



Welcome to Coffee.shop

Stage 2Presentation
Sql developer
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Project overview

Create a fully functional database for a coffee shop and integrate AI for automated analytical insights.

Main Components:

MySQL database

≥1000 rows per table

Indexing & optimization

AI agent capable of generating SQL-based insights



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SQL Developer Responsibilities

1. Database Creation

Designed the database according to ER diagram

Implemented relational structure with normalized tables

2. Data Population

Filled each table with 1000+ realistic rows

Used scripts / generators for bulk data insertion

3. Optimization

Added indexes for heavy query fields (price, dates, status, foreign keys)

Improved query speed for AI analytics module





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Database Structure

Customers

Staff

Orders

Order items

Products

Payments





To improve performance, we created indexes:

idx_orders_time – faster time-based sales queries

idx_orders_customer – improves customer analytics

idx_orders_staff – speeds staff performance tracking

idx_products_category – faster product filtering

idx_orderitems_product – optimizes order–product joins

idx_payments_method – improves payment analytics



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AI Engineer Responsibilities

1. Dataset Indexing

Applied indexing strategies to speed up AI-driven SQL queries

2. Database Connection

Integrated MySQL DB with AI agent via Python + LangChain

3. Intelligent Querying & Insights

AI agent analyses the database

Automatically generates SQL insights





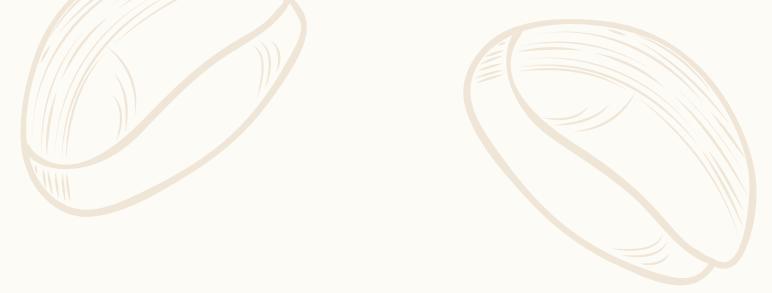
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Examples of AI Insights

Top-Selling Products
Peak Sales Hours
Customer Purchase Patterns
Rarely purchased products

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Ai Agent Demo explonation



1. User asks "Which customers have the highest loyalty points?"
2. AI converts this to SQL
3. SQL is executed
4. AI returns final answer





What we learned

SQL Developer:

- Building real_world normalized database
- Working with complex joins and constraints
- Optimizing with indexes

AI Engineer:

- Connecting Python to MySql
- Using LangChain+Gemini
- Generating VIEWS and insights with AI





Thank You

