DINESWIFT DATA DEFINITION DOCUMENT (DATA DICTIONARY)

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This document outlines the logical schema for the DineSwift platform, detailing all tables, fields, and relationships across the five core subsystems.

Contents

1. SUBSYSTEM 1: CORE USER IDENTITY & RBAC

1.1. Table: `users`

Field	Definition	Constraints & Type
user_id	Unique user identifier	UUID, **PK**
email	User's primary email	VARCHAR(255), **UNIQUE**
full_name	User's full name	VARCHAR(255)
phone_number	Contact number	VARCHAR(50)
gps_location	Last known GPS coordinates	JSONB
communication_preferences	Notification preferences	JSONB
is_active	Account status	BOOLEAN
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
last_login	Audit timestamp	TIMESTAMP
Relationships	A user can have multiple roles across different restaurants. A user can place multiple orders. A user can make multiple bookings. A user can provide multiple feedback entries. A user can be a member of multiple communication groups. A user can have multiple payment methods. A user can have loyalty accounts at multiple restaurants. A user can send and receive multiple chat messages. A user can receive multiple notifications. A user can apply multiple reward redemptions. A user can create multiple order item rejections.	

1.2. Table: `roles`

Field	Definition	Constraints & Type
role_id	Unique role identifier	UUID, **PK**
role_name	Role name ('customer', 'manager', 'chef', 'waiter', 'admin')	VARCHAR(50), **UNIQUE**
permissions	Role permissions configuration	JSONB
description	Role description	TEXT
created_at	Creation timestamp	TIMESTAMP
Relationships	A role can be assigned to multiple users. Each role assignment is scoped to a specific restaurant.	

1.3. Table: user_roles

Field	Definition	Constraints & Type
user_role_id	Unique assignment identifier	UUID, **PK**
user_id	The user	UUID, **FK → users**
role_id	The role assigned	UUID, **FK → roles**
restaurant_id	Restaurant scope (NULL for global roles)	UUID, **FK → restaurants**, NULLABLE
assigned_by	Who assigned this role	UUID, **FK → users**
assigned_at	Assignment timestamp	TIMESTAMP
is_active	Assignment status	BOOLEAN
Relationships	Each user_role record belongs to one user and one role. A user_role can be scoped to one restaurant (optional). A user_role can be linked to one restaurant_staff record (if staff member).	

2. SUBSYSTEM 2: CORE OPERATIONS & VENUE MANAGEMENT

2.1. Table: restaurants

Field	Definition	Constraints & Type
restaurant_id	Unique restaurant identifier	UUID, **PK**
name	Restaurant name	VARCHAR(255)
description	Business description	TEXT
cuisine_type	Type of cuisine	VARCHAR(100)
address	Physical address with coordinates	JSONB
contact_info	Contact information	JSONB
operation_hours	Business hours by day	JSONB
social_media_links	Social media profiles	JSONB
delivery_options	Delivery settings and fees	JSONB
payment_methods_accepted	Accepted payment methods	JSONB
average_rating	Aggregated rating	DECIMAL(3,2)
total_reviews	Total review count	INTEGER
average_delivery_time	Average delivery time in minutes	INTEGER
status	Business status	ENUM ('active', 'inactive', 'suspended')
local_server_id	Local server reference	UUID, **FK → local_servers**
created_at, updated_at, deleted_at	Audit trail	TIMESTAMP
created_by, updated_by, deleted_by	User audit	UUID, **FK → users**
Relationships	A restaurant has one menu and one menu belongs to one restaurant. A restaurant has multiple tables and each table belongs to one restaurant. A restaurant has multiple staff members and each staff member works at one restaurant. A restaurant has multiple customers and a customer can belong to multiple restaurants. A restaurant can have multiple orders and each order belongs to one restaurant. A restaurant can have multiple bookings and each booking belongs to one restaurant. A restaurant can have multiple inventory items and each inventory item belongs to one restaurant. A restaurant can be associated with multiple suppliers and a supplier can serve multiple restaurants. A restaurant can have multiple		

	communication groups and each group belongs to one restaurant. A restaurant can have multiple chat sessions and each chat session belongs to one restaurant. A restaurant can have multiple announcements and each announcement belongs to one restaurant. A restaurant can have multiple daily summaries and each summary belongs to one restaurant. A restaurant can have one local server and each local server belongs to one restaurant. A restaurant can have multiple loyalty rewards.

2.2. Table: restaurant_tables

Field	Definition	Constraints & Type
table_id	Unique table identifier	UUID, **PK**
restaurant_id	Owning restaurant	UUID, **FK → restaurants**
table_number	Table identifier	VARCHAR(20)
qr_code	QR code for scanning	VARCHAR(500), **UNIQUE**
capacity	Maximum guests	INTEGER
table_status	Current status	ENUM ('available', 'occupied', 'reserved', 'maintenance')
coordinates	Layout coordinates for routing	JSONB
created_at, updated_at	Audit timestamps	TIMESTAMP
Relationships	A table belongs to one restaurant and a restaurant has multiple tables. A table can have multiple bookings and each booking is for one table. A table can be associated with multiple orders and each order can be for one table. A table can have multiple table assignments and each assignment is for one table.	

