INTRO TO DATABASE SYS DESIGN

Database Project Task 1

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1. **Project title:** Tech Fun House Database
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3. **Description:**

   The purpose of this database is to help customers find products they are interested in, it will store many types and brands of technology. The purpose of this website is to create a simple, secure purchase journey to encourage them to make repeat purchases – as well as referring their friends. Consumers are able to browse multiple products at once before making informed decisions. The aim is for prospective customers to wander online for the products they want to buy. The potential users are workers and customers. The target customers are anyone who is interested in technology.

4. **Data requirements of users**

   -Customers need access to VIEW products and make accounts.
   -Customers can delete their own account.
   -Customers can add products to cart.

5. **Functional requirements of users**

   -Login functionality
   -View products as a card
   -Customers need simple access to inventory for purchasing and general viewing
   -Also possibly a cart or login page for saving of searches

Database Project Task 2

1. **Identify relationships and primary keys in ER Diagram, underline primary keys**

   There are three primary and two relationships in our database. The three primary keys are id, accountID, and those two keys are also being used as foreign keys in the cart table as a PRIMARY COMPOSITE KEY as accountID/id in the cart. Two relationships are the relationship between product and cart, as well as the relationship between account and cart. Product_price in the cart table is not a foreign key since it isn't a direct relationship to the product, instead it is stored as a total cost depending on the quantity as well.

2. **ER Diagram**

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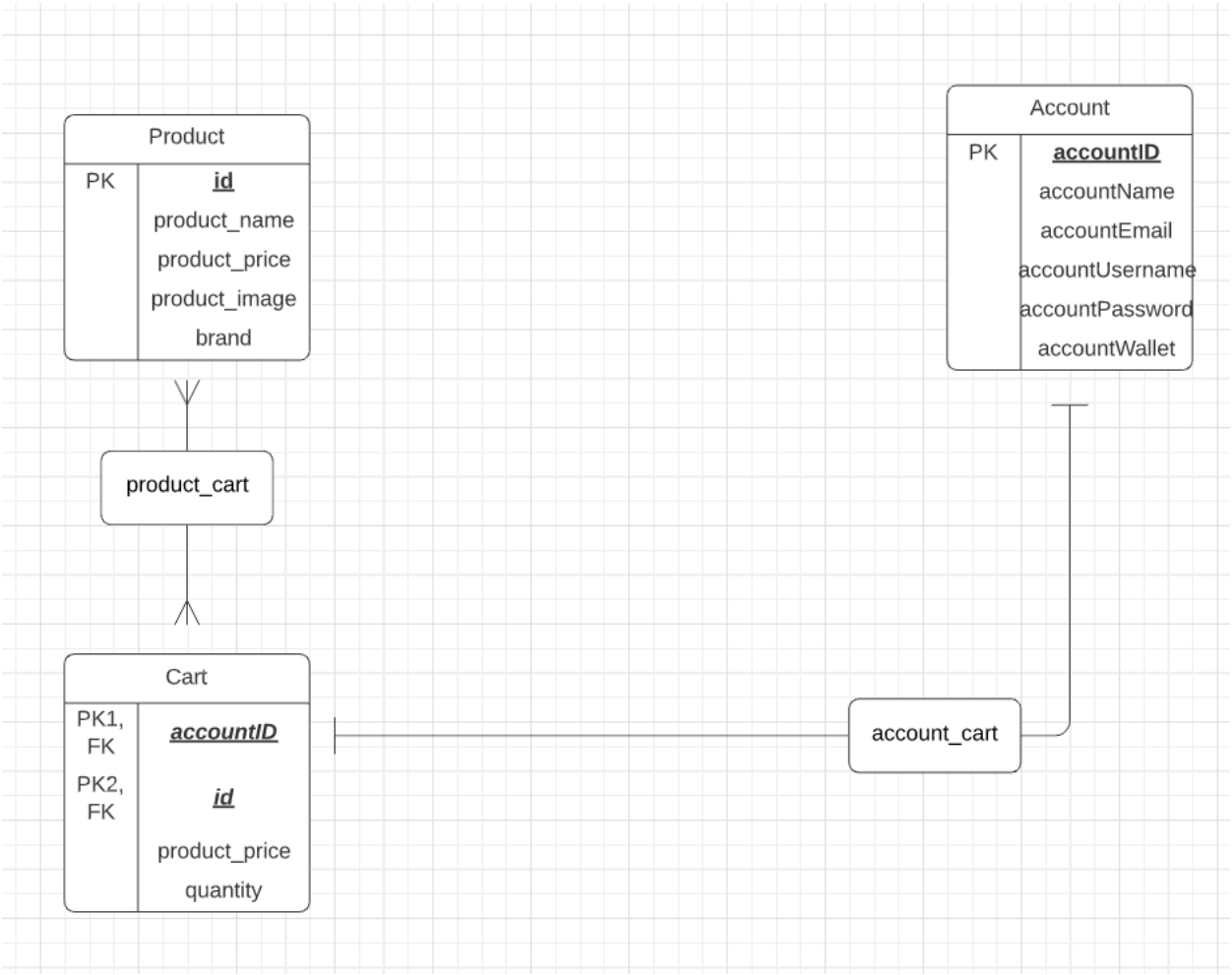


