ONLINE FOOD MS

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Section 1. Project Overview

1.1 Project Description

A Multi-Restaurant Online Food Ordering System is a digital platform that allows users to order food from various restaurants in one place. The system offers a wide selection of restaurants and cuisines, giving customers the convenience to browse menus, compare prices and ratings, customize their meals, and place orders for delivery or pickup.

Customers can create and edit their profiles, view their order history, and track their orders in real time. Payments are made online through secure methods like credit or debit cards. After placing an order, customers receive confirmation and digital invoice.

Restaurant owners can log into the system to manage their menus, view and process customer orders, and coordinate deliveries through drivers or shipping services. The platform helps restaurants reach more customers and handle orders more efficiently.

The goals and objectives for this project will focus on implementing an Online Food management System (OFMS) app that solves:

For Customers : -

1. *Limited Restaurant Access:*
   Instead of checking multiple apps or websites, customers can browse and order from various restaurants in one place.
2. *Time-Consuming Ordering Process*
   The system simplifies ordering, offering quick menu browsing, secure payments, and real-time tracking.
3. Lack of Transparency
   Customers can compare prices, read reviews, and track order status, ensuring a more informed decision-making process.

For Restaurants : -

1. Inefficient Order Management
   The system automates order processing, reducing errors and improving kitchen efficiency.
2. Low Visibility & Customer Reach
   Restaurants gain access to a wider audience, increasing orders and sales.
3. Manual Inventory & Menu Updates
   Digital management tools allow restaurants to update menus, track inventory, and coordinate deliveries with ease.

1.2 Project Scope

Project Includes
Internal deliverables
External deliverables

Internal deliverables

Name	Description
Requirement Document	defines the system's features for customers, restaurants, and admins (e.g., browsing menus, order management, tracking, etc.).
System Design	database schemas, user interface mockups, and system architecture diagrams to show how the platform operates.
Implementation	Organized codebase for the customer app, restaurant dashboard, and admin panel along with API and environment configurations.
Testing Reports	internal testing results covering functional, performance, and security testing before deployment.
Maintenance plan	the maintenance requirement of the system, maintenance costs and effort required.
Development Schedule and Documentation	Progress tracking and development notes to monitor the completion of features.

External deliverables

Name	Description
Restaurant Web Dashboard	Web interface for restaurants to manage menus, process orders, update availability, and view reports.
Admin Control Panel	Central web portal for system administrators to approve restaurants, handle disputes, and analyze performances
Marketing and Promotional Materials	Launch flyers, onboarding emails, social media banners, and explainer videos to attract restaurants and users.
User Documentation	For: • Customers (e.g., how to place an order, track it, or leave a review) • Restaurant owners (e.g., how to manage menus, view analytics) • Admins (e.g., how to add new restaurants or monitor activity)
Server	To Manage the Backend Services of the Management System

Project Excludes
Reservation system
Advanced admin control
Cross region users (only users inside the Country)

1.3 Assumptions

Assumptions
There is a clear market need for a unified online platform that benefits both customers and restaurants.

The chosen technology will support integrating various features
A skilled project team and sufficient funding
Realistic timelines based on past projects.

1.4 Constraints

Constraints
Limited budget
Technical difficulties
Project Scope
Stakeholder Expectations

Section 2. Project Start-Up

2.1 Project Life Cycle

Phase 1: Planning

- **Understand the Problem:**
  Identify the main problems customers and restaurants face when ordering or managing food online.
- **Define Goals and Scope:**
  Decide what the system will include (customer app, restaurant dashboard, admin panel) and what it won't (e.g., no table reservations).
- **Make a Schedule:**
  Plan when each task will be done and assign responsibilities to team members.
- **Check Feasibility:**
  Make sure the project is possible with the time, team, and budget available.

Phase 2: Analysis

- **Gather Requirements:**
  Talk to customers, restaurants, and admins to know what features they need (e.g., order tracking, payment, menu editing).
- **Create Diagrams:**
  Show how users will interact with the system using diagrams
- **Design the Data Model:**
  Identify the key data: customers, restaurants, menus, orders, payments.
- **Check Requirements:**
  Review everything with stakeholders to confirm the requirements are correct.

Phase 3: Design

- **Plan the System Structure:**
  Decide how the parts of the system will work together (app, backend, database).
- **Design the Database:**
  Create tables and relationships for storing data like orders, menus, and payments.
- **Create UI Designs:**
  Make simple screen designs (mockups) for how the app and dashboard will look.
- **Plan Security:**
  Make sure the system will protect user data and prevent unauthorized access.

Phase 4: Implementation

- **Set Up Development Tools:**
  Get the environment ready (code editors, servers, frameworks).
- **Start Coding:**
  Build the mobile app, restaurant dashboard, admin panel, and backend services.

Phase 5: Testing

- **Test Each Part:**
  Check if each part of the system works correctly.
- **Test as a Whole:**
  Simulate a real order from start to finish to make sure everything works together.
- **Fix Bugs:**
  Find and fix any issues or errors.
- **Get Feedback:**
  Let some users test the system and give their opinions.

Phase 6: Deployment

- **Prepare for Launch:**
  Move the system to a live server.
- **Final Tests:**
  Do a last round of testing in the live environment.
- **Go Live:**
  Launch the app and website for real users.
- **Inform Users:**
  Send messages or create posts to let restaurants and customers know the app is live.

Phase 7: Maintenance

- **Fix Problems:**
  Solve any issues that appear after launch.
- **Add New Features:**
  Improve the app by adding features like discounts or restaurant reviews.
- **Monitor Performance:**
  Keep track of system performance and fix anything that slows it down.
- **Keep It Secure:**
  Regularly update the system to protect against security threats.
- **Update Documentation:**
  Keep help guides and system documents up to date.

2.2 Methods, Tools, and Techniques

Category	Details
Methodology	Sequential SDLC (waterfall)
Project Management Tools	Notion
UI/UX Design Tools	Figma
Version Control	Git, GitHub
Database	Mongo DB
Backend	Node.js (Express)
Frontend	React
APIs & Integration	Express
Testing Tools	Postman
Documentation	Inline comments, README files, User Manuals