2.3. Table: local_servers

Field	Definition	Constraints & Type
local_server_id	Unique server identifier	UUID, **PK**
restaurant_id	Associated restaurant	UUID, **FK → restaurants**, **UNIQUE**
server_name	Server name	VARCHAR(255)
server_url	Server access URL	VARCHAR(500)
status	Server status	ENUM ('online', 'offline', 'maintenance')
last_sync	Last synchronization time	TIMESTAMP
created_at	Creation timestamp	TIMESTAMP
Relationships	A local server belongs to one restaurant and a restaurant has one local server.	

3. SUBSYSTEM 3: MENU & RECIPE MANAGEMENT

3.1. Table: menus

Field	Definition	Constraints & Type
menu_id	Unique menu identifier	UUID, **PK**
restaurant_id	Owning restaurant	UUID, **FK → restaurants**, **UNIQUE**
name	Menu name	VARCHAR(255)
description	Menu description	TEXT
is_active	Active status	BOOLEAN
version	Menu version for updates	INTEGER
created_at, updated_at	Audit timestamps	TIMESTAMP
Relationships	A menu belongs to one restaurant and a restaurant has one menu. A menu has multiple menu items and each menu item belongs to one menu.	

3.2. Table: menu_items

Field	Definition	Constraints & Type
menu_item_id	Unique menu item identifier	UUID, **PK**
menu_id	Parent menu	UUID, **FK → menus**
item_name	Item name	VARCHAR(255)
description	Item description	TEXT
sales_price	Selling price	DECIMAL(10,2)
preparation_time	Preparation time in minutes	INTEGER
department	Kitchen department	VARCHAR(100)
is_available	Availability status	BOOLEAN
display_order	Menu display order	INTEGER
created_at, updated_at	Audit timestamps	TIMESTAMP
Relationships	A menu item belongs to one menu and a menu has multiple menu items. A menu item can have multiple ingredients and an ingredient can be used in multiple menu items. A menu item can be ordered multiple times and each order contains multiple menu items. A menu item can be the most popular item in multiple daily summaries. A menu item can be referenced by multiple loyalty rewards as free items. A menu item can be displayed in multiple kitchen display orders.	

3.3. Table: inventory_items

Field	Definition	Constraints & Type
inventory_item_id	Unique inventory item identifier	UUID, **PK**
restaurant_id	Owning restaurant	UUID, **FK → restaurants**
item_name	Item name	VARCHAR(255)
description	Item description	TEXT
unit_of_measure	Measurement unit	VARCHAR(50)
cost_price	Purchase cost	DECIMAL(10,2)
current_stock	Current quantity	DECIMAL(10,3)
min_stock_threshold	Reorder threshold	DECIMAL(10,3)
max_stock_capacity	Maximum capacity	DECIMAL(10,3)
stock_status	Computed stock status	ENUM ('in_stock', 'low_stock', 'out_of_stock')
supplier_id	Primary supplier	UUID, **FK → suppliers**, NULLABLE
last_restocked	Last restock date	TIMESTAMP
created_at, updated_at	Audit timestamps	TIMESTAMP
Relationships	An inventory item belongs to one restaurant and a restaurant has multiple inventory items. An inventory item can be supplied by one supplier and a supplier can supply multiple inventory items. An inventory item can be used in multiple menu items and a menu item can use multiple inventory items. An inventory item can be ordered in supply orders and each supply order contains multiple inventory items.	

3.4. Table: menu_item_ingredients

Field	Definition	Constraints & Type
menu_item_ingredient_id	Unique recipe mapping identifier	UUID, **PK**
menu_item_id	The menu item	UUID, **FK → menu_items**
inventory_item_id	The ingredient	UUID, **FK → inventory_items**
quantity_required	Quantity needed	DECIMAL(10,3)
unit	Measurement unit	VARCHAR(50)
created_at	Creation timestamp	TIMESTAMP
Relationships	Each recipe mapping belongs to one menu item and one inventory item. A menu item has multiple ingredients and an ingredient can be used in multiple menu items.	

4. SUBSYSTEM 4: INVENTORY, SUPPLIER & SUPPLY CHAIN

4.1. Table: suppliers

Field	Definition	Constraints & Type
supplier_id	Unique supplier identifier	UUID, **PK**
user_id	Linked user account	UUID, **FK → users**, NULLABLE
company_name	Supplier company name	VARCHAR(255)
contact_person	Primary contact	VARCHAR(255)
contact_info	Contact details	JSONB
address	Business address	JSONB
business_registration	Legal registration number	VARCHAR(100)
payment_terms	Payment conditions	JSONB
rating	Performance rating	DECIMAL(3,2)
is_active	Active status	BOOLEAN
created_at, updated_at	Audit timestamps	TIMESTAMP
Relationships	A supplier can supply multiple inventory items and an inventory item can be supplied by one supplier. A supplier can have relationships with multiple restaurants and a restaurant can work with multiple suppliers. A supplier can fulfill multiple supply orders and each supply order is from one supplier. A supplier can be linked to one user account (optional).	

4.2. Table: restaurant_suppliers

Field	Definition	Constraints & Type
restaurant_supplier_id	Unique relationship identifier	UUID, **PK**
restaurant_id	The restaurant	UUID, **FK → restaurants**
supplier_id	The supplier	UUID, **FK → suppliers**
relationship_status	Relationship status	ENUM ('active', 'suspended', 'inactive')
is_preferred	Preferred supplier flag	BOOLEAN
payment_terms	Specific payment terms	JSONB
delivery_lead_time	Average delivery time in days	INTEGER
created_at, updated_at	Audit timestamps	TIMESTAMP
Relationships	Each relationship record belongs to one restaurant and one supplier. A restaurant can have multiple supplier relationships and a supplier can have multiple restaurant relationships.	

