

**WORKSHOP N° 2**  
**SOFTWARE ENGINEERING II**

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# Software Requirements Specification - Click & Munch

## CRC Cards

The following cards are the guide for the development of the application following the SOLID principles and defining the architecture of the system.

### Auth Service:

Class: User

#### **Responsibilities:**

- Store user identity and credentials (id, name, email, password hash).
- Maintain role and basic profile data.
- Expose basic user info to other services.

**Collaborators:** Session, AuthService, ReservationService, OrderService

Class: Customer

#### **Responsibilities:**

- Inherit User attributes.
- Initiate reservations and pre-orders.
- Submit ratings and feedback

**Collaborators:** ReservationService, OrderService, Rating, NotificationService

Class: RestaurantManager

#### **Responsibilities:**

- Inherit User attributes.
- Manage restaurant profile and branch details.

- Propose menu changes and manage tables.

**Collaborators:** RestaurantService, MenuService, AdminService, NotificationService

Class: Waiter

**Responsibilities:**

- Inherit User attributes.
- View ready orders and mark service complete.
- Receive targeted notifications for deliveries.

**Collaborators:** OrderService, NotificationService, RestaurantService

Class: Chef

**Responsibilities:**

- Inherit User attributes.
- View kitchen order queue.
- Update dish and order statuses (Preparing, Ready, Served).

**Collaborators:** OrderService, MenuService, NotificationService

Class: SystemAdministrator

**Responsibilities:**

- Inherit User attributes.
- Approve or reject restaurant and menu requests.
- Generate and access system reports and admin functions.

**Collaborators:** AdminService, RestaurantService, MenuService

Class: Session

**Responsibilities:**

- Maintain active session state (JWT token, expiry).

- Validate token and refresh when required.

**Collaborators:** AuthService, JwtTokenUtil, User

## Restaurant Service

Class: Restaurant

### **Responsibilities:**

- Store core restaurant data (name, description, ratings summary).
- Expose restaurant metadata and links to branches & menus.

**Collaborators:** Branch, Menu, Rating, ReservationService, GeoService

Class: Branch

### **Responsibilities:**

- Represent a single physical location (address, coordinates, contact).
- Store operating hours and branch-specific tables.

**Collaborators:** Restaurant, Table, OperatingHours, GeoService

Class: Table

### **Responsibilities:**

- Represent a seating unit with capacity and current state.
- Track reservations and occupancy status.

**Collaborators:** ReservationService, Branch, Restaurant

Class: OperatingHours

### **Responsibilities:**

- Define open/close schedules and exceptions (holidays).
- Provide availability checks for a given datetime.

**Collaborators:** Branch, ReservationService

Class: Rating

**Responsibilities:**

- Store individual rating records and comments.
- Provide aggregated rating metrics for restaurant listing.

**Collaborators:** Customer, Restaurant, AdminService

## Menu Service

Class: Menu

**Responsibilities:**

- Aggregate MenuItem's for a restaurant or branch.
- Provide category grouping and availability filters.

**Collaborators:** MenuCategory, MenuItem, RestaurantService

Class: MenuCategory

**Responsibilities:**

- Categorize menu items (e.g., Starters, Mains, Drinks).
- Support category-level operations (visibility, ordering).

**Collaborators:** Menu, MenuItem

Class: MenuItem

**Responsibilities:**

- Define dish properties: name, description, price, ETA, availability.
- Provide variants and customization options.

**Collaborators:** MenuCategory, CustomizationOption, OrderService

Class: CustomizationOption

**Responsibilities:**

- Represent configurable options (size, modifiers, add-ons).
- Validate option compatibility with MenuItem.

**Collaborators:** MenuItem, OrderItem

## Reservation Service

Class: Reservation

**Responsibilities:**

- Represent a booking: customer, branch, table(s), datetime, party size, status.
- Enforce reservation business rules and persist history.

