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INTRODUCTION OF WHO WE ARE

- WSSC is known as Washington Suburban Sanitary Commission.
- WSSC Water is a water company that provides water services in Montgomery and Prince George's counties.
- WSSC is one of the largest water and wastewater utilities in the US and serves 1.9 million residents.
- WSSC water has been around for 105 years and is on its third generation of a billing system.
- WSSC Water has many different departments but their largest one is their billing service for customers (this is our focus of the project).

TARGET BUSINESS

- As mentioned, this project will focus on the Customer Service Department and, within it, the billing services that are provided.
- One of the first business processes incorporated into the current database is adding properties. Essentially, when a builder wants to put up a home, they would need to apply for a permit, which causes the premise record – address and classification – to exist.
- Dissecting this one business process, we can see the different types of personnel in WSSC involved in each relationship. The Permits Team adds up all the premise records and service points.
- As stated, the billing team is in charge of creating bills, making changes to bills, processing refunds, and facilitating other tasks that are financially related to a customer's account.
- Lastly, we have users in the Utility Services that may be adding meter inventory, changing the meter that is on the account, or entering the meter read.
- With such a large system involving an abundance of elements, we can see the importance of WWSC database management involving all the roles, which include the Customer Service Department, Permit Team, and Utility Service.

BILLING SYSTEM USER REQUIREMENTS

- WSSC Water utilizes a Billing System database to keep track of the employees who work for the company, along with the Departments they work for.
- For the Employees, the database keeps track of their Name (First, Last), Social Security Number, Unique Employee ID Number, Sex, Phone Number, Business Email, Position, and the Department Number of the Department they work for.
- There are four types of employees that the billing system keeps records of: Customer Service Representative, Utility Service Person, Billing Specialist, and Permit Officer.
- For the Departments, the database keeps track of the Name, identifying Department Number, the Employee ID of the Department Director, and Floor Location.
- The database also keeps track of the Customers who utilize WSSC's services.
- There are three types of customers: Commercial, Residential, and Government.
- For Commercial, it contains the Company's Name, Main Office Location (Address), and Company Phone Number.

BILLING SYSTEM USER REQUIREMENTS (CONT.)

- For Residential, it contains the property owner's Name (First, Last), SSN, and Phone Number.
- For Government, it contains the agency's name and code.
- Every customer has an Account in the billing system, which includes their own account user ID along with their primary credit card on file. This is so that all properties that are within WSSC Water's jurisdiction can be traced back to the respective customer.
- Additionally, the water meter is recorded for future billing use. Also, the Employee ID of the Utility Service person who services the property and reads its water meters is also included.
- Lastly, if a new building is to be built on an existing property, a permit is needed before construction can begin.
- Properties are kept track of by the database, which includes the owner's account ID, the property address, and the property type (Residential, Non-Residential, Government Owned).
- The database keeps track of all Permits, which includes the customer's Account Number of the customer who will own the property, the Property Address, the Issued Date, the Expiry Date, and the Employee ID of the Permit Officer who reviewed the permit.

FLYER

The flyer features a background image of a large industrial water treatment facility with multiple blue cylindrical tanks. The title 'WSSC Database Management' is centered over the tanks. The layout includes contact information at the top left, the WSSC Water logo at the top right, and a central list of details. The bottom of the flyer has a green curved graphic element.

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WSSC WATER
DELIVERING THE ESSENTIAL

WSSC Database Management

Target Business: Washington Suburban Sanitary Commission (WSSC)

Advantages:

- Offers robust database functionality
- User-friendly application interface
- Utilizes prepared statements to prevent SQL injections

Limitations:

- Lacks encryption of user credentials
- No separation of user privileges
- Limited queries that do not utilize the entire database

Implemented Functions:

- Search for company personnel within specific roles
- Lists information such as the customers' payment history
- Search, update, insert, and delete claims, billing, and permit information

DATA MODEL REQUIREMENTS

The database should allow the authorized users to insert and update information for the Employees (each subclass), Departments, Properties, Customers (and its super classes), Accounts, Bills, Permits, and Claims. Additionally, it should allow for the following operations:

- Allow users to insert, update, and delete entries in the tables mentioned above.
- Allow users to generate a list of all entries included in Employees, Departments, Properties, Accounts, etc.
- Allow users to produce a list of all customers that have an active claim.
- Allow users to generate of all Utility Service People who operate on properties.

