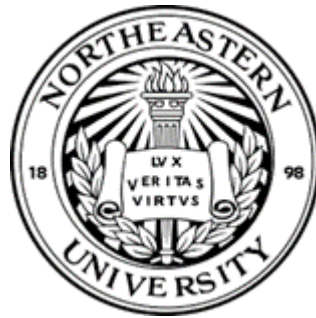


Spring 2022

Data Management & Database Design



Project P3 **Restaurant Management System**

Group 18

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Final Project: Restaurant Management System

Project Overview

In this project we will design a database for Restaurants to help them face real time inventory issues. It enables the business to connect with their customers and suppliers swiftly. Our database helps to integrate the means of technology minimize the human error and makes sure the entire process is smooth.

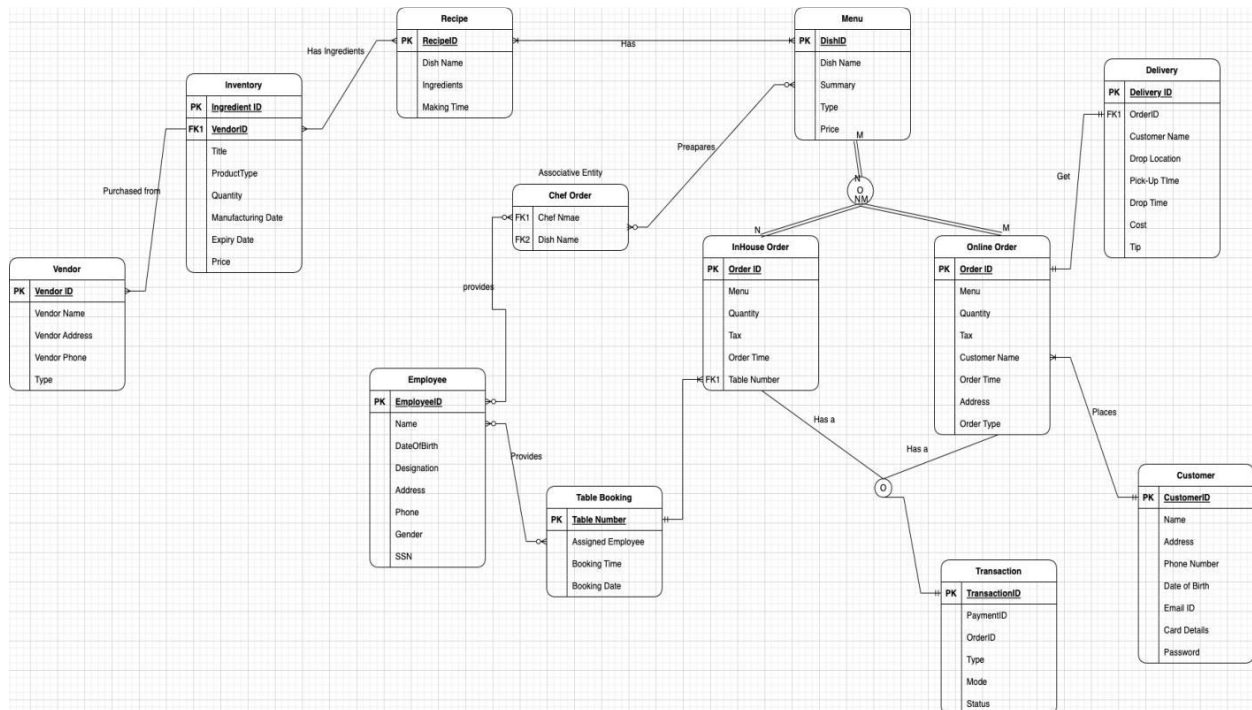
Background

Food! Not only a surviving factor for mankind but also a pleasure on a bad day. The changes in our lifestyles have made 'Restaurants' more than just a place. It has become an emotion. Social meetups have now become a part of our lives & restaurants becomes the to-go places. From kids to social butterflies, everybody craves to savor different food assortments. This project aims to design a database for a Restaurant Management System. The restaurant database project aids in the maintenance of food facts that are conveniently accessible with a single mouse click. The restaurant managers will find it simple to manage the action items associated with the restaurant. All customer-related information will be available there, ensuring that food is delivered quickly and smoothly, whether it is ordered online or at the restaurant.

Purpose

In the current world data is valuable to a business which can help us in multiple analysis and try to help the business in a financial and inventory way so that the business has a competitive advantage. Our dashboard will help the business to understand the market equilibrium and meet the demands accordingly. The database helps us eliminating in having duplication errors and has a priority-based system which will help the restaurants serve the food in a faster manner. Online delivery is also easily manageable which runs in parallel with in person dining that way we are automating which helps in the business to run in a seamless manner.

