



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

School of
Professional and
Continuing
Education
(SPACE)

Subject: SECD2613 System Analysis and Design

Task: Project Phase 2

Lecturer name: Dr. Rozilawati Binti Dollah Md Zain

Student name:

Name	Matrix Number
ASWINI A/P CHANDRASAGARAN	SX242452ECRHF01
ARVIN A/L GURUSAMAY	SX221614ECRHF01
LEAVINISH A/L BALASUBRAMANIAM	SX240278ECRHS01

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1.0 Overview of the Project

The **Online Food Delivery System (OFDS)** is a proposed cloud-based platform that connects hungry customers to nearby restaurants and independent delivery riders through a single mobile & web interface. Phase 1 established the business case; Phase 2 formalises *what* the new system must do and *why*, grounding every requirement in real stakeholder data.

1.1 Project Vision

Deliver any local restaurant meal to a customer's door in ≤ 30 minutes with full transparency and payment flexibility.

1.2 Key Stakeholders

Stakeholder	Role	Pain-Points Today
Customers	Browse, order, pay	Slow delivery, confusing apps, limited e-wallet support
Restaurant Owners/Staff	Accept & prepare orders	Manual order logging, payment reconciliation headaches
Delivery Riders	Collect & deliver food	Non-optimised routes, idle time between jobs
Platform Admin	Maintain system	Fragmented data, ad-hoc issue resolution

2.0 Problem Statement

Current local food delivery platforms like GrabFood and Foodpanda face several user and business-related issues:

1. **Slow Deliveries** – Riders are often assigned manually, and routes are not optimized, leading to delays (average delivery time: 57 minutes).
2. **Complicated User Experience** – Many users abandon the ordering process due to too many screens or unclear steps.
3. **Limited Payment Options** – Only one e-wallet is supported; however, 31% of users prefer TNG eWallet or other payment methods.
4. **Restaurant Cash-flow Problems** – Owners only get paid weekly, making it hard to manage daily expenses and plan inventory.

3.0 Proposed Solutions (TO-BE at a glance)

Area	TO-BE Capability	Value
Ordering	Mobile app and web platform with smooth order process	Faster ordering, easier navigation, fewer steps
Tracking	Rider assignment and live delivery tracking	Builds customer trust and transparency
Payments	Multiple payment options (e-wallet, card, COD)	Flexibility and increased user satisfaction
Owner Tools	Admin panel with order tracking and fast payout report	Improved business decision-making and cashflow
Menu/Control	Menu editing and restaurant access via dashboard	Allows real-time updates and better coordination

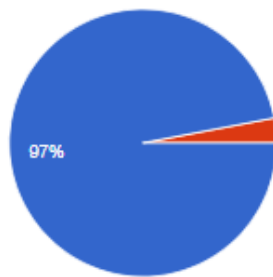
4.0 Information-Gathering Process (Questionnaire and data collections)

By submitting the survey, you have consented and agreed for the data to be used for academic ^{*} purpose. Your response will be kept **CONFIDENTIAL**.

- ☐ I hereby understood, consented and agreed.
- ☐ I disagree

By submitting the survey, you have consented and agreed for the data to be used for academic purpose. Your response will be kept **CONFIDENTIAL**. [Copy chart](#)

67 responses



- ☒ I hereby understood, consented and agreed.
- ☐ I disagree

Gender ^{*}

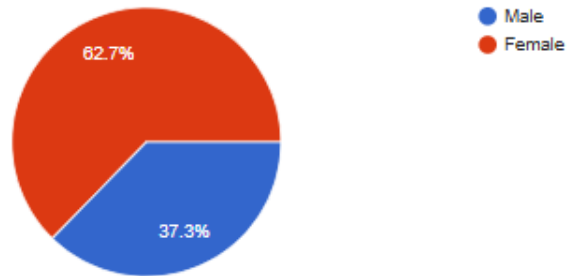
- ☐ Male
- ☐ Female

Section 1: General Information Section

Gender

67 responses

 Copy chart



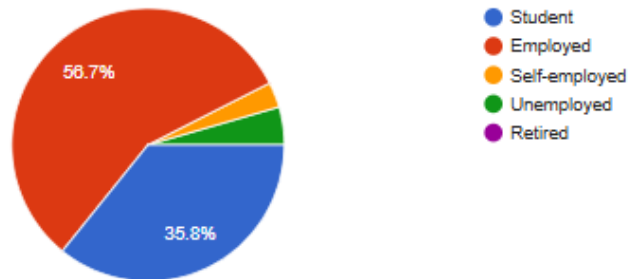
Occupation *

- ☐ Student
- ☐ Employed
- ☐ Self-employed
- ☐ Unemployed
- ☐ Retired

Occupation

67 responses

 Copy chart



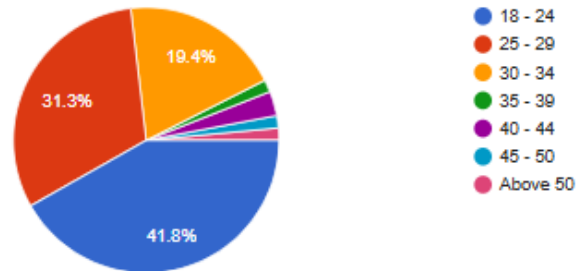
Age*

- ☐ 18 - 24
- ☐ 25 - 29
- ☐ 30 - 34
- ☐ 35 - 39
- ☐ 40 - 44
- ☐ 45 - 50
- ☐ Above 50

Age

67 responses

[Copy chart](#)



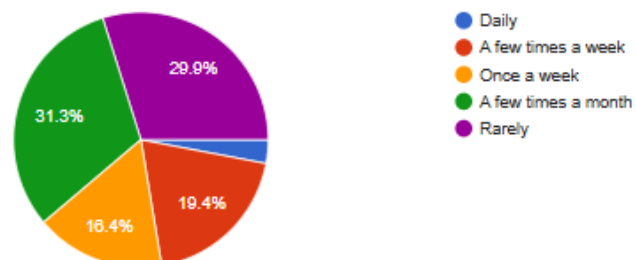
How often do you use online food delivery services? *

- ☐ Daily
- ☐ A few times a week
- ☐ Once a week
- ☐ A few times a month
- ☐ Rarely

How often do you use online food delivery services?

