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ITEC370-001
04/20/2024

Data Model Project

ITEC 370 **SPRING 2024**

Last Day to turn in April 22nd.

Relationship Indicators to Use with Crow's foot notation	**Table 4.3** Crow's Foot Symbols Symbol | Cardinality | Comment ⟨ | (0,N) | Zero or many; the "many" side is optional. ⟨| | (1,N) | One or many; the "many" side is mandatory. || | (1,1) | One and only one; the "1" side is mandatory. O| | (0,1) | Zero or one; the "1" side is optional.
Many-to-many	**No many to many relationships are allowed!** To eliminate many to many, create a junction/bridging entity/table with composite primary key.
ER-models and ERD	**Hand drawn models will be given a zero.** You must use Draw.io, diagram.net or visio **Label your models** Include your name, itec 370, data model #, title **ERD displays all entities, attributes, relationships, PK and FK** Indicate the **PK** in bold and underlined. Indicate **FK** in bold in red font. **Do not turn in models that are not formatted.** All drawings should be colorful with legends to help the audience interpret the diagram without asking you. **ER models are professional diagrams that are used to lead requirements gathering between business analysts and data analysts.** **Requirements gathering is one of the most important steps in designing and building a database.**

RUBRIC.

	Data Model 1	Data Model 2	Possible Points
Keys and Relationships			50
ER-models			50
ERD-models			100
Analysis			50
Professional Drawings			+50/-50

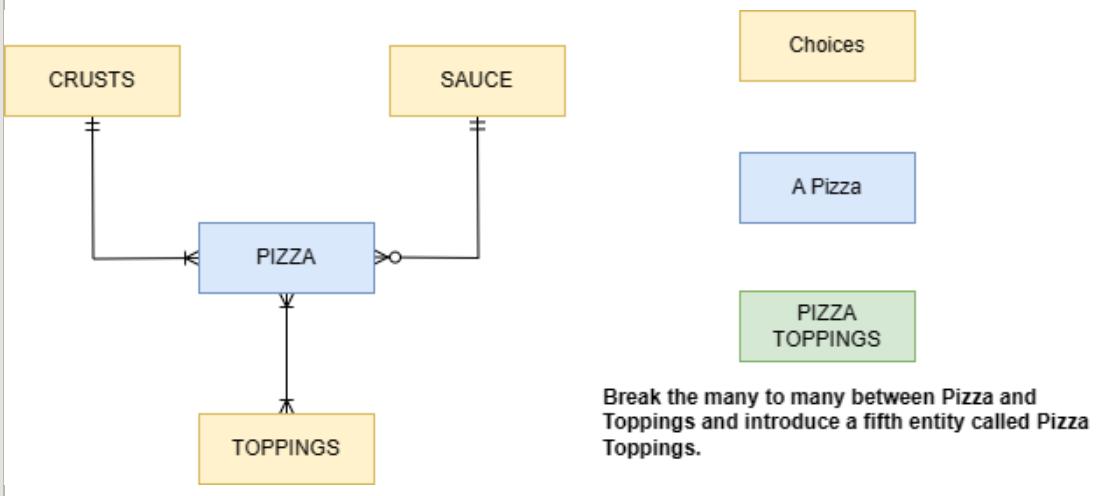
TOTAL			**300/250**

Embed ER-models and ERD into this document. Each student must turn in their own work.

Data Model #1	**Model a pizza**
Business Rules	**A pizza is made with one type of crust.** **There are more than one crust type: thin, original, deep dish etc.** **A pizza is made with one pizza sauce.** **There are more than one pizza sauce to select from: marinara, white, and pesto** **A pizza can have zero or many toppings.** **Toppings can be veggies, meats, or cheeses.** **A pizza is made with one size.** **There are many sizes: small, medium, large, x-large.**
Entities	**PIZZA, SAUCES, CRUSTS, TOPPINGS, PIZZA TOPPINGS**
Relationships between entities	

