Project Step 5 Turn in Final Working Project:
Online Shopping Database

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URL

http://web.engr.oregonstate.edu/~kochi/database.html

Feedbacks and Actions:

Feedback from **step 1 draft**

I got two peer reviews from Ming Lui and Brooks Przybylek.

Ming and Brooks both have some questions about my 4th relationship: manufacturers and clients. Ming Lui said my 4th relationship may complicate things in the database. It may be better for the manufacturer to create a separate client account if they want to shop. Brooks said he was a little confused as to why I would want to associate a manufacturer with a client, but then realized it might be a corporate account and might get reduced prices or something similar.

Another point Brooks said I should gave a bit more of a high-level overview of what I would be designing in the database, for example saying in words what every table would be. Also, some of your attributes do not state whether they are required or not (ie: client age, product price).

Actions based on the **step 1 draft** feedback:

I didn't change too much about the 4th relationship and manufacturers entity. Instead, I added some more descriptions about it, so maybe it's clearer now. Also, I added more details on the overviews of the entities and some attributes.

Fixes based on Feedback from **Step 1 final**:

I got two peer reviews from Ming Lui and Brooks Przybylek for Step1.

One point that Brooks said I should gave a bit more of a high-level overview of what I would be designing in the database, for example saying in words what every table would be. Also, some of your attributes do not state whether they are required or not (ie: client age, product price).

In addition, Ming and Brooks both have some questions about my 4th relationship: manufacturers and clients. Ming Lui said my 4th relationship may complicate things in the database. It may be better for the manufacturer to create a separate client account if they want to shop. Brooks said he was a little confused as to why I would want to associate a manufacturer with a client, but then he realized it might be a corporate account and might get reduced prices or something similar.

Therefore, I didn't change too much about the 4th relationship and manufacturers entity. Instead, I added some more descriptions about it, so maybe it's clearer now. Also, I added more details on the overviews of the entities and some attributes.

Feedback by the peer reviewer from **step 2 final**
I got two peer reviews from Theron Fereday and Maroin Hussain for Step 2.

The following is Maroin's feedback:

ERD

Are the attributes for each entity in the ERD same as that described in the database outline?	Yes
Is the participation of entities in the relationships same as that described in the outline?	1) There is no mention of total participation for Clients and Shopping Cart entities in the outline description.(double lines in diagram) 2) There is no mention of products total participation explaining that Products can't exist without Manufacturer and vice versa
Is the cardinality of entities in the relationships same as that described in the outline?	Yes
Is there something that could be changed improved in the E R Diagram and/or the overall database design?	Clarify Manufacturer-Client relationship

Schema

Are the relationship tables present where required and correctly defined, when compared with the database outline?	Yes, Tables are presents and defined, but foreign keys were not mentioned in the outlined.
Are foreign keys present where required and correctly defined, when compared with the database outline?	No, no mention of foreign keys in the outline. Example: according to schema, Shopping Cart id is a foreign key referencing the Client primary key, but this not how it was defined in the outline.
Do the entity attributes match those described in the outline?	Foreign key description is missing.
Is there something that could be changed/improved in the Schema and/or the overall database design?	Modify the outlines account for the foreign keys and their references.

DDQ

Is the SQL file syntactically correct? *This can be easily verified by importing/copy-pasting it in phpmyadmin.*	Yes, successfully imported the *.sql file using the source function.
Are the data types appropriate considering the description of the attribute in the database outline?	Yes
Are the foreign keys correctly defined when compared to the Schema?	Yes
Are relationship tables present when compared to	Yes
the ERD/Schema?	

The following is Theron's feedback:

"You mention that each client will have its own shopping cart, but how are they linked? Should the shopping cart Id be a foreign key on the clients table? How are you going to put products in the shopping cart if there is no link between the cart Id and the products? How can you tie manufacturers to clients? If you're really thinking about offering discounts based on the draft and the feedback you received, is there going to be a column in the table that indicates that as well or how are you going to track that (I see mention of discount in price, but how is that discount applied in this scenario? It seems like a good idea would be to have a row on the clients table that is a percentage and then amount * discount = total or something)? These are some of the questions I have as I read through your documentation.