**Collaborators:** Customer, Branch, Table, ReservationStatus, NotificationService

Class: ReservationStatus

**Responsibilities:**

- Enumerate and represent reservation states (Pending, Confirmed, Cancelled, Completed).

**Collaborators:** Reservation

Class: Confirmation

**Responsibilities:**

- Capture confirmation interactions (e.g., push confirm/decline).
- Trigger follow-up actions (notify restaurant, update reservation).

**Collaborators:** Reservation, NotificationService

Class: CancellationPolicy

**Responsibilities:**

- Define rules for cancellation (deadlines, penalties if any).
- Validate cancellation requests against policy.

**Collaborators:** Reservation, AdminService

## Order Service

Class: Order

### **Responsibilities:**

- Represent an order tied to a reservation or table.
- Maintain order lifecycle and total cost.

**Collaborators:** OrderItem, Customer, Chef, Waiter, NotificationService

Class: OrderItem

### **Responsibilities:**

- Represent one dish within an Order: menu item ref, quantity, notes, chosen customizations.
- Calculate line cost.

**Collaborators:** Order, MenuItem, CustomizationOption

Class: OrderStatus

### **Responsibilities:**

- Enumerate order lifecycles (Created, Preparing, Ready, Served, Cancelled).

**Collaborators:** Order

Class: PreparationTime

### **Responsibilities:**

- Store or compute estimated preparation time per menu item or order.
- Provide ETA for order or individual items.

**Collaborators:** MenuItem, Order

Class: Tip

**Responsibilities:**

- Record optional gratuity amounts and associate with the waiter or order.

**Collaborators:** Order, Waiter

## Notification Service

Class: Notification

**Responsibilities:**

- Represent and persist a notification event (recipient, payload, type, delivered flag).
- Route notifications to the proper delivery channel.

**Collaborators:** User, NotificationType, Channel, NotificationPreference

Class: NotificationType

**Responsibilities:**

- Define categories: ReservationReminder, ReservationConfirmed, OrderReady, OrderStatusUpdate, AdminMessage.

**Collaborators:** Notification, NotificationPreference

Class: NotificationPreference

**Responsibilities:**

- Store user preferences for receiving notifications (channels, snooze settings).

**Collaborators:** User, Notification

Class: Channel

**Responsibilities:**

- Abstract delivery channels: Push (FCM), Email, SMS, WebSocket.



- Provide send and retry logic for each channel.

**Collaborators:** Notification, NotificationService

## Admin Service

Class: RestaurantRequest

### **Responsibilities:**

- Represent a restaurant signup/request record for admin review.
- Track approval state and admin comments.

**Collaborators:** Restaurant, SystemAdministrator, NotificationService

Class: MenuRequest

### **Responsibilities:**

- Represent a submitted menu or menu change pending approval.
- Record audit trail and versioning information.

**Collaborators:** Menu, SystemAdministrator, NotificationService

Class: Report

### **Responsibilities:**

- Generate aggregations and exports (reservations, orders, ratings, activity).
- Provide API for CSV/PDF exports.

**Collaborators:** AdminService, ReservationService, OrderService, RestaurantService

Class: SystemUser

### **Responsibilities:**

- Represent internal admin users and their roles/permissions.
- Facilitate audit and action logging.

**Collaborators:** SystemAdministrator, AdminService

## Geo Service

Class: Location

**Responsibilities:**

- Store coordinates (latitude, longitude) and location metadata.
- Provide helper functions for distance calculations.

**Collaborators:** Branch, Customer, Geo queries (PostGIS)

Class: SearchFilter

**Responsibilities:**

- Encapsulate search parameters (radius, cuisine, rating threshold, sort order).

**Collaborators:** GeoService, RestaurantService

Class: SearchResult

**Responsibilities:**

- Contain ordered list of nearby restaurants with distance and ranking metadata.

**Collaborators:** GeoService, Restaurant

## Shared Library (Common)

Class: BaseEntity

**Responsibilities:**

- Provide common persistence fields (id, createdAt, updatedAt, version).