Testing Procedures	Unit, Integration, User Acceptance Testing
IDEs	VS code

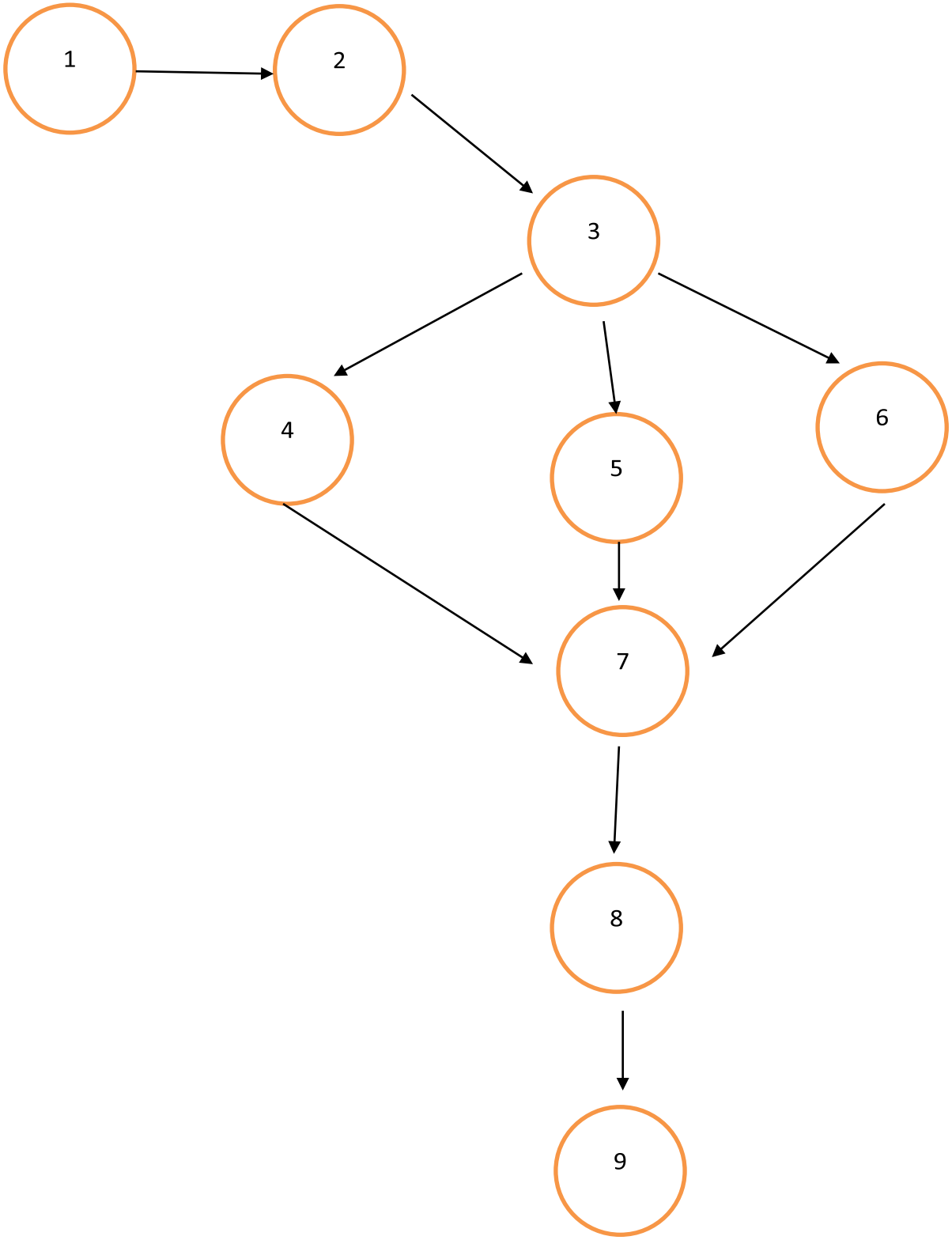
Section 3. Planning and Scheduling

3.1 PERT (Program evaluation Review Techniques) :-

Task	Optimistic Time	Realistic Time	Pessimistic Time	Expected Time
1- Requirement Gathering	3	5	7	5
2- System Design	4	6	8	6
3- Backend Development	6	9	12	9
4- Customer Interface Development	5	7	9	7
5- Restaurant Dashboard Development	5	7	9	7
6- Admin Panel Development	5	7	9	7
7- Integration and System Testing	4	6	8	6
8- Deployment and Hosting	3	5	7	5
9- User Training and Documentation	4	6	8	6

Activity	Dependency
1- Requirement Gathering	---
2- System Design	1
3- Backend Development	2
4- Customer Interface Development	3
5- Restaurant Dashboard Development	3
6- Admin Panel Development	3
7- Integration and System Testing	4,5,6
8- Deployment and Hosting	7
9- User Training and Documentation	8

Network Diagram



Critical Path

Critical Path is the all tasks (1 -> 2 ->3 ->4 ->5->6 ->7 ->8 ->9)

Section 4. Project Analysis

4.1 Questionnaires

Questionnaire No. [1]

For whom: Restaurant Owners

Questionnaire Questions

1. What type of restaurant do you run? (e.g., Fast food, Fine dining, Café, etc.)

2. Do you currently use any food delivery platforms? If yes, which ones?

3. What challenges do you face with online food ordering services?

4. Do you handle your own deliveries, or rely on third-party services?

5. How comfortable are you using a web dashboard for managing your restaurant?

   - Very Comfortable
   - Somewhat Comfortable
   - Not Comfortable

6. Which payment methods do you accept? *(Select all that apply)*

   - Cash
   - Credit/Debit Cards
   - Mobile Wallets
   - Fawery
   - Others(Specify)

7. How important are the following features for you? *(Rank from 1 = Not Important to 5 = Very Important)*

Feature	1	2	3	4	5
Customer Order notifications					
Restaurant Inventory tracking					
Sales reporting & analytics					
Restaurant Menu customization In -App					
Show Competitors					

Questionnaire No. [2]

For whom: Customers

Questionnaire Questions

1. How often do you order food online?

   ☐ Daily
   ☐ Once a week
   ☐ Few Times a week
   ☐ Rarely
   ☐ None

2. Which food delivery apps do you currently use?

   ☐ Talabat
   ☐ Uber Eats
   ☐ HungerStation
   ☐ Others: _____
   ☐ None

3. What do you look for first when choosing a restaurant (e.g., rating, price, delivery time, cuisine)?

4. Do you prefer ordering from a variety of restaurants on one app or individual restaurant apps?

5. What challenges have you faced when ordering food online?

6. Do you rely on reviews and ratings before ordering?

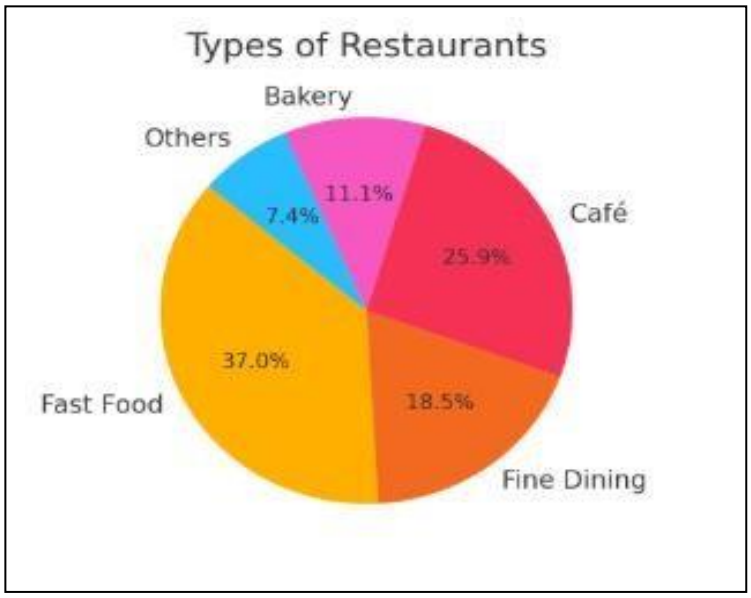
7. What additional features would improve your online food ordering experience?

8. Do you prefer comparing prices from different restaurants menus?

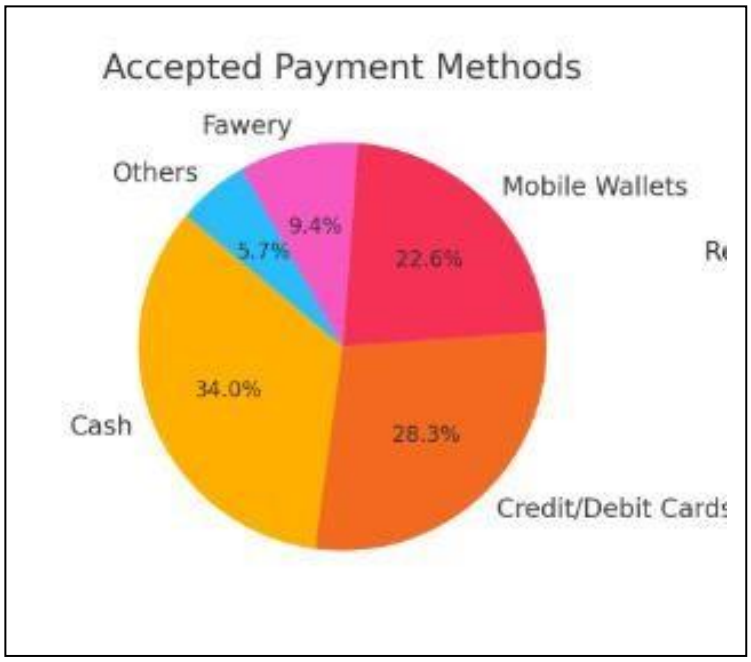
9. Would you use a new app that allows you to order from multiple restaurants in one place?
   ☐ Yes
   ☐ No
   ☐ Maybe

