automated replenishment notifications from the restaurant so that I can process and prepare deliveries without delays.</i> | Restaurant.Supplier.NotifyReplenishment |
| Restaurant.Supply.us2 | <i>As a supplier, I want to view detailed replenishment information (e.g., quantities, delivery time, and special instructions) so that I can ensure accurate and timely fulfillment of the restaurant's needs.</i> | Restaurant.Supplier.ViewDetails |
| Restaurant.Supply.us3 | <i>As a supplier, I want the replenishments I receive to be verified and accurate, so that I can avoid mistakes in fulfilling the restaurant's supply requests and minimize returns.</i> | Restaurant.Supplier.VerifyAccuracy |
| Restaurant.Supply.us4 | <i>As a supplier, I want to confirm replenishment order receipt and estimated delivery times back to the restaurant so that the restaurant can adjust its internal inventory and plan accordingly.</i> | Restaurant.Supplier.ConfirmReceipt |
| Restaurant.Supply.us5 | <i>As a supplier, I want to receive notifications about changes or cancellations in replenishment orders so that I can adjust my logistics and resources to avoid wastage and ensure efficiency.</i> | Restaurant.Supplier.NotifyChange |
| Epic: As an administrator , I want the system to automatically estimate food and beverage demand using AI and connect with suppliers, so that I can approve and manage replenishment orders efficiently, ensuring timely supply replenishment without overstocking or shortages. | | |
| User Story ID | User Story | Functionality |
| Restaurant.Supply.us1 | <i>As an administrator, I want the system to automatically estimate the required quantity of food and beverages using AI based on historical data and trends, so that I can avoid overstocking or running out of essential items during peak times.</i> | Restaurant.Admin.EstimateDemand |
| Restaurant.Supply.us2 | <i>As an administrator, I want the system to generate automated supply requests for verified items, so that I can streamline the process of ordering from suppliers without manually calculating needs.</i> | Restaurant.Admin.GenerateRequests |
| Restaurant.Supply.us3 | <i>As an administrator, I want to review and approve automatically generated supply requests before they are sent to suppliers, so that I have full control over inventory decisions and can make adjustments if needed.</i> | Restaurant.Admin.ApproveRequests |
| Restaurant.Supply.us4 | <i>As an administrator, I want the system to automatically send replenishment orders to the most suitable suppliers based on</i> | Restaurant.Admin.SendToSupplier |

| | | |
|------------------------------|---|-------------------------------------|
| | <i>availability and pricing, so that I can ensure cost-effective procurement and timely deliveries..</i> | |
| Restaurant.Supply.us5 | <i>As an administrator, I want to monitor the status of the replenishment orders sent to suppliers in real-time, so that I can track the progress and ensure timely replenishment of stock.</i> | Restaurant.Admin.TrackStatus |