3. **Describe the notations**

   The notations used in our ER diagram are many-to-many for product and cart, and one-to-one for account and cart. These are structured this way because one product can be placed in many carts, as well as a cart can have many products. Each account should only have one cart, and an individual cart should be linked to only one account, so we have it set as a one-to-one relationship.

4. **Describe two of the relationships**

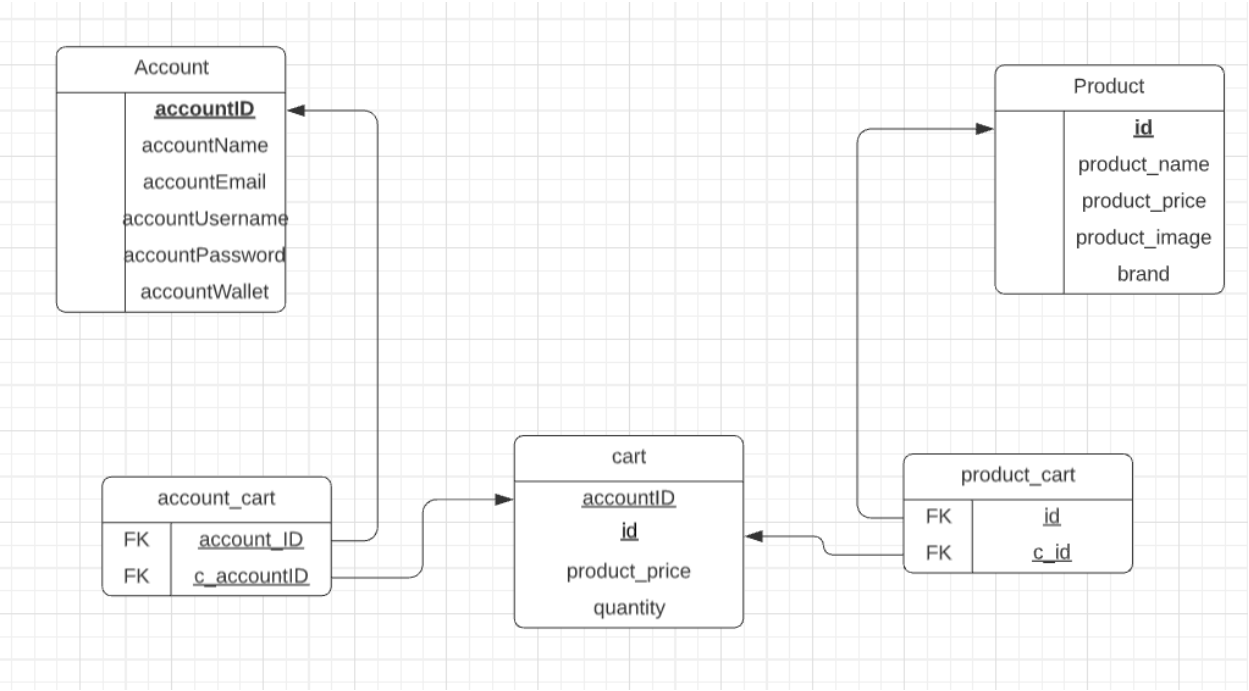
   The product_cart relationship consists of a relation with the product id attribute. The id attribute will be used to identify the individual products within the cart, and this key coupled with the accountID foreign key from the account table will identify individual carts.

