KGP Vibes Café

AI-Powered Order Management System Architecture

System Architecture Flow

Customer

Interacts via Natural Language with AI Assistant

Services

Order Status
Product Recommendations
Product Purchase

→

AI Assistant

Claude AI processes natural language queries

Capabilities

NLP Processing
Intent Recognition
Response Generation

→

MCP Server

Model Context Protocol bridges AI to database

Functions

Query Translation
Data Formatting
Connection Management

→

AWS RDS MySQL

Cloud-hosted relational database

Tables

Customers, Products
Orders, Order Items

Payment Gateway Integration

Hypothetical integration with industry-leading payment processors

Stripe Razorpay PayPal Square Paytm

Claude AI MCP Protocol AWS RDS MySQL

🎯 AI Assistant Services

📊 Order Status Tracking

Real-time order status updates via MCP → MySQL. Customer asks "Where's my order?" and gets instant status: Pending, Preparing, Ready, or Completed.

💡 Product Recommendations

AI analyzes menu items from database and recommends based on category, price, popularity, and customer preferences.

🛒 Product Purchase

Customer places order through AI → Creates order record → Integrates with hypothetical payment gateway → Updates inventory.

📋 Menu Information

Fetches product details, descriptions, pricing, and availability status directly from the products table via MCP.

🗂️ Sample Database Data

👥 customers

customer_id	name	email	country_code	phone
1	Rahul Kumar	rahul@gmail.com	+91	9876543210
2	Emily Chen	emily.chen@outlook.com	+1	5550123456
3	Ahmed Al-Farsi	ahmed.alfarsi@yahoo.com	+971	501234567
4	Yuki Tanaka	yuki.tanaka@icloud.com	+81	9012345678
5	Priya Singh	priya.singh@hotmail.com	+91	9123456789
6	Marcus Johnson	marcus.j@protonmail.com	+44	7700900123

products (Sample Items)

product_id	name	category	price	stock
1	Vibes Espresso Shot	COFFEE	$2.50	100
2	Tech Latte	COFFEE	$3.50	100
3	KGP Cold Brew	COFFEE	$4.00	80
13	Byte Brownie	SNACKS & MEALS	$2.50	80
20	Startup Burger	MEALS	$5.00	60

product_id	name	category	price	stock
26	Database Pasta	MEALS	$6.50	50

+ 36 more products from the KGP Vibes menu

📦 orders

order_id	customer_id	order_date	total_amount	status
1	1	2025-10-15 09:30:00	$12.30	Completed
2	2	2025-10-15 11:45:00	$8.50	Ready
3	3	2025-10-16 08:15:00	$15.80	Preparing
4	4	2025-10-16 10:00:00	$6.20	Pending

🛍️ order_items

order_item_id	order_id	product_id	quantity	item_price
1	1	2 (Tech Latte)	2	$3.50
2	1	13 (Byte Brownie)	1	$2.50
3	2	9 (Talkie Chai)	3	$2.00
4	3	26 (Database Pasta)	1	$6.50
5	3	6 (Hackathon Iced Coffee)	2	$4.50
6	4	34 (Zero-Bug Brownie Sundae)	1	$4.20

🔗 Table Relationships

```
customers ⟷ orders (1:N)          orders ⟷ order_items (1:N)          products ⟷ order_items (1:N)
```

One-to-Many Relationships:
• One customer can have multiple orders
• One order can contain multiple order items
• One product can appear in multiple order items

🔄 Data Flow Example

1 Customer Query

"Show me coffee options under $4"

2 AI Processing

AI Assistant interprets the natural language request

3 MCP Translation

MCP Server converts to SQL query: SELECT * FROM products WHERE category='COFFEE' AND price < 4.00

4 Database Response

AWS RDS MySQL returns matching products: Vibes Espresso, Code Cappuccino, Talkie Chai, Debug Mocha, Tech Latte

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KGP Vibes Café - AI-Powered Order Management System

🏗️ Architecture: Customer → AI Assistant → MCP Server → AWS RDS MySQL