Entity A	Entity B	Relationship (one to one, one to many, many to one, zero to one, zero to many, etc.)
PIZZA	SAUCES	Zero/Many-to-one
PIZZA	CRUSTS	Many-to-one
PIZZA	TOPPINGS	Many-to-many
SAUCES	PIZZA	One-to-zero/many
CRUSTS	PIZZA	One-to-many
TOPPINGS	PIZZA	Many-to-many

Draw ER-Model	**Complete and Re-draw the ER-Model below with five entities.** **Use the business rules and relationships. Add PIZZA TOPPINGS.**



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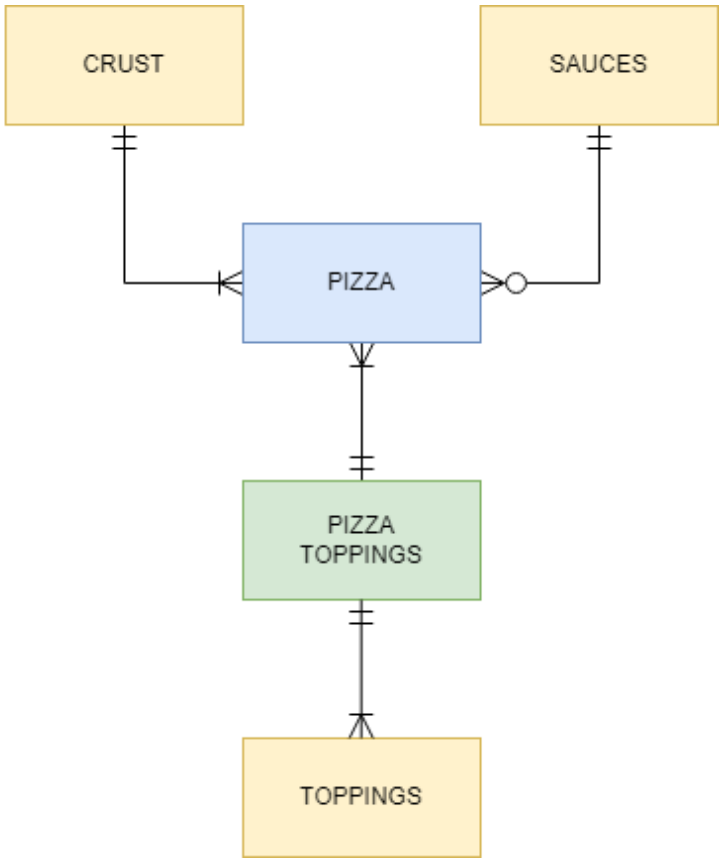


Attributes

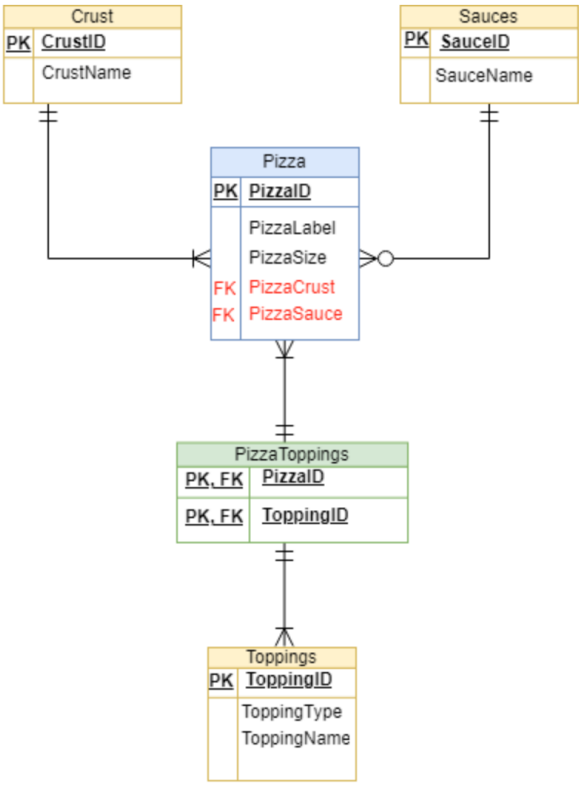
Crusts:crust_id, crust_name
Sauces: sauce_id, sauce_name
Toppings: Topping_id, topping_type, topping_name
Pizza: Pizza_id, pizza_label, pizza_size, pizza_crust, pizza_sauce
Pizza Toppings: Pizza_id, topping_id