67 responses

[Copy chart](#)



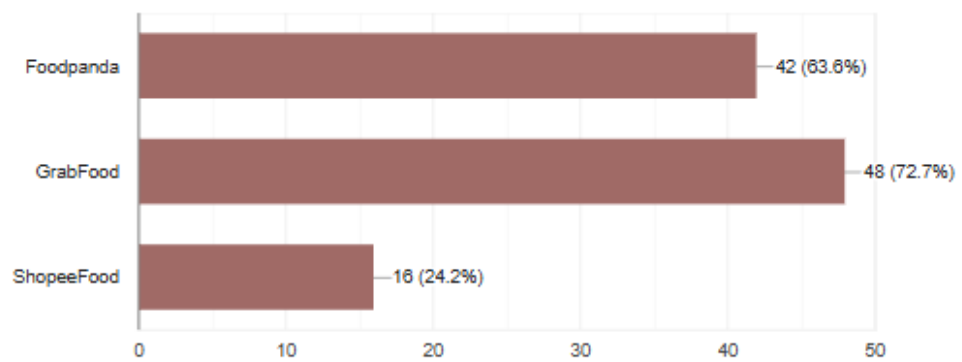
Which food delivery platforms do you usually use? *

- ☐ Foodpanda
- ☐ GrabFood
- ☐ ShopeeFood
- ☐ Other...

Which food delivery platforms do you usually use?

[Copy chart](#)

66 responses



How satisfied are you with the delivery time of your orders? *

Very dissatisfied 1 2 3 4 5 Very satisfied

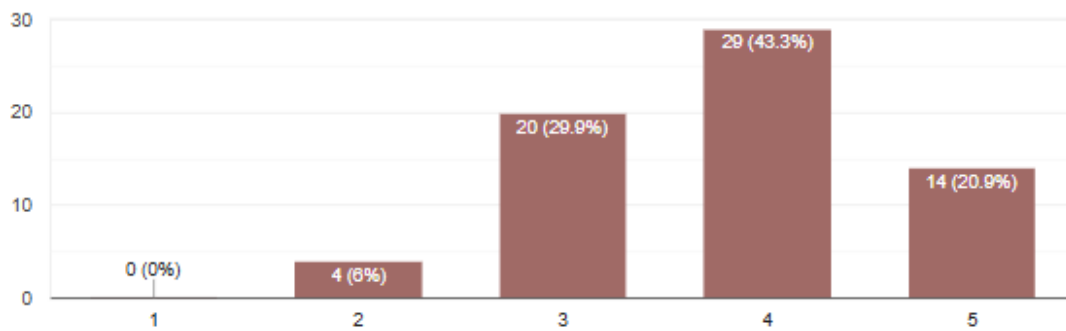
☐ ☐ ☐ ☐ ☐

Section 2: Delivery Experience

How satisfied are you with the delivery time of your orders?

[Copy chart](#)

67 responses



Have you experienced delays in food delivery, especially during peak hours? *

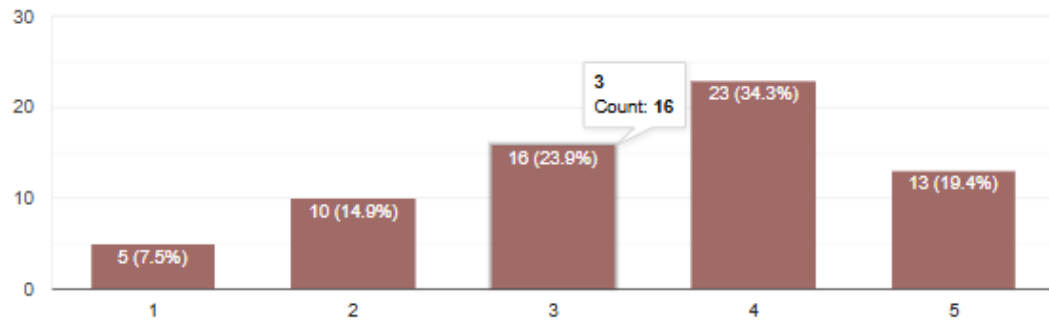
Never 1 2 3 4 5 Always

☐ ☐ ☐ ☐ ☐

Have you experienced delays in food delivery, especially during peak hours?

