Feedback by the peer reviewer

Q1:

- Yes, the overview describes how it will solve the problem by creating a simple selling website that is database driven.

- Yes, the overview describes how it can help farmers in rural areas be able to sell their products and to know when to harvest the products.

- Yes, the overview describes the problem of fruits going to waste that could be solved by using a database-driven website

Q2:

- There are at least four entities described and each one represents a single idea to be stored as a list.

- Yes, the facts are that the local farmers are having trouble shipping products, and that approximately 5000 tons of oranges are ripe but companies aren't willing to come pick them up.

- The overview lists some facts such as the amount of oranges going ripe, and how farmers are being affected by the pandemic.

Q3:

- So far, outline of entity details describes the purpose of each since order detail here is the only compound entity of the database. Also, the constraints meta description of each attribute is clearly displayed.

- Yes, there are 4 entities described with their corresponding attributes. Those are Customers, Orders, Order_Details, and Products.

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Q4:

- No, the outline of entities is missing, other than that everything else is listed.

- The outline of entity details is somewhat missing but can be easily inferred on what their purposes are. It also describes each entity attribute with its corresponding data types and constraints, (including foreign keys).

Q5:

- Couldn't find any mistakes that the group had made while writing it, but I'll suggest using capital for the table name.

- M:M relationship is missing.

- Yes 1:M are correctly formulated, we do have at least 1 M:M, and the ERD does indeed present a sufficiently detailed view of the database.

- Relationships between entities are correctly named and established, including M:M. Also, the ERD shows said attributes with their corresponding key/constraints values.

Q6:

- Couldn't find any mistakes that the group had made while writing it, but I'll suggest using capital for the table name.

- yes, there is consistency in naming. They used capital letters for the first letter of each word and an underscore to separate the words.

- There is consistency in the naming of both attributes and entities, in which you can clearly tell what fields are most likely to belong to each table. This convention will help for faster recognition and scripting when performing complex JOIN queries.

Actions based on the feedback

- Changed all tables names to capital.
- Outlines of entities added
- ERD updated

Upgrades to the Draft version

- Remove product_price from Order_Details table because price is available in Product table.

- Change Customer to Order relation from 0:M into 1:M because every customer must order something to be a customer.
- Outlines of entities added
- Breaking customer_name, customer_add and shipping_add into smaller pieces.

Feedback by Instructor

Jul 12, 2022

- Good for the most part! Though you may want to consider breaking up attributes a bit more. customer_name could be broken up as well as address, shipping_address. You also may want to consider giving predefined values for shipping_status (either with an enum or by creating another table with the statuses).

- It also seems redundant to have price be an attribute in Products AND product_price as an attribute in Order_Details. Shouldn't these always be the same?

  The product quantity can make a difference on the product_price.
  We can also remove product_price because it can be queried by multiply price by product_qty

- The primary key of Order_details should be a combination of product_id and order_id. Otherwise, we can have multiple Order_Details with the same product_id/order_id pairs which would lead to redundancy.

  Fixes: 1. Delete order_details_id
  2. Change product_id & order_is into FK/PK

Jul 22, 2022

- I know that the costs listed here are different for each entity. However, they all seem to be derived from price in Products: product_price is just discount*price, sub_total is just product_qty*product_price, order_total is just the sum of the sub_totals across all order_details records for this order. This is technically fine, but unless these fields are populated automatically from price, there could be conflicting information from incorrect data entry.

- It looks like there are some discrepancies between your outline and your DDL. For example, cusadd_city is NOT NULL in your outline, but allows NULL in your DDL. The same goes with shippint_status. Make sure your DDL matches your outline!

- Also remember that MariaDB automatically enters empty strings for ENUMs, so you may need to enforce shipping_status to be a valid status through a constraint or through adding a category table to prevent this.

Fixes: 1. Use UPDATE clause to get some columns to be automatically calculated.
2. Add some constraints to make DDL fit the outline and also update outlines.
3. Tried to use STRICT SQL mode to avoid ENUMs

Project 1:

Local Fruit Growers Assistance Programme

Team #1
Nickson Edbert Wang, *Team Leader*
Hongyibo Shu, *Researcher and Deadline Enforcer*

Project overview:

This is a rural E-commerce program aiming to help local farmers who are struggling with finding a way to sell their products, especially for apple growers and orange growers. The program operates a B2C website with cooperative express facility and some warehouses founded locally. Now approximately 5000 tons of oranges are ripe, but due to hardship caused by the pandemic, no fruit company wants to come to this rural area and buy the oranges, however the oranges will be packaged locally and shipped nationwide to customers' homes with the help of our program. A database driven website will record *Orders* of *Products* to *Customers*. This database system will help the business to be more efficient in tracking all the sales and inventory. Having a database management could help in making decisions about when to harvest more by getting notifications if an item has low stocks.

