Database design and implementation

Abstract:

A New York based coffee shop chain is looking to expand nationally by opening a number of franchise locations and as a result they want to streamline operations and revamp their data infrastructure. This work is the stages of **RELATIONAL DATABASE DESIGN AND IMPLEMENTATION SYSTEM** for improved operational efficiencies and for executives to make data driven decisions. Their data currently reside in accounting software, suppliers' database, POS systems and spreadsheet. The data in all these systems was reviewed and I designed a central database to house all of the data. Created database objects and data subsets and loaded them into staging databases that uses different RDBMS.

Software used:

- PostgreSQL Database,
- IBM Db2 Database,
- MySQL Database

Project Objectives

- Identify entities.
- Identity attributes.
- Create an entity relationship diagram (ERD) using the pgAdmin ERD Tool.
- Normalize tables.
- Define keys and relationships.
- Create database objects by generating and running the SQL script from the ERD Tool.
- Create a view and export the data.
- Create a materialized view and export the data.
- Import data into a Db2 database.
- Import data into a MySQL database.

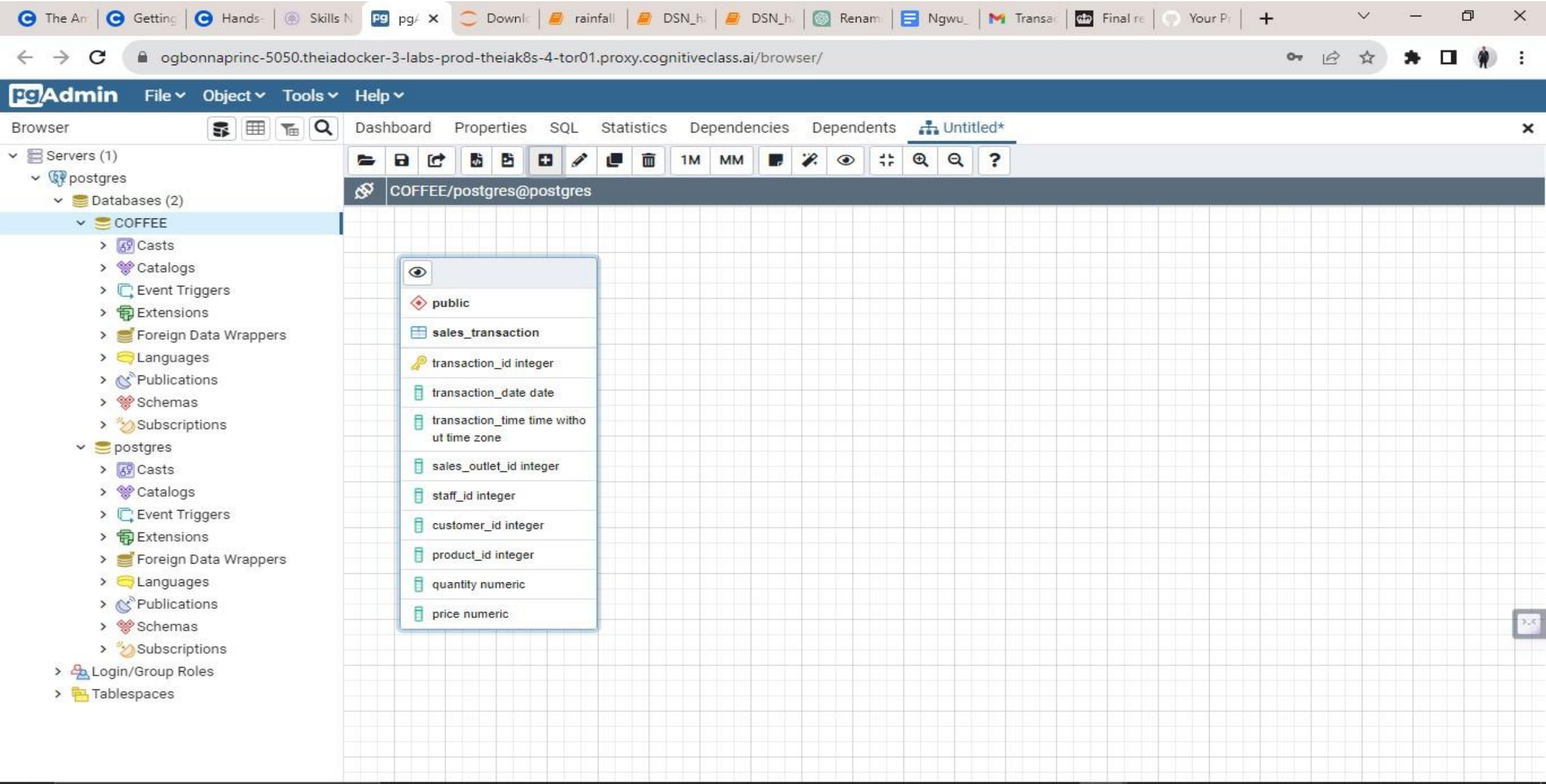
Database entities

- Staff entity
- Sales_outlet entity
- Sales_transaction entity
- customer entity
- Product entity