Initial ERD



List of Entities:

1. Customer
2. Menu
3. InHouse Order
4. Online Order
5. Transaction
6. Employee
7. Table Booking
8. Chef Order (Associative Entity)
9. Recipe
10. Inventory
11. Vendor
12. Delivery

Initial ERD Business Rules:

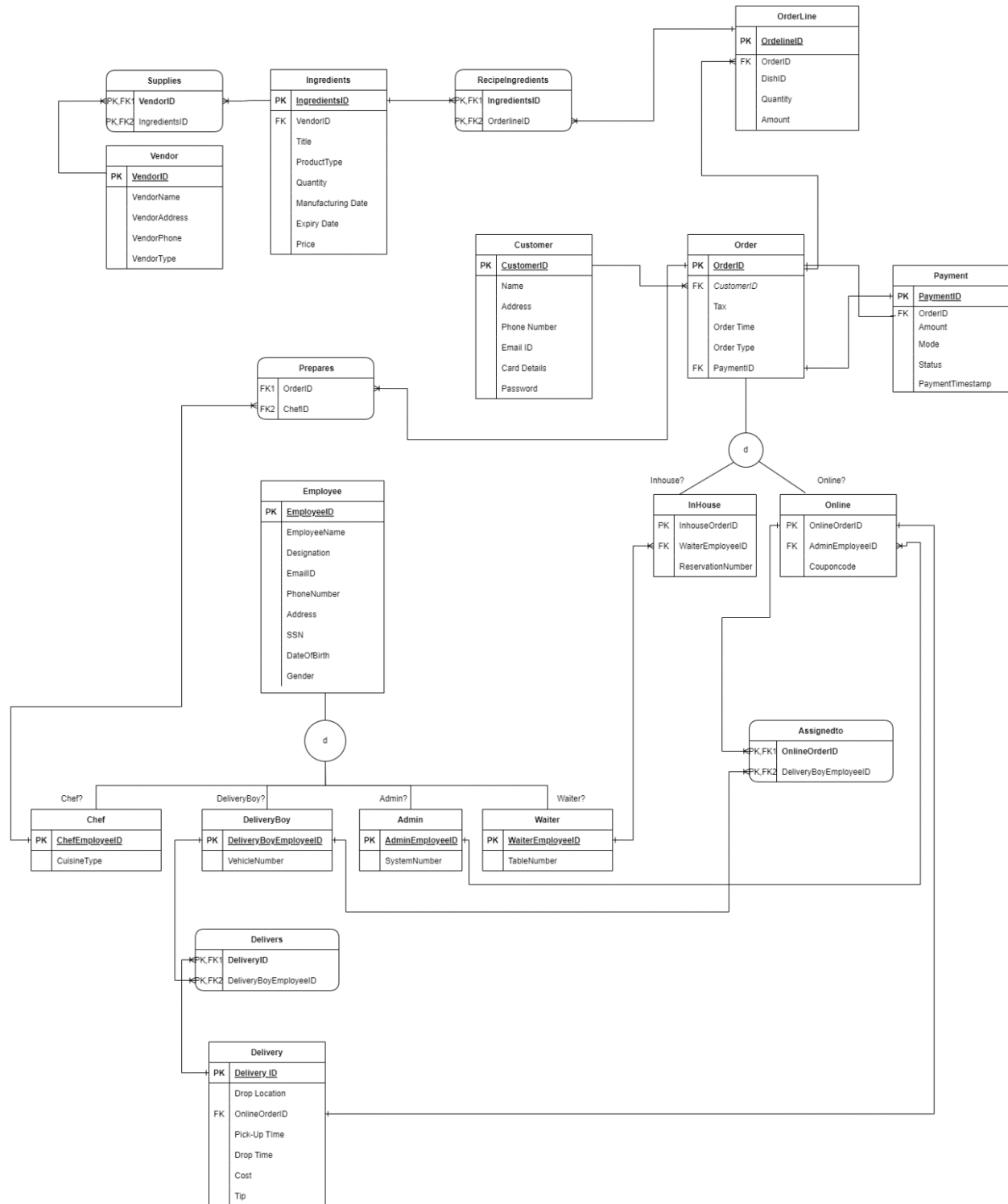
1. Customer have access to placing InHouse, as well as online order. For placing an order successfully, it is mandatory for a customer to place at least one order, In addition User can place multiple orders. The User have access to Multiple Menu items.
2. Online order should contain delivery entity attributes such as address and should be assigned to be mandatory one delivery person.
3. The InHouse Order has to mandatory have one and only one Table Booking. Multiple Table Bookings are taken care by multiple employees of the restaurant.
4. Chef Order is an associative entity which is directly connected/defined by the Menu.
5. Transaction is created when a User successfully places an order, InHouse or Online (both). One Customer can have multiple Transactions. Online and InHouse orders consist of multiple menu options to select from.
6. Depending on the menu item, it has respective recipe of the dish.
7. Recipe has all the ingredients that are maintained in the stock of inventory. Inventory on the other hand, when stocks out purchase items from Vendor.

Final ER Diagram – Changes

As per Professor's feedback and after a review call, we have made the below changes to our initial ER Diagram -

1. We have updated the supertype and subtype relationship between order and order-types. Also, we have added a subtype-supertype class for 'Employee' and its four subtypes.
2. We have made the connection between the Customer table and Order table,
3. We have removed 'Menu' entity, instead added 'OrderLine' entity to get rid of the multivalued attribute problem.
4. There were many M:M relationships between entities. However, we have replaced these with the Associative entities to normalize our ER Diagram in the 3NF form.
5. Showed connection between 'OnlineOrder' subtype and 'Delivery' entity.
6. We have removed the 'Recipe' entity since it was becoming redundant and unnecessary for our Database.
7. We have also added one subtype under the 'Employee' entity, known as 'Admin' to incorporate and manage 'OnlineOrders' from Customers.
8. Removed entity- 'TableBooking' and instead added this as an attribute for subtype 'InhouseOrder' under 'Order' entity.
9. Updated the 'Transaction' entity name with 'Payment' and added attributes within that entity, namely, 'PaymentTimestamp' and 'Amount'.
10. Added subtype discriminator attributes in each of the subtype entities.

Final ERD



GitHub Repository for the Project: [Click here](#)