Diagrams



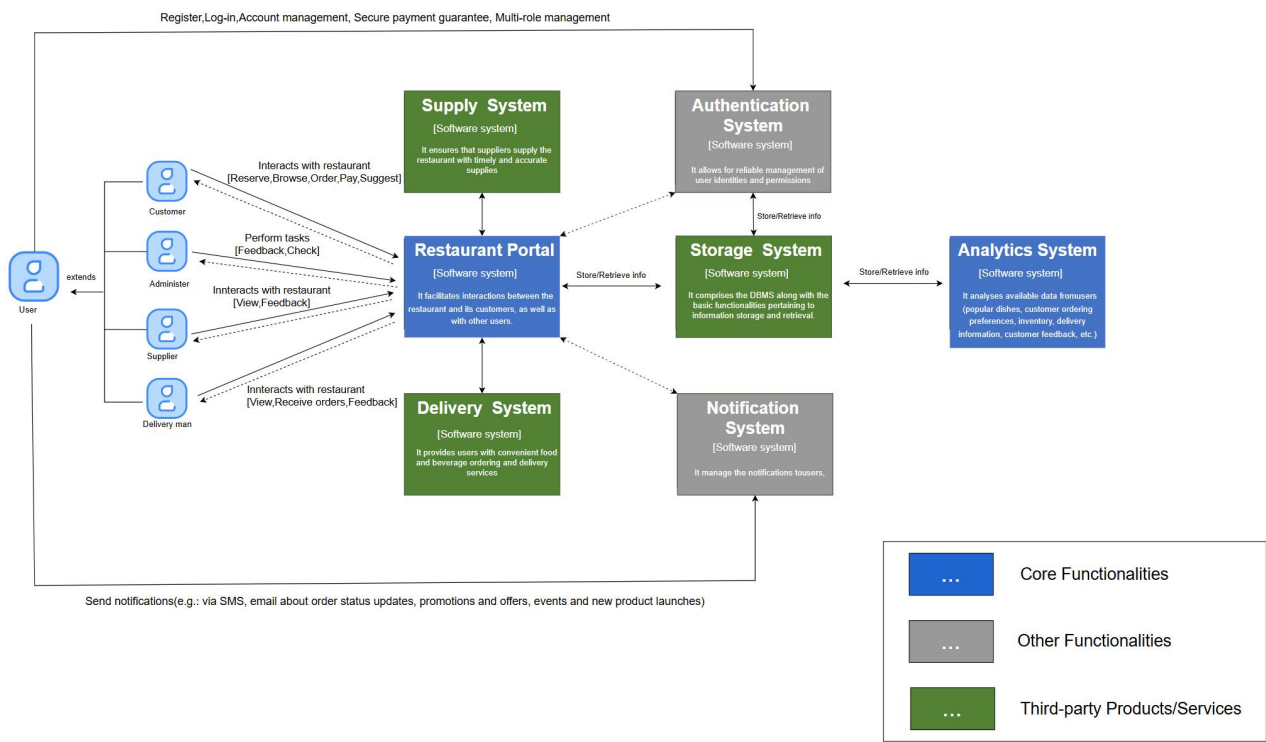
Notes:

Provide comments (if needed)

1. Software Architecture (Initial Design)

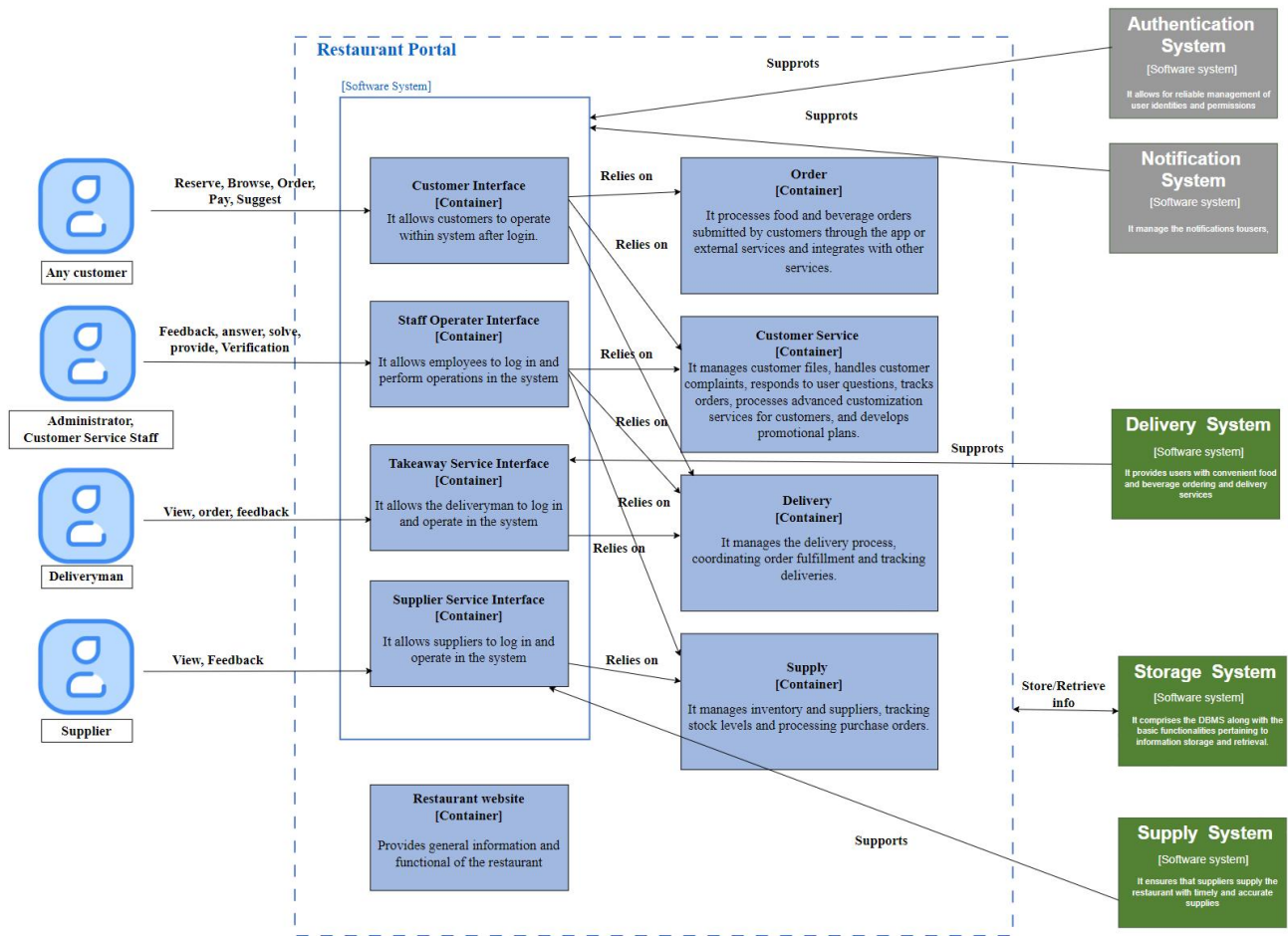
Level 1 & Level 2 (Group assessed, 9 marks)