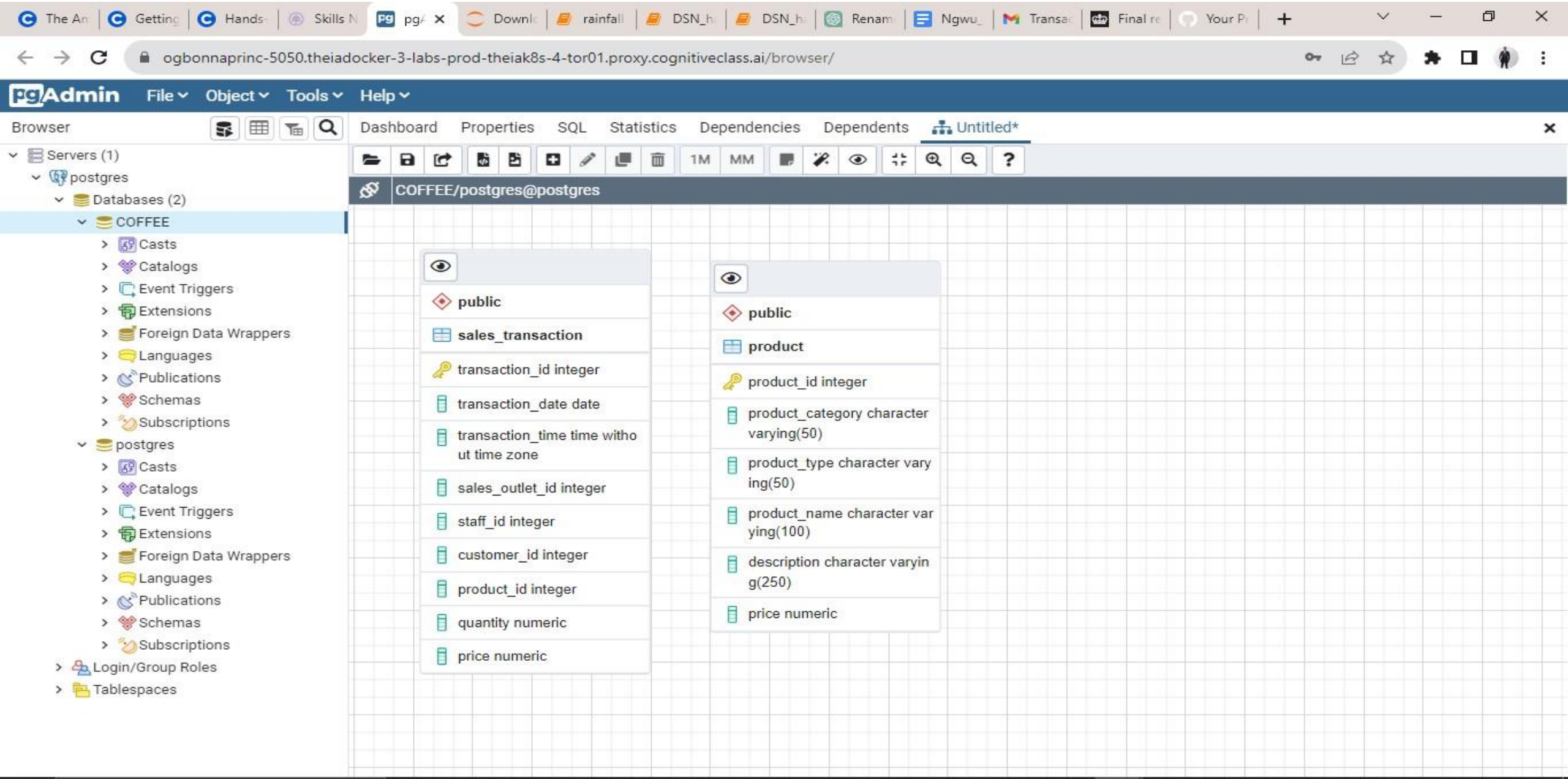
Sales_transaction entity Attributes

- transaction_id
- transaction_date
- transaction_time
- sales_outlet_id
- staff_id
- customer_id
- product_id
- quantity
- price