Indicate the FK and PK for each table

Table Name	Primary Key(column(s))	Foreign Key(s)
CRUSTS	Crust_ID	No
SAUCES	Sauce_ID	No
TOPPINGS	Topping_ID	No
PIZZA	Pizza_ID	Pizza_crust, pizza_sauce
PIZZA_TOPPINGS	Pizza_ID + Toppings	Pizza_ID, Toppings

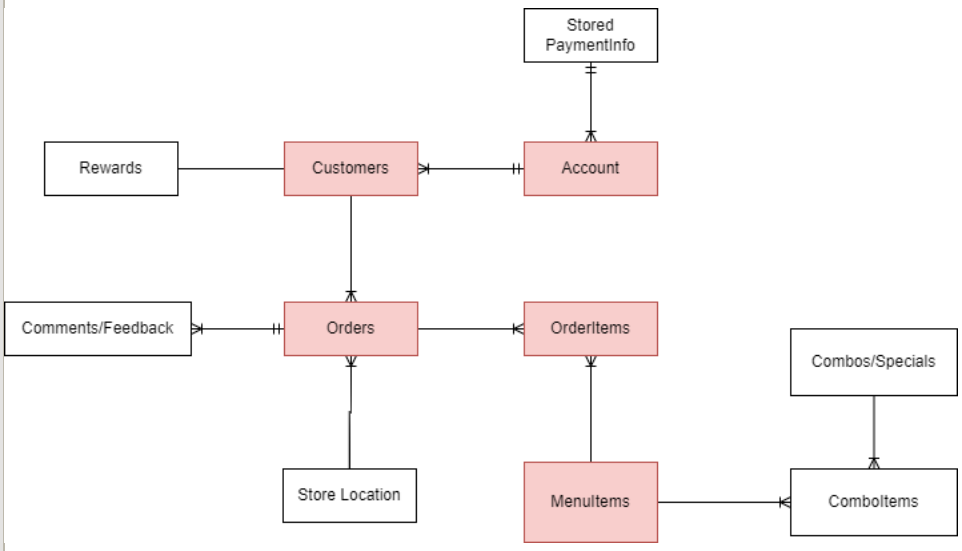
Draw Final ERD Using business rules, entities, attributes and relationships