In products, the id field says "This number is automatically assigned to each client when they are recorded in our database. An auto-incrementing number which is the primary key", just update that before you hand it in (its easy to miss those). This is the same text you have for manufacturer ID as well. When you discuss manufacturers can also be clients, you say that its a one-to-many relationship because some of the clients can be manufacturers-- I'm not sure I'm tracking with how that works. Does that mean the manufacturers are potentially a group of clients? How does this work with discounts? Just a couple things to consider.

Overall I really like the idea. I think e-commerce is huge and if you can get comfortable with the backend support for it you're going to do good things, especially since you have a background in business. I think you've got a solid design going as long as you know exactly what you want and figure out how to wrangle in manufacturers so the people looking into your database or managing it know exactly how it works. I'm excited to see what direction this ends up taking you! Feel free to reach out if you have any questions about my feedback or want some additional help brainstorming."

Actions based on the feedback from **step 2 final**:
I got two very good feedbacks on this peer review, and I found my database design is a little confusing for users. Based on the feedback, I list the actions from peer review as below:

1. Add total participation description in the outline.
2. Add attributes about discounts in the Shopping Carts table and change ERD/Schema/DDQ.
3. Modify relationships/description between Shopping Carts/Manufacturers and Clients, also change ERD/Schema/DDQ.
4. Add foreign keys description in the outline.

Feedback by the peer reviewer from **step 3 draft**
In Step 3 draft version, I didn't receive any peer review, but I received TA's feedback from Step2 final version as below:

"Underline the PK's for each and every attribute. Specify the participation between the relationships, for eg., can a client exist without a shopping cart or vice-versa (for each and every relationship)"

Actions based on the feedback from **step 3 draft**:
Add the underlines for primary keys and add more details about the participation between the relationships.

Feedback by the peer reviewer from **step 3 final**
Fixes based on Feedback from step 3 final
I didn't change anything after Step3 final version, since I didn't get new feedbacks from grader and peer reviews. I will work more on the SQL and hosted website.

Feedback by the peer reviewer from **step 4**
In step 4, I got two peer reviews from Jonathan Baldwin and Nicholas Bui:

"For CREATE/INSERT/DELETE: Attempted to insert a Client and received the following error after hitting submit on the client_insert.html page: Not Found The requested URL /action_page.php was not found on this server. _____ Apache/2.2.15 (CentOS) Server at web.engr.oregonstate.edu Port 80 I attempted the other functionality (update, delete) with the other entities and received the same errors. For READ: Browsing the tables works great. When I click on the table name the display is updated with what appears to be all of the relevant information from the database. On a side note, your website is looking good. I hope this information is helpful." *By Jonathan Baldwin, Aug 6 at 9:30am*

"I am not sure if it's just me but I cannot seem to open your PDF. I was not able to open up the data def queries either for some reason." *By Nicholas Bui, Aug 7 at 1:41pm*

Fixes based on Feedback from **step 4**
Finalize on the PDF, debug and working on the website and SQLs.

Project and Database Outline

Project Outline

I will be making a database representing an online shopping/e-commerce system. This database project I will put it in my previous CS290 website. The reason why I chose this topic is because of my work experience in business and also my business education background. I am always trying to do something entrepreneurial and I believe this project is a good start for me to combine the knowledge of business and computer science!

This project contains many aspects, from clients to products, also some details about the shopping carts and manufacturers. This complexity will make it a good candidate for a database project.

Database Outline, in Words

The entities in my database are:

● Clients – Client databases are invaluable tools for any business. They help follow up on new leads, generate repeat business and find information about the business's current and previous clients quickly and easily. It has the follow attributes:

- **id:** This number is automatically assigned to each client when they are recorded in our database. An auto-incrementing number which is the primary key.
- **first name**: First name of the client which is a string of maximum 20 characters. It cannot be blank and there is no default.
- **last name**: Last name of the client which is a string of maximum 20 characters. It cannot be blank and there is no default.
- **gender**: gender is a string of maximum 6 characters and it can only be either of the two values: Male or Female. It cannot be blank.
- **age**: age is another attribute to do the marketing segmentation like gender. Use the data type INT. There is no default.
- **ManufacturersID:** It is a Foreign Key from Manufacturers table. If the client is also manufacturer, he will receive discounts. More details in the following paragraphs.