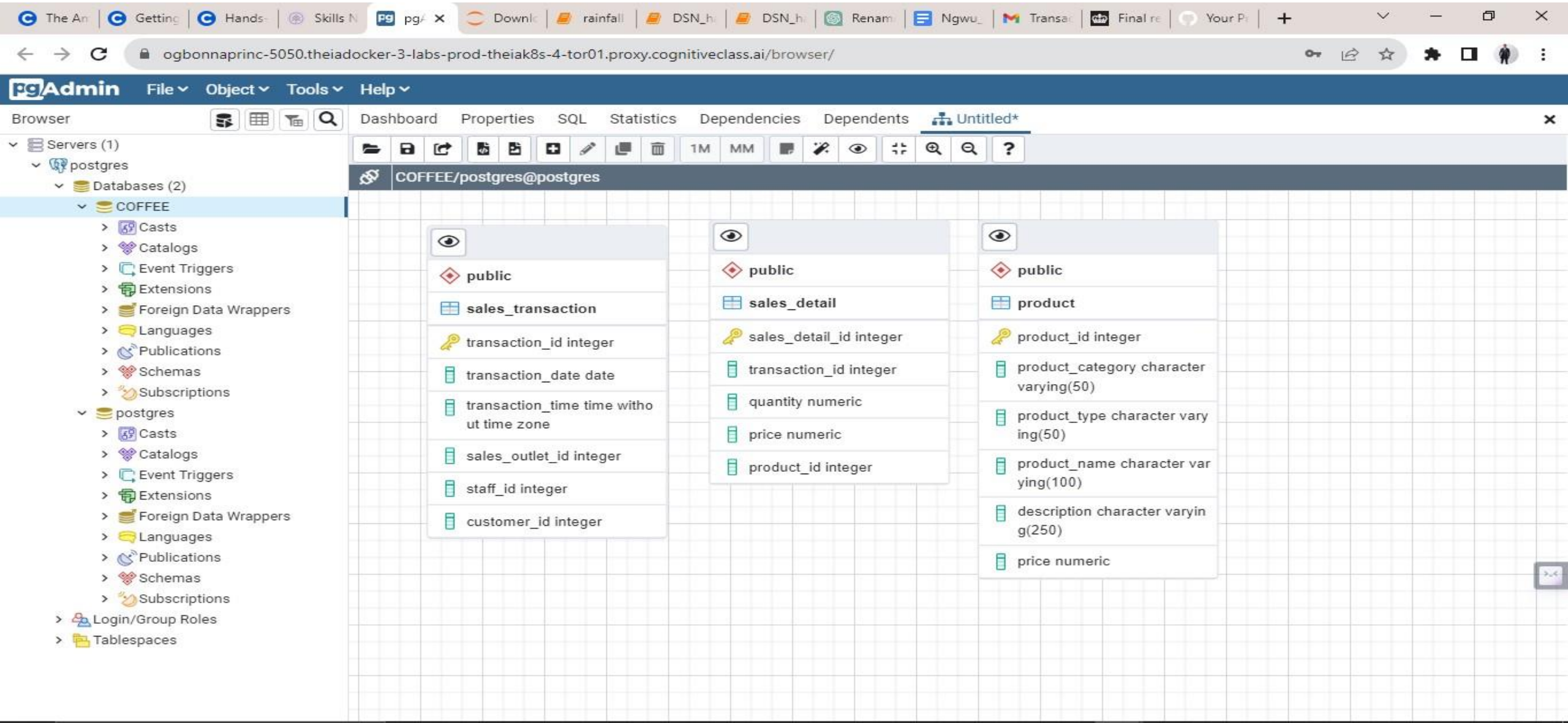
Sales_transaction entity added to ERD



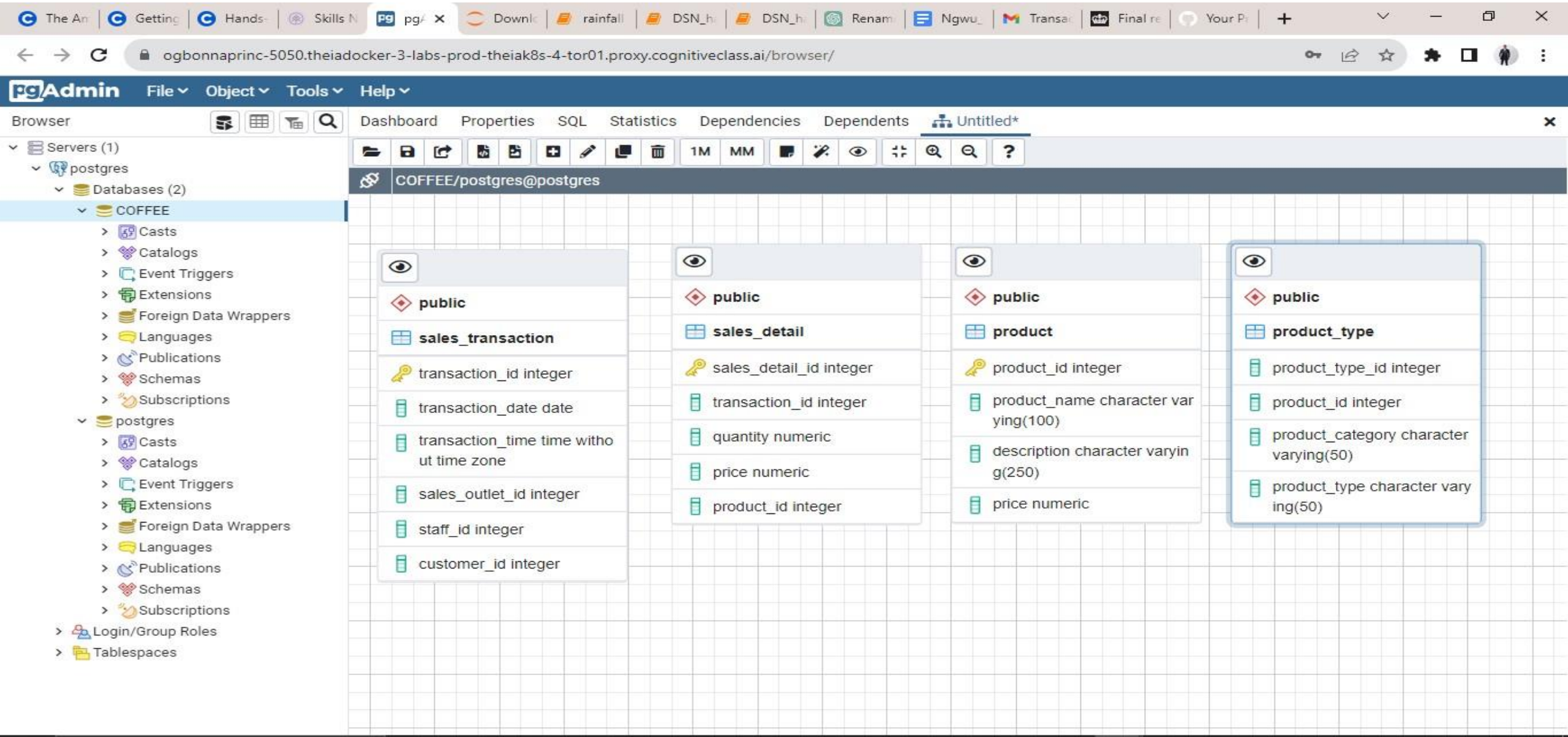
Product entity added to ERD



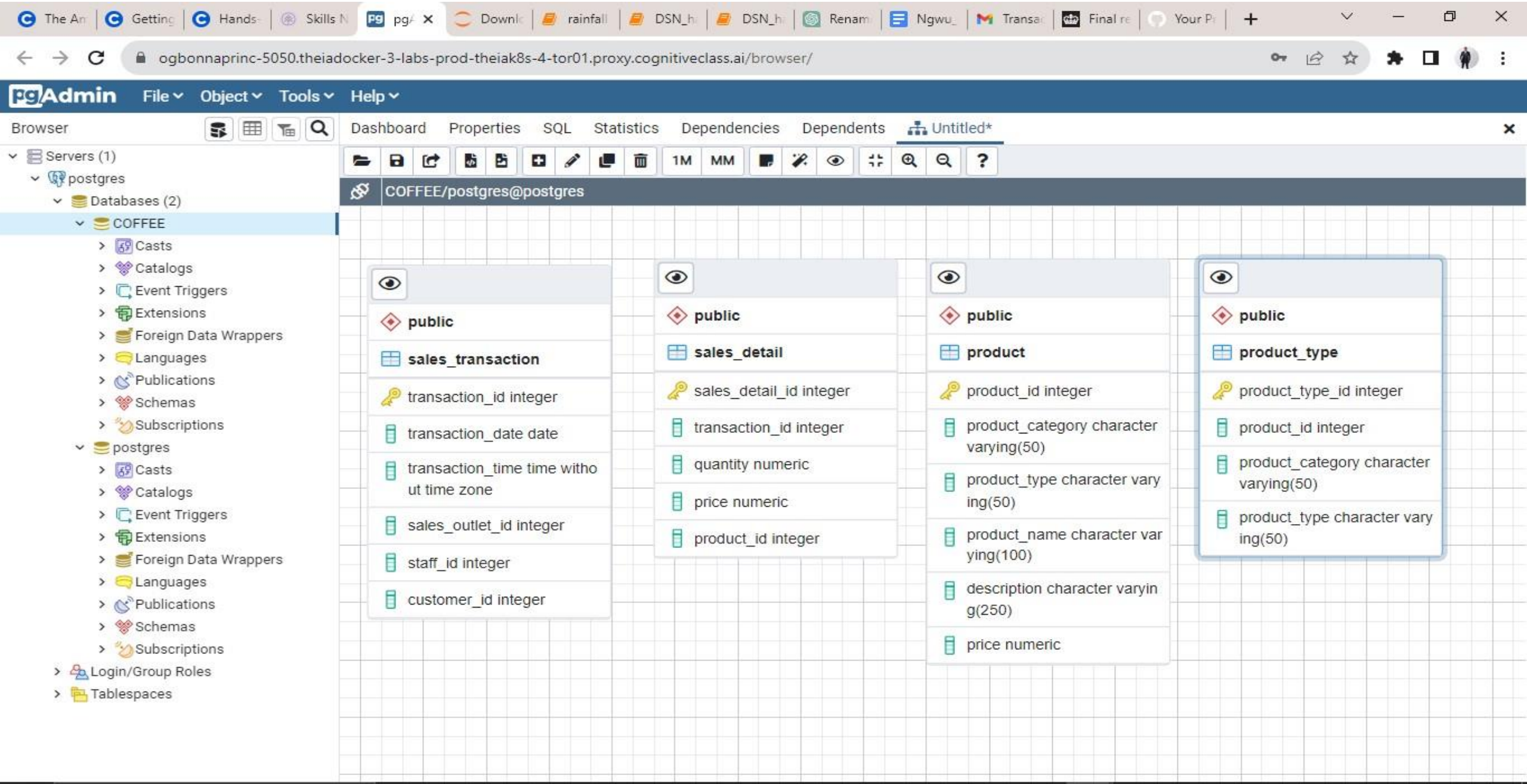
Database Normalisation :sales_details entity extracted from sales_transaction entity and added to ERD