Level 1

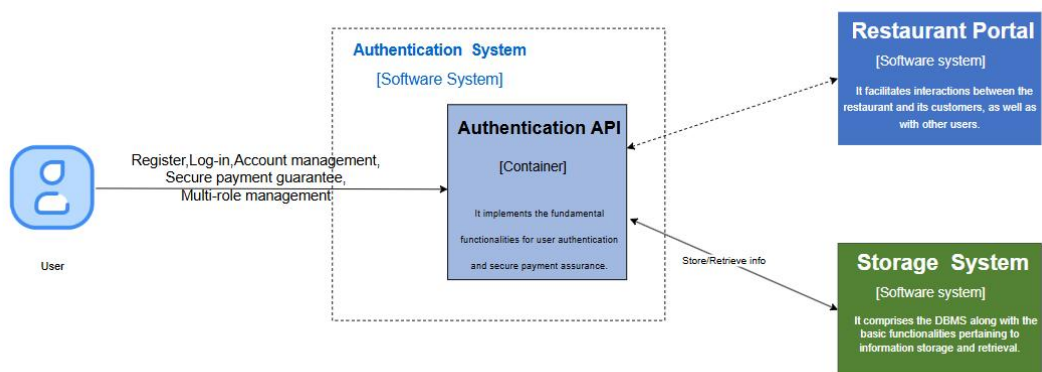


Level 2

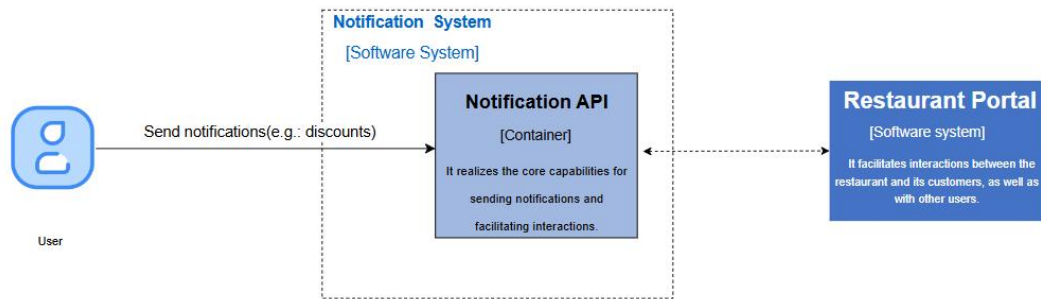
Restaurant Portal [Software System]