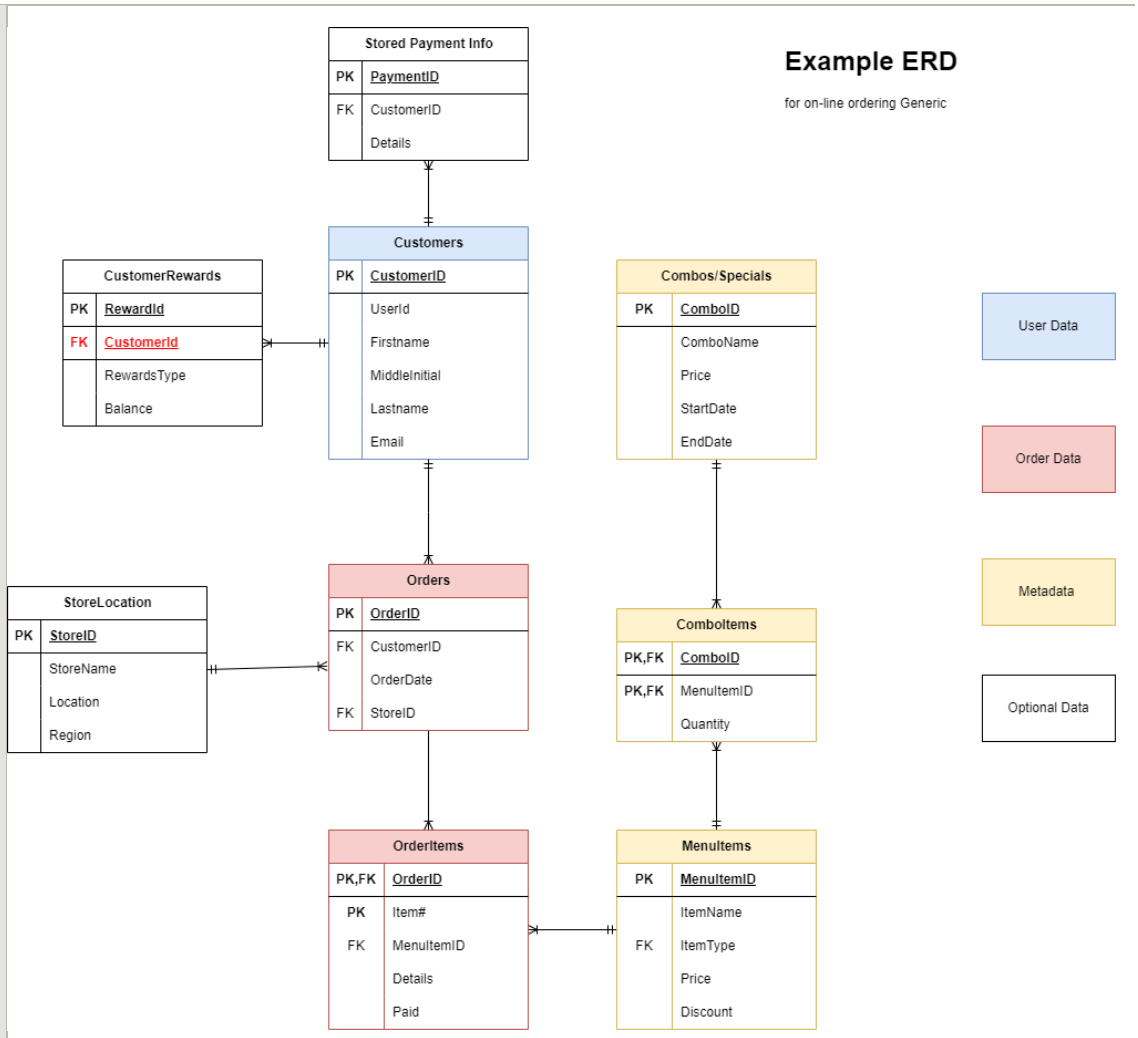
ERD is the drawing with entities, attributes, relationship lines, and indicates PK with underline and FK with red font. Be sure to Include a title with your name, email, date.