4.3. Table: order_item_rejections

Field	Definition	Constraints & Type
rejection_id	Unique rejection identifier	UUID, **PK**
order_item_id	Rejected order item	UUID, **FK → order_items**
rejected_quantity	Quantity rejected	DECIMAL(10,3)
rejection_reason	Reason for rejection	TEXT
rejection_proof_url	Photographic evidence	VARCHAR(500)
digital_signature	Supplier acknowledgment signature	JSONB
created_by	User who created rejection	UUID, **FK → users**
created_at	Creation timestamp	TIMESTAMP
Relationships	Each order_item_rejection belongs to one order_item and an order_item can have multiple order_item_rejections. An order_item_rejection can be created by one user and a user can create multiple order_item_rejections. Supports partial rejections of supply order items with digital signature capability.	

5. SUBSYSTEM 5: ORDERING, KITCHEN & LOGISTICS

5.1. Table: orders (PARTITIONED)

Description: Master order table for all transaction types, partitioned by created_date.

Field	Definition	Constraints & Type
order_id	Unique order identifier	UUID, PK
restaurant_id	Owning restaurant	UUID, FK to restaurants
order_type	Order type	ENUM ('sales', 'supply')
status	Order status	ENUM ('pending', 'confirmed', 'preparing', 'ready', 'in_delivery', 'delivered', 'cancelled')
total_amount	Final gross amount	DECIMAL(12,2)
notes	General order notes	TEXT
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
created_by	User audit	UUID, FK to users
updated_by	User audit	UUID, FK to users
Relationships	An order belongs to one restaurant and a restaurant has multiple orders. An order can be one sales order or one supply order (exclusive). An order has multiple order items and each order item belongs to one order. An order can have one billing record and each billing record belongs to one order. An order can be referenced in multiple feedback entries. An order can have multiple delivery tracking records. An order can have multiple kitchen display orders. An order can have multiple reward redemptions.	

5.2. Table: sales_orders

Description: Customer-facing sales order details.

Field	Definition	Constraints & Type
sales_order_id	Unique sales order identifier	UUID, PK
order_id	Master order reference	UUID, FK to orders, UNIQUE
customer_user_id	The customer	UUID, FK to users
order_subtype	Order subtype	ENUM ('dine_in', 'takeaway', 'delivery')
table_id	Associated table	UUID, FK to restaurant_tables, NULLABLE
assigned_waiter_id	Assigned staff	UUID, FK to restaurant_staff, NULLABLE
batch_id	Delivery batch grouping	UUID
delivery_partner_id	Delivery service	UUID, FK to delivery_partners, NULLABLE
customer_coordinates	Delivery location	JSONB
estimated_preparation_time	Estimated prep time	INTEGER
actual_preparation_time	Actual prep time	INTEGER
estimated_delivery_time	Estimated delivery time	INTEGER
actual_delivery_time	Actual delivery time	INTEGER
preparation_complexity_score	Kitchen load score	INTEGER
otp_code	Delivery verification code	VARCHAR(6)
Relationships	A sales order belongs to one order and each order has one sales order. A sales order belongs to one customer and a customer can have multiple sales orders. A sales order can be associated with one table and a table can have multiple sales orders. A sales order can be assigned to one waiter and a waiter can handle multiple sales orders. A sales order can be part of one delivery batch and a delivery batch can contain multiple sales orders. A sales order can use one delivery partner and a delivery partner can handle multiple sales orders.	

5.3. Table: supply_orders (ENHANCED)

Description: Procurement order details from suppliers with performance tracking.

Field	Definition	Constraints & Type
supply_order_id	Unique supply order identifier	UUID, PK
order_id	Master order reference	UUID, FK to orders, UNIQUE
supplier_id	The supplier	UUID, FK to suppliers
expected_delivery_date	Expected delivery date	DATE
delivery_status	Delivery status	ENUM ('pending', 'in_transit', 'delivered', 'cancelled')
invoice_total	Supplier invoice amount	DECIMAL(12,2)
adjusted_total	Final amount after adjustments	DECIMAL(12,2)
quality_rating	Supplier quality performance rating	DECIMAL(3,2)
on_time_rating	Supplier on-time delivery rating	DECIMAL(3,2)
rejection_proof_url	Proof of rejected items	VARCHAR(500)
Relationships	A supply order belongs to one order and each order has one supply order. A supply order is from one supplier and a supplier can have multiple supply orders. A supply order can have multiple order_item_rejections through its order_items	

5.4. Table: order_items

Description: Line items for both sales and supply orders

Field	Definition	Constraints & Type
order_item_id	Unique order item identifier	UUID, PK
order_id	Parent order	UUID, FK to orders
source_entity_id	ID of menu item or inventory item	UUID
source_entity_type	Entity type	ENUM ('menu_item', 'inventory_item')
quantity	Quantity ordered	DECIMAL(10,3)
unit_price	Price per unit	DECIMAL(10,2)
total_price	Quantity $\times$ Unit Price	DECIMAL(10,2)
customization_options	Customer customization preferences	JSONB
chef_special_instructions	Kitchen preparation notes	TEXT
special_instructions	Customer instructions (sales orders)	TEXT
created_at	Creation timestamp	TIMESTAMP
Relationships	An order item belongs to one order and an order has multiple order items. An order item references one source entity (menu item or inventory item). A menu item can be ordered multiple times and each order contains multiple menu items. An inventory item can be ordered multiple times and each supply order contains multiple inventory items. An order item can have multiple order_item_rejections for partial rejections.	

