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# ER Diagram Details

This document is where we outline the details of the ER diagram (i.e. details about the entities, relationships, and their attributes) for the local database that implements the Quote System for this project.

## Entities

### Sales Associate

The Sales Associate entity contains information about one of the users of the system: the sales associate that works on behalf of the plant repair services company. This entity interacts with Admin, and Quote entities. Chosen as an entity as it represents one of the users of the system for the project, in which we need information about.

Attributes:

- **ID** - The primary key for this entity
- **Name (associate)** - Stores the Full Name (first & last) of an associate.
- **Username** - Stores username for logging into web interface only
- **Password** - Stores password for logging into web interface only
- **Sales Commission** - Stores the accumulated commission of the sales associate (increases the more quotes that they made are converted to purchase orders).
- **Address** - Stores the sales associate's address (payroll, taxes, etc)

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**Quotes**

The Quotes entity contains information about the quotes that are generated by the Sales Associates, and Customers. (Customers are handled in an external database, so we did not need to model them in the ER diagram). Chosen as an entity as it is the main data structure needed for the system to work (i.e. the creating and maintaining of Quotes) of this system.

Attributes:

- **ID** - The primary key for this entity

- **Line Items** - Stores Line Items (description + price) of a customers quote for the company's services

- **Secret Notes** - Stores secret notes left in by either Sales Associates, or HQ Staff when creating/editing the quotes respectively

- **Discounts** - Stores discounts given by Sales Associates/HQ Staff. Can be an amount or a percentage of the total price.

- **Price** - Stores the quoted price for the service (Should be the sum of all prices in line items minus the sum of the discounts)

- **isSanctioned** - Boolean that denotes whether a quote has been sanctioned or not. Sanctioning can only be done if a quote has been finalized.

- **isFinalized** - Boolean that denotes whether a quote as been finalized or not. Quote is initially "open" when created, then sales associate finalizes it for modification at HQ.

- **Customer ID** - Acts like a foreign key, but also technically not a foreign key due to the database being external, of a Customer Entity to know which customer is associated with a given Quote.

- **Customer Email** - Email to which we send quote information to customer (different to "contact" attribute in Customers table in Legacy Database).

- **Created At** - Date & Time describing when a given Quote was first created.

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- ◉ **Last Modified At** - Date & Time describing when a given Quote was last updated.


## HQ Staff

The HQ Staff entity is the entity that contains information about one of the users of the system: the HQ Staff which works for the Plant Services company. They interact with Quote entities and Purchase Order entities. Chosen as an entity as it represents one of the users of the system for the project, in which we need information about. These HQ Staff can also be an administrator of the whole system as long they have an attribute saying they are. If they are, then they have access to different interfaces only for administrators, like editing/creating Sales Associates & viewing all quotes/orders in the system.

Reason why these are not separate entities is mostly to keep functionality of HQ Staff with admin accounts if needed (i.e. allowing Admins to modify quotes like regular HQ Staff). In this implementation however, we decided to keep Admins from editing quotes for simplicity and to match example provided by professor.

Attributes:
- ◉ **ID** - The primary key for this entity
- ◉ **Username** - Stores username for logging into company(still web) interface only
- ◉ **Password** - Stores password for logging into company(still web) interface only
- ◉ **isAdmin** - Boolean that denotes whether an HQ Staff is an admin account or not.

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**Purchase Order**

The Purchase Order entity is the entity that contains information about the Purchase Orders generated by the External System. This entity interacts with the HQ Staff, Quotes entities. Chosen as an entity as it represents one of the users of the system for the project, in which we need information about.

Attributes:

- ◉ **ID** - The primary key for this entity
- ◉ **Processing Date** - Stores processing date given by External Processing System API
- ◉ **Sales Commission Rate** -Stores Sales Commission Rate given by External Processing System API.
- ◉ **Created At** - Date & Time describing when a given Purchase Order was first created.

# Relationships

**records (edit later!)**

The records relationship is a relationship that links Sales Associate, and Quote entities together. It represents the interaction of Sales Associates creating new Quotes for a customer.

Cardinalities:

- ◉ **Sales Associate -> Quote (1,m)** - For each Sales Associate, there are a minimum of 1, and a maximum of m Quotes they can record.

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- ◉ **Quote -> Sales Associate (1,1)** - For each Quote, there can only be 1 Sales Associate that recorded (i.e. made) it.

### edits

The edits relationship is a relationship that links Quote and HQ Staff entities together. It represents the interaction of HQ Staff being able to edit, and view quotes created by Sales Associate entities.

Cardinalities:

- ◉ **Quote -> HQ Staff (1,m)** - For each Quote, there are a minimum of 1, and a maximum of m HQ Staff that can edit/view the quote.
- ◉ **HQ Staff -> Quote (1,m)** - For each HQ Staff, there are a minimum of 1, and a maximum of m Quotes they can edit.

### convert

The convert relationship is a relationship that links Quote, HQ Staff, and Purchase Order entities together. It represents the interaction of HQ Staff taking sanctioned (i.e. finalized) Quotes to be converted into Purchase Orders by the external system.

Cardinalities:

- ◉ **Quote, HQ Staff -> Purchase Order (1,m)** - For every Quote and HQ Staff combination, there are a minimum of 1, and a maximum of m Purchase Orders that can be made through the external system.

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- ◉ **Quote, Purchase Order -> HQ Staff (1,1)** - For every Quote and Purchase Order combination, there can only be 1 HQ Staff that can initiate the conversion from Quote to Purchase Order.

- ◉ **HQ Staff, Purchase Order -> Quote (1,1)** - For every HQ Staff and Purchase Order combination, there can only be 1 Quote that the HQ Staff chose to convert to the given Purchase Order.

### manages

The manages relationship is a relationship that links Sales Associates and HQ Staff entities together. It represents the interaction of Administrators managing (i.e. creating, viewing, and modifying) Sales Associate accounts in the system. This relationship only applies to rows of HQ Staff that have the isAdmin attribute set to True. For sake of simplicity, we will be referring to these HQ Staff rows as Admins.

Cardinalities:

- ◉ **Sales Associate -> HQ Staff(Admin) (1,m)** - For each Sales Associate, there are a minimum of 1, and a maximum of m Admins that can manage the same Sales Associate.

- ◉ **HQ Staff(Admin) -> Sales Associate (1,1)** - For each Admin, there are a minimum of 1, and a maximum of m Sales Associates that the admin can manage.