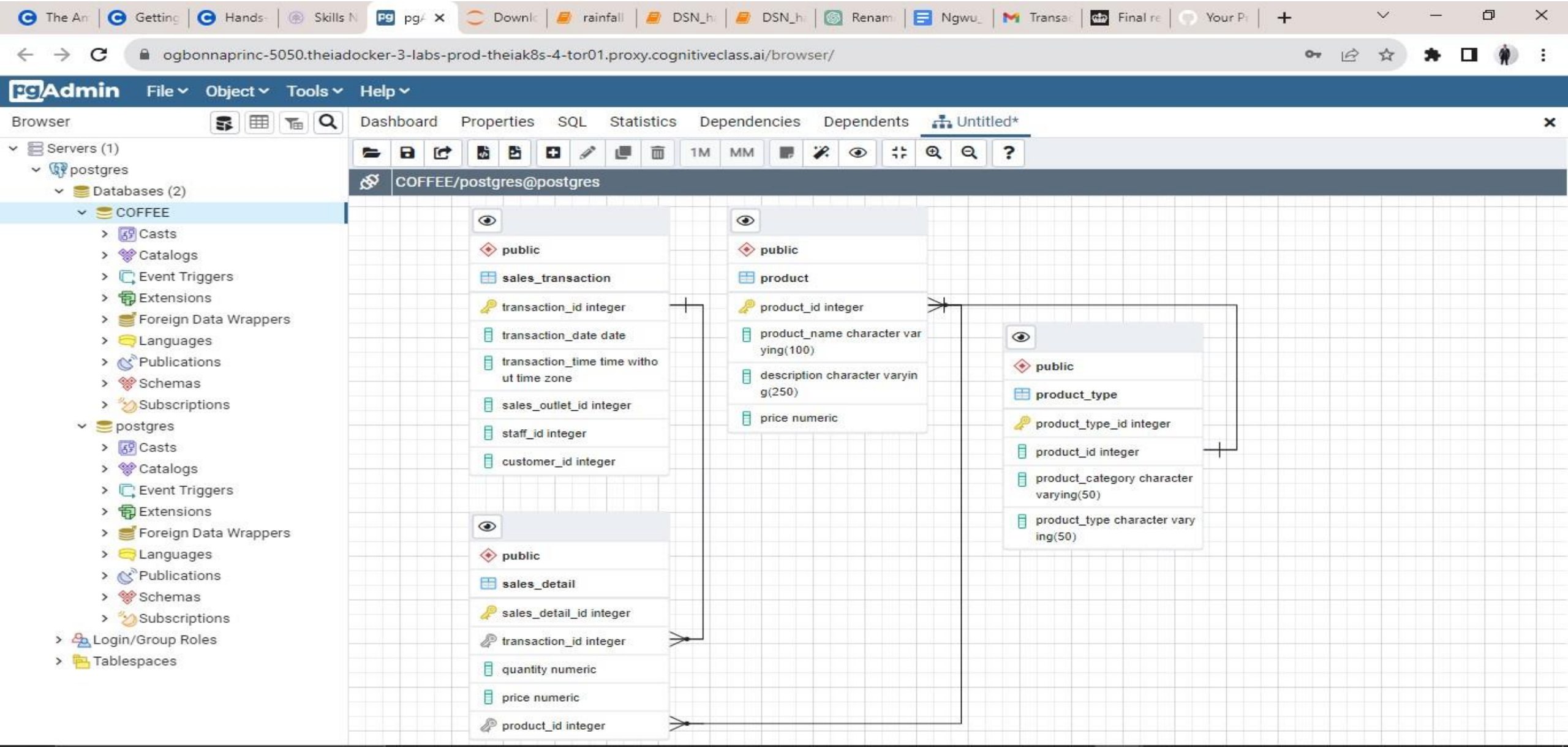
Database Normalisation: product_type entity extracted from product entity and added to ERD