Questionnaire No. [1]
Analysis

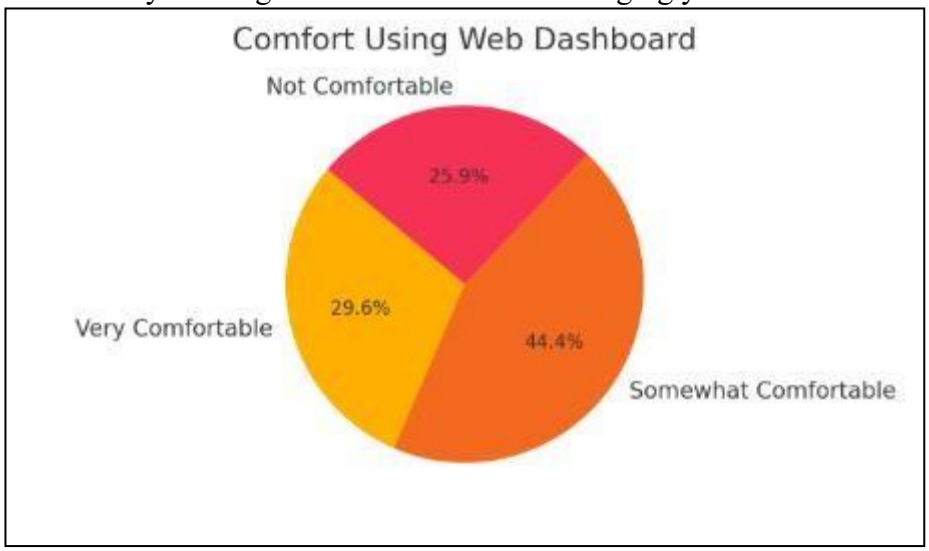
1. What type of restaurant do you run?



2. Which payment methods do you accept?



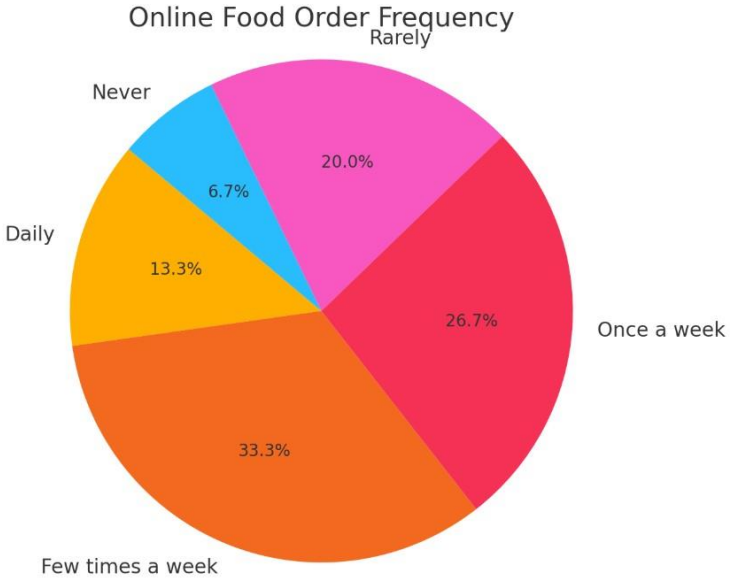
3. How comfortable are you using a web dashboard for managing your restaurant?



4. How important are the following features for you? *(Rank from 1 = Not Important to 5 = Very Important)*

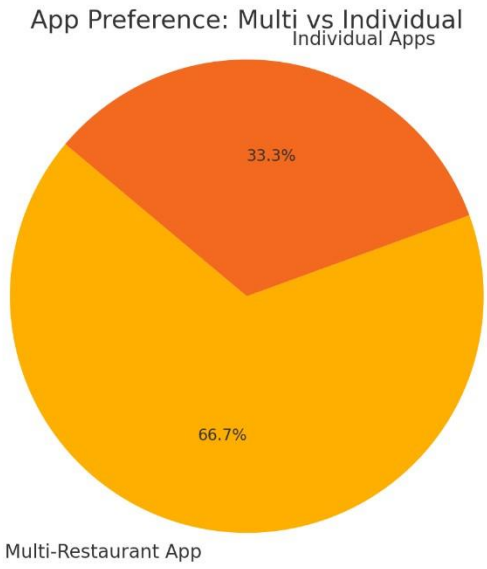
Questionnaire No. [2]
Analysis

1. How often do you order food online?

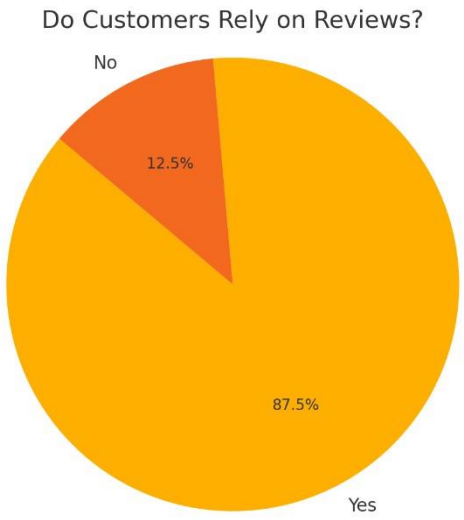


2. Which food delivery apps do you currently use?

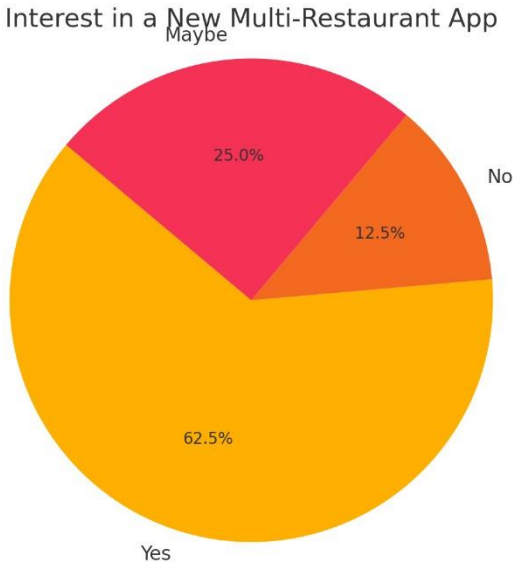
3. Do you prefer ordering from a variety of restaurants on one app or individual restaurant apps?



4. Do you rely on reviews and ratings before ordering?



5. Would you use a new app that allows you to order from multiple restaurants in one place?



4.2 Requirements

These requirements are made based on the analysis of the questionnaires from the Customers and the Restaurant Owners and divided into three categories:-

1- Restaurant dashboard

1. **Restaurant Profile Management**
    - Define and update their restaurant type (e.g., Fast food, Café).
    - Manage their menu, including adding, updating, and removing items. ○ Update general restaurant information, such as address, operating hours, and contact details.

2. **Order & Delivery Management**
    - Allow restaurants to handle orders
    - Provide real-time order notifications (e.g., when a new order is received) and tracking (e.g., order status updates like "preparing," "out for delivery").
    - Enable restaurants to assign drivers for restaurant-related delivery (if available) and manage delivery logistics.

3. **Dashboard Usability**
    - Manage orders (e.g., view, update, and track order status). ○ Manage menus (e.g., add, update, and remove items).
    - Mange delivery (e.g., assign drivers and orders).

4. **Payment Flexibility** ○ Support multiple payment methods (Cash, Cards, Mobile Wallets, Fawry, etc.). ○ View payment status for their orders (e.g., confirmed or pending payments).

2- Customer app:

1. **Customer Profile and History** ○ Create and manage their account (e.g., login , register ,update profile information and preferences).
    - View their order history (e.g., past orders, delivery addresses).
    - Save preferences (e.g., favorite restaurants, frequent delivery addresses).

2. **Restaurant Browsing & Filtering** ○ Customers should be able to filter based on rating, price, cuisine, and delivery time.
3. **Multi-Restaurant Access** ○ The app must allow browsing and ordering from multiple restaurants in one platform.
    - Place orders from any of the available restaurants.

4. **Reviews and Ratings System** ○ Read existing reviews and see star ratings for restaurants and menu items.
    - ○ Write and submit reviews and ratings after completing an order.
5. **Order Tracking** ○ Customers should receive real-time updates on order progress including:- 1. Order preparation status (e.g., "preparing," "ready for pickup").
    2. Driver assignment and estimated delivery time.
    3. Delivery status (e.g., "out for delivery," "delivered").