 [Copy chart](#)

67 responses



How would you rate the user-friendliness of current food delivery apps? *

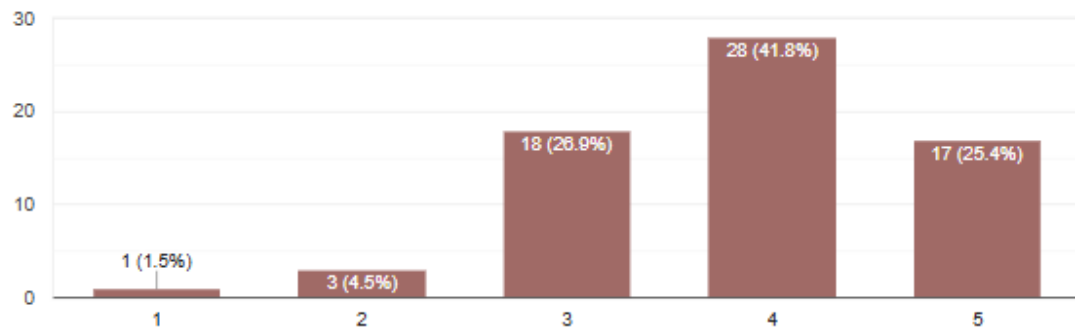
	1	2	3	4	5	
Very poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excellent

Section 3: User Interface & Experience

How would you rate the user-friendliness of current food delivery apps?

 [Copy chart](#)

67 responses



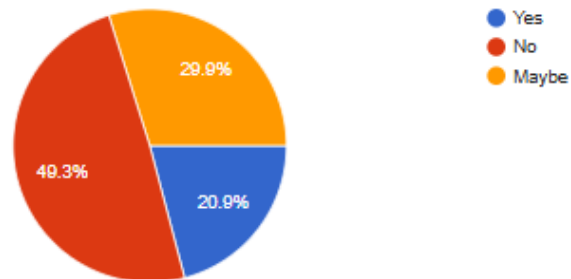
Have you ever felt confused or frustrated while placing an order due to a complicated app layout? *

- ☐ Yes
- ☐ No
- ☐ Maybe

Have you ever felt confused or frustrated while placing an order due to a complicated app layout?

 [Copy chart](#)

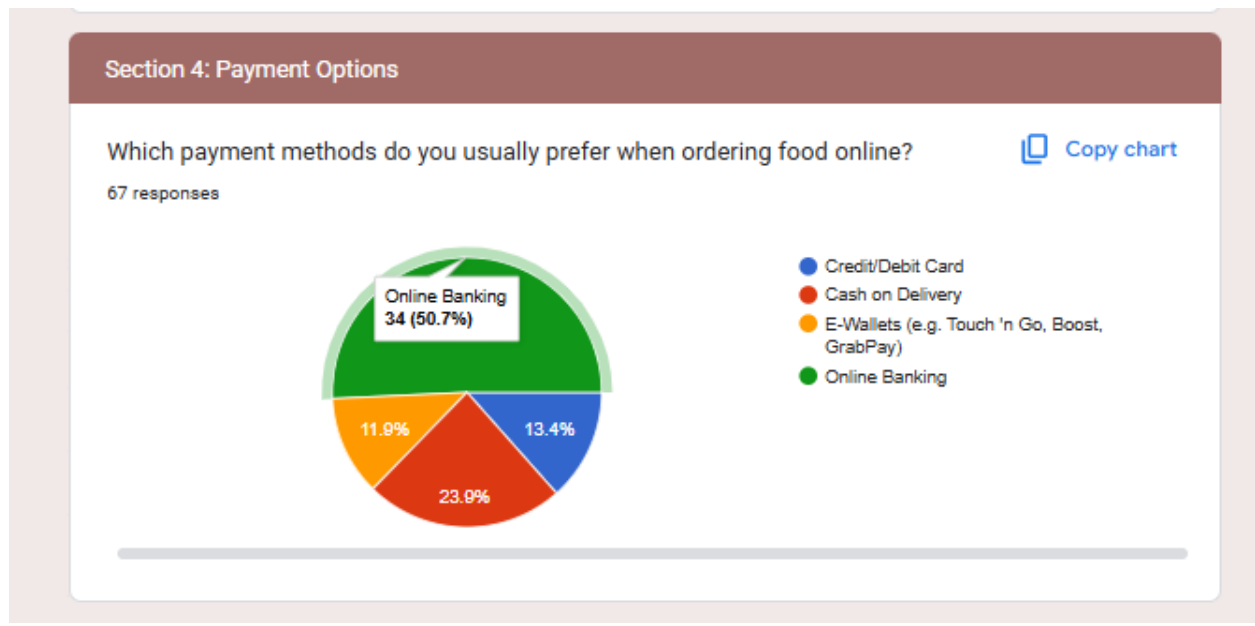
67 responses



...

Which payment methods do you usually prefer when ordering food online? *

- ☐ Credit/Debit Card
- ☐ Cash on Delivery
- ☐ E-Wallets (e.g. Touch 'n Go, Boost, GrabPay)
- ☐ Online Banking



4.1 Method Used – Online Survey

To gather real-world user expectations, the team conducted a quantitative survey using a structured questionnaire via Google Forms.

Data Collection Tool: Google Form (consent included)

Question Types: Multiple choice, Likert scale (1–5), short answers

Respondents: 60+ participants including students, working adults, unemployed, and self-employed individuals

Duration: 21 May 2025 – 25 May 2025

Distribution Mediums: WhatsApp, Telegram and UTM contacts

The objective was to understand user behaviors and expectations regarding food delivery usage, payment preferences, delivery satisfaction, and app usability.

