Project – Part 1 (Group Project, 10 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.

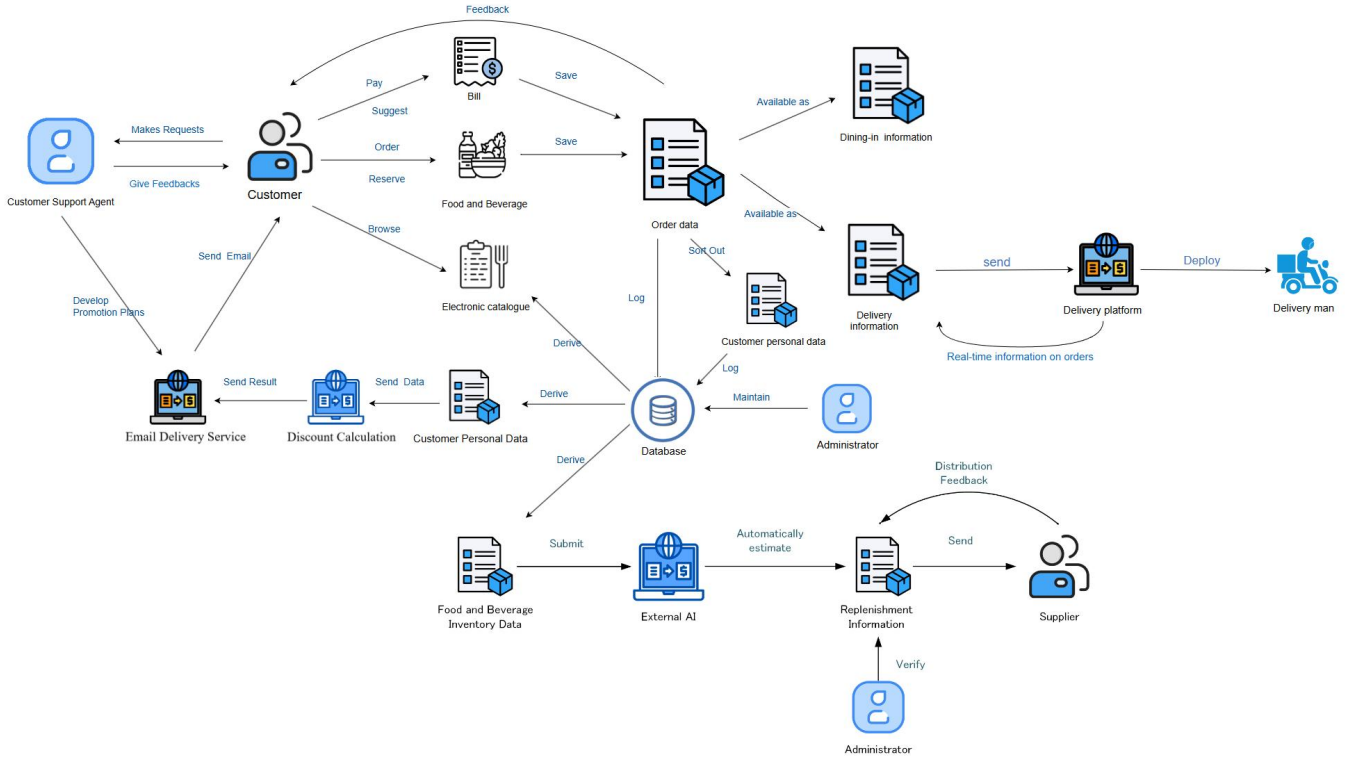
1. Conceptualization

1.1 System overview (Group assessed, 2 marks)

System as a whole

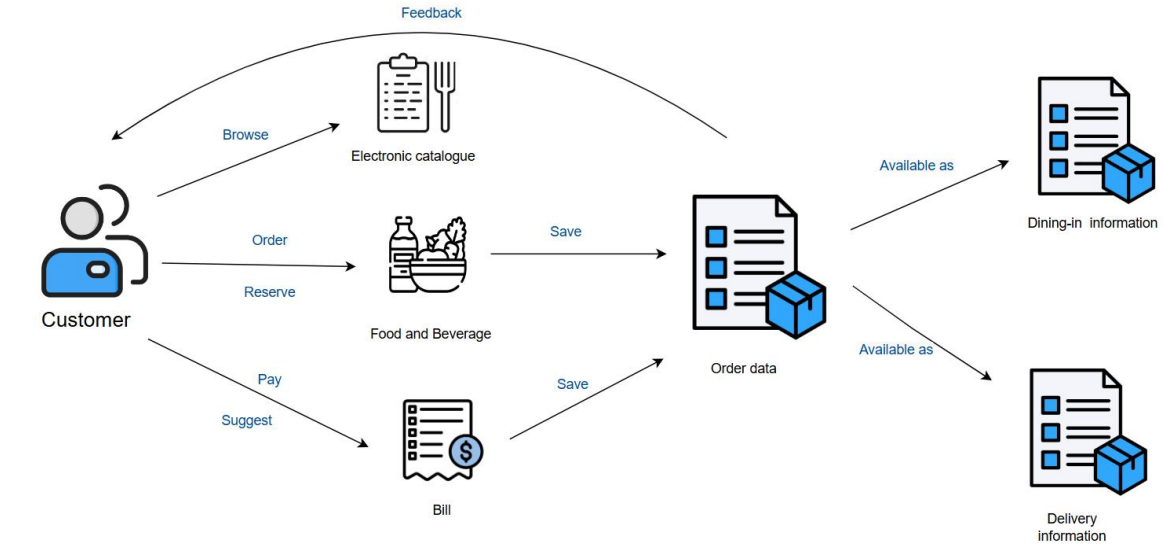
System Conceptualization ：

The high-tech restaurant system is designed to enhance customer experience and operational efficiency. It integrates features such as an electronic catalogue, customer app, data collection and analysis, supply chain management, and delivery service integration. The system supports meal customization, smart order processing, and automated supply management. By leveraging AI technology and external services, it optimizes inventory forecasting and food delivery coordination.



1.2 Sub-systems (Individually assessed, 3 marks)

Sub-system ID: *#5-1 Ordering and Reservation System*	**Student:Jun Qi (202219015)**
Rationale: The Ordering and Reservation System provides a comprehensive service experience for restaurant customers, including browsing the electronic menu, placing orders, making reservations, paying for orders and giving feedbacks. Users can easily view food and beverage options, customize their meals, reserve tables, and complete transactions through secure payment methods. The system is designed to streamline processes, enhance customer convenience, and ensure a seamless dining experience.	