3- Admin panel:

1. **Manage Restaurants** ○ Manage and Approve new restaurants requests to fit in the customer app and the whole system

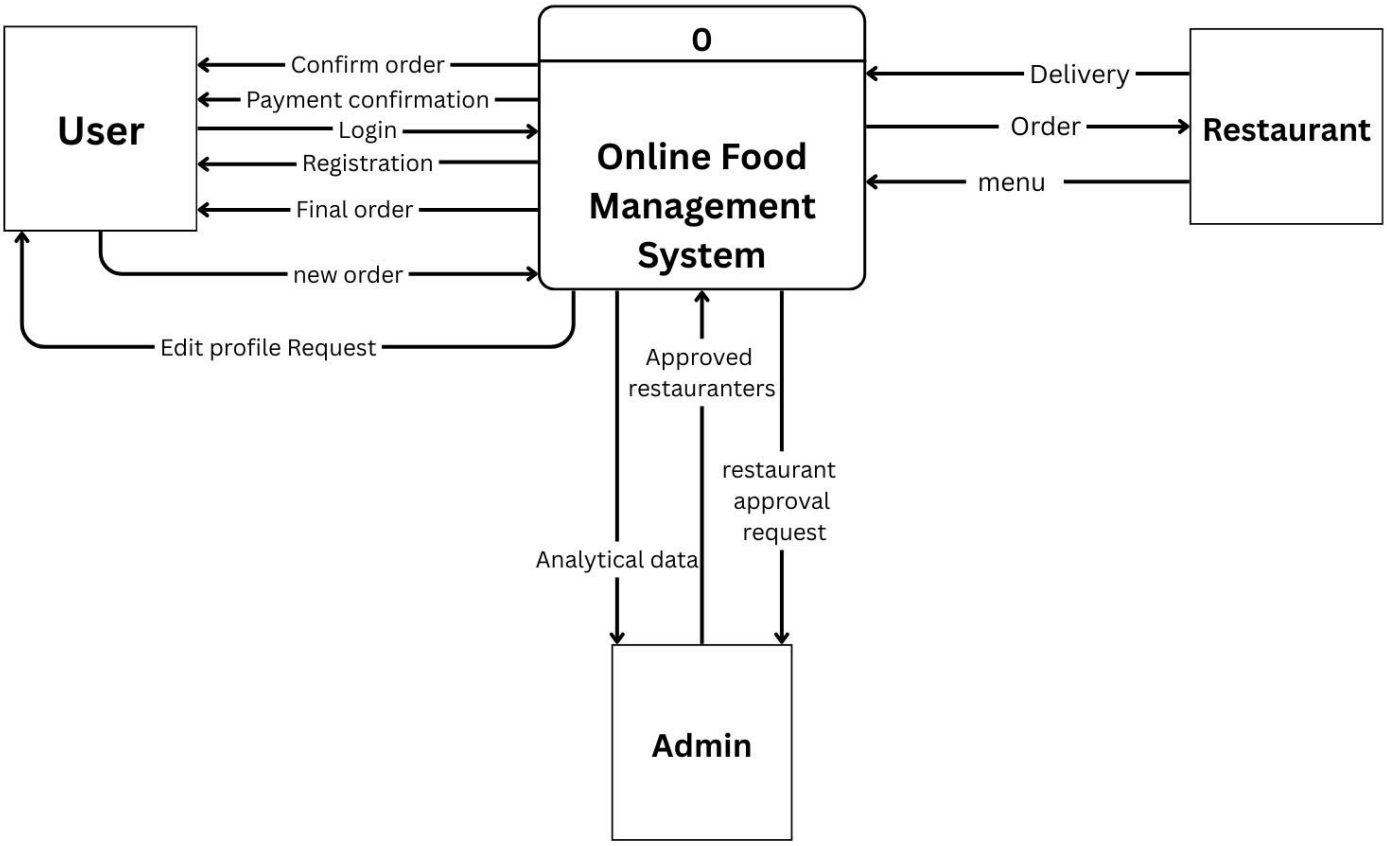
2. **Gather Analytical Data** ○ Gather data about all information of the restaurants , users , payments , orders to be further processed for feedback and improvements

Non-Functional Requirements:

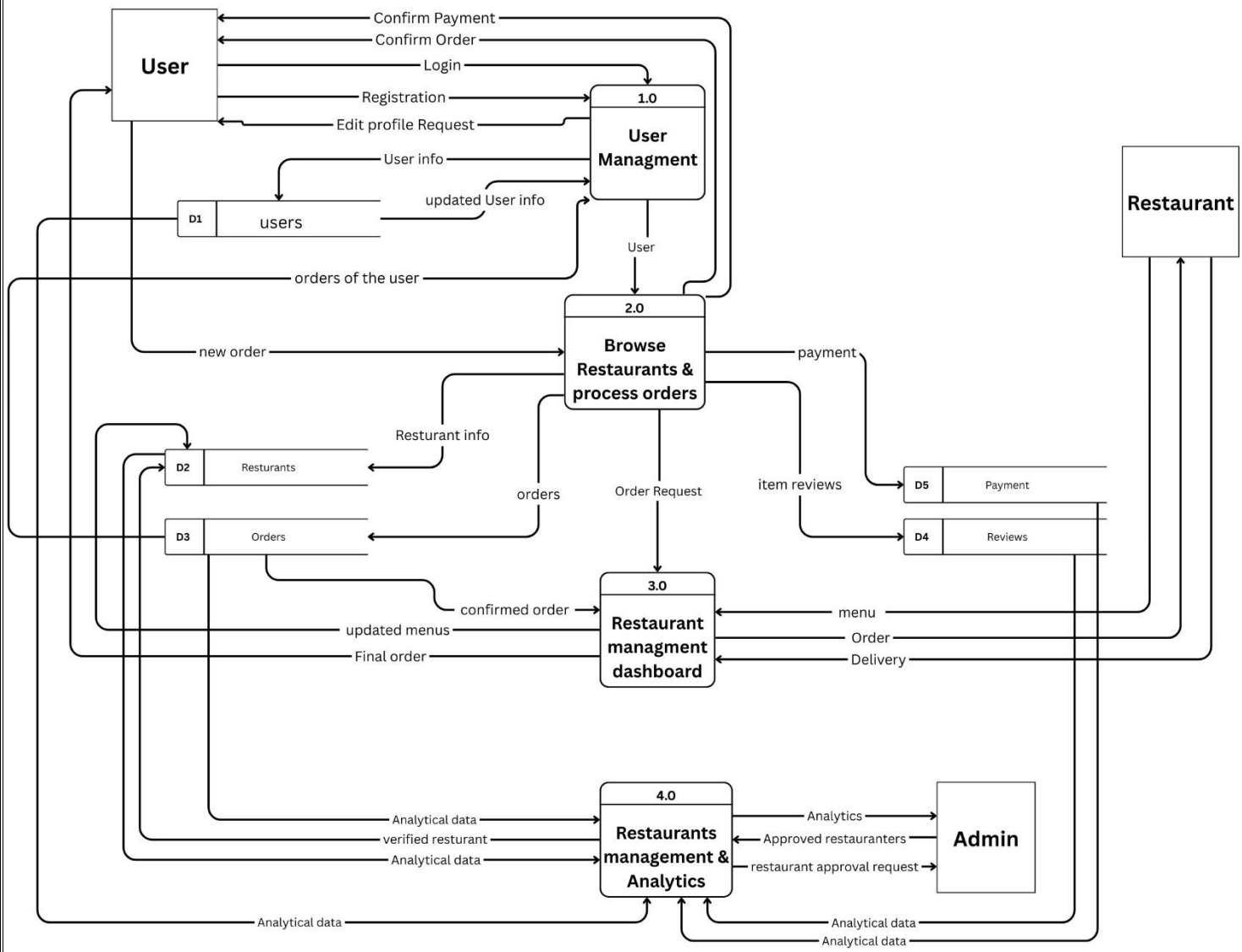
- **Ease of Use**: The system should be intuitive for staff with varying tech comfort levels.
- **Scalability**: Should handle multiple restaurants , growing users and data.