4.2 Summary from Method Used (Example: Questionnaire)

Survey Focus Areas:

- ✓ Frequency of food delivery use
- ✓ Most used platforms
- ✓ Delivery delay experiences
- ✓ App interface satisfaction
- ✓ Payment method preferences

Question	Findings
Age Group	Majority: 18–24 years old
Occupation	Mostly students and employed individuals
Frequency of Use	Most users: A few times a month or weekly
Preferred Platforms	GrabFood, Foodpanda, ShopeeFood
Majority responses: 3–4 (neutral to satisfied)	Majority responses: 3–4 (neutral to satisfied)
Peak Hour Delays	any said "Yes" or "Maybe" (confirmed common issue)
App Friendliness Rating	Rating (1–5 scale) Most chose 3–5 (moderate to good)
Confusion While Ordering(1–5 scale)	Responses ranged mostly from 3–5 (some confusion reported)
Preferred Payment Methods	Popular: Cash on Delivery, Online Banking, E-Wallets

4.3 Impact on System Requirements

Based on these insights, we identified the following system needs:

- Real-time status updates and faster delivery management (Process 4)
- Simplified, responsive app UI with fewer steps to complete checkout
- Flexible payment integration including COD and multiple e-wallets (Process 5)
- Backend logic to handle peak-hour routing, alerts, and validation

Online Food Delivery System (OFDS) Google Form:

https://docs.google.com/forms/d/e/1FAIpQLScIyuPJqOyrGOIk5XgNCSnvTK7yzztEoO2doeUoNhVDRct5_g/viewform?usp=header

Online Food Delivery System (OFDS) (Responses):

https://docs.google.com/spreadsheets/d/e/2PACX-1vSZ5Qk7egZPf0QhqV6efo8rgtisBkPdPazkEHAzAaCStFNX4qyIq2jEBq5RK3mfoKOid_E_PKI4Ii9-/pub?output=pdf

5.0 Requirement Analysis (AS-IS)

5.1 Current Business Process (Narrative & BPMN)

1. Customer calls restaurant and places order
2. Restaurant writes order manually and confirms availability
3. Restaurant contacts available rider
4. Rider picks up and delivers food
5. Customer pays in cash
6. Restaurant logs payment manually at end of day

5.2 Functional Requirements – AS-IS Snapshot

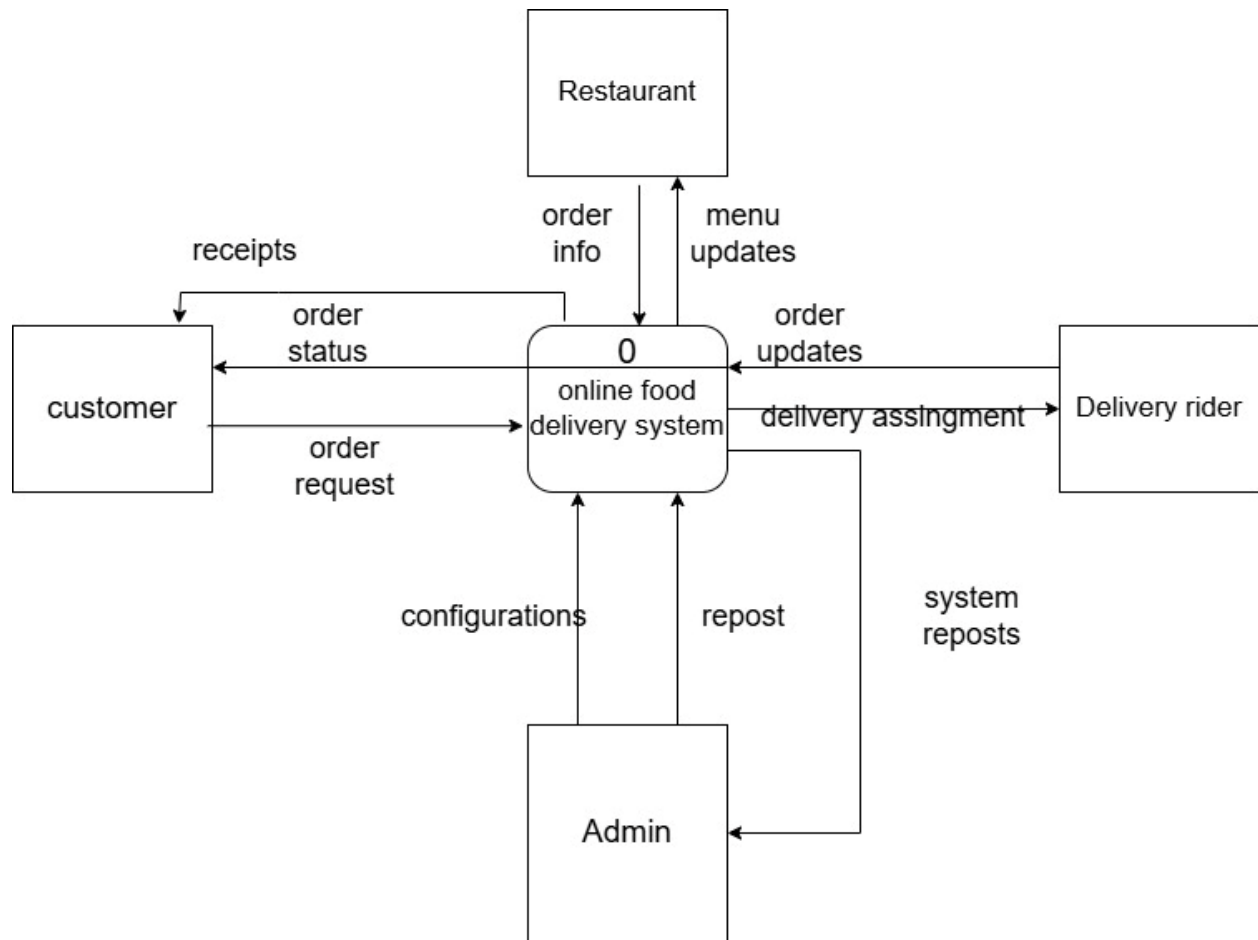
ID	Input	Process Description	Output	Actor(s)
F01	Order request via app	Customer places order through system	Order details sent to restaurant	Customer / System
F02	Menu confirmation	Restaurant verifies menu availability	Order confirmed or rejected	Restaurant Staff
F03	Order ready	System assigns rider for delivery	Rider notified	System
F04	Payment info	Payment processed (online or COD)	Receipt generated	Customer / System
F05	Delivery updates	Rider updates status during delivery	Live tracking shown to customer	Rider / Customer