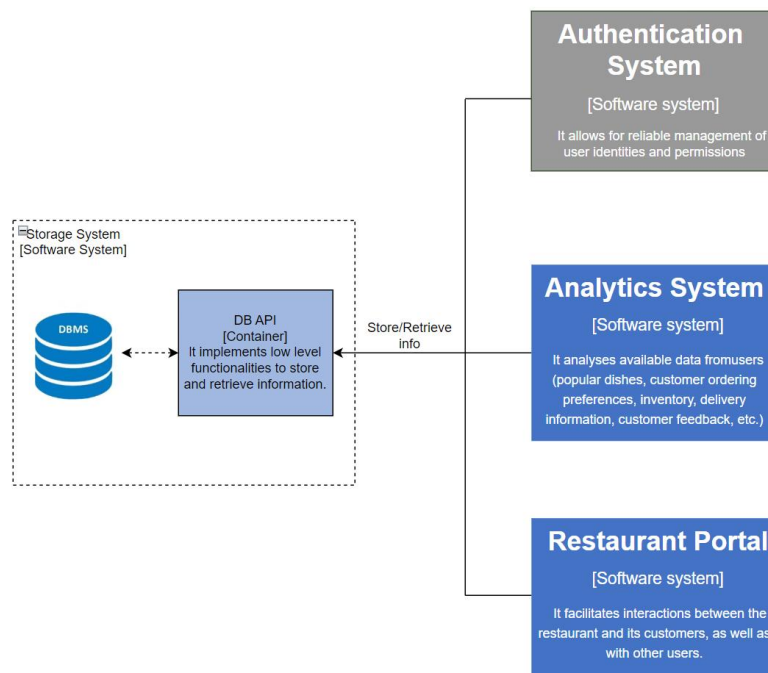
Authentication System [Software System]



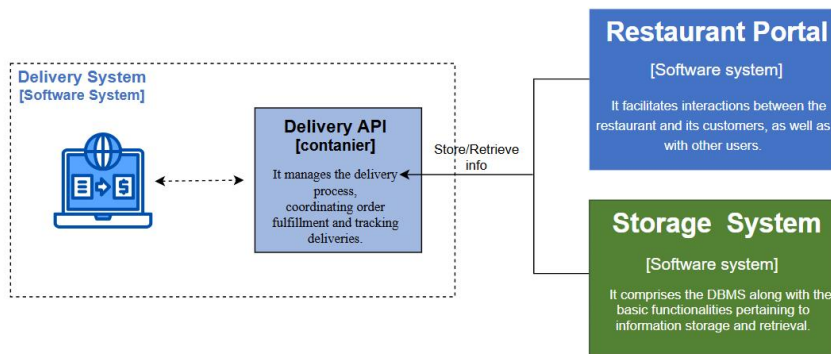
Notification System [Software System]



Storage System [Software System]

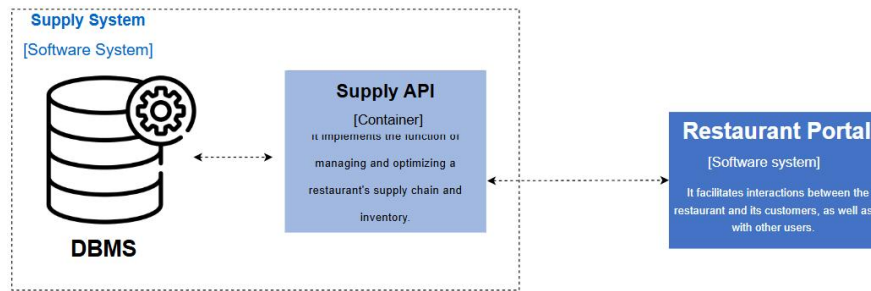


Delivery System [Software System]



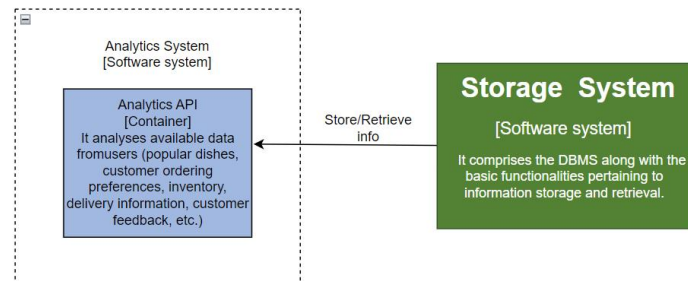
Supply System

[Software System]



