CENG 315 - INFORMATION MANAGEMENT PROJECT

RESTAURANT MANAGEMENT SYSTEM

Entity Sets:

Manager
-manager_id
-manager_first_name
-manager_middle_name
-manager_last_name
-phone_number
-hiredate
-salary
-annual_holiday

Chef
-chef_id,
-chef_first_name
-chef_middle_name
-chef_last_name
-profession
-ranking
-phone_number
-shift
-hiredate
-salary
-annual_holiday
-experience

Cashier
-cashier_id
-cashier_first_name
-cashier_middle_name
-cashier_last_name
-cash_no
-phone_number
-shift
-hiredate
-salary
-annual_holiday
-experience

Bill
-bill_id,
-bill_price
-tip_amt
-bill_date

Waiter
-waiter_id
-waiter_first_name
-waiter_middle_name
-waiter_last_name
-phone_number
-shift
-hiredate
-salary
-experience

Courier
-courier_id
-courier_first_name
-courier_middle_name
-courier_last_name
-phone_number
-shift
-hiredate
-salary
-experience

Order
-order_id
-order_date
-order_status
-order_type

Customer
-customer_id,
-customer_first_name
-customer_middle_name
-customer_last_name
-customer_phone_number
-customer_address

Order Item
-item_name
-item_price,
-item_quantity
-item_type
-special_option
-calories

Table
-table_no
-capacity
-place

Food Supplier
-supplier_id
-supplier_name
-product_type
-contact_info
-supply_type

Relationship Sets:

Employs: It is used for employing cashiers, chefs, couriers and waiters to the restaurant.

Paid To Cashier: The bill of a table's order is paid to cashier. It has a payment_way attribute which describes that how the bill is paid(Cash or Credit Card).

Paid To Courier: The bill of a customer's order is paid to courier. It has a payment_way attribute which describes that how the bill is paid(Cash or Credit Card).

Gives: It describes that the table gives orders.

Prepared By: Orders are prepared by chefs.

Contains: Each order contains order items.

Serviced : Orders which are prepared are serviced by a waiter.

Delivers: If order is a take-out order, then courier delivers the order to a customer. It has a delivery_way attribute which describes that how the order is delivered to customer(By Car or By Motorcycle).

Trades: Managers trade with food suppliers in order to bring food product. It has three attributes: trade_code, product_name, quantity. The attribute trade_code uniquely shows the trade operation between supplier and manager, product_name describes that what product is traded and quantity shows that how many of that product is traded.

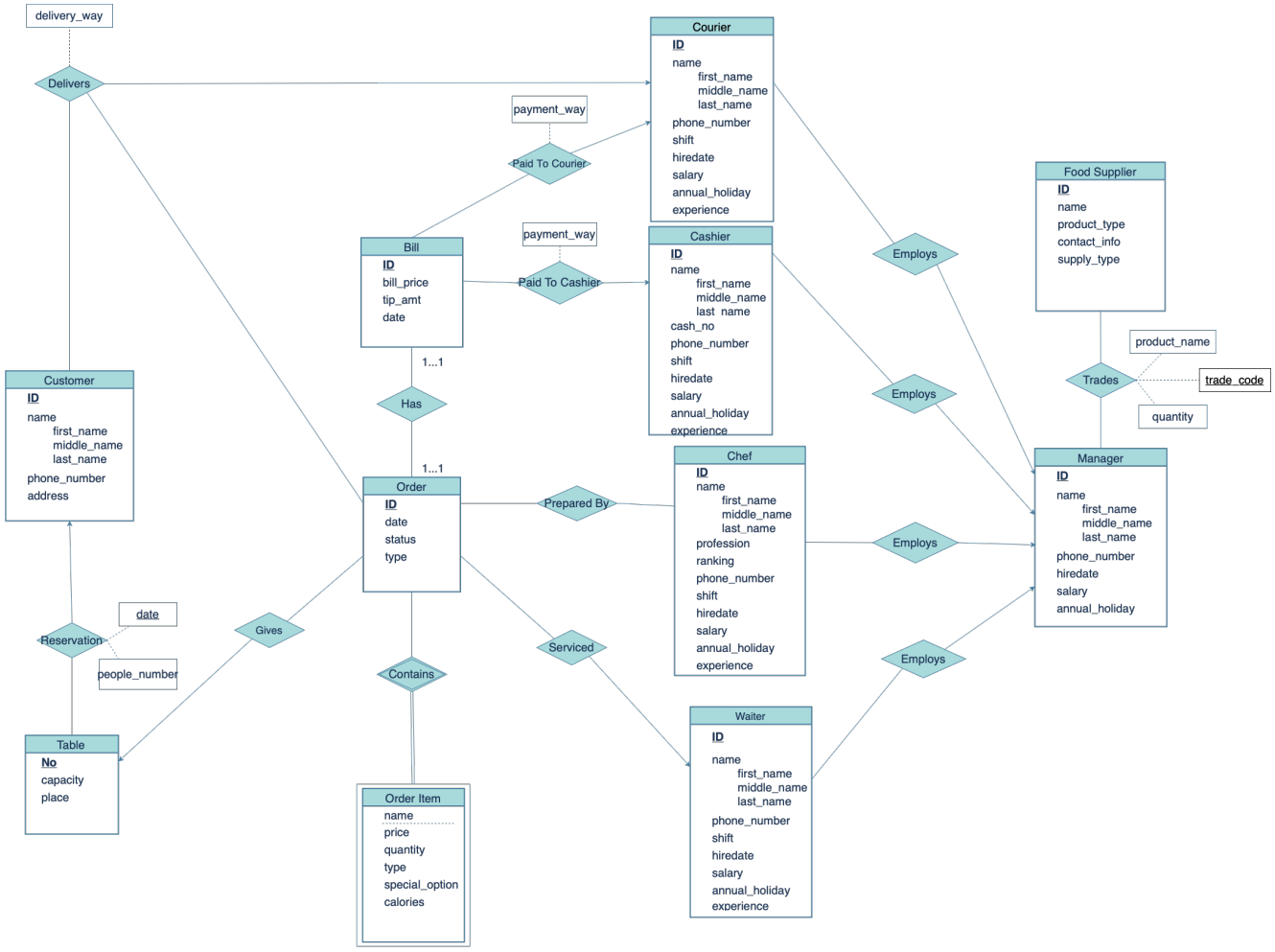
Has: Each order has one bill.