5.3 Non-Functional Requirements – AS-IS

- **Performance:** Order processing and delivery times vary widely, often exceeding 60 minutes.
- **Availability:** Service may be limited by restaurant hours or server downtime.
- **Reliability:** Incomplete tracking and manual payment reconciliation may lead to errors.
- **Security:** Payment and user information need secure handling and encryption.
- **Usability:** Interface must be user-friendly for both customers and restaurant staff.
- **Maintainability:** Digital logs are essential for tracking complaints, updates, and order records.

5.4 Logical DFD AS-IS System

Context Diagram:



Entities:

- Customer
- Restaurant
- Delivery Rider
- Admin

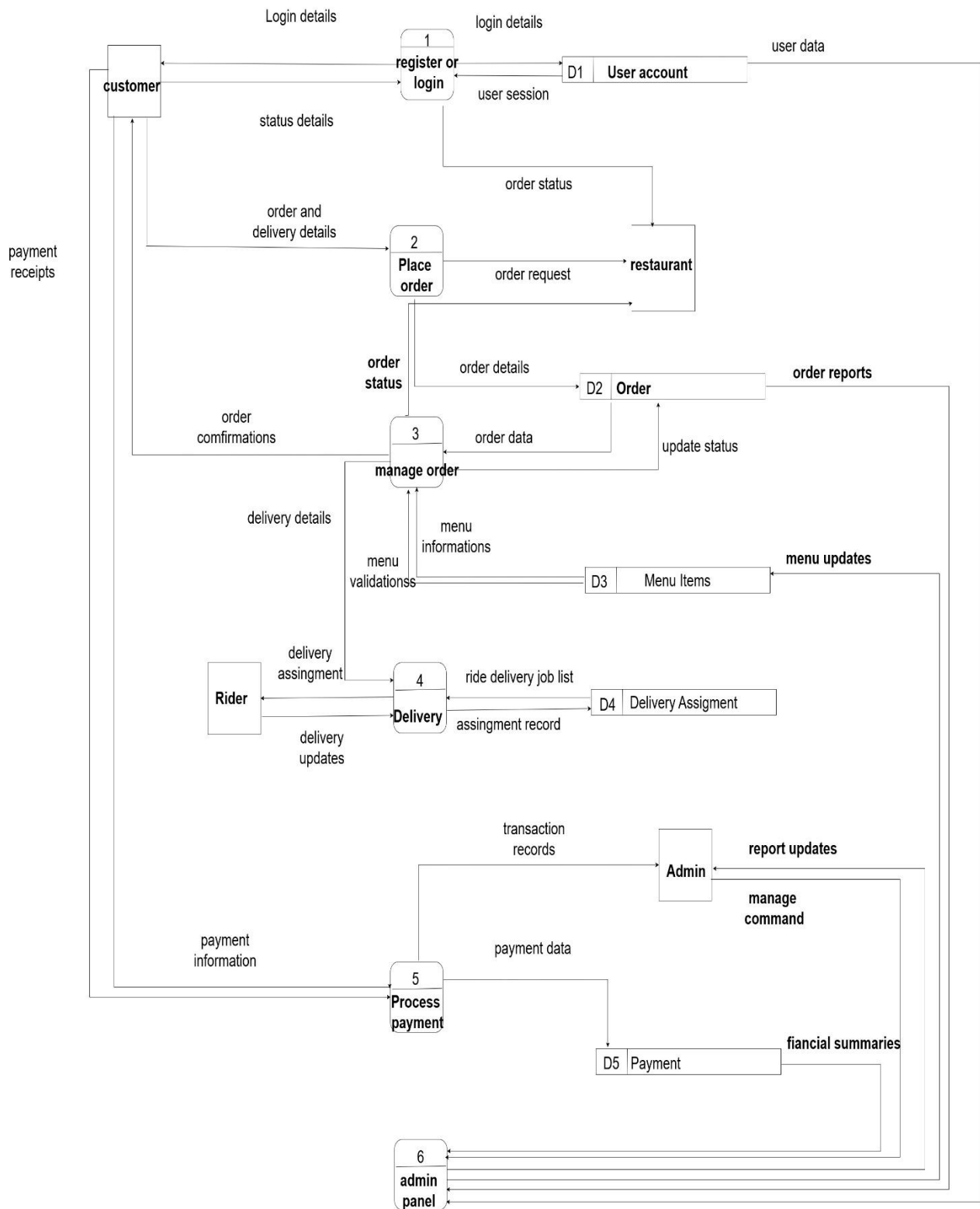
Process 0: Online Food Delivery System**Input:**

- Order request (from Customer to Process 0)
- Menu update (from Restaurant to Process 0)
- Delivery update (from Delivery Rider to Process 0)
- Configuration and report request (from Admin to Process 0)