**Collaborators:** All domain entities

Class: ApiResponse

**Responsibilities:**

- Standardize successful API responses (status, data, meta).

**Collaborators:** All Services, Controllers

Class: ErrorResponse

**Responsibilities:**

- Standardize error payloads (code, message, details).

**Collaborators:** Exception handlers across services

Class: JwtTokenUtil

**Responsibilities:**

- Generate, sign and validate JWT tokens.
- Extract claims and validate expiration/audience.

**Collaborators:** AuthService, Session

Class: MapperUtil

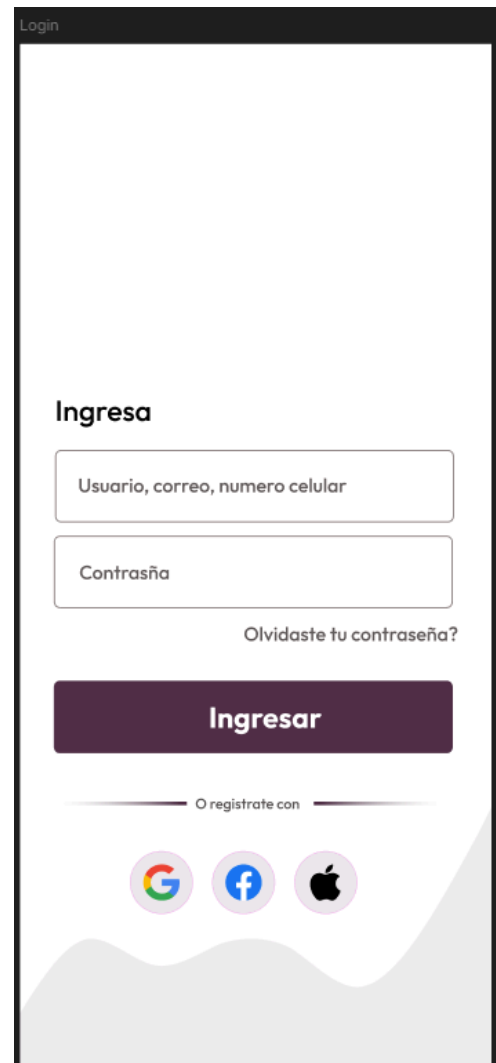
**Responsibilities:**

- Convert Entities ↔ DTOs and validate payload mappings.
- Centralize mapping rules to avoid duplication.

**Collaborators:** Controllers, Services, Repositories

# Mockups

<https://www.figma.com/design/OsUJLRGwAVkChvzjCQdMFN/MockupsClick-Munch?node-id=0-1&t=SnMYEkC37pTQu0pO-1>



 **Bogota**   
Colombia



 Busca el plato o restaurante

**40% de  
descuento**

EN TU PRIMERA ORDEN

RESERVA YA!

★ **Populares**

[Ver Mas](#)



changua



tamal



paiza



hamburg

★ **El especial de hoy**

[Ver Mas](#)



**Cocido boyasence**

**20.000** ~~\$30.000~~

20%

Amet minim mollit non deserunt ullamco est sit aliqua dolor do amet sint.

★ 5.0(34) Principal

RECOMENDADO



**Arroz con**

**\$26.000**

Amet minim

★ 5.0(34)

★ **El especial de hoy**

[Ver Mas](#)



**Cocido boyasence**

**20.000** ~~\$30.000~~

20%

Amet minim mollit non deserunt ullamco est sit aliqua dolor do amet sint.

★ 5.0(34) Principal

RECOMENDADO



**Arroz con**

**\$26.000**

Amet minim

★ 5.0(34)

★ **Deliciosos postres**

[Ver Mas](#)



**Miloja**

**5.000** ~~\$8.000~~

20%

Amet minim mollit non deserunt ullamco est sit aliqua dolor do amet sint.