Entities and attributes

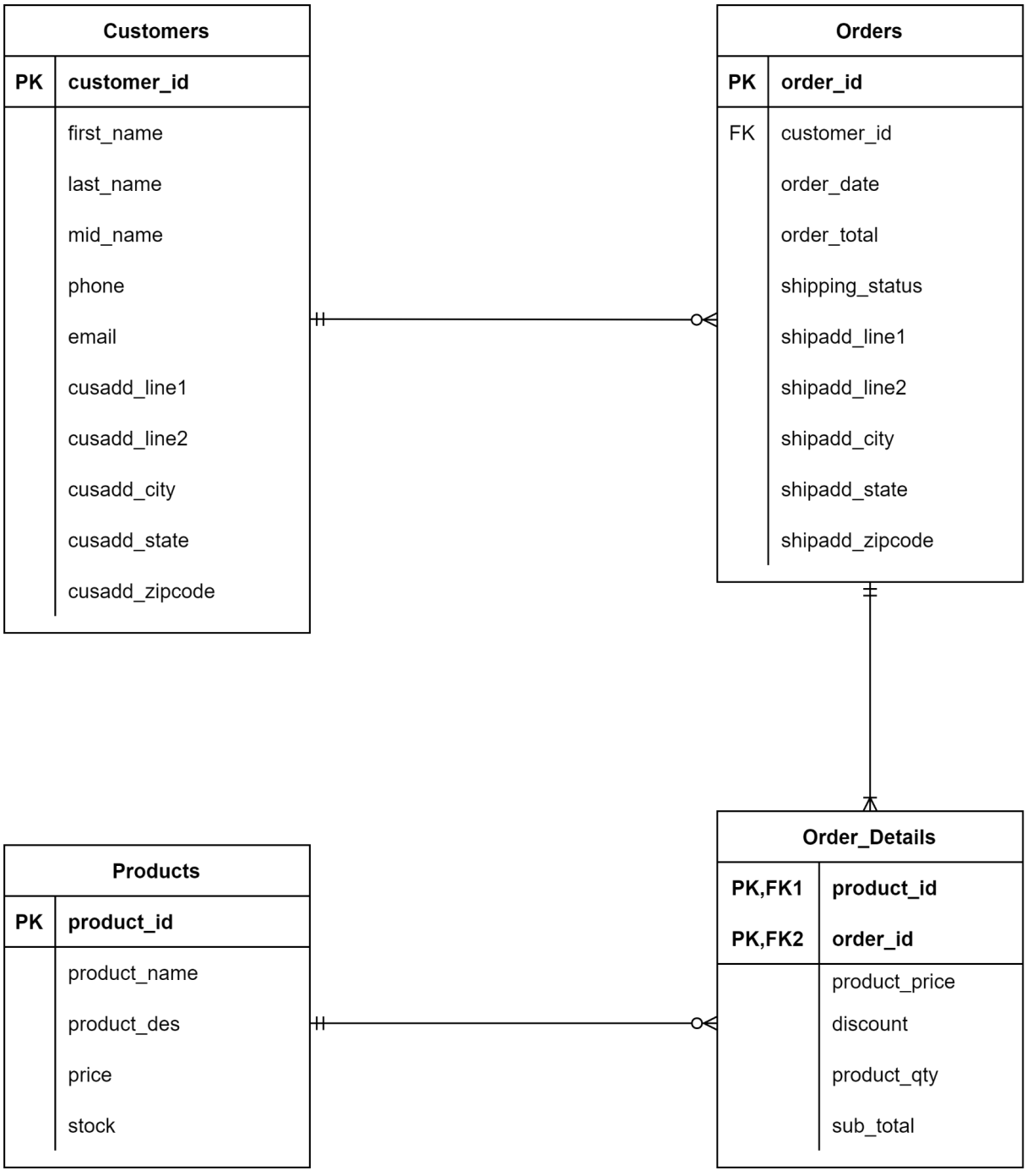
- Customers // Store all of the account information for users to shop at this website
  - Attributes
    - **customer_id**: auto_increment, unique, not NULL, *int(11)*, PK
    - **first_name**: not NULL, *varchar(20)*
    - **last_name**: not NULL, *varchar(20)*
    - **mid_name**: *varchar(255)*
    - **phone:** *int(11) //not_both_null constraints added for phone and email.*
    - **email**: *varchar(50)* // Either phone OR email is required but not both so they could be NULL
    - **cusadd_line1**: not NULL, *varchar(255)*