Output:

- Order status and receipt (from Process 0 to Customer)
- Order info (from Process 0 to Restaurant)
- Rider assignment (from Process 0 to Delivery Rider)
- System Report (from Process 0 to Admin)

Diagram 0 :



Entities:

- Customer
- Restaurant
- Delivery Rider
- Admin

Data Stores:

- D1 User Accounts
- D2 Orders
- D3 Menu Items
- D4 Delivery Assignments
- D5 Payments

Processes:**1. Register or Login**

Input: Login details (from Customer to Process 1)

Output: Authentication status (from Process 1 to Customer)

Data Store Interaction:

- Input: Login details (from Process 1 to D1 User Accounts)
- Output: User session (from D1 User Accounts to Process 1)

2. Place Order

Input: Order and delivery info (from Customer to Process 2)

Output: Order request (from Process 2 to Restaurant)

Data Store Interaction:

- Input: Order details (from Process 2 to D2 Orders)
- Output: Order data (from D2 Orders to Process 3)

3. Manage Orders

Input: Order data (from D2 Orders to Process 3)

Input: Order status (from Restaurant to Process 3)

Output: Order details; ready (from Process 3 to Process 4)

Output: Order Confirmation (from Process 3 to Customer)

Data Store Interaction:

- Input: Menu validation (from D3 Menu Items to Process 3)

- Output: Updated order status (from Process 3 to D2 Orders)

4. Delivery

Input: Order details; ready (from Process 3 to Process 4)

Output: Delivery assignment (from Process 4 to Rider)

Input: Delivery updates (from Rider to Process 4)

Output: Delivery status; tracking (from Process 4 to Customer)

Output: Delivery status; tracking (from Process 4 to Customer)

Data Store Interaction:

- Input: Assignment record (from Process 4 to D4 Delivery Assignments)

- Output: Rider job list; status (from D3 to Process 4)

5. Process Payment

Input: Payment info; data (from Customer to Process 5)

Output: Receipt (from Process 5 to Customer)

Output: Transaction record (from Process 5 to Admin)

Data Store Interaction:

- Input: Transaction/ Payment data (from Process 5 to D5 Payments)

- Output: Financial summary (from D4 to Process 6)

6. Admin Panel

Input: System commands (from Admin to Process 6)

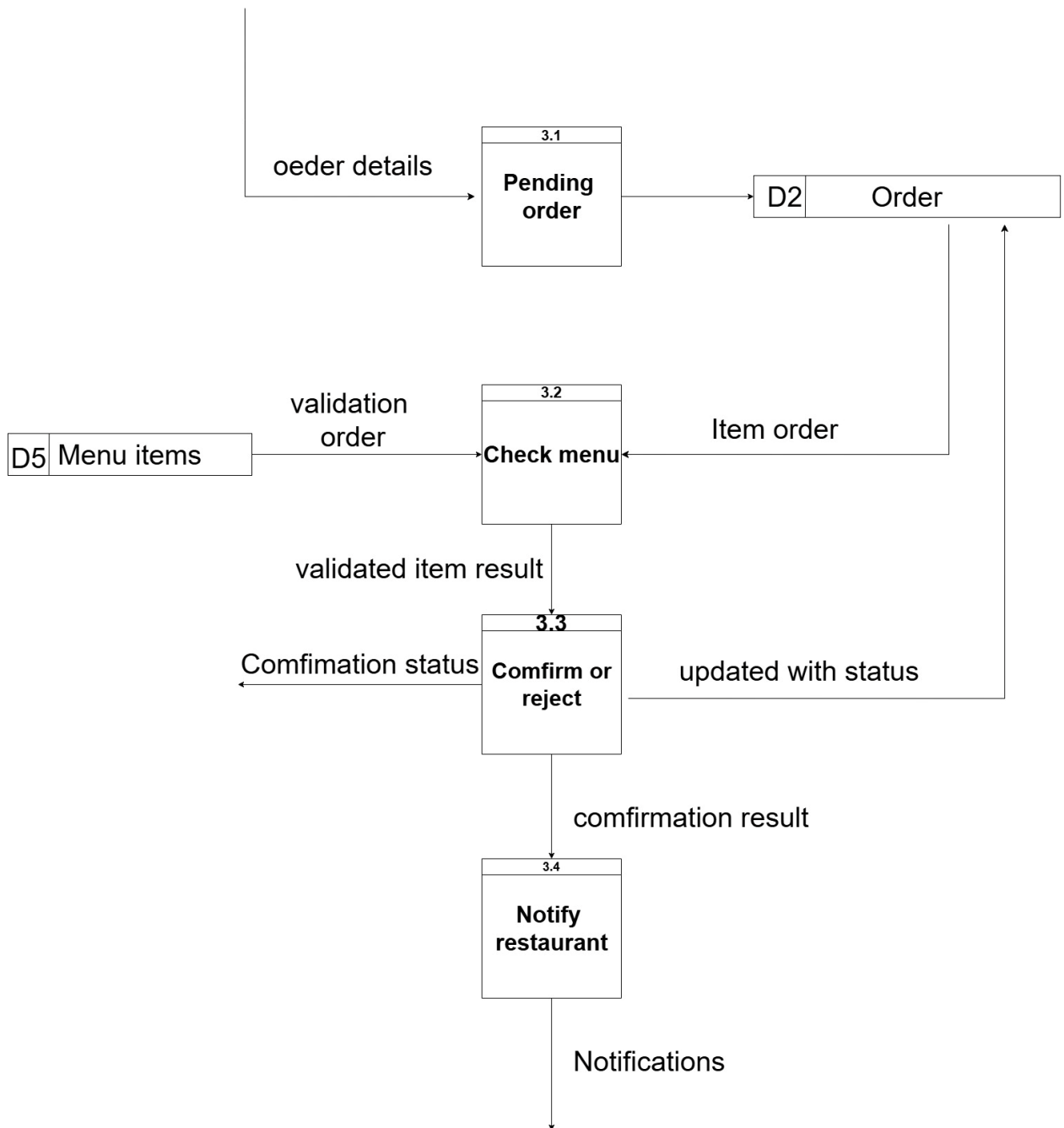
Output: Reports/updates (from Process 6 to Admin)