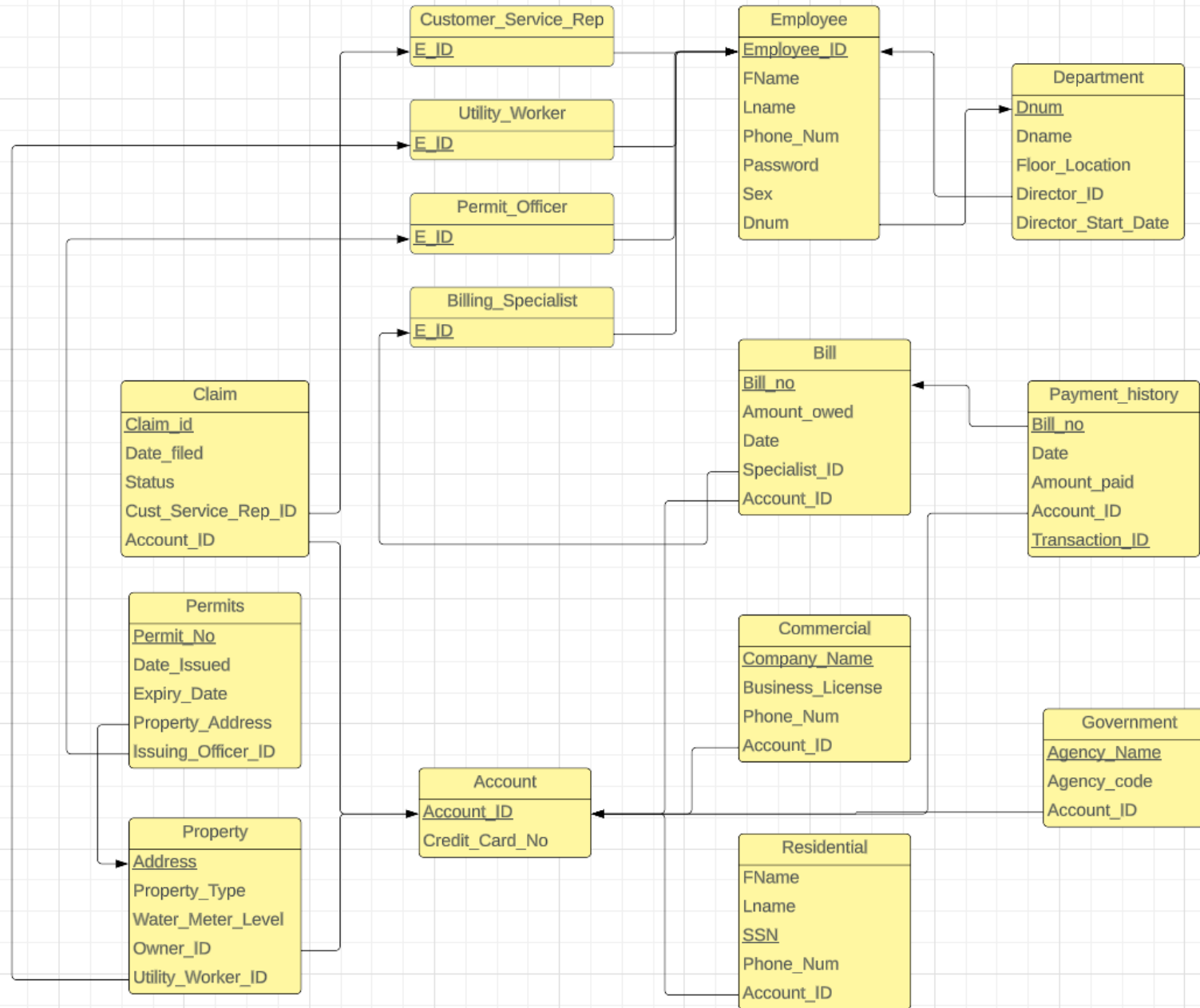
EXPECTED DATABASE QUERIES

- Find the names of all Customer Service Representatives that are working on an active Claim.
- Find the Employees who are Department directors.
- Find the list of all Utility Service Workers.
- Find the list of all employees who work under a given Department.
- Find the list of all properties owned by a Government agency.
- Find the list of Accounts that belong to Residential customers.
- Find the list of all Properties that have no Permit.
- Find the list of all payments made by an Account.