5.5. Table: kitchen_display_orders

Description: Kitchen workflow management by menu item.

Field	Definition	Constraints & Type
display_order_id	Unique display identifier	UUID, PK
order_id	Parent order	UUID, FK to orders
menu_item_id	Menu item to prepare	UUID, FK to menu_items
station_assignment	Kitchen station	VARCHAR(100)
priority_level	Preparation priority	ENUM ('low', 'normal', 'high', 'rush')
quantity	Quantity to prepare	INTEGER
start_time	Preparation start time	TIMESTAMP
completion_time	Preparation completion time	TIMESTAMP
status	Preparation status	ENUM ('pending', 'preparing', 'ready', 'served')
preparation_notes	Station-specific instructions	TEXT
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
Relationships	Each kitchen_display_order belongs to one order and one menu_item. An order can have multiple kitchen_display_orders and a menu_item can be displayed in multiple kitchen_display_orders. Supports station assignment and priority management for kitchen workflow.	

5.6. Table: delivery_batches (ENHANCED)

Description: Grouping of orders for delivery optimization with efficiency metrics.

Field	Definition	Constraints & Type
batch_id	Unique batch identifier	UUID, PK
restaurant_id	Owning restaurant	UUID, FK to restaurants
assigned_waiter_id	Assigned staff	UUID, FK to restaurant_staff
batch_status	Batch status	ENUM ('pending', 'in_progress', 'completed')
optimized_route	Delivery route coordinates	JSONB
total_distance	Total route distance in km	DECIMAL(8,2)
batch_efficiency_score	Route optimization score	DECIMAL(4,2)
fuel_cost_estimate	Estimated fuel cost	DECIMAL(8,2)
created_at	Creation timestamp	TIMESTAMP
completed_at	Completion timestamp	TIMESTAMP
Relationships	A delivery batch belongs to one restaurant and a restaurant has multiple delivery batches. A delivery batch is assigned to one waiter and a waiter can handle multiple delivery batches. A delivery batch contains multiple sales orders and a sales order can be part of one delivery batch. Tracks efficiency metrics for delivery optimization.	

5.7. Table: delivery_partners

Description: External delivery service providers.

Field	Definition	Constraints & Type
delivery_partner_id	Unique partner identifier	UUID, PK
partner_name	Partner company name	VARCHAR(255)
partner_type	Partner type	ENUM ('internal', 'uber_eats', 'glovo')
contact_info	Contact information	JSONB
is_active	Active status	BOOLEAN
average_rating	Performance rating	DECIMAL(3,2)
created_at	Creation timestamp	TIMESTAMP
Relationships	A delivery partner can handle multiple sales orders and a sales order can use one delivery partner. A delivery partner can have multiple delivery tracking records.	

5.8. Table: delivery_tracking

Description: Real-time delivery location and status tracking.

Field	Definition	Constraints & Type
tracking_id	Unique tracking identifier	UUID, PK
order_id	Tracked order	UUID, FK to orders
delivery_partner_id	Delivery partner	UUID, FK to delivery_partners
current_location	Current GPS coordinates	JSONB
status	Delivery status	ENUM ('accepted', 'picked_up', 'in_transit', 'delivered')
estimated_arrival	Estimated delivery time	TIMESTAMP
actual_arrival	Actual delivery time	TIMESTAMP
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
Relationships	A delivery tracking record belongs to one order and an order can have multiple tracking records. A delivery tracking record belongs to one delivery partner and a delivery partner can have multiple tracking records.	

6. SUBSYSTEM 6: FINANCIAL & ACCOUNTING LEDGER

6.1. Table: billing_records

Description: Final billing and invoice records.

Field	Definition	Constraints & Type
billing_id	Unique billing identifier	UUID, PK
order_id	Associated order	UUID, FK to orders, UNIQUE
subtotal_amount	Amount before tax/fees	DECIMAL(12,2)
tax_amount	Tax charged	DECIMAL(12,2)
service_charge	Service/delivery fee	DECIMAL(12,2)
discount_amount	Discount applied	DECIMAL(12,2)
total_amount	Final amount due	DECIMAL(12,2)
billing_status	Billing status	ENUM ('pending', 'paid', 'partially_paid', 'refunded')
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
Relationships	A billing record belongs to one order and each order has one billing record. A billing record can be referenced in multiple transactions.	

6.2. Table: transactions (PARTITIONED)

Description: Immutable ledger of all financial transactions, partitioned by transaction_date.

Field	Definition	Constraints & Type
transaction_id	Unique transaction identifier	UUID, PK
restaurant_id	Owning restaurant	UUID, FK to restaurants
source_entity_id	ID of source entity	UUID
source_entity_type	Entity type	ENUM ('order', 'booking', 'account_deposit', 'supplier_payment', 'refund')
amount	Transaction amount	DECIMAL(12,2)
transaction_type	Transaction type	ENUM ('debit', 'credit')
category	Transaction category	VARCHAR(100)
payment_method_id	Payment method used	UUID, FK to payment_methods, NULLABLE
gateway_transaction_id	External processor ID	VARCHAR(255)
status	Transaction status	ENUM ('pending', 'completed', 'failed', 'refunded')
transaction_date	Transaction timestamp	TIMESTAMP
created_at	Creation timestamp	TIMESTAMP
notes	Internal notes	TEXT
Relationships	A transaction belongs to one restaurant and a restaurant has multiple transactions. A transaction can use one payment method and a payment method can be used in multiple transactions. A transaction references one source entity (order, booking, etc.).	