4.3 DFD diagrams

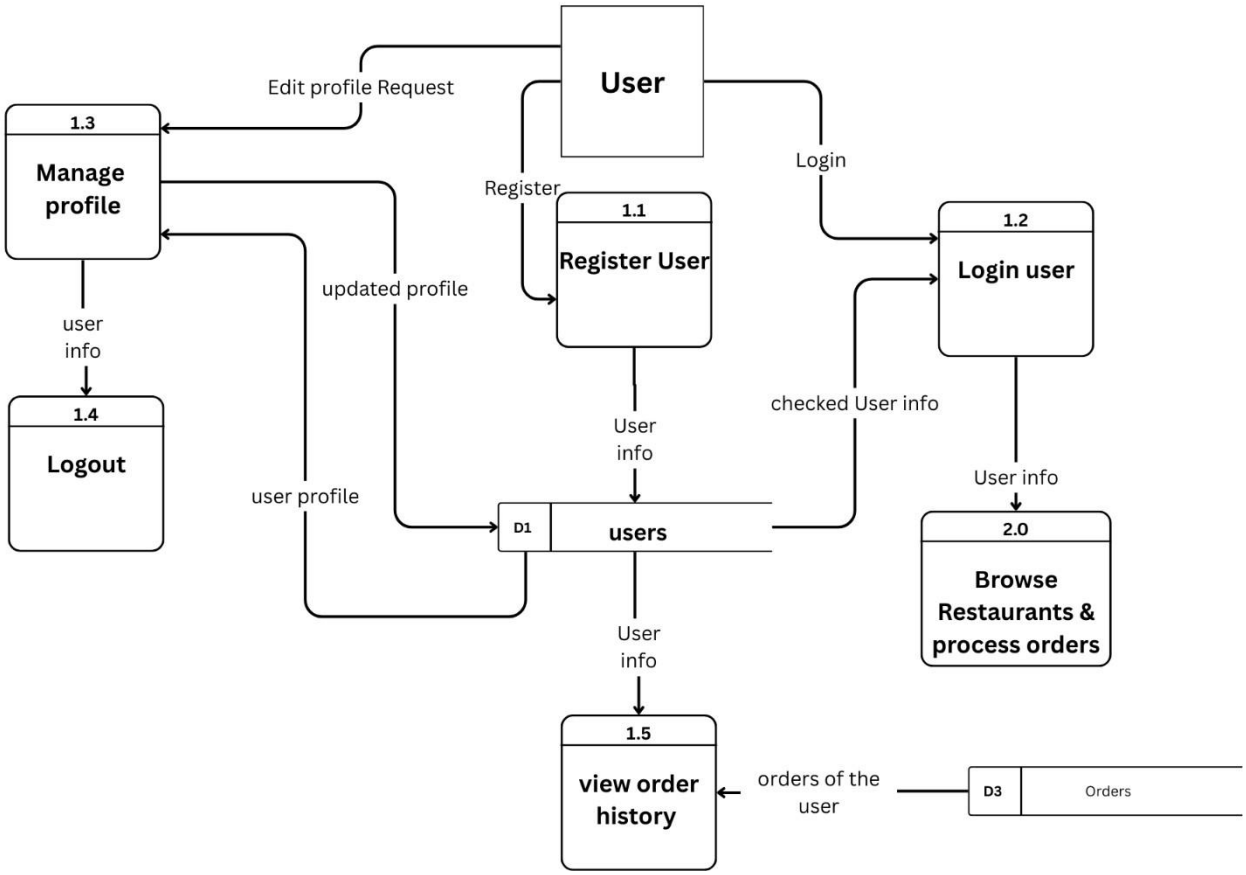
Context diagram



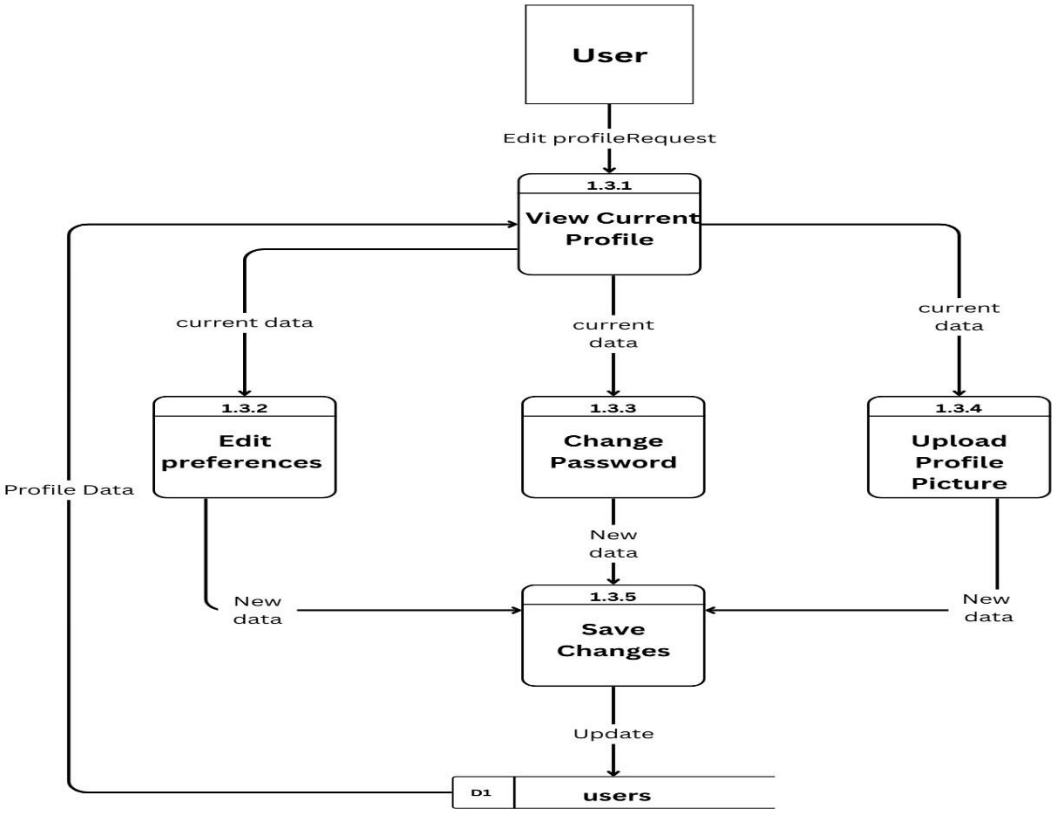
Level 0


User
Confirm Payment
Confirm Order
Login
Registration
Edit profile Request
1.0
User Managment
User info
updated User info
D1
users
orders of the user
User
Restaurant
2.0
Browse Restaurants & process orders
new order
payment
Resturant info
D2
Resturants
orders
Order Request
item reviews
D5
Payment
D3
Orders
D4
Reviews
3.0
Restaurant managment dashboard
confirmed order
menu
updated menus
Order
Final order
Delivery
4.0
Restaurants management & Analytics
Analytical data
verified resturant
Analytical data
Analytics
Approved restauranters
restaurant approval request
Admin
Analytical data
Analytical data
Analytical data