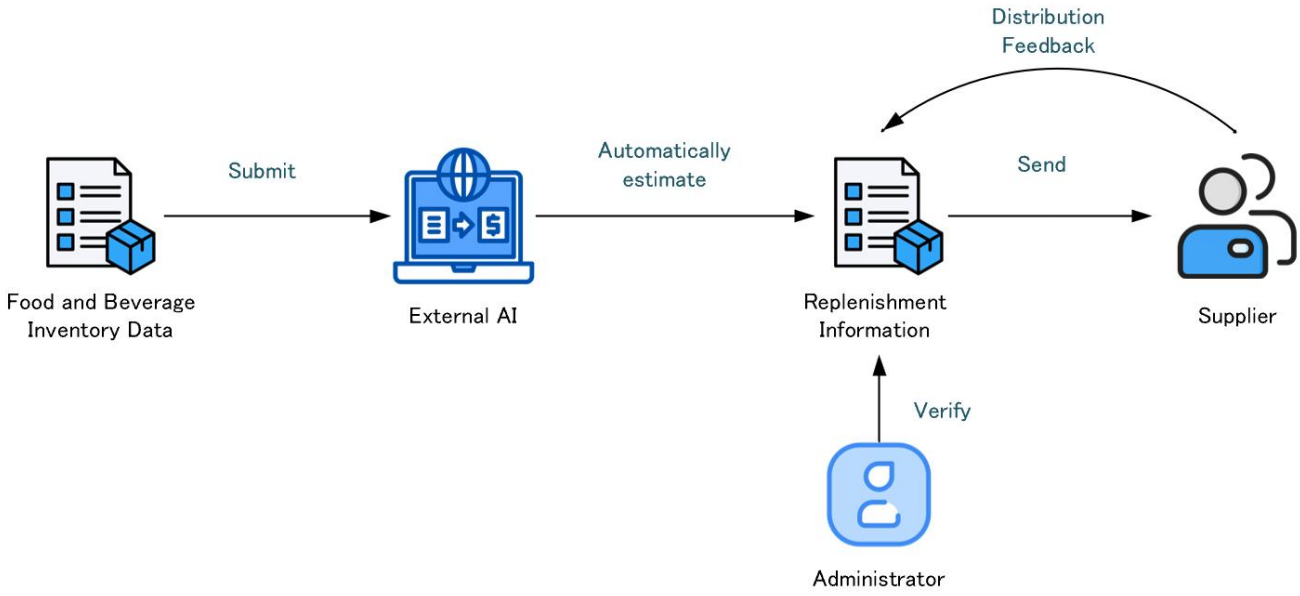


Ordering and Reservation Subsystem

Sub-system ID: *#5-2* *Supply Management Subsystem*	**Student: Xiaoyuanying Kuang （202219102）**

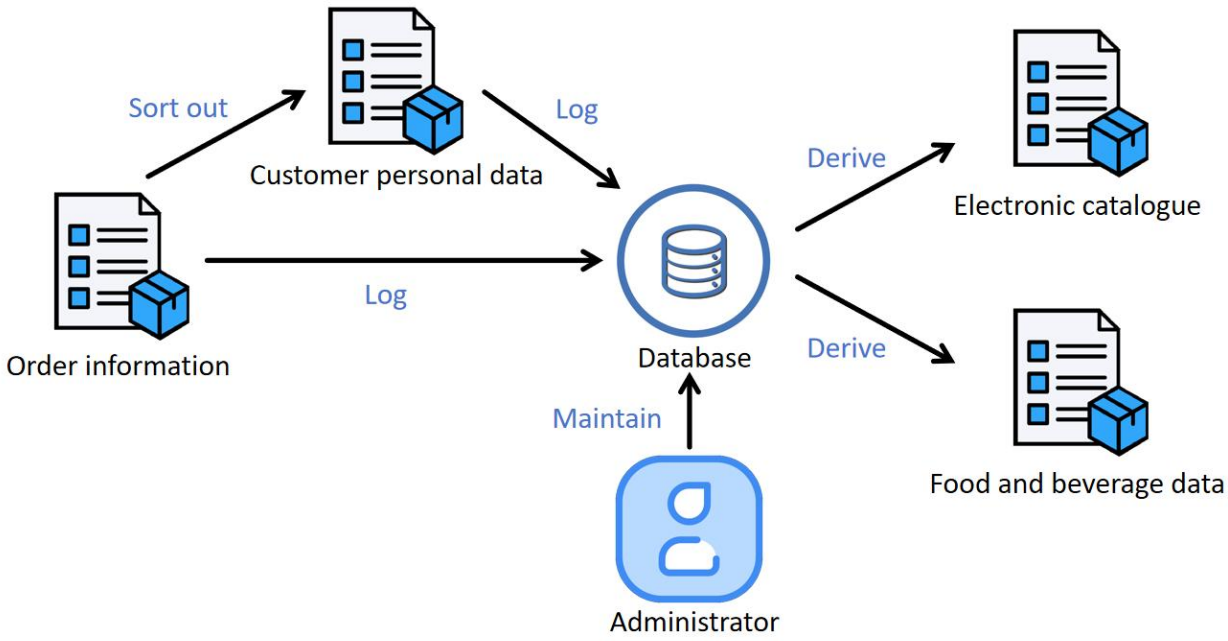
Rationale:

The supply management subsystem handles the restaurant's food and beverage needs, connecting external suppliers and management within the system. The platform uses external AI services to predict demand and generate order requests. After management review, the order is automatically sent to the appropriate supplier, and the supplier returns the delivery feedback.