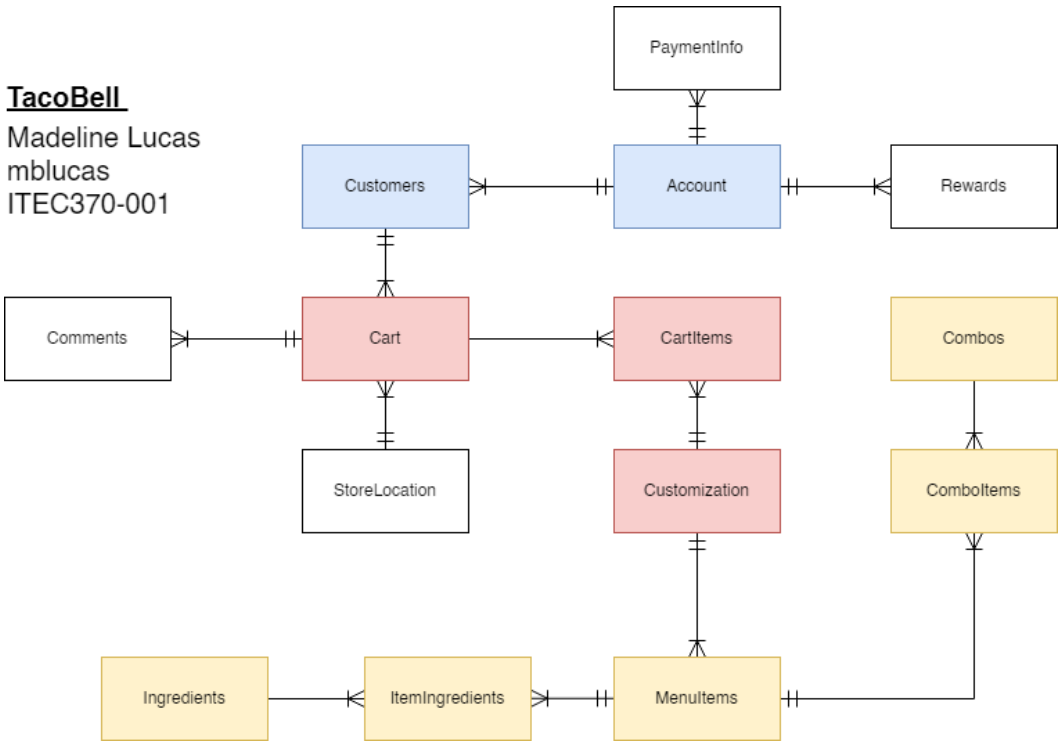
	Madeline Lucas mblucas ITEC370-001 
Question.	**Describe the entities you would add to this model for an on-line pizza ordering platform. What is missing? Use complete sentences.** **This model is missing an orders entity to store orders.** **An orderitems entity to store the items within an order.** **A menuitems entity to store all items on the menu.** **A customers entity to keep track of customer data.** **An account entity that keeps data of different customers accounts.** **A paymentinfo entity that keeps payment information for accounts.** **A storelocation entity that keeps data of all the businesses store locations.**

Data Model #2	**You have started this with Group Activity #3. You will improve on your initial submissions by following the instructions below. Notice there are additional steps beyond your initial conceptual drawing.**
Conceptual Modeling	**If you have not completed gathering the information needed below, complete it now.**
Pick your platform	**1. TacoBell** **2. Pelican Snobal** **3. All Trails**
Group Activity #3	**1. Which website you chose?** **Tacobell** **2. Brief summary of the content found on this website.** **Lots of user interaction. Side bar of buttons that link to other pages within the website. Log-in/Sign-up options, button to order, and even more buttons to order under menu items.** **3. Can you identify data that is presented to the user?(Already stored-SELECT statements)** **Orders** **StoreLocation** **OrderItems** **MenuItems** **ComboItems** **Combos** **Customers** **Customer#** **FirstName** **LastName** **4. Data collected for each user.(Insert,Update or Delete)** **a. Same instructions as 3 a-d. You should find new data not mentioned in 3 a-d.** **Customer Info:** **Email/password** **PaymentInfo** **Next sketch an ER-model of at least 5 entities identified from your analysis of the commercial website above.** **If you identified attributes, include those also. Include the relationships. You may also describe ER-model with business rules.**

	You have been asked to sketch a conceptual data model for on-line ordering platform based on your interpretation of what you observed in Group Activity 3. **Here are some of the data requirements:** 1. Keep track of contents ordered by each user. 2. Each customer can have an account for ordering. 3. Customers can add comments about their orders. 4. Content: trails, snoballs, tacos. Include the details for each.

	a. Trails- length, location, difficulter, activity type, etc. b. Snoballs-flavors, gummies, ice cream, size, etc. c. Tacos- meats, cheeses, veggies, sauces, tortillo, etc 5. Payment methods 6. Delivery 7. Location 8. Combos or Specials **9.** Customer order history **10.** Orders have one or more items.
	Below is a generic ER-Model for on-line ordering. **You may use this to adapt to your project.** 
Entities and attributes	**This is a list of possible entities and attributes. Adapt to your project.** **Customers and Accounts:** contains a list of customers. For each customer we will store their Unique ID , Name (First and Last Name) , Email , Address , Phone Numbers , joined date **Stored Payment Info:** details for credit cards or gift cards. **MenuItems:** Every item has a Unique ID , Description/Name, and other details unique to your website. **Combos/Specials:** Each has a unique_id, description/name, price, effective start and end dates, etc. **Store Location:** store id, description, address info or GPSi, etc. **Orders or Carts:** unique ID, customer ID, order date, delivery or pickup, store ID, tip, total, etc. **Order items or Cart Items: order ID, menu item ID**, quantity, etc. **Comment/Feedback:** order id, comment, comment, date **CommentAbout Store:** storeid, customer ID, comment, date **Rewards:** reward ID, customer ID, reward info. **Payments:**keep a history of each customers payments. **Recommenders:** Capture snapshot data to drive recommendations for each customers. TacoBell and All Trails. **Events:** Parties and Events from Pelican Snoball only.