★ 5.0(34) Principal

RECOMENDADO



**Fresas**

**\$9.999**

Amet minim

★ 5.0(34)



Inicio



Menu



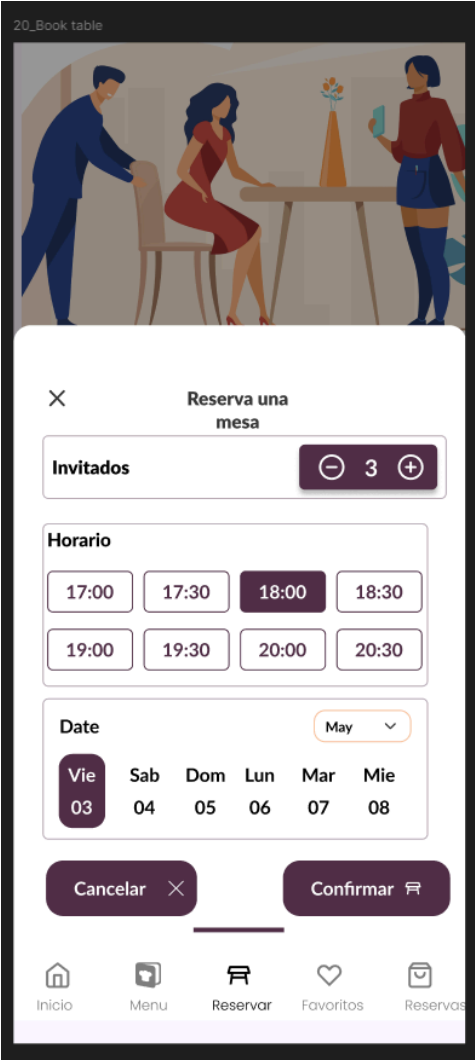
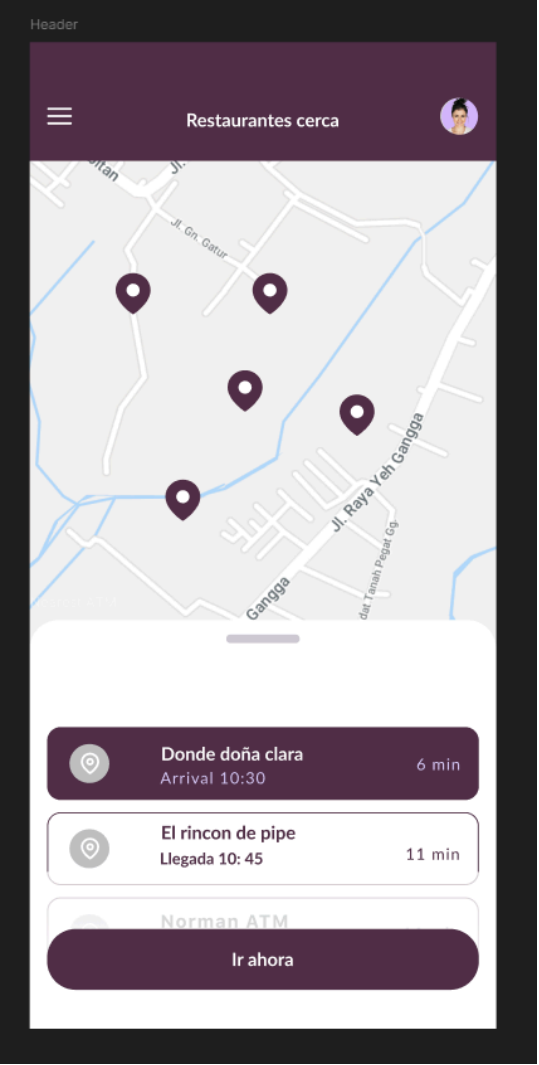
Reserva