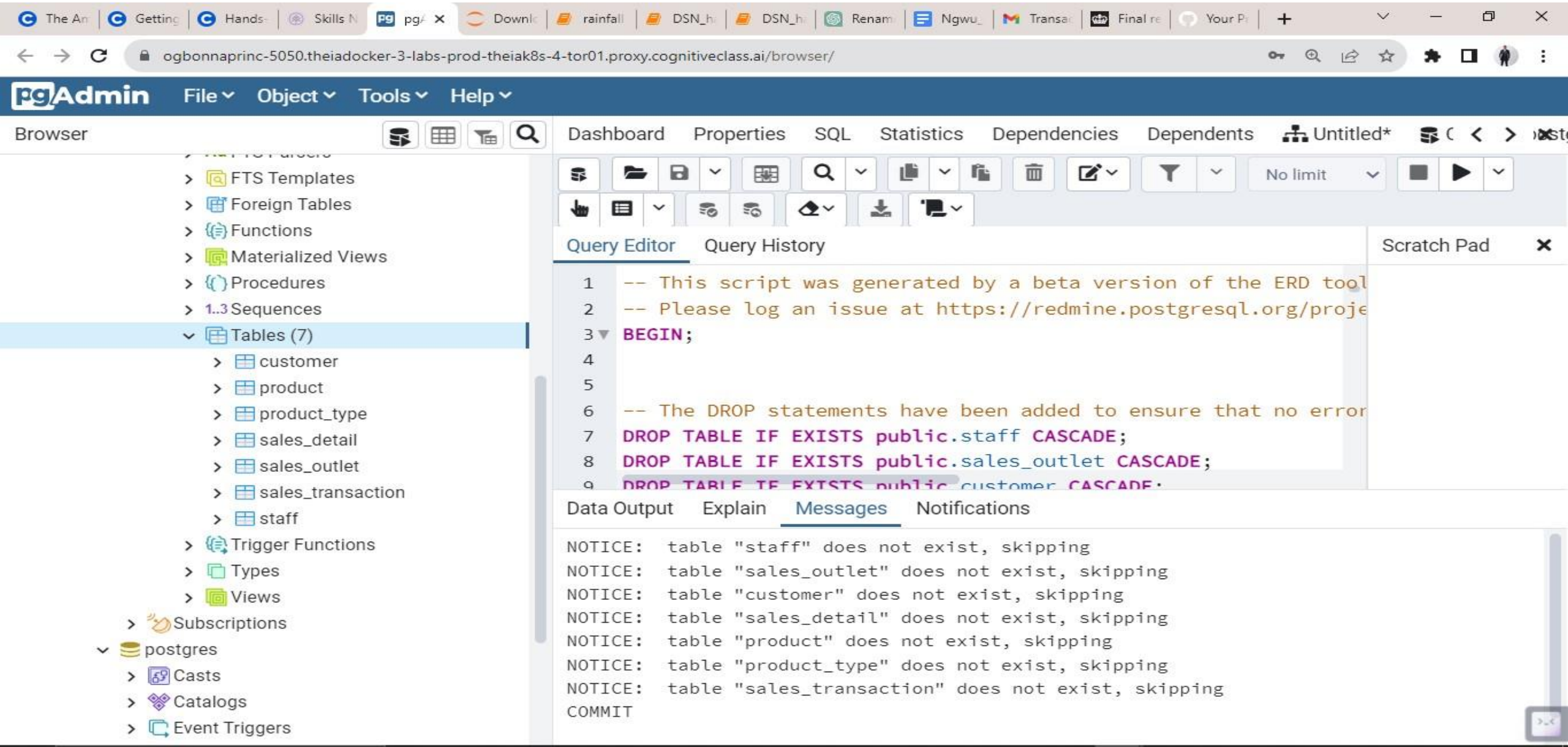
Database Normalisation: entity keys identified



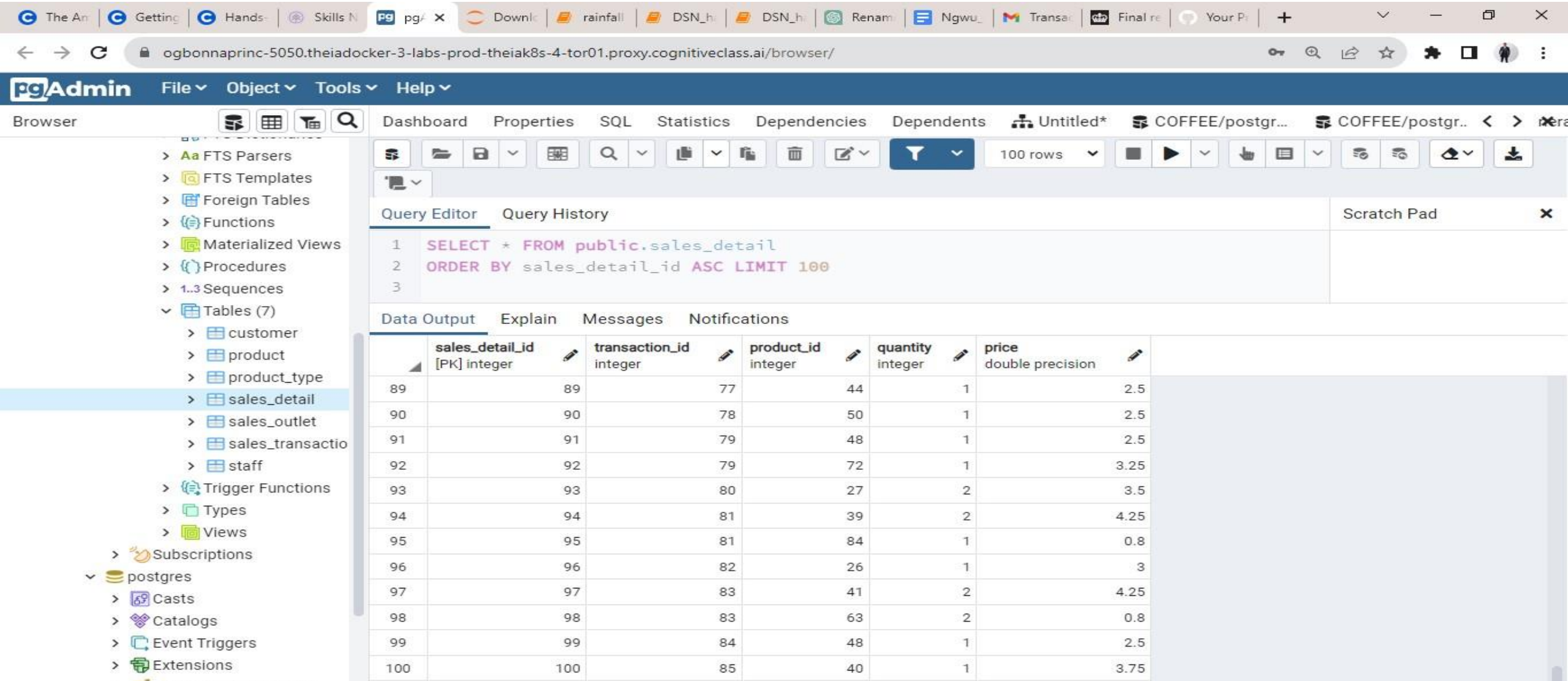
Entity Relationships identified in ERD and connections established



