Kalie Souto
Navya Madoor

INFSCI 1022
Dmitriy Babichenko

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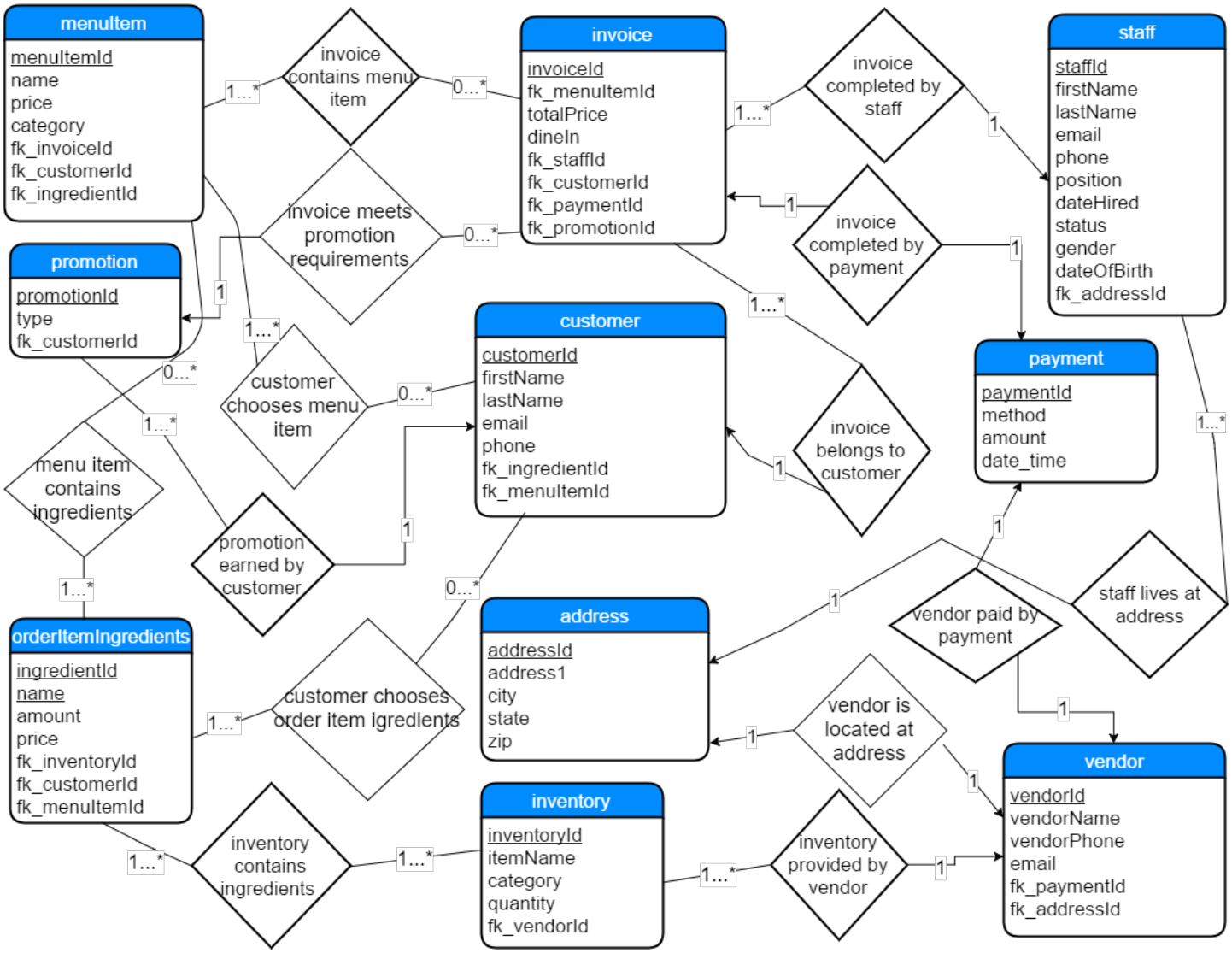
Introduction/Abstract

The business model is a database of Chipotle on The University of Pittsburgh's campus in Pittsburgh, PA. The database contains information on the staff, invoices or orders at the location, menu items, the vendors, the ingredients, the customers, the inventory at that location, records of payments, addresses that are associated with both the location and vendors, and possible promotions. The target audience is managers of Chipotle to be able to see how this location runs and all of the information pertaining to it. Another audience is potential future owners of a franchise. They will be able to look at our database to see what is involved in owning a Chipotle location.

The purpose of the database is to show how each aspect of the restaurant is related. It is also helpful to the managers to have all the information in an easy to access, central location. A benefit of this database is that can help managers create reports to send to corporate and regional offices. The database provides a way for the users to see how different aspects are related.

UML Compliant E-R Model



Business Rules

Entity 1	Entity 2	Cardinality on Entity 1 side	Cardinality on Entity 2 side	Business Rule(s)
invoice	menuItem	0...*	1...*	An invoice contains one to many menu items. A menu item can be associated with zero to many invoices.
promotion	invoice	1	0…*	A promotion is associated with zero to many invoices. An invoice can only have one promotion.
invoice	staff	1…*	1	One invoices can be completed by one staff member. One staff member can complete one to many invoices.
invoice	payment	1	1	One invoice is completed by one payment. One payment can only be associated with one invoice.
invoice	customer	1…*	1	One invoice belongs to one customer. One customer can have one to many invoices.
staff	address	1…*	1	One staff member can live at one address. One address can house one to many staff members.
payment	vendor	1	1	One payment method is used to pay one vendor. One vendor can be paid by one payment methods.
vendor	address	1	1	One vendor is located at one address. One address can be associated with one vendor.
inventory	vendor	1…*	1	One inventory item is provided by one vendor. One vendor can provide one to many inventory items.

inventory	orderItemIngredients	1…*	1…*	One inventory item is associated with one to many ingredients. One ingredient is associated with one to many inventory items.
customer	orderItemIngredients	0…*	1…*	One customer chooses one to many ingredients. One ingredient can be chosen by zero to many customers.
menuItem	orderItemIngredients	0…*	1…*	One menu item can contain one to many ingredients. One ingredient can be associated with zero to many menu items.
promotion	customer	1…*	1	One promotion can only be earned by one customer. One customer can have many promotion.
customer	menuItem	0…*	1…*	One customer can choose one to many menu items. One menu item can be chosen by zero to many customers.