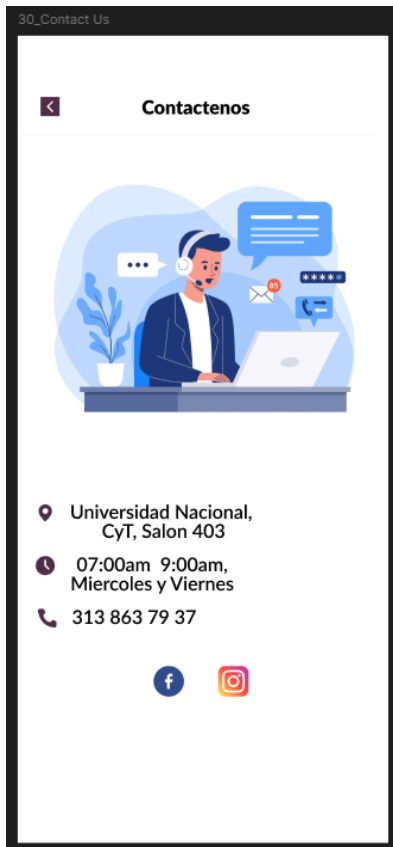


Favorito



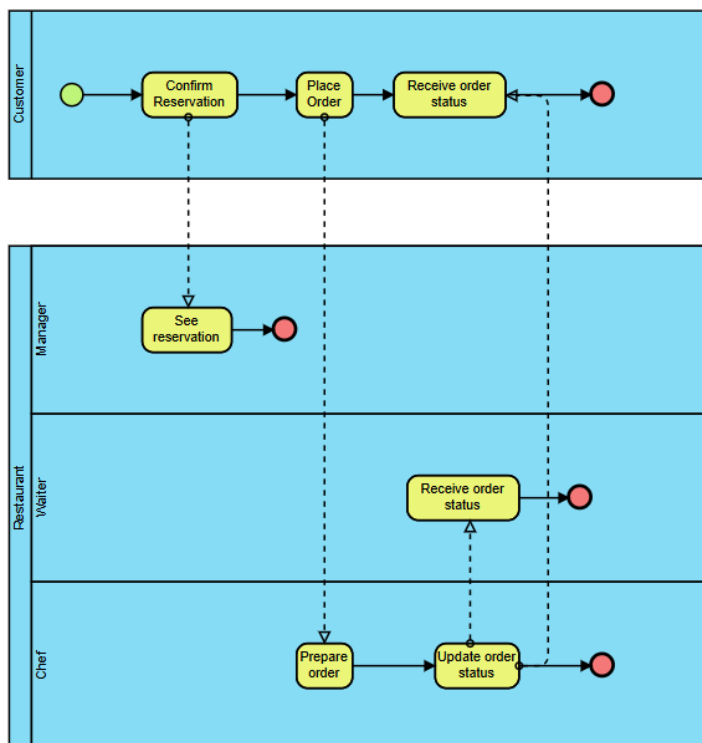
Carrito



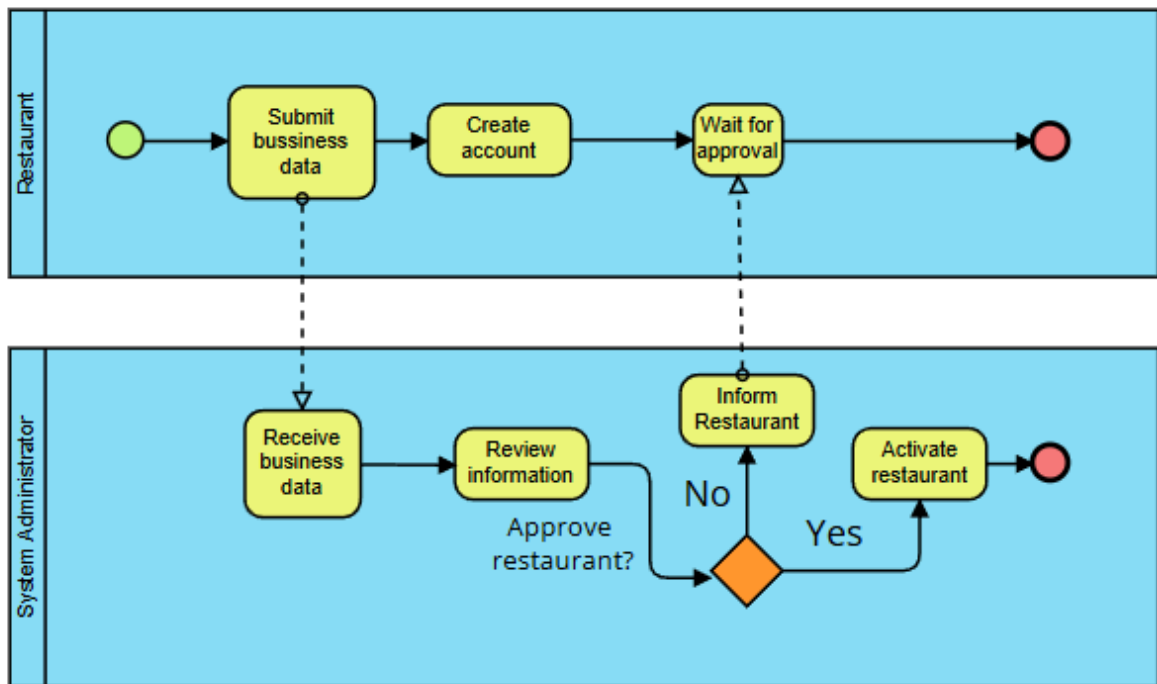


## Business Model Process: BPMN Diagram

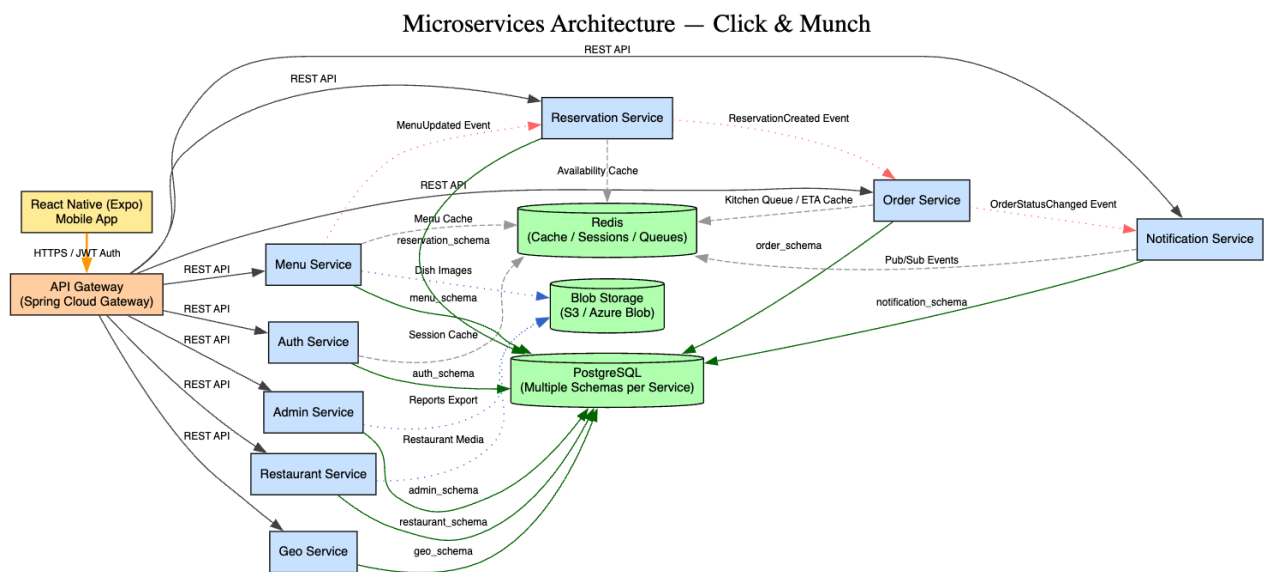
Make a reservation and place and order



## Restaurant registration



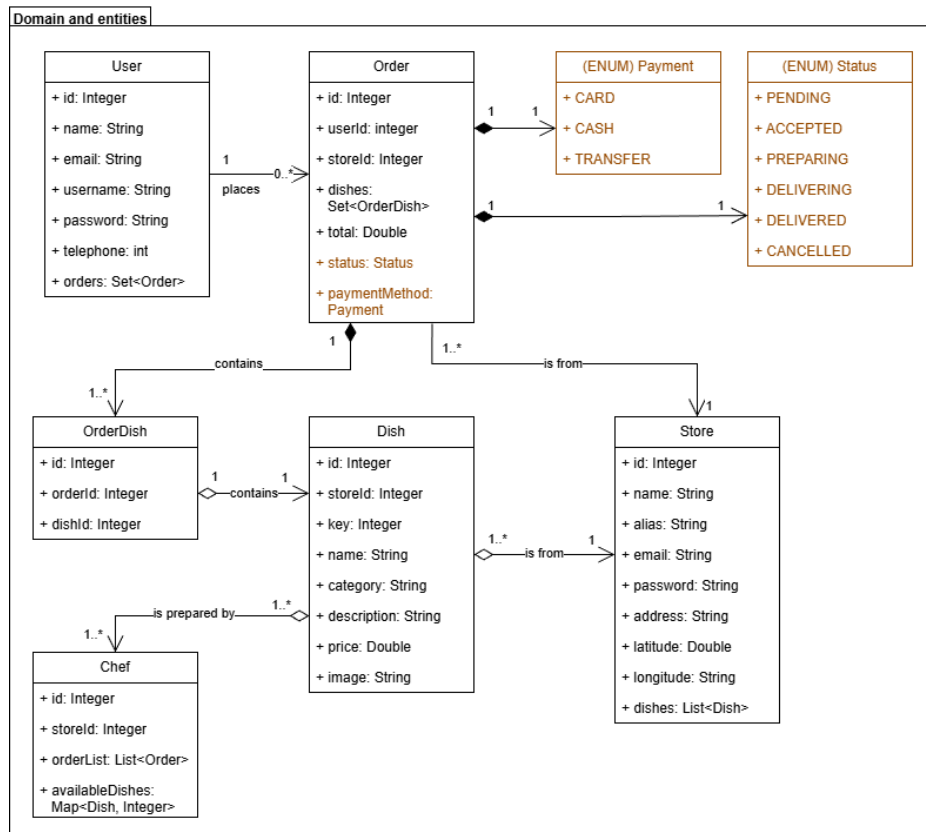