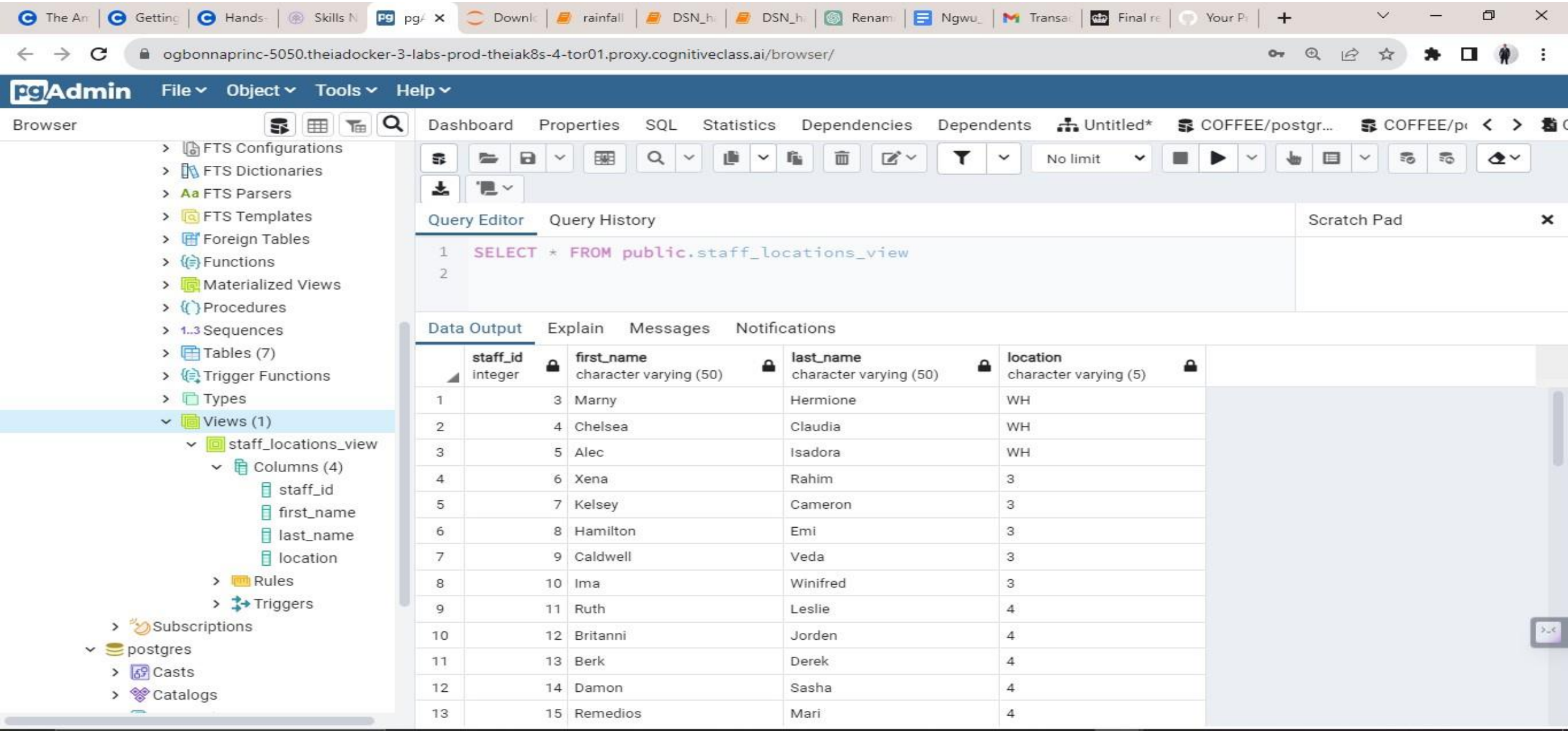
SQL script generated from the ERD tool. External SQL script imported and executed to create necessary DB entities and attributes



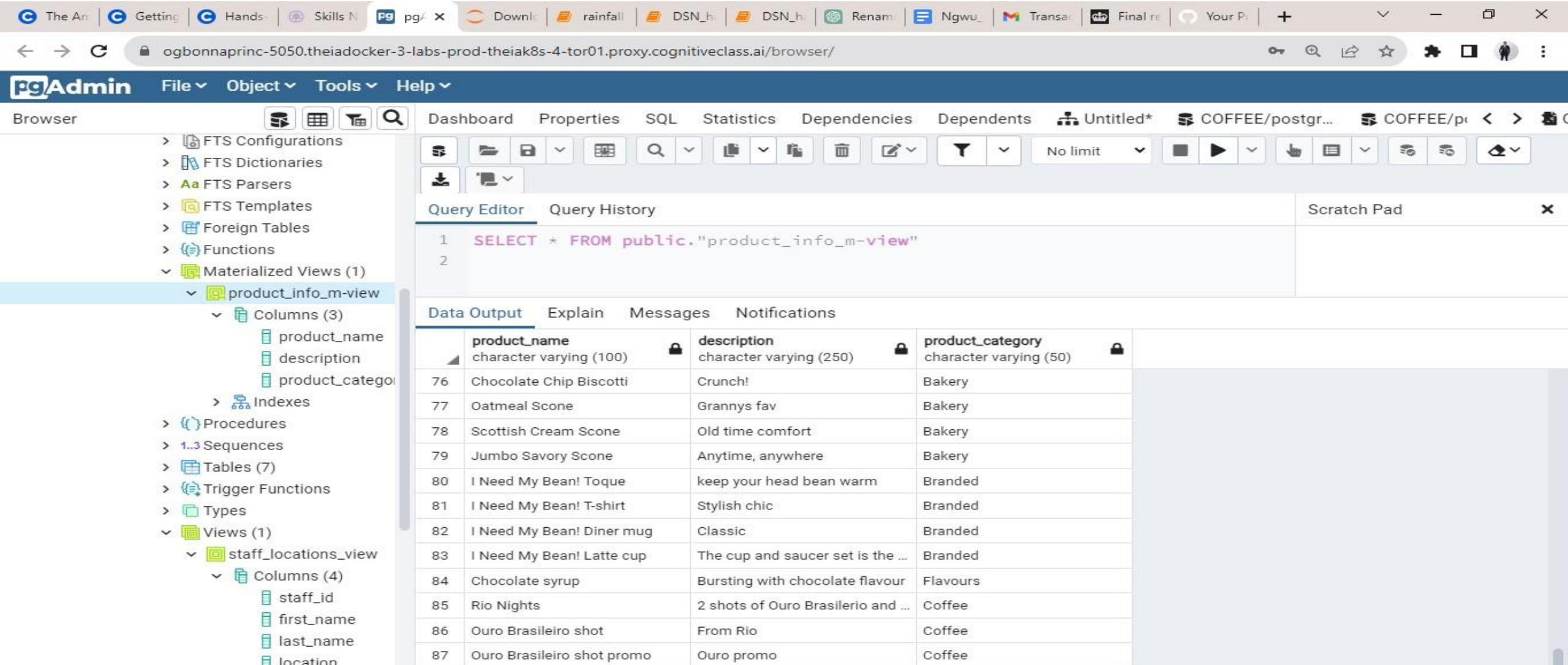
Database entities populated with data from imported and executed SQL script with Sales_detail entity first 100 rows displayed