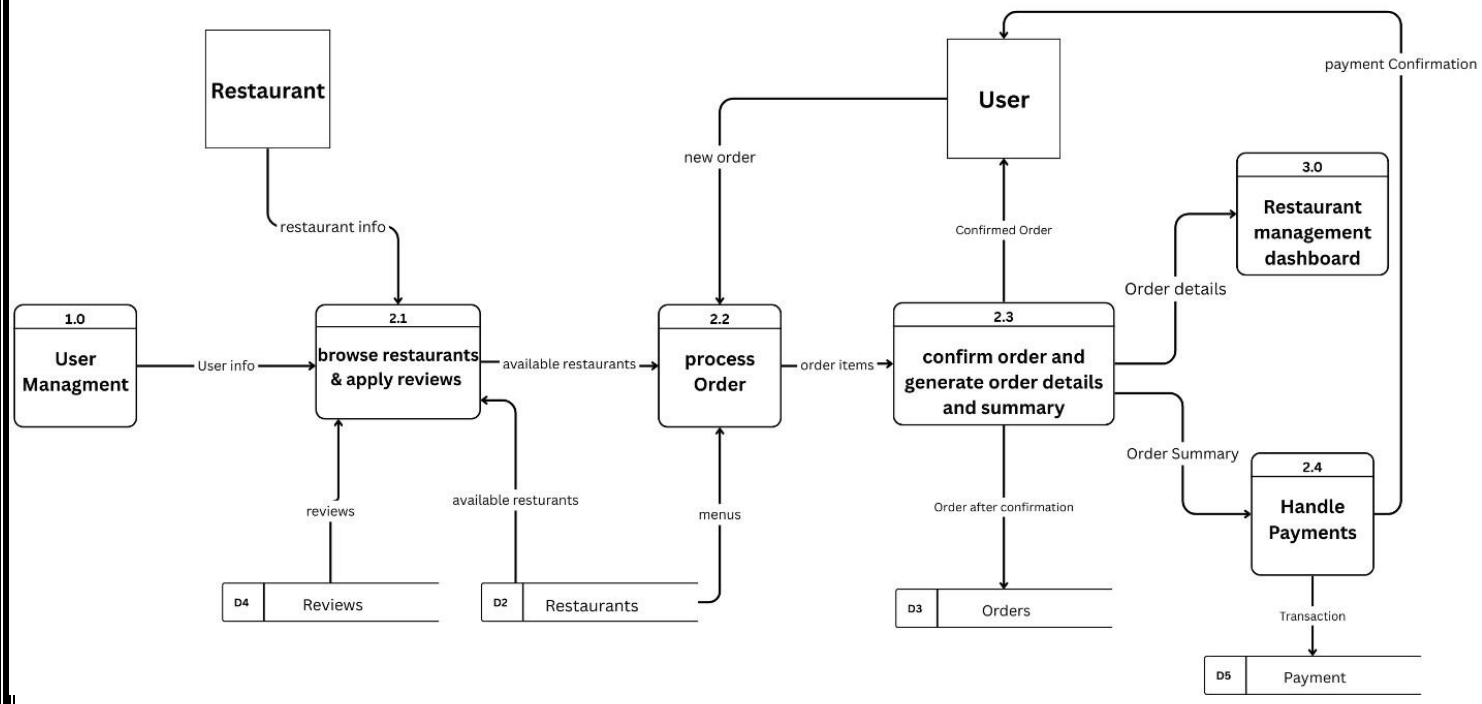
Level 1
1.0 userManagment



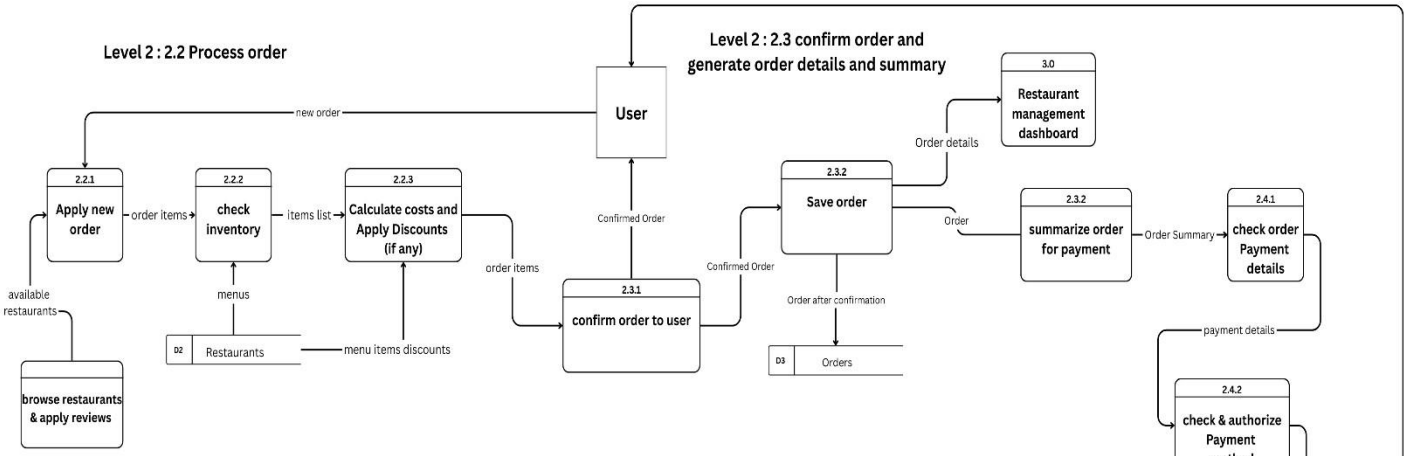
Level 2
1.3 Manage profile



Level 1 : 2.0 Browse Restaurants & process orders

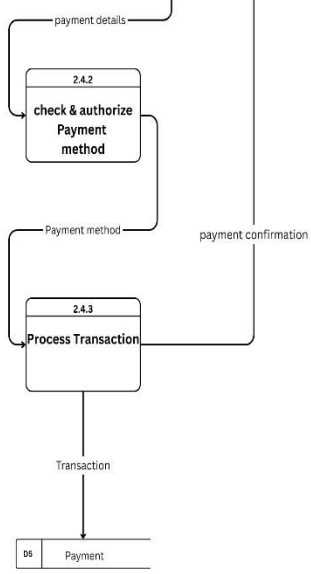


Level 2 : 2.2 Process order