## Architecture Diagram



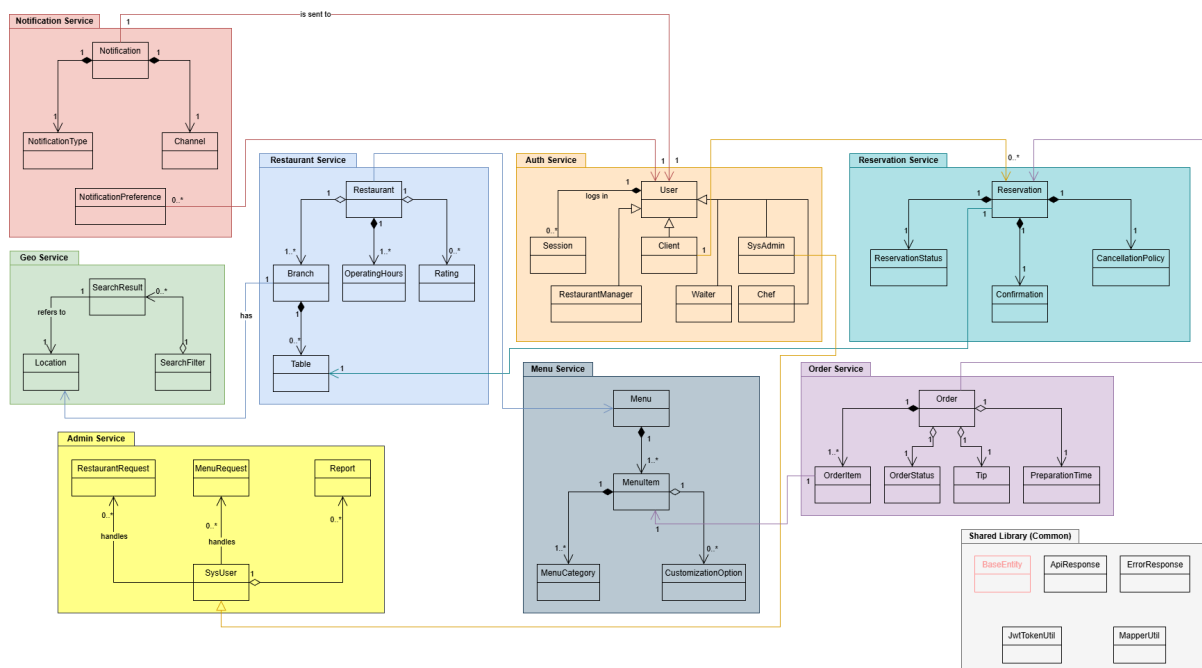


# UML Class Diagrams

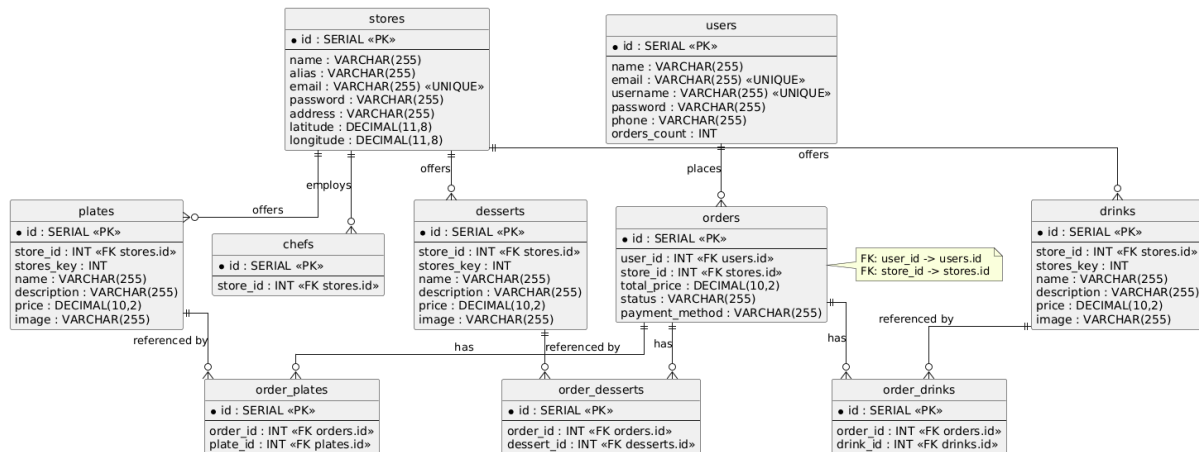
UML Class Diagram for domain/entities within the backend application:



UML Class Diagram for the backend application microservices:



# Relational Database Model



## References

EngAndres. (n.d.). *unal\_public* [Folder: Software Engineering 2\_Morning (G3)/slides]. GitHub.

[https://github.com/EngAndres/unal\\_public/tree/main/Software%20Engineering%202\\_Morning%20\(G3\)/slides](https://github.com/EngAndres/unal_public/tree/main/Software%20Engineering%202_Morning%20(G3)/slides)

UML Class Diagram Tutorial. (n.d.).

<https://www.visual-paradigm.com/guide/uml-unified-modeling-language/uml-class-diagram-tutorial/>

GeeksforGeeks. (2025, August 29). UML Class Diagram. GeeksforGeeks.

<https://www.geeksforgeeks.org/system-design/unified-modeling-language-uml-class-diagrams/>