Created and exported a staff_location view entity from the staff entity to generate a data subset for a specific use case

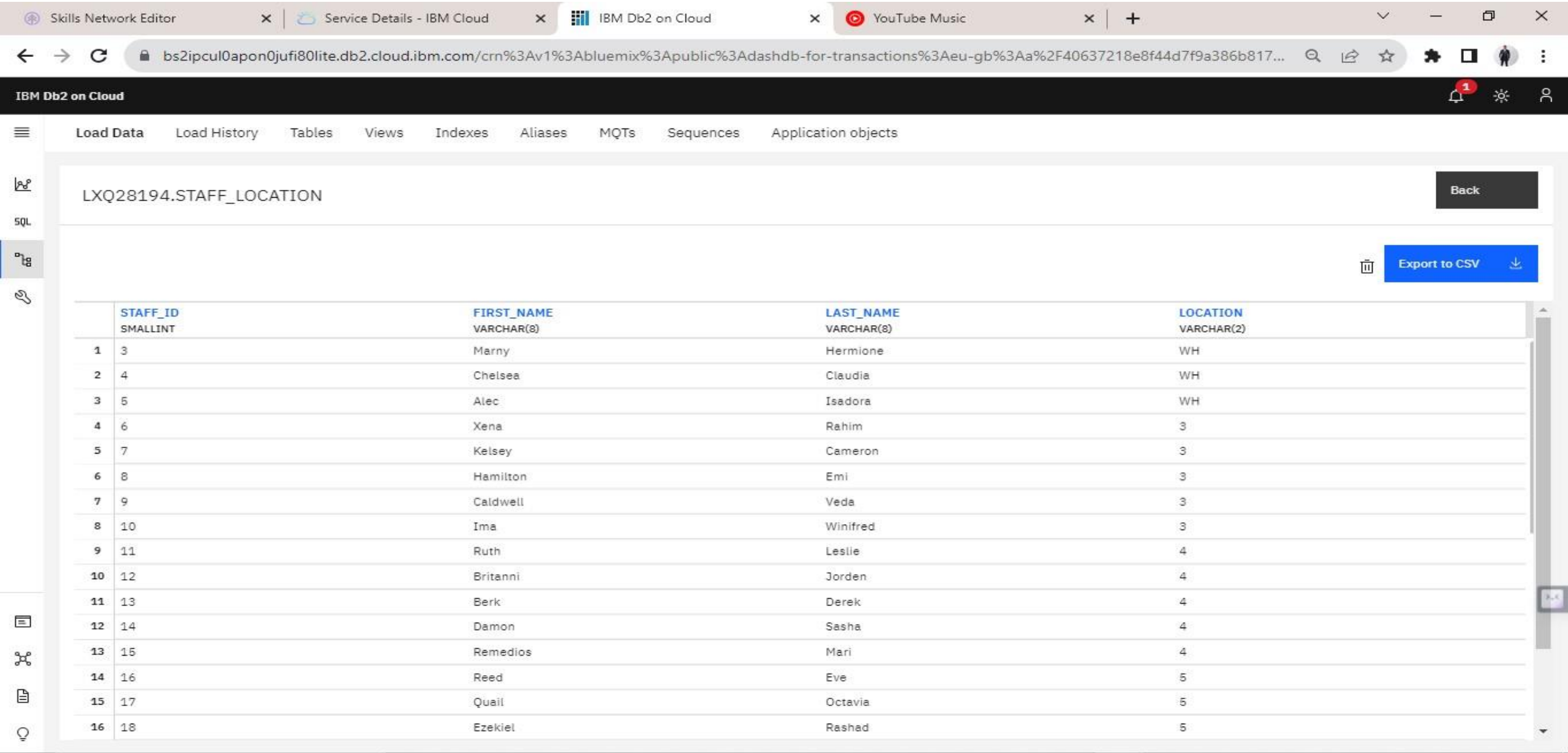


Created and exported a staff_location materialized view entity from the product entity to generate a data subset for storage and future case.