6.3. Table: customer_accounts

Description: Pre-paid accounts and meal plans.

Field	Definition	Constraints & Type
account_id	Unique account identifier	UUID, PK
user_id	Account holder	UUID, FK to users
restaurant_id	Account scope	UUID, FK to restaurants
balance	Current balance	DECIMAL(12,2)
account_type	Account type	ENUM ('fiat', 'crypto')
is_refundable	Refundable status	BOOLEAN
crypto_details	Crypto wallet details	JSONB
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
Relationships	A customer account belongs to one user and one restaurant. A user can have multiple accounts at different restaurants. A restaurant can have multiple customer accounts. A customer account can be used in multiple transactions.	

6.4. Table: payment_methods

Description: Stored customer payment methods.

Field	Definition	Constraints & Type
payment_method_id	Unique payment method identifier	UUID, PK
user_id	Payment method owner	UUID, FK to users
method_type	Method type	ENUM ('card', 'mobile_money', 'crypto_wallet', 'account')
provider	Provider name	VARCHAR(100)
last_four_digits	Masked identifier	VARCHAR(4)
is_default	Default method flag	BOOLEAN
is_active	Active status	BOOLEAN
created_at	Creation timestamp	TIMESTAMP
Relationships	A payment method belongs to one user and a user can have multiple payment methods. A payment method can be used in multiple transactions.	

7. SUBSYSTEM 7: COMMUNICATION & HR MANAGEMENT

7.1. Table: restaurant_staff (ENHANCED)

Description: Staff operational profiles and employment data with performance metrics.

Field	Definition	Constraints & Type
staff_id	Unique staff identifier	UUID, PK
user_role_id	Linked user role	UUID, FK to user_roles, UNIQUE
employee_id	Internal HR identifier	VARCHAR(50)
hire_date	Employment start date	DATE
termination_date	Employment end date	DATE
salary	Compensation amount	DECIMAL(10,2)
efficiency_score	Performance score	DECIMAL(4,2)
total_orders_served	Total orders handled	INTEGER
average_order_time	Average order processing time	INTEGER
customer_rating_avg	Average customer rating	DECIMAL(3,2)
current_status	Operational status	ENUM ('available', 'busy', 'on_break', 'offline')
managed_by_id	Manager reference	UUID, FK to restaurant_staff, NULLABLE
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
Relationships	A staff member is linked to one user_role and each user_role can be linked to one staff member. A staff member works at one restaurant and a restaurant has multiple staff members. A staff member can manage multiple other staff members and can be managed by one staff member. A staff member can be assigned to multiple shift assignments, multiple table assignments, multiple sales orders as assigned waiter, multiple delivery batches, multiple chat sessions, and multiple kitchen_display_orders through order assignments.	

7.2. Table: staff_shifts

Description: Shift templates and scheduling patterns.

Field	Definition	Constraints & Type
shift_id	Unique shift identifier	UUID, PK
restaurant_id	Owning restaurant	UUID, FK to restaurants
shift_name	Shift name	VARCHAR(100)
shift_type	Shift type	ENUM ('morning', 'afternoon', 'evening', 'night')
shift_start	Scheduled start time	TIME
shift_end	Scheduled end time	TIME
max_staff_count	Maximum staff capacity	INTEGER
is_active	Active status	BOOLEAN
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
Relationships	A staff shift belongs to one restaurant and a restaurant has multiple staff shifts. A staff shift can have multiple shift assignments.	

7.3. Table: staff_shift_assignments

Description: Daily staff assignments to shifts.

Field	Definition	Constraints & Type
assignment_id	Unique assignment identifier	UUID, PK
staff_id	Assigned staff member	UUID, FK to restaurant_staff
shift_id	Assigned shift	UUID, FK to staff_shifts
assignment_date	Assignment date	DATE
actual_start_time	Actual clock-in time	TIMESTAMP
actual_end_time	Actual clock-out time	TIMESTAMP
status	Assignment status	ENUM ('scheduled', 'checked_in', 'checked_out', 'cancelled')
created_at	Creation timestamp	TIMESTAMP
Relationships	A shift assignment belongs to one staff member and one shift. A staff member can have multiple shift assignments on different dates. A shift can have multiple assignments on different dates. A shift assignment can have multiple table assignments.	

7.4. Table: table_assignments

Description: Waiter-to-table assignments during shifts.

Field	Definition	Constraints & Type
assignment_id	Unique assignment identifier	UUID, PK
staff_id	Assigned waiter	UUID, FK to restaurant_staff
table_id	Assigned table	UUID, FK to restaurant_tables
shift_assignment_id	Parent shift assignment	UUID, FK to staff_shift_assignments
assignment_start	Assignment start time	TIMESTAMP
assignment_end	Assignment end time	TIMESTAMP
status	Assignment status	ENUM ('active', 'completed')
created_at	Creation timestamp	TIMESTAMP
Relationships	A table assignment belongs to one staff member, one table, and one shift assignment. A waiter can have multiple table assignments during a shift. A table can be assigned to multiple waiters over time. A shift assignment can include multiple table assignments.	