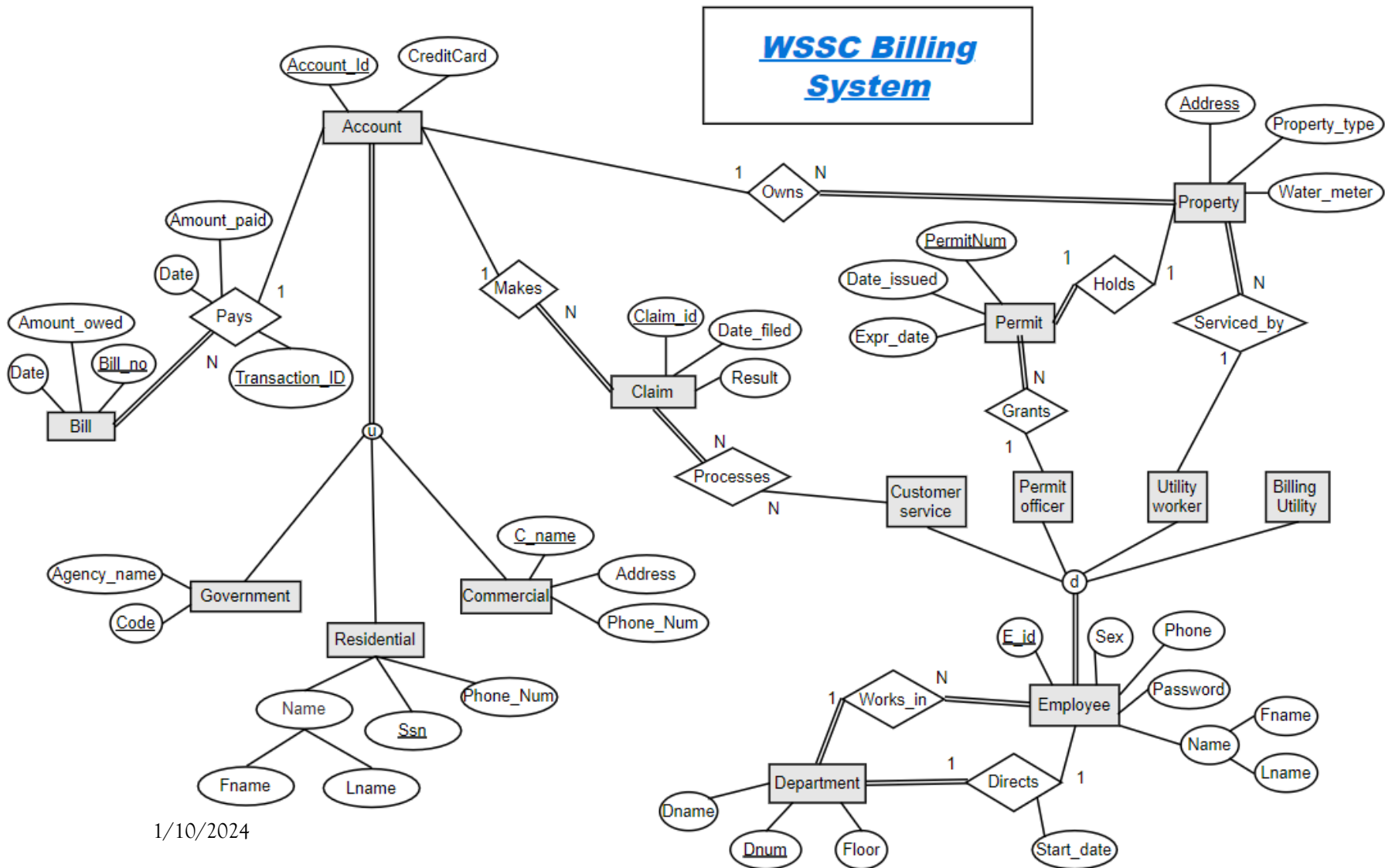
ER DIAGRAM ASSUMPTIONS

- A Property must be owned by one Account, and an Account can have multiple properties
- A Permit must belong to a Property
- Departments have at least one Employee

DATABASE SCHEMA



ENTITY RELATIONSHIP DIAGRAM



INTRODUCING APPLICATION

LIVE DEMO