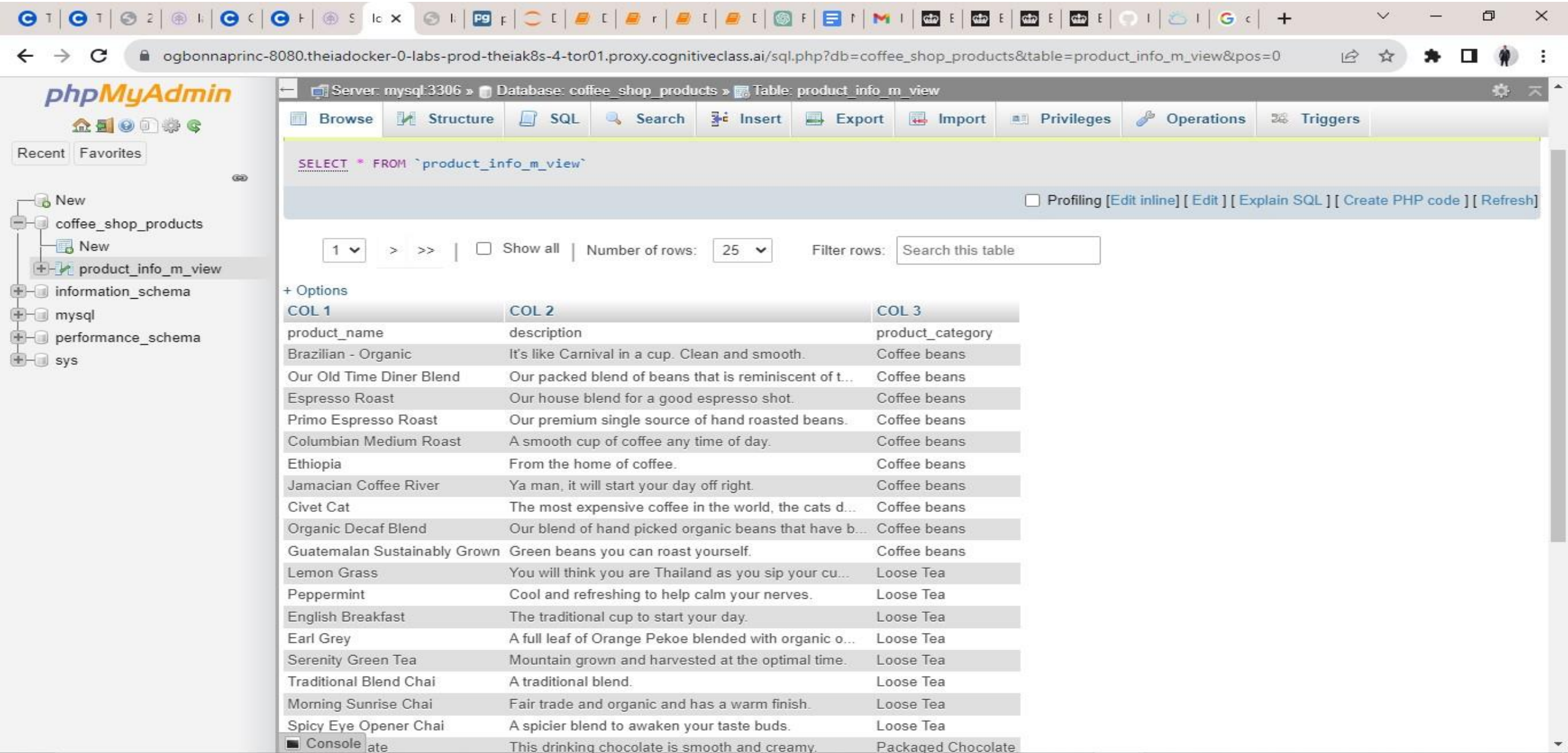
	product_name character varying (100)	description character varying (250)	product_category character varying (50)
76	Chocolate Chip Biscotti	Crunch!	Bakery
77	Oatmeal Scone	Grannys fav	Bakery
78	Scottish Cream Scone	Old time comfort	Bakery
79	Jumbo Savory Scone	Anytime, anywhere	Bakery
80	I Need My Bean! Toque	keep your head bean warm	Branded
81	I Need My Bean! T-shirt	Stylish chic	Branded
82	I Need My Bean! Diner mug	Classic	Branded
83	I Need My Bean! Latte cup	The cup and saucer set is the ...	Branded
84	Chocolate syrup	Bursting with chocolate flavour	Flavours
85	Rio Nights	2 shots of Ouro Brasilerio and ...	Coffee
86	Ouro Brasileiro shot	From Rio	Coffee
87	Ouro Brasileiro shot promo	Ouro promo	Coffee

Imported staff_location data into IBM Db2 Database for external payroll company's usage



	STAFF_ID SMALLINT	FIRST_NAME VARCHAR(8)	LAST_NAME VARCHAR(8)	LOCATION VARCHAR(2)
1	3	Marny	Hermione	WH
2	4	Chelsea	Claudia	WH
3	5	Alec	Isadora	WH
4	6	Xena	Rahim	3
5	7	Kelsey	Cameron	3
6	8	Hamilton	Emi	3
7	9	Caldwell	Veda	3
8	10	Ima	Winifred	3
9	11	Ruth	Leslie	4
10	12	Britanni	Jorden	4
11	13	Berk	Derek	4
12	14	Damon	Sasha	4
13	15	Remedios	Mari	4
14	16	Reed	Eve	5
15	17	Quail	Octavia	5
16	18	Ezekiel	Rashad	5

Imported the product_info to MySQL database for marketing consultant use



COL 1	COL 2	COL 3
product_name	description	product_category
Brazilian - Organic	It's like Carnival in a cup. Clean and smooth.	Coffee beans
Our Old Time Diner Blend	Our packed blend of beans that is reminiscent of t...	Coffee beans
Espresso Roast	Our house blend for a good espresso shot.	Coffee beans
Primo Espresso Roast	Our premium single source of hand roasted beans.	Coffee beans
Columbian Medium Roast	A smooth cup of coffee any time of day.	Coffee beans
Ethiopia	From the home of coffee.	Coffee beans
Jamacian Coffee River	Ya man, it will start your day off right.	Coffee beans
Civet Cat	The most expensive coffee in the world, the cats d...	Coffee beans
Organic Decaf Blend	Our blend of hand picked organic beans that have b...	Coffee beans
Guatemalan Sustainably Grown	Green beans you can roast yourself.	Coffee beans
Lemon Grass	You will think you are Thailand as you sip your cu...	Loose Tea
Peppermint	Cool and refreshing to help calm your nerves.	Loose Tea
English Breakfast	The traditional cup to start your day.	Loose Tea
Earl Grey	A full leaf of Orange Pekoe blended with organic o...	Loose Tea
Serenity Green Tea	Mountain grown and harvested at the optimal time.	Loose Tea
Traditional Blend Chai	A traditional blend.	Loose Tea
Morning Sunrise Chai	Fair trade and organic and has a warm finish.	Loose Tea
Spicy Eye Opener Chai	A spicier blend to awaken your taste buds.	Loose Tea
ate	This drinking chocolate is smooth and creamy.	Packaged Chocolate

Project Author:

Christian Nzeanorue

LinkedIn | My Github | My Portfolio

Thank you