7.5. Table: staff_performance_history

Description: Time-series performance metrics tracking.

Field	Definition	Constraints & Type
performance_id	Unique performance record identifier	UUID, PK
staff_id	Rated staff member	UUID, FK to restaurant_staff
metric_type	Metric type	ENUM ('delivery_time', 'customer_rating', 'order_accuracy', 'efficiency', 'sales')
metric_value	Recorded value	DECIMAL(8,2)
target_value	Goal value	DECIMAL(8,2)
measured_at	Measurement timestamp	TIMESTAMP
period_type	Period type	ENUM ('instant', 'daily', 'weekly', 'monthly')
notes	Contextual notes	TEXT
created_at	Creation timestamp	TIMESTAMP
Relationships	A performance record belongs to one staff member and a staff member has multiple performance records.	

7.6. Table: communication_groups

Description: Chat groups for internal and external communication.

Field	Definition	Constraints & Type
group_id	Unique group identifier	UUID, PK
restaurant_id	Owning restaurant	UUID, FK to restaurants
group_type	Group type	ENUM ('internal_staff', 'public_community', 'customer_support')
name	Group name	VARCHAR(255)
description	Group description	TEXT
is_active	Active status	BOOLEAN
created_by	Creator	UUID, FK to users, NULLABLE
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
Relationships	A communication group belongs to one restaurant and a restaurant has multiple communication groups. A communication group has multiple members and a user can be member of multiple groups. A communication group can receive multiple chat messages.	

7.7. Table: group_members

Description: User membership in communication groups.

Field	Definition	Constraints & Type
member_id	Unique membership identifier	UUID, PK
group_id	The group	UUID, FK to communication_groups
user_id	The member	UUID, FK to users
member_role	Member role	ENUM ('member', 'admin', 'moderator')
joined_at	Join timestamp	TIMESTAMP
left_at	Leave timestamp	TIMESTAMP
Relationships	A group membership belongs to one group and one user. A group has multiple members and a user can be member of multiple groups	

7.8. Table: chat_sessions

Description: Customer support and service chat sessions.

Field	Definition	Constraints & Type
session_id	Unique session identifier	UUID, PK
restaurant_id	Owning restaurant	UUID, FK to restaurants
customer_user_id	Customer user	UUID, FK to users
assigned_staff_id	Assigned support agent	UUID, FK to restaurant_staff, NULLABLE
session_type	Session type	ENUM ('customer_service', 'order_support', 'complaint', 'general')
title	Session title	VARCHAR(255)
status	Session status	ENUM ('active', 'waiting', 'resolved', 'closed')
priority	Priority level	ENUM ('low', 'normal', 'high', 'urgent')
first_response_time	First response time in seconds	INTEGER
resolution_time	Resolution time in seconds	INTEGER
customer_satisfaction_rating	Customer rating (1-5)	INTEGER
created_at	Creation timestamp	TIMESTAMP
resolved_at	Resolution timestamp	TIMESTAMP
closed_at	Closure timestamp	TIMESTAMP
Relationships	A chat session belongs to one restaurant and one customer user. A chat session can be assigned to one staff member and a staff member can handle multiple chat sessions. A chat session contains multiple chat messages.	

7.9. Table: chat_messages (PARTITIONED)

Description: Unified messaging across all communication channels, partitioned by created_at.

Field	Definition	Constraints & Type
message_id	Unique message identifier	UUID, PK
session_id	Parent chat session	UUID, FK to chat_sessions, NULLABLE
sender_id	Message sender	UUID, FK to users
recipient_entity_type	Recipient type	ENUM ('user', 'group', 'restaurant')
recipient_entity_id	Recipient ID	UUID
message_content	Message text content	TEXT
message_type	Message type	ENUM ('text', 'image', 'video', 'system', 'order_update')
priority	Message priority	ENUM ('normal', 'high', 'urgent')
is_edited	Edit status	BOOLEAN
edited_at	Edit timestamp	TIMESTAMP
read_receipts	Read status tracking	JSONB
delivered_at	Delivery timestamp	TIMESTAMP
sentiment_score	AI sentiment analysis score	DECIMAL(3,2)
like_count	Number of likes	INTEGER
reply_count	Number of replies	INTEGER
share_count	Number of shares	INTEGER
is_active	Active status	BOOLEAN
created_at	Creation timestamp	TIMESTAMP
Relationships	A chat message can belong to one chat session and a chat session has multiple messages. A chat message is sent by one user and a user can send multiple messages. A chat message can have multiple likes, comments, and shares.	

7.10. Table: notifications

Description: System-wide notification and alert system.

Field	Definition	Constraints & Type
notification_id	Unique notification identifier	UUID, PK
recipient_id	Notification recipient	UUID, FK to users
source_entity_id	Source entity ID	UUID
source_entity_type	Source type	ENUM ('order', 'message', 'booking', 'batch', 'feedback', 'promotion')
notification_type	Notification type	VARCHAR(100)
message	Notification message	TEXT
is_read	Read status	BOOLEAN
action_url	Deep link URL	VARCHAR(500)
sent_at	Send timestamp	TIMESTAMP
read_at	Read timestamp	TIMESTAMP
Relationships	A notification is sent to one user and a user can receive multiple notifications.	

8. SUBSYSTEM 8: CUSTOMER ENGAGEMENT & ANALYTICS

8.1. Table: customer_loyalty

Description: Customer loyalty programs and tier management.