Analytics System

[Software System]

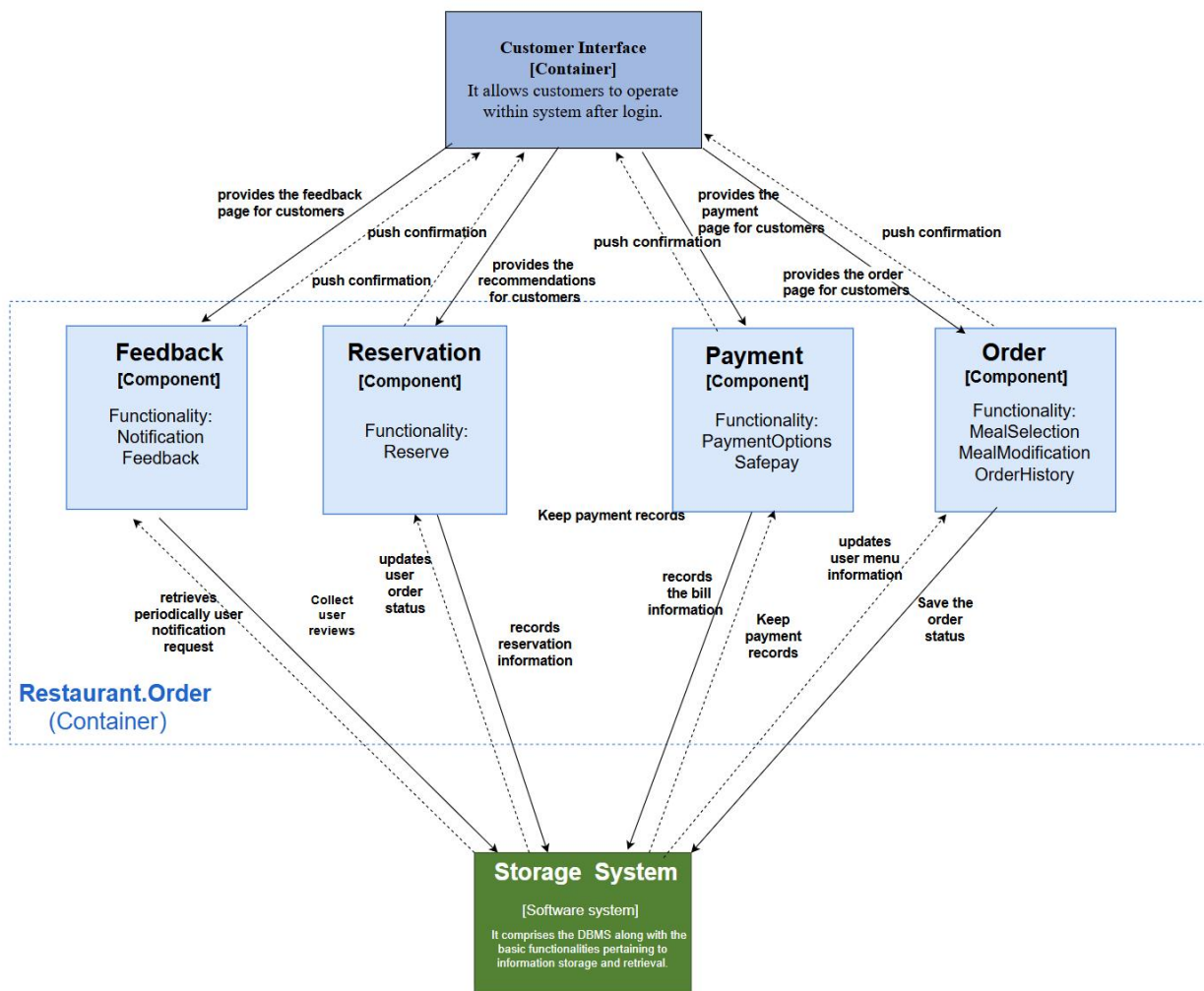