Entity/Attribute Descriptions

menuItem		
pk_menuItemId	INT	Primary key for menu item entity
name	VARCHAR(200)	Name of menu item
price	DOUBLE	Cost of the menu item
category	VARCHAR(200)	Is the menu item a main course, side, or drink?

address		
pk_addressId	INT	Primary key for address entity
address1	VARCHAR(200)	Street address
city	VARCHAR(200)	City where street address is located at
state	VARCHAR(200)	State where address is located at
zip	DOUBLE	Zip Code where address is located at

staff		
pk_staffId	INT	Primary key for staff entity
firstName	VARCHAR(200)	First name of staff member
lastName	VARCHAR(200)	Last name of staff member
email	VARCHAR(200)	Email of staff member
phone	DOUBLE	Phone number of staff member
position	VARCHAR(200)	Manager, cashier, etc.
dateHired	DATETIME	Date staff member was hired
status	VARCHAR(200)	Full time or part time
gender	VARCHAR(200)	Male or female
dateOfBirth	DATETIME	Date of birth of staff member
fk_addressId	INT	Foreign key to address entity

customer		
pk_customerId	INT	Primary key for customer entity
firstName	VARCHAR(200)	First name of customer
lastName	VARCHAR(200)	Last name of customer
email	VARCHAR(200)	Email of customer
phone	DOUBLE	Phone number of customer

payment		
pk_paymentId	INT	Primary key for payment entity
method	VARCHAR(200)	Cash or debit card or credit card
amount	DOUBLE	Total amount paid
date_time	DATETIME	Date and time payment was completed

promotion		
pk_promotionId	INT	Primary key to promotion entity
type	VARCHAR(200)	Member rewards or coupon
fk_customerId	INT	Foreign key to customer entity

invoice		
pk_invoiceId	INT	Primary key for invoice entity
totalPrice	DOUBLE	Total price of invoice
dineIn	VARCHAR(200)	Dine in or takeout
fk_staffId	INT	Foreign key to staff entity
fk_customerId	INT	Foreign key to customer entity
fk_promotionId	INT	Foreign key to promotion entity

vendor		
pk_vendorId	INT	Primary key for vendor entity
vendorName	VARCHAR(200)	Name of vendor
vendorPhone	DOUBLE	Phone number of vendor
email	VARCHAR(200)	Email address of vendor
fk_paymentId	INT	Foreign key to payment entity
fk_addressId	INT	Foreign key to address entity

inventory		
pk_inventoryId	INT	Primary key for inventory entity
itemName	VARCHAR(200)	Name of the item in inventory
category	VARCHAR(200)	Vegetables, meat, rice, tortilla, paper products, etc.
quantity	DOUBLE	Quantity of specific item in inventory
fk_vendorId	INT	Foreign key to vendor entity

orderItemIngredients		
pk_ingredientId	INT	Primary key for order item ingredients entity
amount	VARCHAR(200)	Single or double serving of ingredients
price	DOUBLE	Additional cost for each added ingredient
name	VARCHAR(200)	Name of ingredient

invoice_menuItem		
fk_invoiceId	INT	Foreign key to invoice entity
fk_menuItemId	INT	Foreign key to menu item entity

customer_menuItem		
fk_customerId	INT	Foreign key to customer entity
fk_menuItemId	INT	Foreign key to menu item entity

menuItem_orderItemIngredients		
fk_menuItemId	INT	Foreign key to menu item entity
fk_ingredientId	INT	Foreign key to order item ingredients entity

customer_orderItemIngredients		
fk_customerId	INT	Foreign key to customer entity
fk_ingredientId	INT	Foreign key to ingredient entity

inventory_orderItemIngredients		
fk_inventoryId	INT	Foreign key to inventory entity
fk_ingredientId	INT	Foreign key to order item ingredients entity

Questions

1. Show all the staff members in the Chipotle database.
2. Show all promotions associated with customer Kalie Souto.
3. Return all the promotions associated with an invoice.
4. What is the lowest price on the menu?
5. How many staff members are full time?
6. Show the total quantity for each category in the inventory.
7. Show all the payments that has an average amount greater than $10.
8. List the ingredient in descending order based on the price.
9. Show the two most expensive payments.
10. Return all the vendors that have the same payment methods using a subquery.

Conclusion

The most difficult part of this project was doing the ER diagram. The ER diagram was difficult to come up with the cardinalities between entities and to have sufficient attributes for the entities. It was also difficult because this was the first ER diagram that we had to create completely from scratch. We found it helpful to do the project in a timely manner to get help from the professor and the graduate teaching assistant. We liked that this project used all of the skills that we acquired from the duration of the class. It was a great way to see if we actually understood all of the material that we had learned. Working in a group project was a good experience, because in the field of Information Technology, being able to work together is important. Lastly, we really enjoyed being able to relate this project to real life and can see this project helping us in the workforce.