Field	Definition	Constraints & Type
loyalty_id	Unique loyalty record identifier	UUID, PK
customer_user_id	Customer user	UUID, FK to users
restaurant_id	Restaurant scope	UUID, FK to restaurants
loyalty_tier	Loyalty tier	ENUM ('bronze', 'silver', 'gold')
points_balance	Current points balance	INTEGER
lifetime_spend	Total lifetime spending	DECIMAL(12,2)
total_orders	Total orders placed	INTEGER
visit_count	Total visits	INTEGER
first_visit_date	First visit timestamp	TIMESTAMP
last_visit_date	Last visit timestamp	TIMESTAMP
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
Relationships	A loyalty record belongs to one customer user and one restaurant. A customer can have loyalty accounts at multiple restaurants. A restaurant can have multiple loyalty program members. A customer_loyalty can have multiple reward_redemptions	

8.2. Table: loyalty_rewards

Description: Reward definitions and redemption rules.

Field	Definition	Constraints & Type
reward_id	Unique reward identifier	UUID, PK
restaurant_id	Owning restaurant	UUID, FK to restaurants
reward_name	Reward name	VARCHAR(255)
reward_type	Reward type	ENUM ('points', 'tier', 'promotional')
points_required	Points needed for redemption	INTEGER
free_menu_item_id	Free menu item reward	UUID, FK to menu_items, NULLABLE
discount_percentage	Discount percentage	DECIMAL(5,2)
min_tier_required	Minimum tier required	ENUM ('bronze', 'silver', 'gold')
is_active	Active status	BOOLEAN
start_date	Reward start date	TIMESTAMP
end_date	Reward end date	TIMESTAMP
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
Relationships	Each loyalty_reward belongs to one restaurant and a restaurant can have multiple loyalty_rewards. A loyalty_reward can reference one free_menu_item and a menu_item can be referenced by multiple loyalty_rewards. A loyalty_reward can have multiple reward_redemptions and each reward_redemption belongs to one loyalty_reward.	

8.3. Table: reward_redemptions

Description: Tracked reward redemptions and applications.

Field	Definition	Constraints & Type
redemption_id	Unique redemption identifier	UUID, PK
loyalty_id	Customer loyalty account	UUID, FK to customer_loyalty
reward_id	Redeemed reward	UUID, FK to loyalty_rewards
order_id	Associated order	UUID, FK to orders, NULLABLE
applied_by_user_id	User who applied redemption	UUID, FK to users
points_used	Points deducted	INTEGER
discount_amount	Discount value applied	DECIMAL(10,2)
redemption_status	Redemption status	ENUM ('pending', 'applied', 'expired', 'cancelled')
redemption_date	Redemption timestamp	TIMESTAMP
created_at	Creation timestamp	TIMESTAMP
Relationships	Each reward_redemption belongs to one customer_loyalty and one loyalty_reward. A reward_redemption can be associated with one order and an order can have multiple reward_redemptions. A reward_redemption can be applied by one user and a user can apply multiple reward_redemptions. Links loyalty programs to actual order redemptions with staff application tracking.	

8.4. Table: bookings

Description: Table reservations and event bookings.

Field	Definition	Constraints & Type
booking_id	Unique booking identifier	UUID, PK
customer_user_id	Booking customer	UUID, FK to users
restaurant_id	Restaurant	UUID, FK to restaurants
table_id	Reserved table	UUID, FK to restaurant_tables
booking_date	Booking date	DATE
start_time	Start time	TIME
end_time	End time	TIME
party_size	Number of guests	INTEGER
status	Booking status	ENUM ('pending', 'confirmed', 'checked_in', 'completed', 'cancelled', 'no_show')
deposit_amount	Deposit amount	DECIMAL(10,2)
deposit_status	Deposit status	ENUM ('pending', 'paid', 'refunded', 'forfeited')
special_requests	Customer requests	TEXT
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
Relationships	A booking belongs to one customer, one restaurant, and one table. A customer can make multiple bookings. A restaurant can have multiple bookings. A table can have multiple bookings over time.	

8.5. Table: feedback

Description: Customer feedback and review system.

Field	Definition	Constraints & Type
feedback_id	Unique feedback identifier	UUID, PK
restaurant_id	Rated restaurant	UUID, FK to restaurants
customer_user_id	Feedback author	UUID, FK to users
target_type	Feedback target	ENUM ('restaurant', 'waiter', 'food', 'app')
target_id	Specific target ID	UUID, NULLABLE
order_id	Associated order	UUID, FK to orders, NULLABLE
rating	Rating score (1-5)	INTEGER
title	Feedback title	VARCHAR(255)
comments	Detailed comments	TEXT
keyword_tags	Automated sentiment tags	TEXT[]
is_verified	Verified purchase status	BOOLEAN
helpful_count	Helpful votes count	INTEGER
status	Feedback status	ENUM ('active', 'flagged', 'removed')
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
Relationships	A feedback entry belongs to one restaurant and one customer user. A feedback entry can be associated with one order. A feedback entry can target specific entities (restaurant, staff, menu items).	

8.6. Table: content_media

Description: Marketing content and media assets with performance tracking.

