Anushka Verma (Z1911937)
CSCI 466 Section 1
Today's Date: 02/02/2021
Due Date: 02/05/2021
Assignment 3

ER Diagram to Third Normal Form

Entities

a. **Handle All Entities** – Customer, Order, Product, Store, City

> **Customer** (<u>customerName</u>, email, address)
> **Order** (<u>orderNum</u>, date)
> **Product** (<u>productID</u>, size, color, weight, description)
> **Store** (<u>storeID</u>, address, manager)
> **City** (<u>cityName</u>, <u>state</u>, headquartersAddr)

b. **Strong Entities?** – Sorry, but no strong entities that are subtypes

c. **Weak Entities?** – Sorry, but no weak entities

Handle Relationships

a. **One-to-One Relationships?** – Sorry, but there are no one-to-one relationships

b. **One-to-Many Relationships?** – Order, Store

> **Order** (<u>orderNum</u>, date, customerName †)
> **Store** (<u>storeID</u>, address, manager, cityName †)

c. **Many-to-Many Relationships?** – Was ordered in, Hold, Is stored in

> **Was ordered in** (<u>orderNum</u>†, <u>productID</u>†, quantity)
> **Hold** (<u>productID</u>†, <u>storeID</u>†, quantity)
> **Is stored in** (<u>productID</u>†, <u>cityName</u>†, quantity)

d. **Relationships Greater Than Binary?** – None

Listing Foreign Keys

Order (<u>orderNum</u>, date, customerName †)

- o   customerName† (Foreign Key), the home relation is Order

Store (<u>storeID</u>, address, manager, cityName†)

- o   cityName† (Foreign Key), the home relation is Store

Was ordered in (<u>orderNum</u>†, <u>productID</u>†, quantity)

- o   productID†, orderNum† (Foreign Keys)

Hold (<u>productID</u>†, <u>storeID</u>†, quantity)

- o   productID†, storeID† (Foreign Keys)

Is stored in (<u>productID</u>†, <u>cityName</u>†, quantity)

- o   cityName†, productName† (Foreign Keys)

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The Final Relational Schema

Customer (<u>customerName</u>, email, address)

Order (<u>orderNum</u>, date customerName†)

Product (<u>productID</u>, size, color, weight, description)

Store (<u>storeID</u>, address, manager, cityName†)

City (<u>cityName</u>, <u>state</u>, headquartersAddr)

Was ordered in (<u>orderNum</u>†, <u>productID</u>†, quantity)

Hold (<u>productID</u>†, <u>storeID</u>†, quantity)

Is stored in (<u>productID</u>†, <u>cityName</u>†, quantity)