Example ERD with Generic Naming **Use may use this to adapt to your project. You will use project specific naming styles, not generic ones.**	
Turn in the following:	
Draw ER-Models **Using the information, you gathered from analyzing a website.**	• **Title: 1-ER-Model On-line ordering platform** • **Draw only Entities and relationships. Resolve all many-to-many relationships.** • **Your model must include the abovementioned menu items, customers, and cart information.**



Draw Final ERD

Using the entities and relationships above, add attributes and indicate PK and FK

- **Title: 2-ERD On-line ordering platform**
- You must include PK and FK fields.
- You should include attributes that align with the project based on your knowledge. Some attributes have been suggested above. Add more at will.

TacoBell

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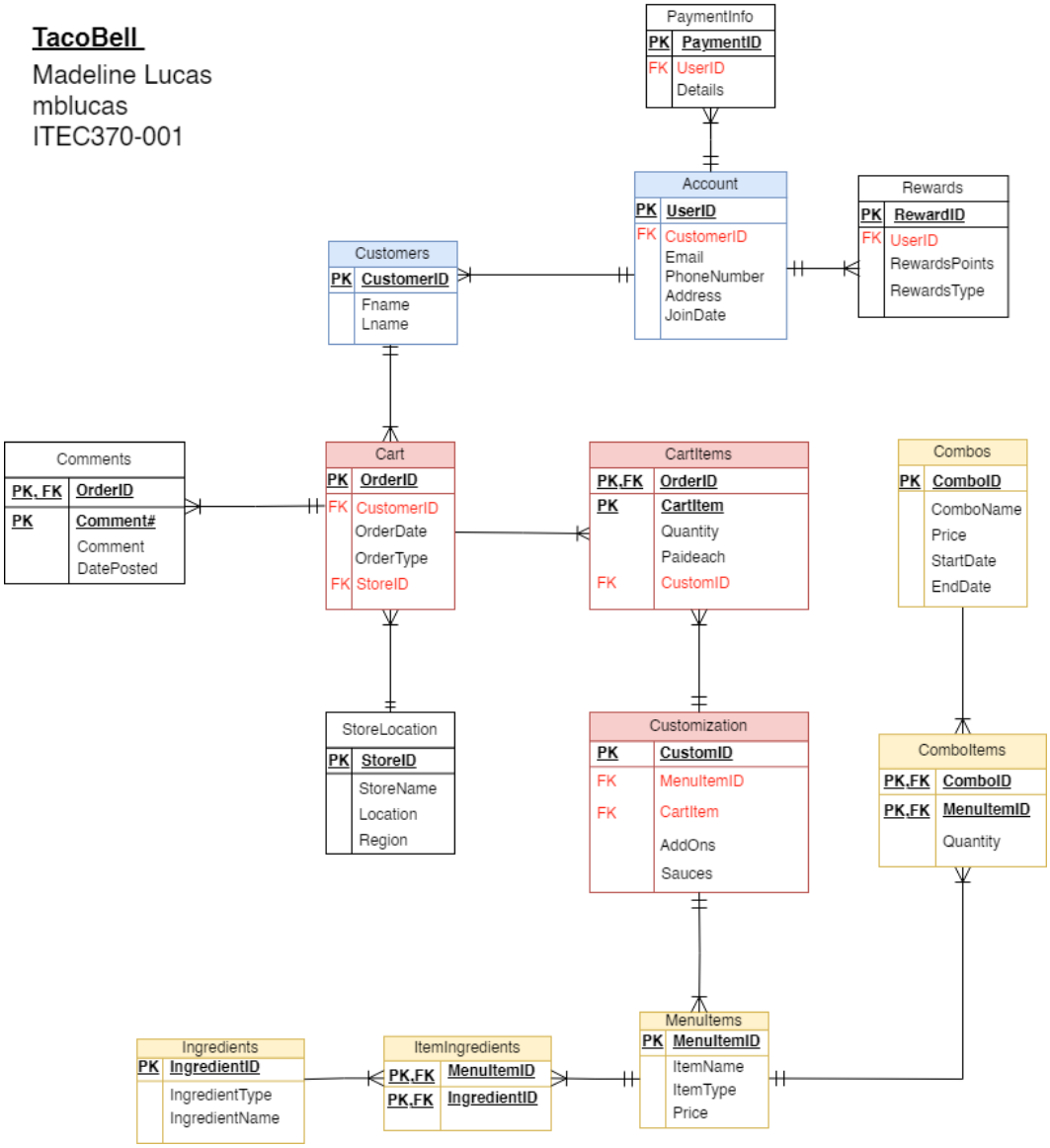