Field	Definition	Constraints & Type
media_id	Unique media identifier	UUID, PK
restaurant_id	Owning restaurant	UUID, FK to restaurants, NULLABLE
media_type	Media type	ENUM ('image', 'video', 'banner', 'promo_card')
title	Media title	VARCHAR(255)
description	Media description	TEXT
media_url	Media storage URL	VARCHAR(500)
target_audience	Target audience	ENUM ('all', 'new_customers', 'loyalty_members')
conversion_rate	Conversion performance	DECIMAL(5,2)
engagement_rate	Engagement performance	DECIMAL(5,2)
click_through_rate	Click-through performance	DECIMAL(5,2)
is_active	Active status	BOOLEAN
start_date	Display start date	TIMESTAMP
end_date	Display end date	TIMESTAMP
created_by	Creator	UUID, FK to users, NULLABLE
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
Relationships	A content_media item can belong to one restaurant (optional for platform-wide content). A content_media item has multiple media_performance_daily records for historical tracking. Tracks performance metrics for media optimization.	

8.7. Table: media_performance_daily

Description: Daily performance analytics for media content.

Field	Definition	Constraints & Type
performance_id	Unique performance identifier	UUID, PK
media_id	Tracked media item	UUID, FK to content_media
performance_date	Analytics date	DATE
view_count	Daily views	INTEGER
engagement_count	Daily engagements	INTEGER
conversion_count	Daily conversions	INTEGER
click_count	Daily clicks	INTEGER
total_revenue	Revenue generated	DECIMAL(12,2)
created_at	Creation timestamp	TIMESTAMP
Relationships	Each media_performance_daily record belongs to one content_media and a content_media has multiple media_performance_daily records (one per day). Enables daily trend analysis for media engagement and conversion tracking.	

8.8. Table: announcements

Description: Marketing announcements and promotional content.

Field	Definition	Constraints & Type
announcement_id	Unique announcement identifier	UUID, PK
restaurant_id	Owning restaurant	UUID, FK to restaurants, NULLABLE
title	Announcement title	VARCHAR(255)
body	Announcement content	TEXT
announcement_type	Announcement type	ENUM ('promotion', 'event', 'update', 'maintenance')
target_audience	Target audience	ENUM ('all', 'loyalty_tier', 'specific_group')
audience_parameters	Audience filters	JSONB
start_date	Display start date	TIMESTAMP
end_date	Display end date	TIMESTAMP
is_public	Public visibility	BOOLEAN
view_count	Total views	INTEGER
engagement_count	Total engagements	INTEGER
created_by	Creator	UUID, FK to users, NULLABLE
created_at	Audit timestamp	TIMESTAMP
updated_at	Audit timestamp	TIMESTAMP
Relationships	An announcement can belong to one restaurant (optional for platform-wide announcements). An announcement is created by one user.	

8.9. Table: restaurant_daily_summary

Description: Denormalized daily performance analytics.

Field	Definition	Constraints & Type
summary_id	Unique summary identifier	UUID, PK
restaurant_id	Restaurant	UUID, FK to restaurants
summary_date	Summary date	DATE
total_orders	Daily order count	INTEGER
total_revenue	Daily revenue	DECIMAL(12,2)
average_order_value	Average order value	DECIMAL(10,2)
customer_count	Unique customer count	INTEGER
peak_hour	Busiest hour (0-23)	INTEGER
most_popular_item	Best-selling item	UUID, FK to menu_items, NULLABLE
customer_satisfaction_score	Average satisfaction score	DECIMAL(3,2)
created_at	Creation timestamp	TIMESTAMP
Relationships	A daily summary belongs to one restaurant and one date. A restaurant has multiple daily summaries. A daily summary can reference one menu item as most popular.	

9. SUMMARY OF KEY RELATIONSHIPS

9.1. Core Business Relationships:

A restaurant has one menu and a menu belongs to one restaurant A restaurant has multiple tables and a table belongs to one restaurant A restaurant has multiple staff members and a staff member works at one restaurant A restaurant has multiple customers and a customer can belong to multiple restaurants A restaurant can work with multiple suppliers and a supplier can work with multiple restaurants A restaurant can have multiple loyalty rewards

9.2. Order & Inventory Relationships:

An order contains multiple order items and an order item belongs to one order A menu item can be ordered multiple times and an order can contain multiple menu items An inventory item is used in multiple menu items and a menu item uses multiple inventory items An order item can have multiple order_item_rejections for partial rejections An order can have multiple kitchen_display_orders for kitchen workflow management

9.3. User & Role Relationships:

A user can have multiple roles across different restaurants through user_roles Each role assignment is scoped to a specific restaurant (optional for global roles)

9.4. Loyalty & Rewards Relationships:

A customer has loyalty relationships with multiple restaurants A loyalty_reward belongs to one restaurant and can offer free menu_items Reward_redemptions link loyalty programs to actual orders with staff application tracking Complete funnel from earning (customer_loyalty) to redemption (reward_redemptions)

9.5. Communication Relationships:

A communication group has multiple members and a user can be member of multiple groups A chat session involves one customer and one restaurant, optionally assigned to staff Chat messages can be sent to users, groups, or restaurants through polymorphic recipients

9.6. Analytics Relationships:

Daily summaries aggregate performance data per restaurant per day Feedback can target multiple entity types (restaurant, staff, food, app) Media performance is tracked daily for trend analysis and A/B testing Enhanced staff performance metrics enable detailed workforce analytics

9.7. Performance & Partitioning:

orders, **transactions**, and **chat_messages** are partitioned for optimal performance Large-volume tables use partitioning by date for efficient querying and archiving