

## **Database Design Changes:**

### 1. Product Reviews Table Modifications:

- Authenticated users can review a product one time total
- Modified foreign key relationships to only enforce user\_id and product\_id existence
- Schema change:

```sql

```
CREATE TABLE Product_Reviews (  
  review_id SERIAL PRIMARY KEY,  
  product_id INTEGER NOT NULL,  
  user_id INTEGER NOT NULL,  
  rating INTEGER CHECK (rating >= 1 AND rating <= 5),  
  review_text TEXT,  
  review_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP,  
  CONSTRAINT fk_product_reviews_product FOREIGN KEY (product_id)
```

REFERENCES Products(product\_id),

CONSTRAINT fk\_product\_reviews\_user FOREIGN KEY (user\_id) REFERENCES  
Users(user\_id),

CONSTRAINT unique\_user\_product\_review UNIQUE (user\_id, product\_id)

);  
```

### 2. Review System Optimization:

- Added indexes on (user\_id, product\_id) for faster review lookup
- Added index on review\_date for efficient sorting of recent reviews
- Add product rating calculations such as average and total

## **Website Design Updates:**

### 1. Enhanced Product Details Page:

- Added a streamlined review system accessible to all authenticated users
- New review form with:
  - \* 5-star rating selection
  - \* Review text input
  - \* Immediate feedback on submission
- Dynamic review status indicators:
  - \* "Write a Review" form for first-time reviewers
  - \* "Already Reviewed" message for users who have reviewed
  - \* Login prompt for unauthenticated users

## 2. Improved User Experience Flow:

- Simplified review process:
  - \* Old flow: Purchase → Wait for fulfillment → Review
  - \* New flow: Login → Review (one-time per product)
- Added clear user feedback messages:
  - \* Success notifications for review submission
  - \* Error messages for invalid inputs
  - \* Clear status indicators for review eligibility

## 3. Review Management System:

- Added ability to view all user reviews in account section
- Implemented review modification and deletion functionality
- Enhanced review display with:
  - \* Reviewer name
  - \* Review date
  - \* Visual star rating
  - \* Formatted review text

## **Advanced Features Implementation:**

### 1. Enhanced Review System, *Implemented*

- Universal review access with one-review-per-product limit
- Real-time rating updates
- Rich text review support
- Review helpfulness voting system (planned)

### 2. Shopping System, *Partially Implemented*

- Need to finalize checking out

### 3. Seller System, *Partially Implemented*

- Need to streamline full checking out process with shopping system

## Implementation Status:

- Completed: Review System, Basic Analytics
- In Progress: Shopping, Seller's Features
- Planned: Moderation System, Advanced Engagement Features

Planned future implementations and their proposed bonus points:

- Review Helpfulness Voting: 2 points
- Review Sorting Options: 1 point
- Filter Reviews by Rating: 1 point
- Review Search Functionality: 1.5 points
- Basic Product Recommendations: 1.5 points