        - **cusadd_line2**:, *varchar(10) //Just copying ebay and amazon, to store something like a room number in this line and it could be NULL.*
        - **cusadd_city**: not NULL, *varchar(20)*
        - **cusadd_state**: not NULL, *varchar(20)*
        - **cusadd_zipcode**: not NULL, *int(5)*
    - Relationship: There's an M:M relationship between Customers and Products, but in actual implemention of the database we just connect Customers to Orders, and there's an 1:M relationship between them.
- Orders //This table stores the major stats of orders after the users purchase fruits from the website.
    - Relationship: There's an M:1 relationship between Orders and Customers, and an 1:M relationship between Orders and Order_Details.
    - Attributes
        - **order_id**: auto_increment, unique, not NULL, *int(11)*, PK
        - **order_date**: *datetime // We will use some mysql function to get the current datetime automatically, so it could be NULL but will automatically not NULL.*
        - **order_total**: not NULL, *decimal(12,2)*
        - **customer_id**: auto_increment, unique, not NULL, *int(11)*, FK
        - **shipping_status**: not NULL, *enum('not shipped', 'shipped', 'delivered', 'returned')*
        - **shipadd_line1**: not NULL, *varchar(255)*
        - **shipadd_line2**:, *varchar(10) //Just copying ebay and amazon, to store something like a room number in this line and it could be NULL.*
        - **shipadd_city**: not NULL, *varchar(20)*
        - **shipadd_state**: not NULL, *varchar(20)*
        - **shipadd_zipcode**: not NULL, *int(5)*
- Order_Details // This table connects Orders to Products and 1 Order_Details table will only store the stats of 1 product information in one Customer's Orders.
    - Relation: There's an M:1 relationship between Order_Details and Orders, and an M:1 relationship between Order_Details and Products
    - Attributes
        - **product_id**: auto_increment, unique, not NULL, *int(11)*, PK, FK
        - **order_id**: auto_increment, unique, not NULL, *int(11)*, PK, FK
        - **product_price**: not NULL, *decimal(12,2)*
        - **discount**: *decimal(12,2) // not sure if we need to set it as 0 or NULL when there's no discount…*
        - **product_qty**: not NULL, *int(11)*
        - **sub_total**: not NULL, *decimal(12,2)*
- Products // Store the information of fruits that we need to sell for farmers in trouble