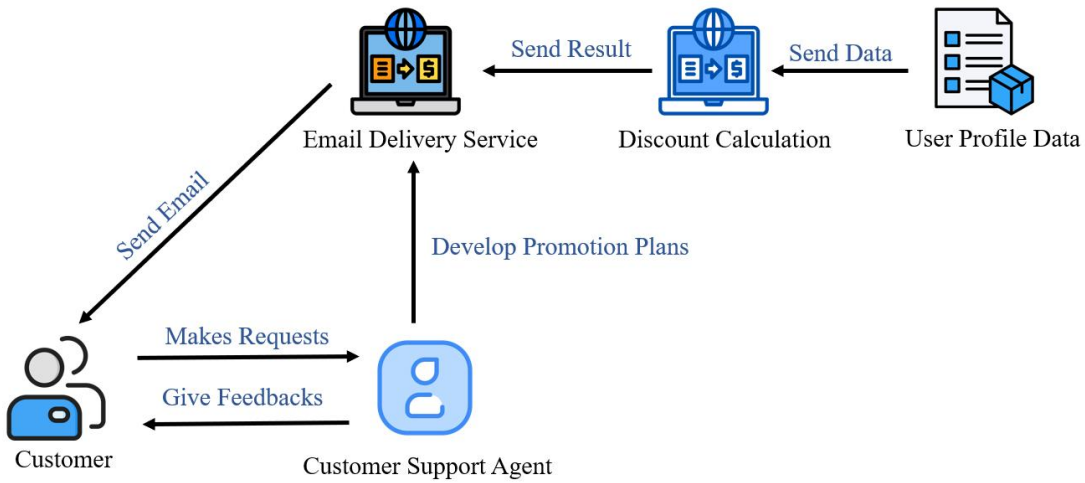
Sub-system ID: *#5-3* *Database Subsystem*	**Student:Fanghua Dai (202219072)**

Rationale: The database subsystem receives the order information and the customer's personal data organized by the order information and stores this information in the database. The database can export electronic catalogues and food and beverage data. The administrator is responsible for maintaining the database.



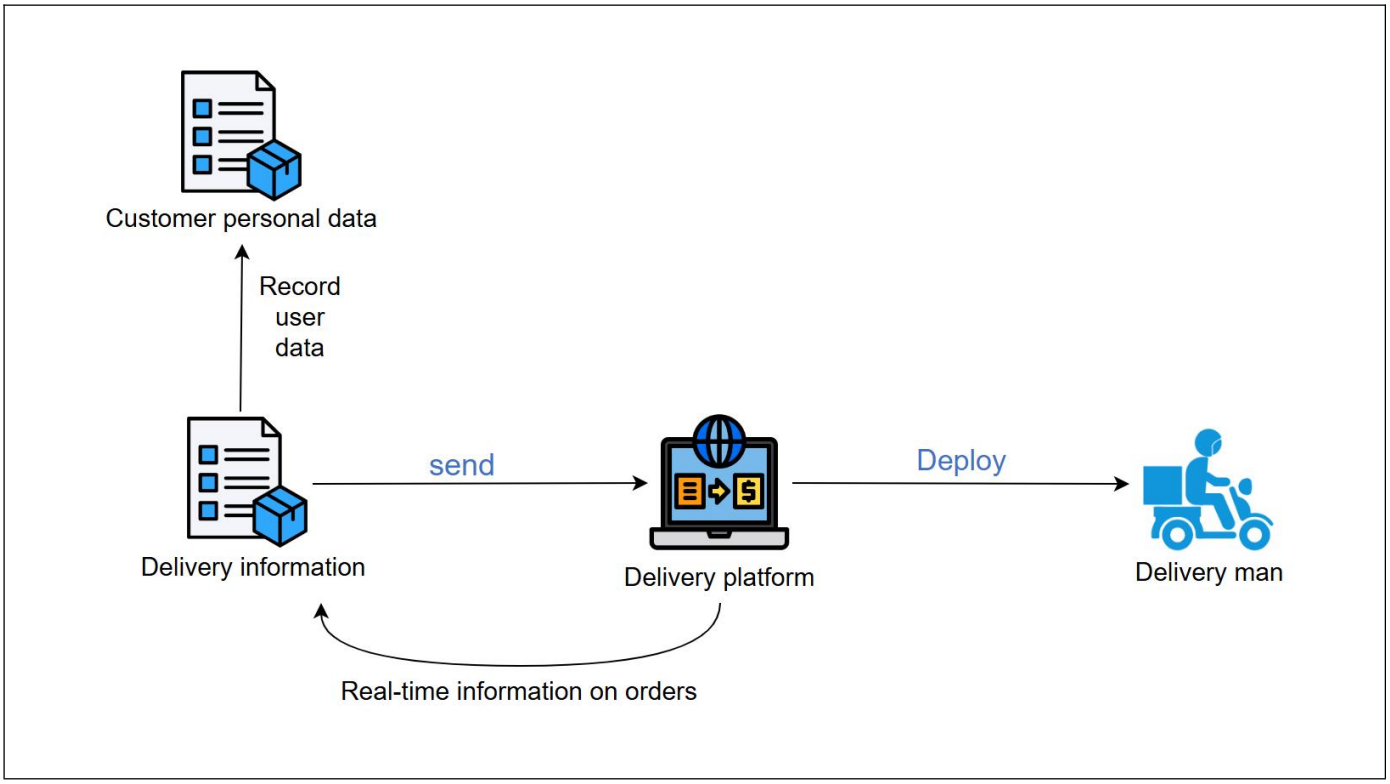
Sub-system ID: *#5-4 Customer Service Subsystem*	**Student: Jiayi Li (202219077)**