Data Store Interaction:

- Input: View or retrieve user data (from D1 to Process 6)
- Input: Generate order report (from D2 to Process 6)
- Input: Generate financial summary (from D5 to Process 6)
- Output: Update or modify menu items (from Process 6 to D4)

Child Diagram :

CHILD DIAGRAM 3



Entities:

- Customer
- Restaurant

Data Stores:

- D2 Orders
- D3 Menu Items

Processes:**3.1 Receive Order**

Input: Order details (from Customer)

Output: Order record (to D2 Orders)

Data Store Direction: Process 3.1 → D2 (save order)

3.2 Check Menu Availability

Input: Menu request (from D2 Orders)

Output: Menu item availability (from D3 Menu Items)

Data Store Direction: D3 → Process 3.2 (read menu data)

3.3 Confirm or Reject Order

Input: Menu validation result (from Process 3.2)

Output: Confirmation status (to Customer), updated order (to D2 Orders)

Data Store Direction: Process 3.3 → D2 (update order status)

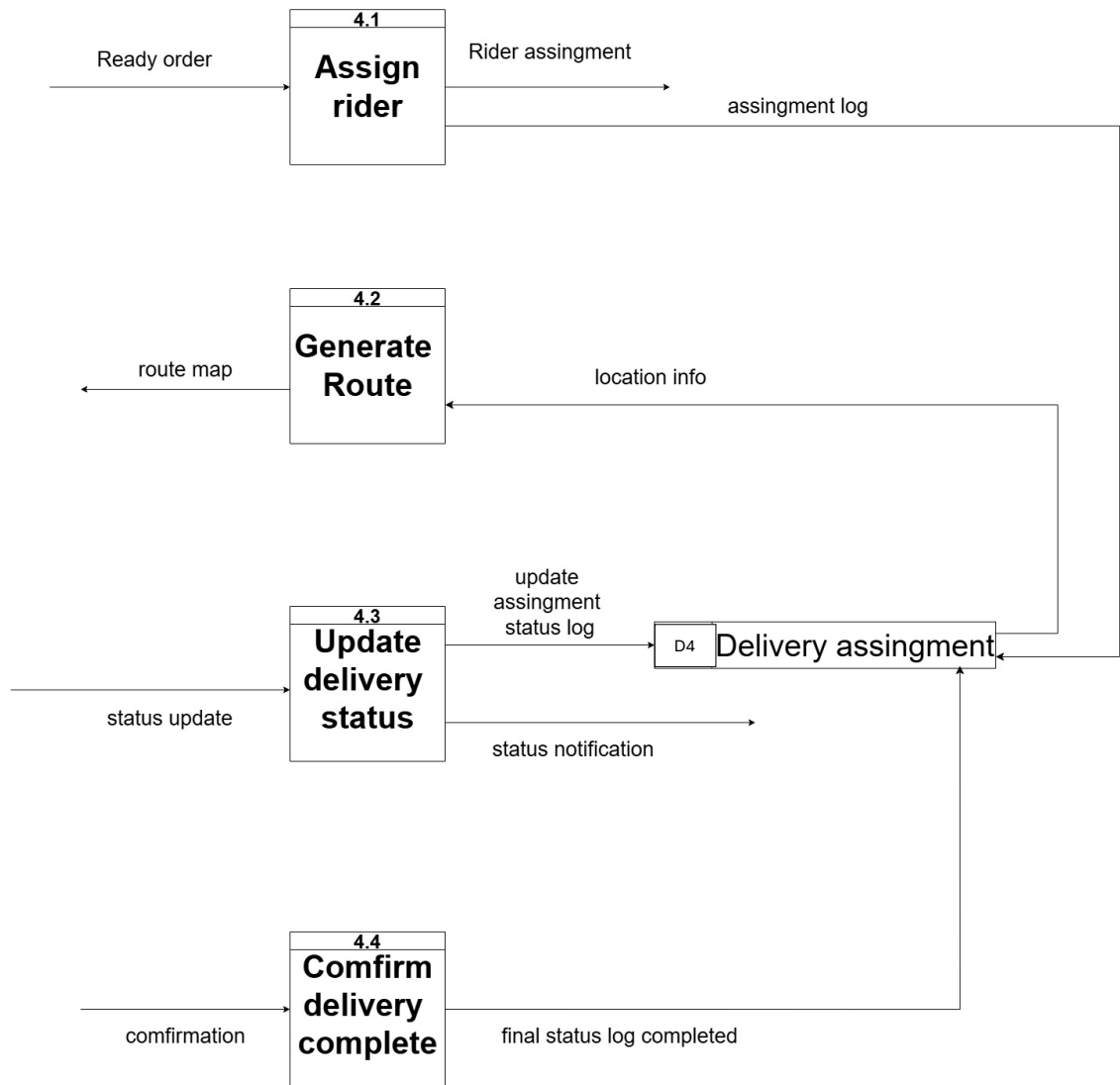
3.4 Notify Restaurant

Input: Confirmation status (from Process 3.3)