   The account_cart relationship is based on the accountID key, which is a foreign key in the cart table. Like it is mentioned before, the accountID will be used along with the product id values to identify each cart and allow them to be individual from one another.

5. **Convert ER Diagram to Relational Schema**

   Account(<u>accountID</u>, accountName, accountEmail, accountUsername, accountPassword, accountWallet)
   Product(<u>id</u>, product_name, product_price, product_image, brand)
   Cart(<u>accountID, id</u>, product_price, quantity)
   product_cart(<u>id, c_id</u>)
   account_cart(<u>accountID, c_accountID</u>)

6. **Create/draw Schema Diagram from the ER/RS (relational schema)**



7. SQL Queries and Features

Project Design:

This project was coded with PHP/HTML, CSS, and MySQL. The project is an e-commerce (shopping) website that has features that a real shopping website would have. The user can create an account, log into an account, add money to an account, delete their account. The user also may interact with the products in the database by viewing all the products or sorting by brand, alphabetical order, monetary value, and searching in the search bar for the item. The user may interact with the database even further by adding products to a shopping cart and then viewing their cart at their profile. Unfortunately due to time constraints features such as ordering products are unavailable; the features currently available still use a wide selection of SQL commands.

There are many SQL commands at use in this project. The first few involve the products and the viewing of them. $order and $AZorder tell the sql if it's ASC or DESC or ASC or DESC alphabetically.

The future of the project could include order functionality, which would take items in the cart database and move them to the order db. Then an admin account could see all orders. This order functionality would also take money out of the users account and take an address to ship them too.

Viewing functions

SELECT * FROM product ORDER by brand ASC;
SELECT * FROM product WHERE product_name = '%$name%' ORDER by product_name $order;
SELECT * FROM product WHERE product_name = '%$name%' ORDER by product_name $AZorder;
SELECT * FROM product WHERE brand = '%$brand%' ORDER by product_name $order;
SELECT * FROM product WHERE brand = '%$brand%' ORDER by product_name $AZorder;

Insert function:

INSERT INTO cart(accountID, id, product_price, quantity) VALUES($accountID, $productid, 0, 0);";

Update function:

UPDATE cart SET quantity = quantity + 1, product_price = product_price + \"$productprice\" WHERE accountID = \"$accountID\" AND id = \"$productid\";