Analysis

1. **Attach your analysis from group activity 3. If you did not complete it, complete it now.**
   - **Which website you chose?**
     - **TacoBell**
   - **Brief summary of the content found on this website.**
     - **Lots of user interaction. Side bar of buttons that link to other pages within the website. Log-in/Sign-up options, button to order, and even more buttons to order under menu items.**
   - **Can you identify data that is presented to the user?(Already stored-SELECT statements)**
     - **Use screen shots to help communicate data identified**
     - **You do not have to collect all attributes at this level.**
     - **Entity- the concepts of metadata for the website and metadata for the user logged on.**
     - **Note how entities are related.**
     - **Note business rules that you can determine from the functionality of the website.**

- Orders
  - StoreLocation
- OrderItems
  - MenuItems
  - ComboItems
  - Combos
- Customers
  - Customer#
  - FirstName
  - LastName

- Data collected for each user.(Insert,Update or Delete)
  - Same instructions as 3 a-d. You should find new data not mentioned in 3 a-d.

Customer Info:

Email/password

PaymentInfo

2. While developing your sketches, you will have questions and will need to make some assumptions.

3. Keep a log of questions and assumptions about your project.

How to add customization options.

Customization would require knowing the ingredients within each menu item.

Need an ingredients entity as well as an itemingredients entity to prevent a many-to-many relationship between menuitems and ingredients entities.

4. Did you find any parts of the website that were hard to interpret? Explain.

I had a difficult time translating the customization options offered on the website into the EDR. Specifically referencing menuitems and ingredients. I had a difficult time trying to figure out if I had to introduce new entities and attributes for each menu item (ex. Taco, burrito, etc.) or if they were data that would be added into an actual database.

I eventually figured it out, but I initially struggled.

5. Describe the relationships between each entity in your ER-Model using business rules.

A cart/order can have one or many items.

Cart items are specific to the OrderID, to CartItems can only belong to one cart/order.

A cart/order belongs to one customer.

A customer can place many carts/orders.

A customer can have one and only one account.

One or many customers can have accounts.

An account can have one or many saved payment methods (Different cards. (debit, credit, gift).

Payment info can be saved to one and only one account.

An account can have one or many rewards.

Rewards belong to one and only one account.

A cart/order can only be made at one store.

A store can have one or many carts/orders.

	A cart/order belongs to only one customer. **A customer can have one or many carts/orders.** **A cart/order can have one or many comments** **A comment can belong to one and only one cart/order.** **A cart item can be customized once and only once.** **One or many cart items can be customized.** **A menu item can be customized once and only once.** **One or many menu items can be customized.** **A menu item has one or many ingredients.** **Ingridents sets (ItemIngredients) are specific to one and only one menu item.** **A menu item can be in one or many combos.** **A combo item is one the menu once and only once.** **A combo can have one or many combo items.**