● Shopping Carts – each client will have his own shopping cart(s). The shopping cart can show each client's personal preference. If the clients are also manufacturers, they will receive discounts. It has the follow attributes:

- **id:** This number is automatically assigned to each shopping cart when they are recorded in our database. An auto-incrementing number which is the primary key.
- **added date**: Data type: DATE - format YYYY-MM-DD. There is no default.
- **qty:** data type: number, clients may buy one product more than one piece.
- **discount:** data type: Boolean, if the client is also manufacturer, they will receive discount.
- **amount:** data type: smallnumber. It shows the total amount of the shopping cart/order.
- **ClientsID:** It is a Foreign Key from Clients table, so it will link with Clients table.

● Products – Product database is another key component for the business. The products you are offering shows your differences from other competitors. It has the follow attributes:

○ **id:** This number is automatically assigned to each product when they are recorded in our database. An auto-incrementing number which is the primary key.
○ **product name**: The name of the product which is a string of maximum 20 characters. It cannot be blank and there is no default.
○ **description**: The description of the product which is a string of maximum 100 characters. There is no default value.
○ **price**: The data type of price is smallnumber, later it can do sum or discount. It cannot be blank and there is no default.

● Manufacturers – Manufacturer database is also needed because the business owner need to manage his suppliers. Also, the owner can offer the buyers/clients some discounts if they are also suppliers/manufacturers. It has the follow attributes:
○ **id:** Primary key, but not an auto-incrementing number, since it will allow users to input null or custom vendor ID.
○ **manufacturer name**: The name of the manufacturer which is a string of maximum 20 characters. It cannot be blank and there is no default.
○ **country**: The country of the manufacturer which is a string of maximum 20 characters. It cannot be blank and there is no default.

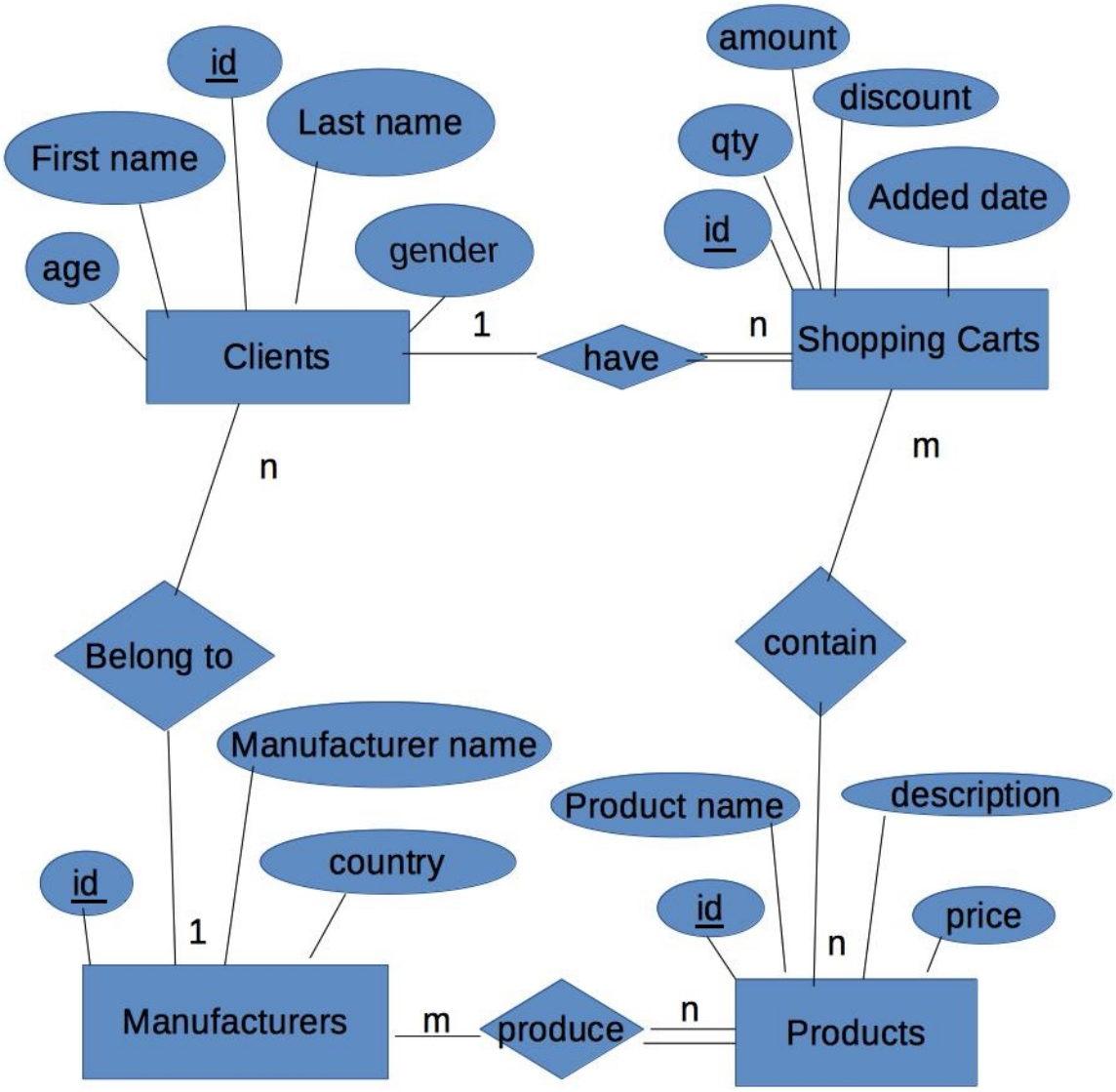
The relationships and total participation in my database are:

● Each client has his own shopping cart(s)—It is a one-to-many relationship. Each client can have no or more than one shopping carts. One shopping cart belongs to only one client and cannot be shared by other clients.
● Shopping carts and products– This is a many-to-many relationship, many products can be in many shopping carts, and many shopping carts can have many products. e.g. one television can be in different shopping carts, one shopping cart can have television, mp3 player, computer, etc.
● Manufacturers produce different products – This is another many-to-many relationship. One product can also be made by many manufacturers. e.g. Televisions can be made by different manufacturers, such as SONY, Apple, LG. One manufacturer can produce many products. For example, Apple produce mp3 player, laptop, smartphone.
● Manufacturers can also be clients -- This is an one-to-many relationship. Some of the clients can also be manufacturers. If the clients belong to manufacturers, they will receive discounts in their shopping carts(orders). However, some manufacturers may not be clients. e.g, client A is also an employee of Apple, client B does not belong to any manufacturers.

The followings are the new tables created based on the requirements of many-to-many relationship:

● Contain – Since Shopping carts and products is a many-to-many relationship, many products can be in many shopping carts, so I need to add another table to link these two tables. It has the follow attributes:
    ○ **ShoppingCartsID:** It is a Foreign Key from Shopping Carts table, it will link with Products table.
    ○ **ProductsID**: It is a Foreign Key from Products table, it will link with Shopping Carts table.
● Produce – Manufacturers produce different Products, and Products can be produced by many Manufacturers, so this is another many-to-many relationship. It has the follow attributes:
    ○ **ManufacturersID:** It is a Foreign Key from Manufacturers table, it will link with Products table.
    ○ **ProductsID**: It is a Foreign Key from Products table, it will link with Manufacturers table.