Rationale: **The customer service subsystem** provides **service support** to customers and provides **timely feedback** on customer requests. The system can calculate and send **customized** coupons based on the user's historical consumption records and personal information. At the same time, the restaurant customer service staff will formulate a sales plan and send it to **all** users regularly by mail.. When customers make different kinds of **requests** to the restaurant, the customer service staff in the system will provide timely **feedback** to satisfy the customer.



Sub-system ID: *#5-5 Delivery System*	**Student:Yueheng Wang(202219044)**

Rationale: The delivery system provides remote catering services for restaurant users, including browsing menus through online restaurant applications, placing orders, obtaining real-time order location information and other functions.The system will automatically forward the delivery request received by the application to the delivery company, and track the order information returned by the delivery company in real time, including the specific location of the order and the expected delivery time, and display the order information in the app in real time for customers to refer to.



Notes:
Provide comments (if needed)

2. Requirements (Individually assessed, 5 marks)

Sub-system ID: *#5-1 Ordering and Reservation System*	**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**
R001	*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.*
R002	*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.*
R003	*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.*
R004	*As a customer, I want to reserve a table through the app and receive confirmation so that I can easily plan my visit.*
R005	*As a customer, I want to provide feedback on my dining experience through the app so that the restaurant can improve its service.*

Sub-system ID: *#5-2 Supply Management Subsystem*	**Student: Xiaoyuanying Kuang (202219102)**
Epic: As a **supplier**, I want to receive timely and accurate **order requests** from the restaurant system so that I can **fulfill orders efficiently**, maintain a good business relationship, and optimize my **delivery schedule**.	
User Story ID	**User Story**
R001	*As a supplier, I want to receive automated order notifications from the restaurant so that I can process and prepare deliveries without delays.*
R002	*As a supplier, I want to view detailed order information (e.g., quantities, delivery time, and special instructions) so that I can ensure accurate and timely fulfillment of the restaurant's needs.*
R003	*As a supplier, I want the orders I receive to be verified and accurate, so that I can avoid mistakes in fulfilling the restaurant's supply requests and minimize returns.*
R004	*As a supplier, I want to confirm order receipt and estimated delivery times back to the restaurant so that the restaurant can adjust its internal inventory and plan accordingly.*
R005	*As a supplier, I want to receive notifications about changes or cancellations in orders so that I can adjust my logistics and resources to avoid wastage and ensure efficiency.*

Sub-system ID: *#5-2 Supply Management Subsystem*	**Student: Xiaoyuanying Kuang (202219102)**
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 orders efficiently, ensuring timely supply replenishment without overstocking or shortages.	
User Story ID	**User Story**
R001	*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.*
R002	*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.*
R003	*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.*
R004	*As an administrator, I want the system to automatically send orders to the most suitable suppliers based on availability and pricing, so that I can ensure cost-effective procurement and timely deliveries..*
R005	*As an administrator, I want to monitor the status of the orders sent to suppliers in real-time, so that I can track the progress and ensure timely replenishment of stock.*

Sub-system ID: *#5-3 Database Subsystem*	**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**
R001	*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.*
R002	*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.*
R003	*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.*
R004	*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.*
R005	*As an administrator, I hope I can easily maintain the database to ensure the accuracy and security of the data in the database.*

Sub-system ID: *#5-4 Customer Service Subsystem*	**Student: 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**
R001	*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.*
R002	*As a customer, I want to receive personalized offers from restaurants so that I can save money.*
R003	*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.*
R004	*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.*
R005	*As a customer, I want to get the professional and quickly result when I make special customization requests so that I can ensure that my specific needs are satisfied and my event can go smoothly.*

Sub-system ID: *#5-5 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**
R001	*As a customer, I want to be able to view all of the restaurant's dishes on the app when I order takeout.*
R002	*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.*
R003	*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.*
R004	*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.*
R005	*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.*

Notes:

Provide comments (if needed)