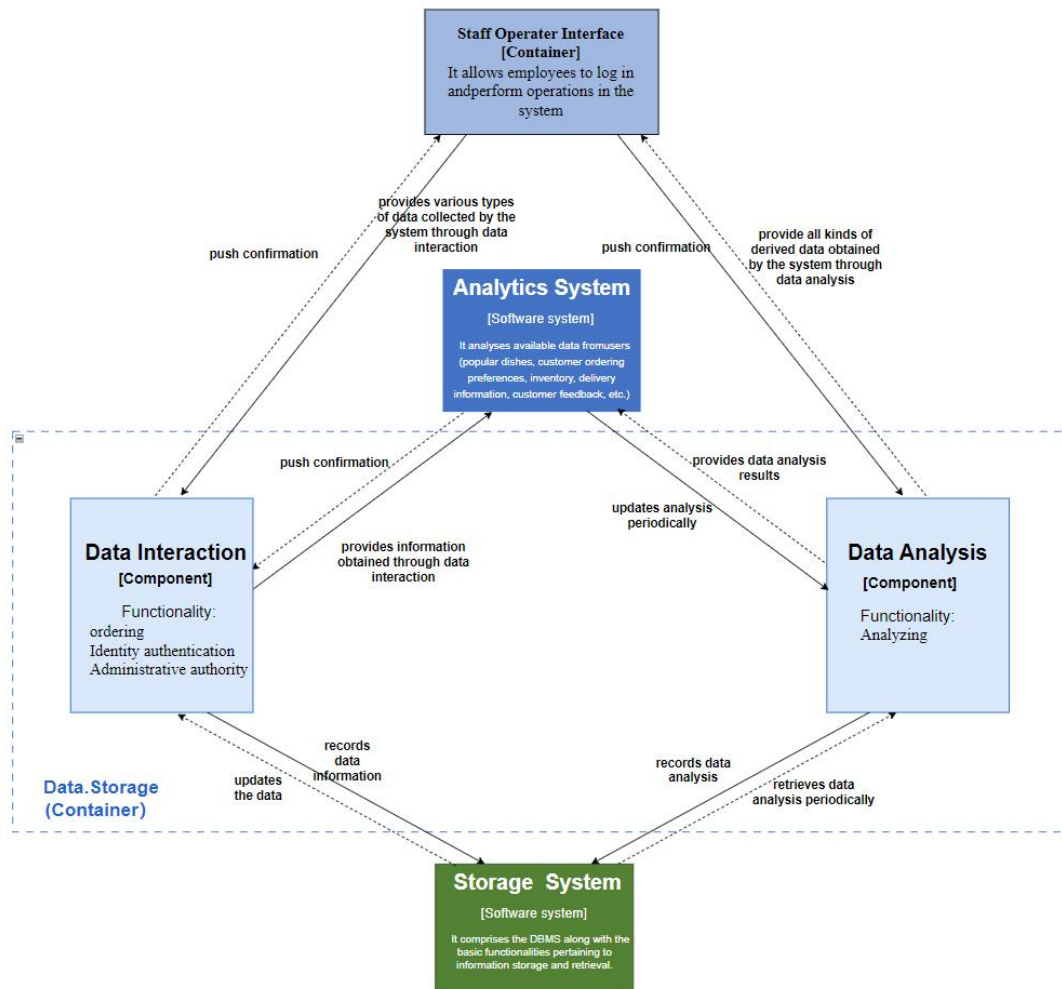
Level 3 (Individually assessed, 8 marks)