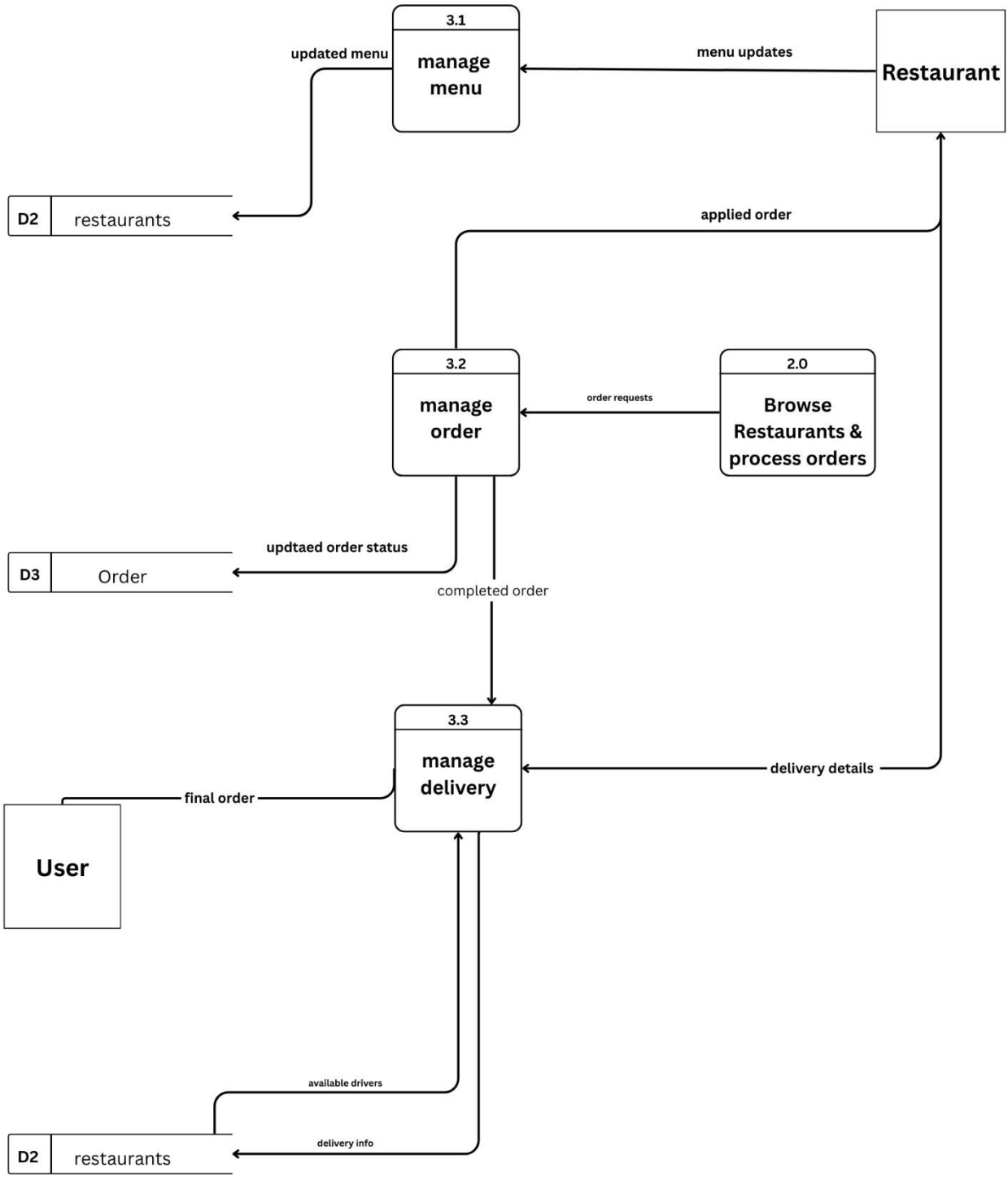


Level 2 : 2.3 confirm order and generate order details and summary

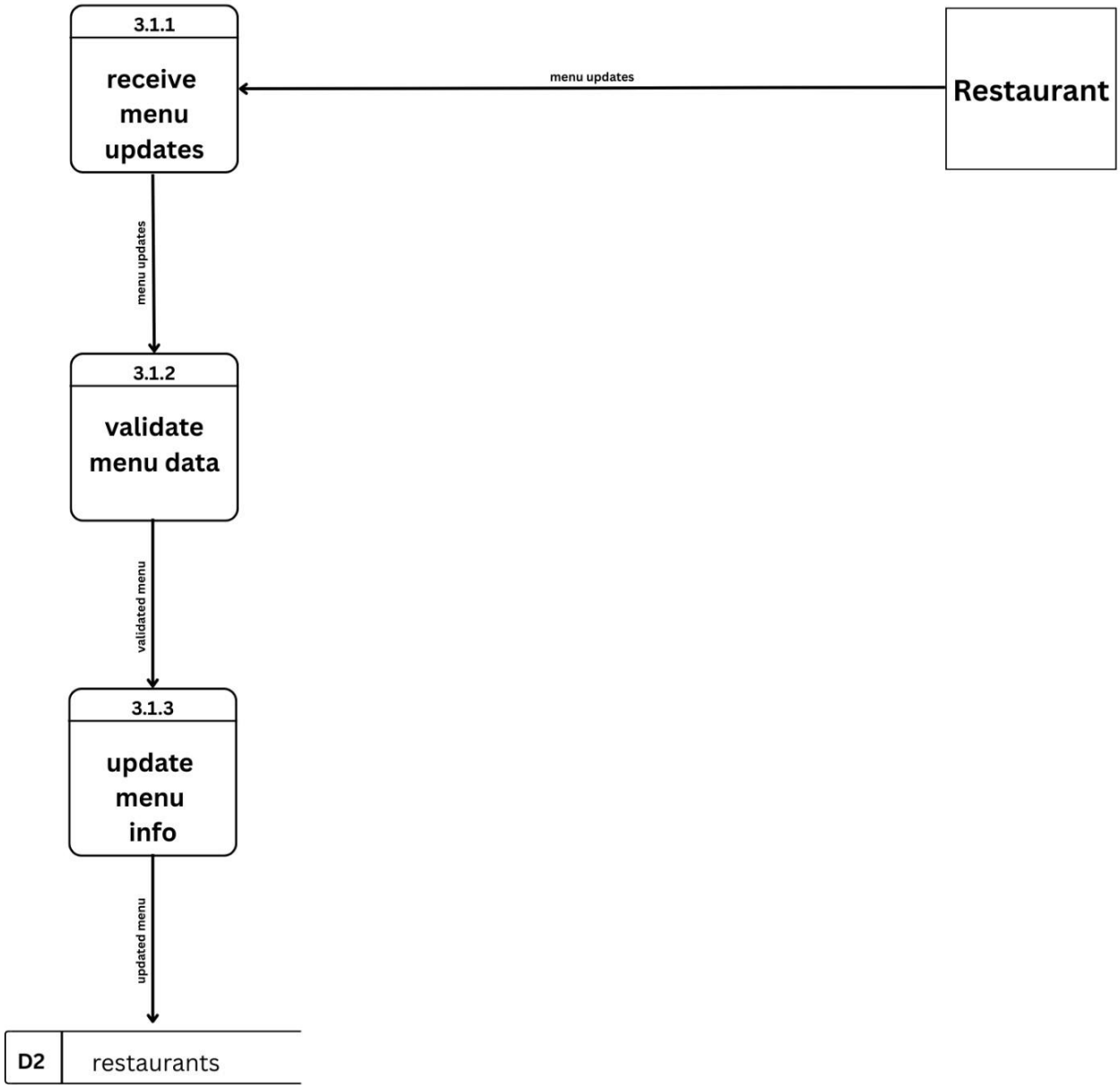
Level 2 : 2.4 Handle payment



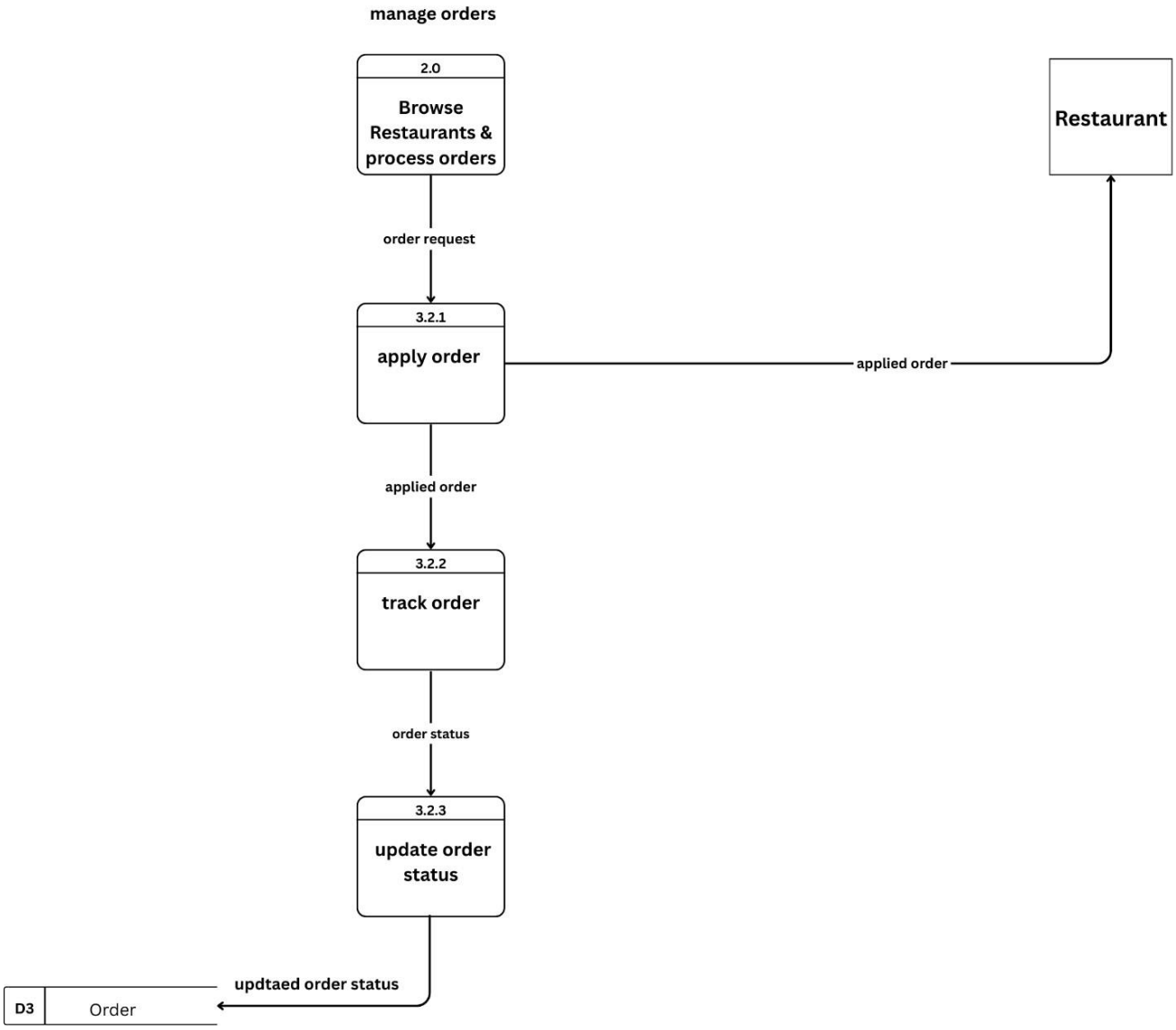
Level 1 : 3.0 Restaurant management dashboard