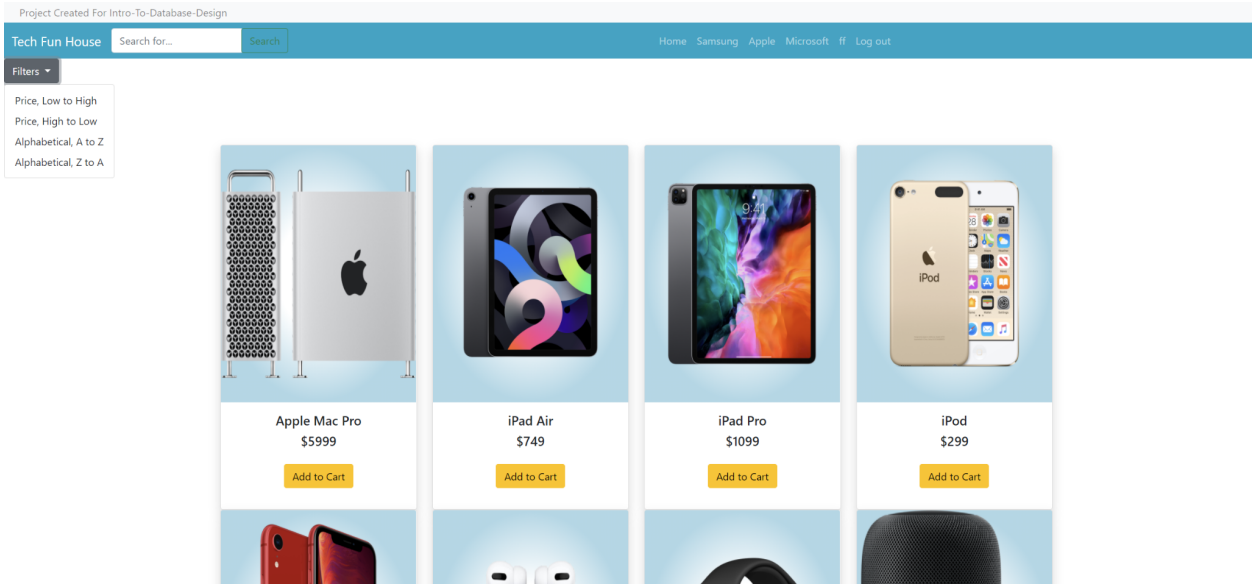
Delete function

DELETE FROM cart WHERE accountID = \"$accountid\";

Sum functions:

SELECT SUM(product_price) FROM cart WHERE cart.accountID = \"$accountid\") AS total_cost;

Website:


Project Created For Intro-To-Database-Design
Tech Fun House
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Home Samsung Apple Microsoft ff Log out
Filters
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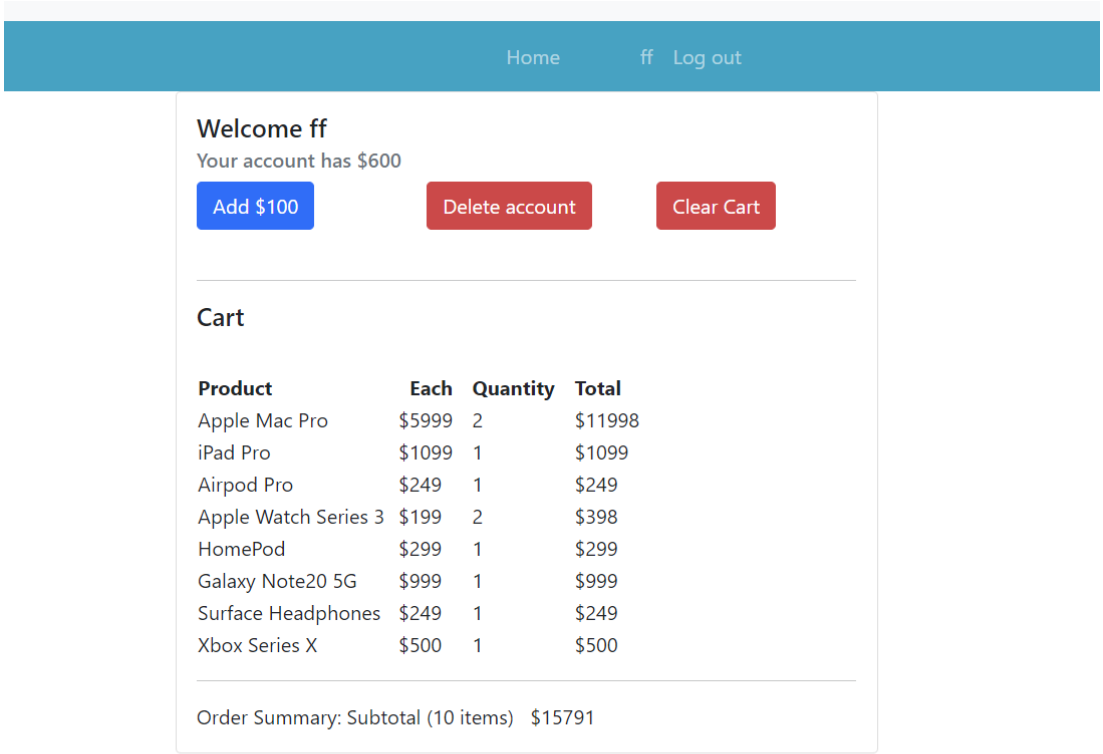
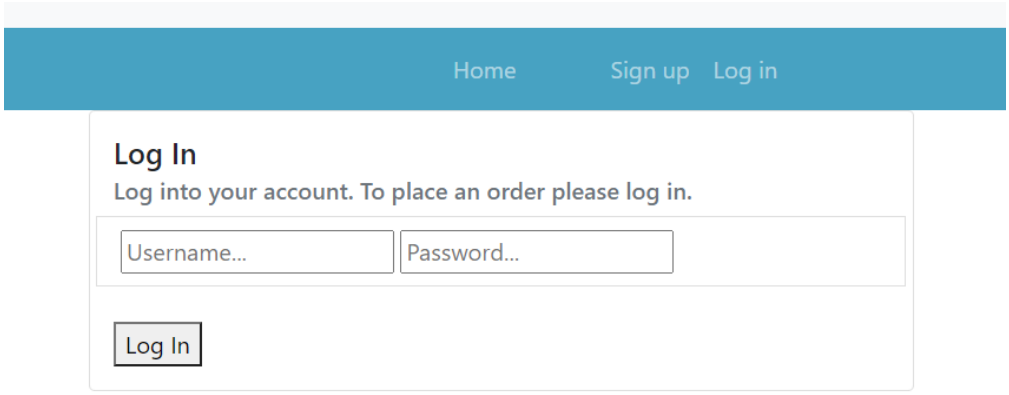
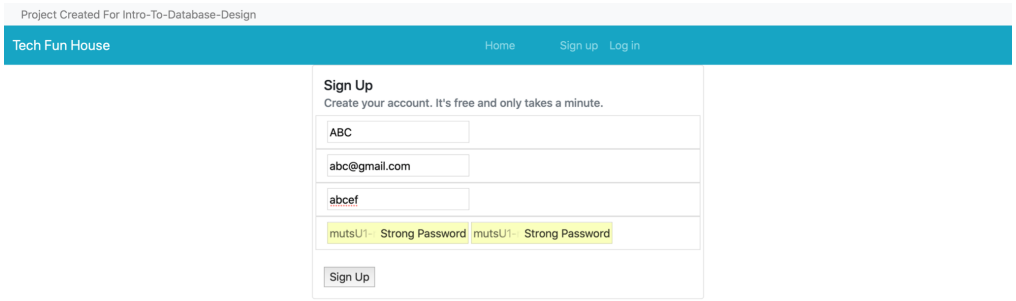

Home
ff
Log out
Welcome ff
Your account has $600
Add $100
Delete account
Clear Cart
Cart
Product
Each
Quantity
Total
Apple Mac Pro $5999 2 $11998
iPad Pro $1099 1 $1099
Airpod Pro $249 1 $249
Apple Watch Series 3 $199 2 $398
HomePod $299 1 $299
Galaxy Note20 5G $999 1 $999
Surface Headphones $249 1 $249
Xbox Series X $500 1 $500
Order Summary: Subtotal (10 items) $15791





Source code available at:

https://github.com/brandoncossin/e-commerce-site

This project was also deployed on a linode server at:

http://brandoncossin.com/database-project/Shopping/index.php