Level 3

Restaurant.Order

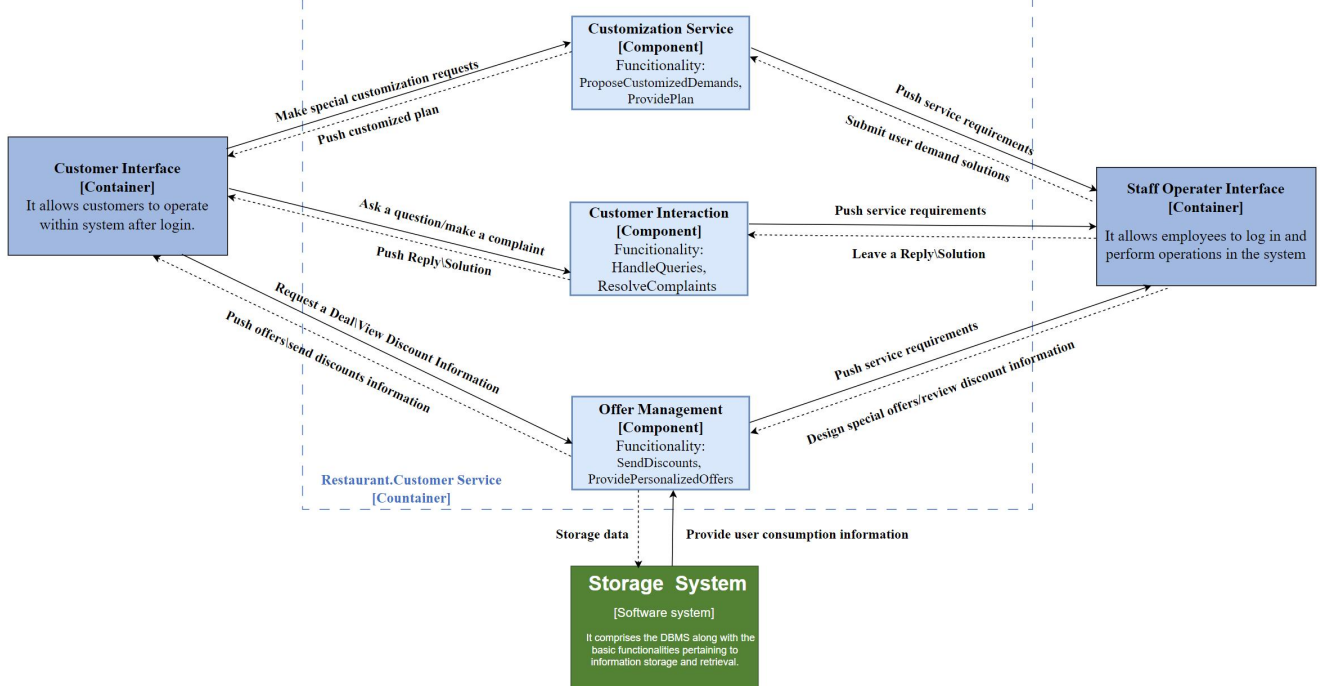
Student:Jun Qi





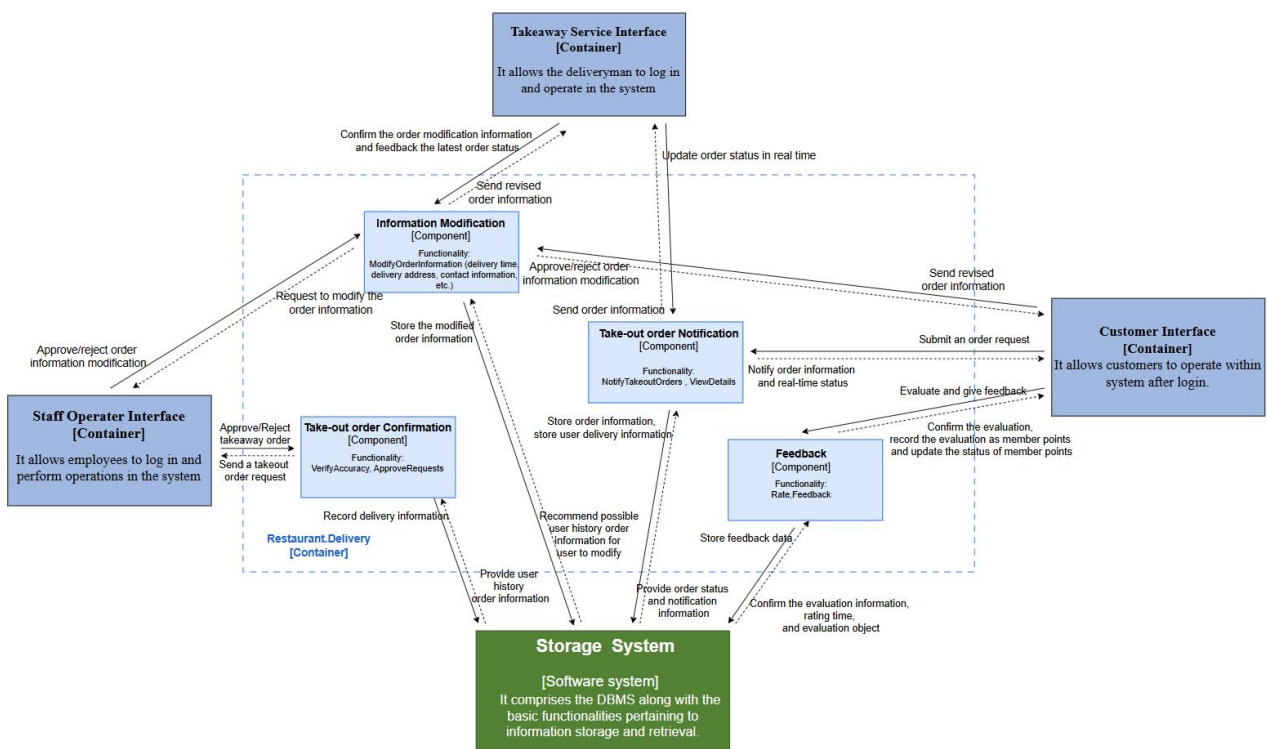
Level 3
Restaurant.CustomerService