Output: Notification (to Restaurant)

Data Store Direction: No interaction

CHILD DIAGRAM 4



Entities:

- Delivery Rider
- Customer

Data Store:

- D4 Delivery Assignments

Processes:

4.1 Assign Rider

Input: Ready order (from Process 3.4)

Output: Rider assignment (to Delivery Rider), assignment log (to D3)

Data Store Direction: Process 4.1 → D4 (save assignment)

4.2 Generate Route

Input: Location info (from D4)

Output: Route map (to Delivery Rider)

Data Store Direction: D4 → Process 4.2 (read assignment info)

4.3 Update Delivery Status

Input: Status update (from Delivery Rider)

Output: Status log (to D4), status notification (to Customer)

Data Store Direction: Process 4.3 → D4 (update assignment status)

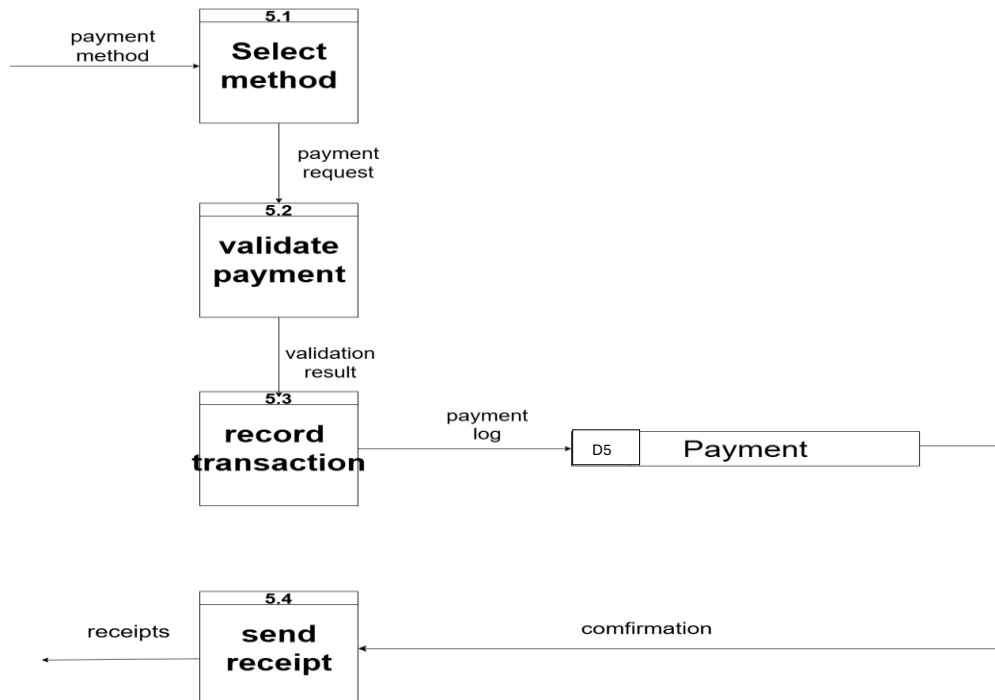
4.4 Confirm Delivery Complete

Input: Confirmation from Rider

Output: Final status log (to D4)

Data Store Direction: Process 4.4 → D4 (mark delivery as completed)

CHILD DIAGRAM 5



Entities:

- Customer

Data Store:

- D5 Payments

Processes:**5.1 Select Method**

Input: Payment choice (from Customer)

Output: Payment request (to Process 5.2)

Data Store Direction: No interaction

5.2 Validate Payment

Input: Payment request (from 5.1)

Output: Validation result (to 5.3)

Data Store Direction: No interaction

5.3 Record Transaction

Input: Validation result (from 5.2)

Output: Payment log (to D5 Payments)

Data Store Direction: Process 5.3 → D5 (store payment log)

5.4 Send Receipt

Input: Confirmation (from D5 Payments)

Output: Receipt (to Customer)

Data Store Direction: D5 → Process 5.4 (read for receipt)

6.0 Summary of Requirement Analysis

The Phase 2 requirement analysis of the Online Food Delivery System (OFDS) project combined real-world feedback with detailed modelling. Through a structured online survey involving 20 participants, several recurring themes emerged:

- **Delivery Speed Matters Most:** A significant number of users were dissatisfied with slow delivery during peak hours. This confirms the need for an optimized delivery handling system and real-time status updates.
- **User Interface Frustration:** Many users found existing apps frustrating due to the complexity of navigating the ordering process. The system should focus on a streamlined, user-friendly UI.
- **Diverse Payment Preferences:** COD remains highly preferred, but there is also a strong demand for popular e-wallets. The new system must integrate multiple flexible payment methods.
- **Market Gap Awareness:** Some respondents didn't mention a preferred platform, showing opportunity for a simplified, trustworthy alternative like OFDS.

Using Data Flow Diagrams (DFDs), we modelled the AS-IS flow and identified inefficiencies in manual order tracking, cash handling, and disconnected systems. Logical data flows between processes and data stores were mapped from user authentication to payment logging.

The insights derived from survey data have directly influenced our proposed system architecture — enabling us to align user needs with system functions. This sets the stage for Phase 3, where the TO-BE model and system prototype will be designed.