INFO 6210 Online Shopping Database

Database Specification: Purpose, Business Problem Addressed, and Business Rules.
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Database Purpose:
The purpose of this database is to create a system to store and track online shopping information. The database will be used by customers, online stores, banks, and the administrative.

Business Problem Addressed:
- Allow the selling party to create their stores and products.
- Allow the buying party to create their personal information.
- Provide the evaluation information to the selling party.
- Provide product information to the buying party and allow them to order items.
- Provide arrival information to the buying party the state of their orders.

Business Rules:
- Each store may have zero or more products.
- Each product may belong to one or more stores.
- Each product may have one or more items.
- Each order may have one or more items.
- Items in the same order have the same order time but may have different deliver times.
- Each order has only one payment.
- Each item has zero or one evaluation.
- Each item has only one state of arrival, as well as completion.
- Each customer may have zero or one favorite product.
- Each product may have zero or more favorite customers.
- Each customer may have one or more addresses, as well as emails.

Design Requirements:
- Use Crow's foot Notation.
- Specify the primary key field in each table by specifying PK beside the field.
- Draw a line between the field of each table to show the relationships between each table. This line should be pointed directly to the fields in each table that are used to form the relationship.
- Specify which table is on the many sides of relationship by placing a crow's foot symbol next to the field where the line ends.

Design Decisions:

Entity Name	Why Entity Included	How Entity is Related to Other Entities
Seller	We need Seller as the selling party in the online shopping system.	1. **Seller_Product:** Each **Seller** has one or more products. And other stores may have the same products. The same product in different stores may have different prices. So, we create an entity called "**Seller_Product**" to store information in each particular product in each particular store.

Product	Product is necessary for the online shopping system.	**1. Seller_Product:** Each **product** belongs to one or more stores. The same product in different stores may have different prices. So, we create an entity called "**Seller_ Produc**t"to store information in each particular product in each particular store. **2. Category:** Each **product** belongs only one **category**. Each **category** has one or more **product**. 3. **Customer_favorite_Product:** Each customer has zero or one favorite product. Each product has zero or more customers who love it. We create the entity "**Customer_favorite _Prodcut**" to store their relationship.
Seller_Product	We need this entity to accomplish the first normal form. (remove many-to-many relationship)	**1. Seller:** Each **seller** has one or more **seller_product** (a product that only belongs to this store). Each **seller_product** belongs to only one **seller**. **2. Product:** Each **product** has one or more **seller_product** (a product that only belongs to one store). Each **seller_product** just belongs to this one particular **product**. **3. Order_Session:** Each **order session** has only one **seller_product.** Each **seller_product** has one or more **order sessions**
Category	We can count the profits or popularity for each category by using the category entity.	**1. Product:** Each **category** has one or more **products**. Each **product** belongs to one **category**.
Order	Order is necessary for the online shopping system.	**1. Customer:** Each **customer** has zero or more **orders**. Each **order** has only one **customer**. **2. Payment:** Each **payment** belongs to only one **order**. Each **order** has only one **payment.** **3. Delivery Company:** Each **delivery company** has zero or more **orders**. Each **order** has only one **delivery company**. **4. Order_Session:** Each **order session** belongs to only one **order**. Each **order** has one or more **order session.** **5. Evaluation:** Each **evaluation** belongs to only one **order**. Each **order** has one or zero **evaluation.**
Order_Session	The items in the same order may quite different from each other. They may from different stores. They may be totally different product. They may be shipped by different company, etc. We need this entity to store each particular type of items.	**1. Seller_Product:** Each **seller_product** has one or more **order sessions** Each **order session** has only one **seller_product.** **2. Order:** Each **Order** has one or more **order sessions** Each **order session** belongs to only one **order.**
DeliveryCompany	Delivery company is related to the delivery time of one order item.	**1. Orders:** Each **order** belongs to one **delivery company**. Each **delivery company** has zero or more **orders.**

Bank	Bank is related to the payment. Each order has a payment.	**1. Payment:** Each **payment** belongs to only one **bank**. Each **bank** has zero or more **payment**.
Evaluation	Evaluation will complete this online shopping system.	**1. Order:** Each **evaluation** belongs to only one **order**. Each **order** has one or zero **evaluation.**
Customer	Customer is necessary for the online shopping system.	**1. Address:** Each **customer** has one or more **addresses**. Each **address** belongs to only one **customer.** **2. Emails:** Each **customer** has one or more **emails**. Each **email** belongs to only one **customer**. **3. Customer_favorite_Product:** Each customer has zero or one favorite product. Each product has zero or more customers who love it. We create the entity "**Customer_favorite_ Prodcut**" to store their relationship. **4. Prime Customer:** Each **prime customer** is a **customer**. **5. Orders:** Each **order** has only one **customer**. Each **customer** has zero or more **orders**.
Prime Customer	Prime customers pay prime fee every year and they has their own sale assistant.	**1. Prime Customer:** Each **prime customer** is a **customer**. **2. Sales Assistant:** Each **prime customer** has only one **sale assistant.** Each **sale assistant** has zero or more **prime customer.**
Sale Assistant	Sale assistant will help prime customer with shopping online.	**1. Prime Customer:** Each **prime customer** has only one **sale assistant.** Each **sale assistant** has zero or more **prime customer.**
Customer_favorite_Product	We may want to know who is interested in this particular product. We also may want to know which product this particular customer like.	**1. Product:** Each customer has zero or one favorite product. Each product has zero or more customers who love it. We create the entity "**Customer_favorite_ Prodcut**" to store their relationship. **2. Customer:** Ditto.
Payment	This data is related to the customer, bank and the order.	**1. Order:** Each **order** has only one **payment**. Each **payment** belongs to only one **order**. **2. Bank:** Each **bank** has zero or more **payment**. Each **payment** belongs to only one **bank**.
Address	Address will complete the customer information.	**1. Customer:** Each **customer** has one or more **addresses**. Each **address** belongs to only one **customer.**
Email	Email will complete the customer information.	**1. Customer:** Each **customer** has one or more **emails**. Each **email** belongs to only one **customer**.