A refined database design

1. **Users (Account / Purchases)**

- Change name to first name + last name
- balance change from integer to float number (decimal(12,2)

Account			
Attribute	**Data type**	**PK/FK**	**Constraint**
account_id	integer	PK	
email	character		UNIQUE NOT NULL
hashed_password	character		NOT NULL
firstname	character		NOT NULL
lastname	character		NOT NULL
address	character		
balance	decimal(12, 2)		default 0 check balance >= 0

2. **Products (Products)**

Product			
Attribute	**Data type**	**PK/FK**	**Constraint**
product_ID	integer	PK	
account_ID (creator)	integer	FK	NOT NULL
name	character		NOT NULL
description	character		NOT NULL
image_ID	integer	FK	NOT NULL

- **a set of “tags”**

Category			
Attribute	**Data type**	**PK/FK**	**Constraint**
category_ID	integer	PK	
label	character		NOT NULL

Tags			
Attribute	**Data type**	**PK/FK**	**Constraint**
category_ID	integer	FK	NOT NULL
product_ID	integer	FK	NOT NULL

3. **Carts (Cart / Order)**

Cart			
Attribute	**Data type**	**PK/FK**	**Constraint**
cart_ID	integer	PK	
account_ID	integer	FK	UNIQUE

- **Divide the cart into “in cart” and “saved for later”**

Cart_Product			
Attribute	**Data type**	**PK/FK**	**Constraint**
cart_ID	integer	FK	
inventory_ID	integer	FK	NOT NULL
quantity	integer		NOT NULL; default 1 check quantity >= 1

unit_price	integer		NOT NULL
in_cart	bool		default true

Order			
Attribute	**Data type**	**PK/FK**	**Constraint**
order_ID	integer	PK	
account_ID	integer	FK	NOT NULL
time_created	datetime		NOT NULL DEFAULT (current_timestamp AT TIME ZONE 'UTC')
fulfillment_status	character		default “Pending”; check all(item fulfilled) -> “Completed”
fulfilled_time	datetime		

Ordered_Product			
Attribute	**Data type**	**PK/FK**	**Constraint**
order_ID	integer	FK	NOT NULL
inventory_ID	integer	FK	NOT NULL
quantity	integer		NOT NULL; quantity less than seller_ID associated inventory’s current quantity

price	integer		NOT NULL
fulfillment_status	character		NOT NULL
fulfilled_time	datetime		

4. **Sellers (Inventory / Order Fulfillment)**

Seller			
Attribute	**Data type**	**PK/FK**	**Constraint**
seller_ID	integer	PK	
account_ID	integer	FK	NOT NULL UNIQUE

- **Standardizing products across sellers**
- UNIQUE(seller_ID, product_ID)

Inventory			
Attribute	**Data type**	**PK/FK**	**Constraint**
inventory_ID	integer	PK	
seller_ID	integer	FK	NOT NULL
product_ID	integer	FK	NOT NULL
current_quantity	integer		default 0 check current_quantity >= 0
price	decimal(12,2)		NOT NULL

Inventory_Design			
Attribute	**Data type**	**PK/FK**	**Constraint**

inventory_ID	integer	PK	
name	character		NOT NULL
description	character		NOT NULL

Inventory_Image			
Attribute	**Data type**	**PK/FK**	**Constraint**
inventory_ID	integer	FK	NOT NULL
image_ID	integer	FK	NOT NULL

5. **Social (Feedback)**

- **Upvote functionality**

Review (buyer account_id + inventory id)			
Attribute	**Data type**	**PK/FK**	**Constraint**
review_ID	integer	PK	
account_ID	integer	FK	NOT NULL
inventory_ID	integer	FK	NOT NULL
rating	integer		NOT NULL
review	character		
time_created	datetime		NOT NULL
upvote	integer		default 0

Feedback (buyer account_id + seller id)			
Attribute	**Data type**	**PK/FK**	**Constraint**

feedback_ID	integer	PK	
account_ID	integer	FK	NOT NULL
seller_ID	integer	FK	NOT NULL; seller_ID != account_ID associated seller_ID
rating	integer		NOT NULL
review	character		
time_created	datetime		NOT NULL
upvote	integer		default 0

- **Review Images**

Images_Review			
Attribute	**Data type**	**PK/FK**	**Constraint**
review_ID	integer	FK	NOT NULL
image_ID	integer	FK	NOT NULL

- **Feedback Images**

Images_Feedback			
Attribute	**Data type**	**PK/FK**	**Constraint**
feedback_ID	integer	FK	NOT NULL
image_ID	integer	FK	NOT NULL

Images			
Attribute	**Data type**	**PK/FK**	**Constraint**

image_ID	integer	PK	
image	bytea		NOT NULL

- **New tables**

ReviewUpvotes			
Attribute	**Data type**	**PK/FK**	**Constraint**
review_ID	integer	FK	NOT NULL
user_ID	integer	FK	NOT NULL

- **UNIQUE(rid, uid)**

FeedbackUpvotes			
Attribute	**Data type**	**PK/FK**	**Constraint**
feedback_ID	integer	FK	NOT NULL
user_ID	integer	FK	NOT NULL

- **UNIQUE(fid, uid)**

Final list of features we have implemented

1. Account / Purchase:
    a. Search/filter purchase history by item, by seller, by date, etc (fully functional)
    b. Visualize spending amounts and purchases by category, etc. (fully functional)
2. Products:
    a. Sorting by average review rating or total sales, filtering by rating, price, etc. (fully functional)
    b. A general set of “tags” for labeling products (fully functional)
    c. A process for “standardizing” products across sellers (fully functional)
3. Cart / Order:
    a. Divide the cart into “in cart” and “saved for later” (fully functional)
4. Inventory / Order Fulfillment:
    a. Add visualization/analytics to the order fulfillment pages to show the popularity of one’s products (fully functional)
5. Feedback:
    a. Upvote functionality for rating/reviews to allow certain reviews to be marked as more or less helpful. By default the top 3 most helpful reviews would be shown first, and then the most recent following these. (fully functional)
    b. Include the ability to submit a limited number of images in the reviews and feedback (fully functional)
6. Possible additional features:
    a. Recommending products based on past purchase history as well as reviews (fully functional)
7. (Interaction Design Bonus) Well-designed, smooth user interaction
8. (Aesthetics Bonus) Well-designed and impressive-looking frontend
9. (Documentation Bonus) Commenting your code and documenting your design/setup (beyond what’s required in REPORT.pdf)
10. (Data Bonus) Well-designed large testing database with real and/or realistic data