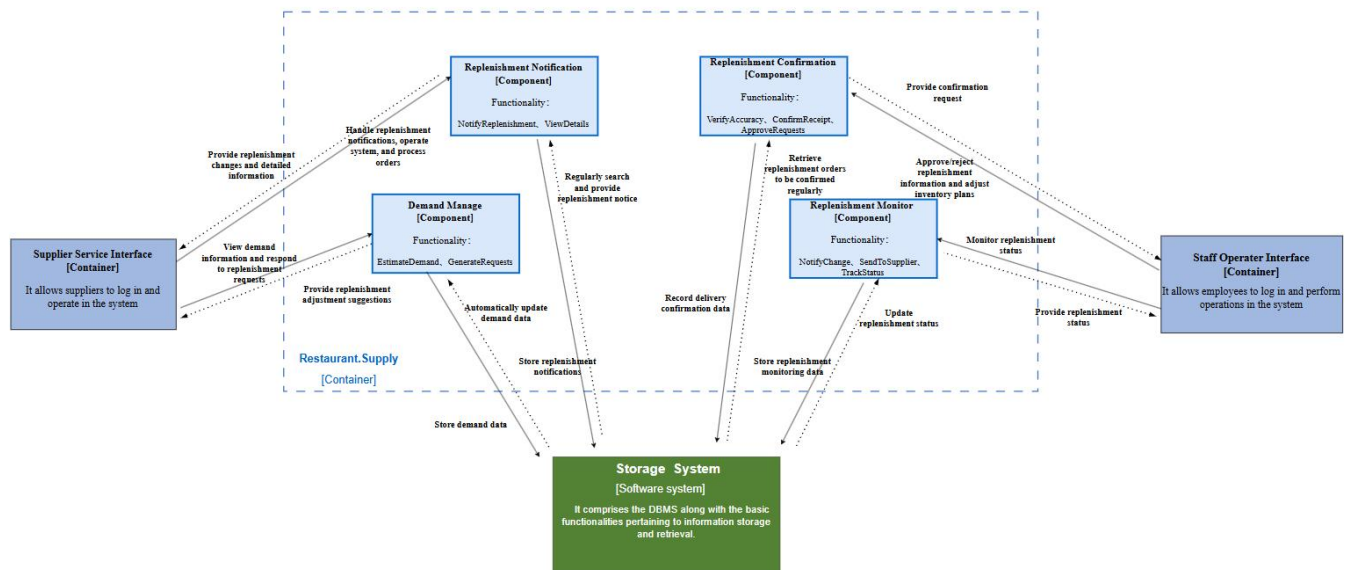
Student: Jiayi Li (202219077)



Level 3
Restaurant.Delivery

Student: Yueheng Wang (202219044)



**Notes:**

Provide comments (if needed)