Course Overview – Relational Database Basics
Provider: Coursera/IBM
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Overview

This course introduced me to the fundamentals of relational databases and how to design, normalize, and implement them. I learned the core concepts of entities, attributes, and relationships, and applied them by creating tables, primary keys, and foreign keys. The course guided me through using pgAdmin to build an ERD, generate SQL scripts, and load data into a PostgreSQL database. The final project simulated the needs of a coffee shop chain expanding nationally and required building a central database with normalized tables and views.

Key Topics

- Relational database concepts, data models, and normalization

- Entity Relationship Diagrams (ERDs) for mapping entities to tables

- Primary keys, foreign keys, and enforcing referential integrity

- PostgreSQL implementation with pgAdmin, SQL scripts, and sample data

- Creating views and materialized views for external data needs

- Exporting results to CSV and integrating with MySQL and Db2

Practical Applications

Hands-on labs had me design and implement a schema, run queries, and load tables with CoffeeData.sql. I normalized Sales_Transaction and Product into multiple linked tables, then created relationships to ensure integrity. The most difficult part of the lab was Task 7, where I had to create a view for staff locations. The ERD had created "Staff" with a capital S, but CoffeeData.sql populated lowercase staff. I spent over 45 minutes troubleshooting this mismatch, dropping and recreating the view, checking information_schema, and refreshing pgAdmin before confirming the lowercase table was correct. Once I fixed the reference, the view finally returned rows.

Personal Reflection

This course taught me the foundations of relational database design and gave me direct experience with PostgreSQL. The labs showed me how small details like table names and case sensitivity can block progress and waste time, but also how to troubleshoot with persistence. Even though I stopped after Task 7 and didn't complete the MySQL or Db2 exports, I gained confidence in building a schema, normalizing data, and fixing issues when the database didn't behave as expected.