Reservation: A customer can reserve many tables and a table can be reserved by one customer at a specific time. It has two attributes: The attribute date shows the reservation date which uniquely defines reservation record with table_no, the people_number attribute depicts how many people are related to that reservation.

Users Of The System

Managers
Chefs
Waiters
Cashiers
Couriers
Customers

ER Diagram



Business Rules

In this Restaurant Management Database System, there are 11 entities: Customer, Table, Bill, Order, Order Item, Courier, Cashier, Chef, Waiter, Manager and Food Supplier.

In this Restaurant Management Database System there are 11 type of relationships: Reservation, Delivers, Gives, Has, Contains, Paid To Courier, Paid To Cashier, Prepared By, Serviced, Employs and Trades.

Between Customer and Table entities, there is a Reservation relationship which allows customers to reserve any table or tables in the restaurant. According to this relationship, a customer can reserve many tables but a table can be reserved by only one customer.

Between Table and Order entities, there is a Gives relationship. From each table, there can be given many orders and an order can be given by one table.

Between Order and Order Item entities, there is a Contains relationship. If there is an order, then it should contain at least one order item. Also an order item can be contained in many orders.

Between Bill and Order entities, there is a Has relationship. Each order has a bill. There is one-to-one any total participation relationship between entities. If there is an order, there must be a corresponding bill.

Between Cashier and Bill entities, there is a Paid To Cashier relationship. A bill is paid to one cashier. A cashier can do the process of payment of many bills.

Between Courier and Bill entities, there is a Paid To Courier relationship. A bill is paid to one courier. A courier can do the process of payment of many bills.

Between Customer, Order and Courier entities, there is a Delivers relationship. Instead of reserving table and going to restaurant, customers can order into his/her address as well. A customer can give many orders and each orders are delivered by only one courier.

Between Order and Chef entities, there is a Prepared By relationship. An order can be prepared by several chefs and a chef can prepare many orders.

Between Order and Waiter entities, there is a Serviced relationship. When an order is ready to serve, it can be serviced by only one waiter. A waiter can serve several orders.

Between Waiter, Chef, Cashier, Courier and Manager entities, there is an Employs relationship. A manager can employ several waiters, chefs, cashiers or couriers. A waiter, chef, cashier or courier can be employed by one manager.

Between Food Supplier and Manager entities, there is a Trades relationship. A manager can trade with many food suppliers and a food supplier can trade with many managers.

Assumptions

We assume that each menu item is known by the ones who give an order. We recorded only order items which are in an specific order.

Reduction To Relational Schema

Customer(customer_id, customer_first_name, customer_middle_name, customer_last_name, phone_number, address)

Reservation(table_no, date, customer_id, people_number)

Table(table_no, capacity, place)

Order(order_id, order_date, order_status, order_type, table_no, waiter_id, courier_id)

OrderItem(order_id, name, price, quantity, type, special_option, calories)

Bill(bill_id, order_id, bill_price, tip_amt, bill_date, courier_id, cashier_id, payment_way)

Courier(courier_id, courier_first_name, courier_middle_name, courier_last_name, delivery_way, shift, hiredate, salary, annual_holiday, experience, manager_id)

Cashier(cashier_id, cashier_first_name, cashier_middle_name, cashier_last_name, cash_no, phone_number, shift, hiredate, salary, annual_holiday, experience, manager_id)

Chef(chef_id, chef_first_name, chef_middle_name, chef_last_name, profession, ranking, phone_number, shift, hiredate, salary, annual_holiday, experience, manager_id)

PreparedBy(chef_id, order_id)

Delivers(customer_id, order_id, courier_id, delivery_way)

Waiter(waiter_id, waiter_first_name, waiter_middle_name, waiter_last_name, phone_number, shift, hiredate, salary, annual_holiday, experience, manager_id)

Manager(manager_id, manager_first_name, manager_middle_name, manager_last_name, phone_number, salary, hiredate, annual_holiday)

FoodSupplier(supplier_id, supplier_name, product_type, contact_info, supply_type, product_name, quantity, manager_id)

Trades(trade_code,supplier_id, manager_id, product_name, quantity)