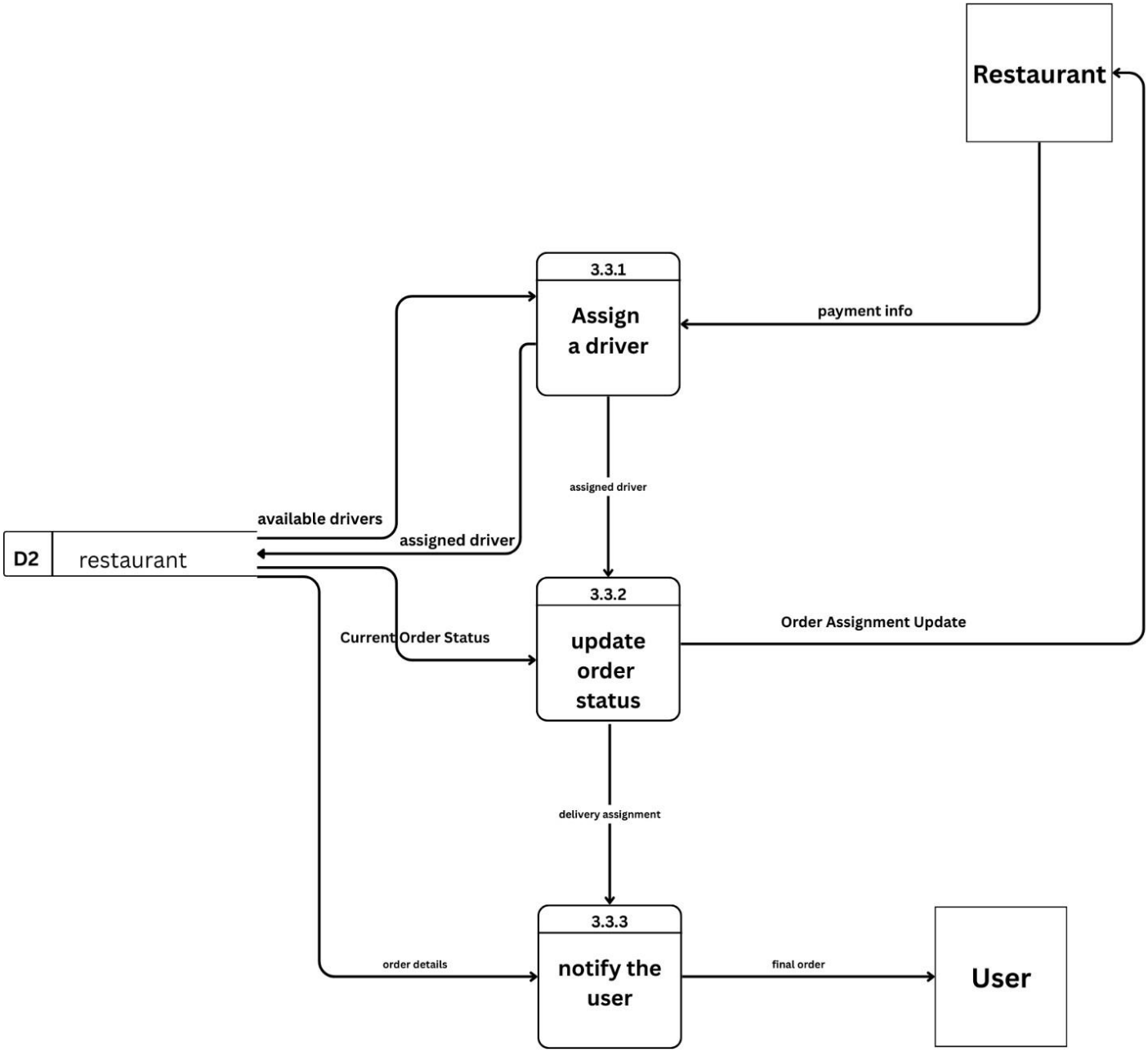
Level 2 : 3.1 manage menu



Level 2: 3.2 : Manage Orders

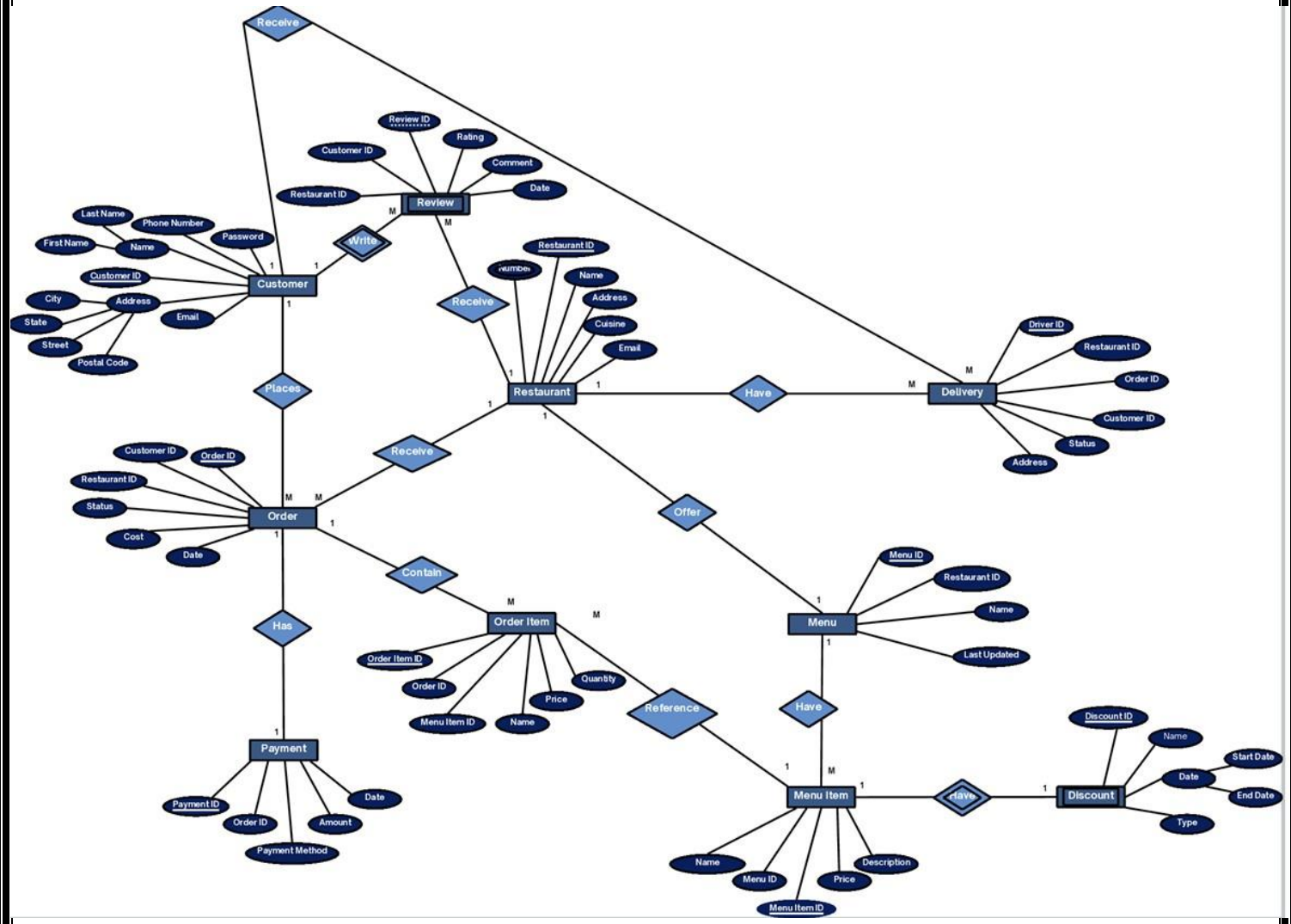

manage orders
2.0
Browse Restaurants & process orders
Restaurant
order request
3.2.1
apply order
applied order
applied order
3.2.2
track order
order status
3.2.3
update order status
updtaed order status
D3
Order

level 2 : 3.3 : manage delivery



4.4 ERD

Diagram



Relational Table