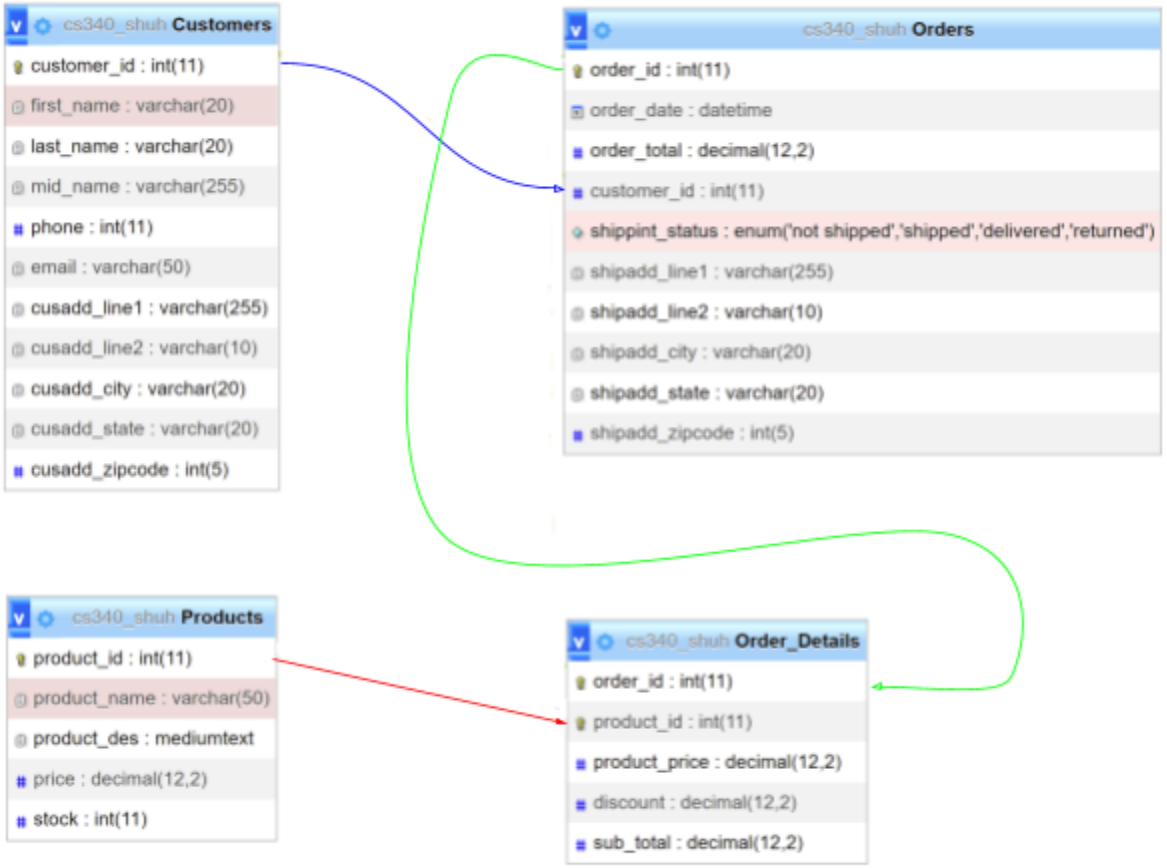
- ➢ Relationship: There's an 1:M relationship between Products and Order_Details.
- ➢ Attributes
  - **product_id**: auto_increment, unique, not NULL, *int(11)*, PK

  // When selling only oranges, there are three different sizes of packages(10lbs, 20lbs, 40lbs) listed as three different products.
  - **product_name**: not NULL, *varchar(50)*
  - **product_des**: *varchar(max)*
  - **price**: not NULL, *decimal(12,2)*
  - **stock**: not NULL, *int(11)*

Entity Relation Diagram


Customers
PK
customer_id
first_name
last_name
mid_name
phone
email
cusadd_line1
cusadd_line2
cusadd_city
cusadd_state
cusadd_zipcode
Orders
PK
order_id
FK
customer_id
order_date
order_total
shipping_status
shipadd_line1
shipadd_line2
shipadd_city
shipadd_state
shipadd_zipcode
Products
PK
product_id
product_name
product_des
price
stock
Order_Details
PK,FK1
product_id
PK,FK2
order_id
product_price
discount
product_qty
sub_total

Schema Diagram



Sample datas

Customers			
customer_id	1	2	3
first_name	Barrett	White	Hongyibo
mid_name	/	/	/
last_name	Mila	Smith	Shu
cusadd_line1	60025 Bollinger Canyon Road	482505 Warm Springs Blvd.	701 7th Street

cusadd_line2	/	/	/
cusadd_city	San Ramon	Fremont	Corvallis
cusadd_state	California	California	Oregon
cusadd_zipcode	94583	94536	97333
phone	1234567890	/	/
email	/	WhiteSmithCS340@hotmail.com	shuh@oregonstate.edu

Orders			
order_id	1	2	3
customer_id	1	2	3
order_date	2022-07-02 16:44:23	2022-07-10 09:45:03	2022-07-12 17:55:30
order_total	17.85	11.90	5.95
shipping_status	Delivered	Shipped	Not shipped
shipadd_line1	60025 Bollinger Canyon Road	482505 Warm Springs Blvd.	701 7th Street
shipadd_line2	/	/	/
shipadd_city	San Ramon	Fremont	Corvallis
shipadd_state	California	California	Oregon
shipadd_zipcode	94583	94536	97333

Order_Details			
order_id	1	2	3
product_id	1	1	1
product_price	5.95	5.95	5.95
discount	0	0	0

product_qty	1	2	3
sub_total	17.85	11.90	5.95

Products		
product_id	1	2
product_name	Oranges 5lbs pack	Oranges 10lbs pack
product_des	Fresh Orange from a rural farm	Fresh Orange from a rural farm
price	5.95	11.50
stock	3000	1000