ER Diagram


id
Last name
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Clients
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Shopping Carts
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Belong to
contain
Manufacturer name
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id
1
Manufacturers
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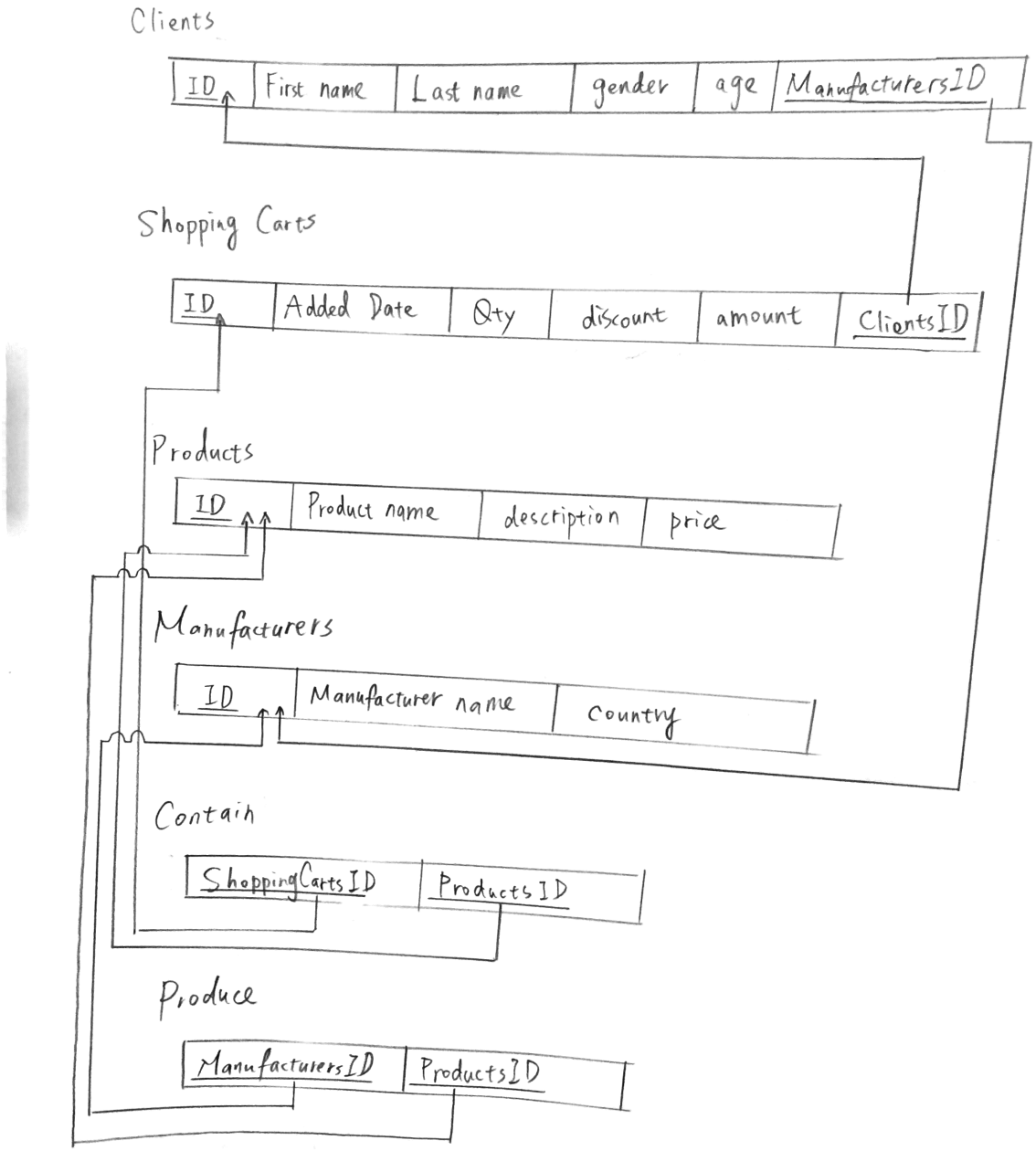
Product name
description
id
price
n
Products

Schema


Clients
ID
First name
Last name
gender
age
ManufacturersID
Shopping Carts
ID
Added Date
Qty
discount
amount
ClientsID
Products
ID
Product name
description
price
Manufacturers
ID
Manufacturer name
Country
Contain
ShoppingCartsID
ProductsID
Produce
ManufacturersID
ProductsID