

# Detailed Project Plan

## Assignment 2 (Elaboration Phase)

Total Difficulty: 2 points

Requirements:

- 2 Easy Endpoints

### Endpoints to Implement:

1. **POST /login**
  - *Description:* Authenticate user credentials and start a session.
  - *Difficulty:* [1] Easy
2. **GET /categories**
  - *Description:* Retrieve a list of product categories.
  - *Difficulty:* [1] Easy

### Focus:

- Set up initial system architecture and implement user authentication and category listing functionality.
  - Start working on the UML diagrams (state machine, sequence, class).
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## Assignment 3 (Construction I)

Total Difficulty: 20 points

Requirements:

- 4 Easy Endpoints = 4 points
- 3 Medium Endpoints = 6 points
- 1 Hard Endpoint = 3 points
- Remaining: 7 points (additional easy/medium/hard endpoints)

### Endpoints to Implement:

#### Easy Endpoints:


1. **GET /products/{id}**
  - *Description:* Retrieve a product by its unique ID.

- *Difficulty:* [1] Easy
- 2. **GET /users/{id}**
  - *Description:* Retrieve user profile by ID.
  - *Difficulty:* [1] Easy
- 3. **POST /cart**
  - *Description:* Add an item to the user's shopping cart.
  - *Difficulty:* [1] Easy
- 4. **GET /cart**
  - *Description:* View items currently in the shopping cart.
  - *Difficulty:* [1] Easy
- 5. **GET /orders/{id}**
  - *Description:* Retrieve order details by order ID.
  - *Difficulty:* [1] Easy
- 6. **PATCH /cart/{id}**
  - *Description:* Update the quantity of an item in the cart.
  - *Difficulty:* [1] Easy
- 7. **POST /wishlist**
  - *Description:* Add an item to the user's wishlist.
  - *Difficulty:* [1] Easy

#### Medium Endpoints (Now 4 Total):

- 8. **GET /products**
  - *Description:* Retrieve a list of products with filtering and sorting.
  - *Difficulty:* [2] Medium
- 9. **POST /users**
  - *Description:* Register a new user account.
  - *Difficulty:* [2] Medium
- 10. **POST /checkout**
  - *Description:* Process the checkout and payment for the cart.
  - *Difficulty:* [2] Medium
- 11. **PATCH /users/{id}**
  - *Description:* Update user preferences (e.g., language, notifications).
  - *Difficulty:* [2] Medium

#### Hard Endpoint:

- 12. **PATCH /users/{id}/password**
  - *Description:* Update the user's password.
  - *Difficulty:* [3] Hard 

#### Additional Easy Endpoints:

- 13. **GET /wishlist** 
  - *Description:* Retrieve the items in the user's wishlist.

- *Difficulty*: [1] Easy
  - 14. **DELETE /wishlist/{id}**
    - *Description*: Remove an item from the user's wishlist.
    - *Difficulty*: [1] Easy
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### Focus:

- Implement product browsing, user registration, cart management, and wishlist features.
  - Develop endpoints for user profile and preferences management.
  - Finalize the checkout and payment functionalities.
  - Ensure proper testing and documentation with UML diagrams.
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## Assignment 4 (Construction II)

**Total Difficulty: 20 points**

**Requirements:**

- **4 Easy Endpoints** = 4 points
- **2 Medium Endpoints** = 4 points
- **2 Hard Endpoints** = 6 points
- **Remaining**: 6 points (additional easy/medium/hard endpoints)

### Endpoints to Implement:

#### Easy Endpoints:

1. **GET /reviews/{productId}**
  - *Description*: Retrieve reviews for a product by product ID.
  - *Difficulty*: [1] Easy
2. **GET /vendors/{id}/products**
  - *Description*: Retrieve products specific to a vendor.
  - *Difficulty*: [1] Easy
3. **DELETE /cart/{id}**
  - *Description*: Remove an item from the cart.
  - *Difficulty*: [1] Easy
4. **POST /logout**
  - *Description*: Log out the user and terminate the session.
  - *Difficulty*: [1] Easy

#### Medium Endpoints:

5. **POST /products/{id}/reviews**
  - *Description*: Submit a product review.
  - *Difficulty*: [2] Medium
6. **PUT /users/{id}**
  - *Description*: Update user account details.
  - *Difficulty*: [2] Medium

**Hard Endpoints:**

7. **POST /upload**
  - *Description*: Upload media such as profile or product images.
  - *Difficulty*: [3] Hard
8. **POST /vendors/{id}/products**
  - *Description*: Allow a vendor to add a new product.
  - *Difficulty*: [3] Hard

**Additional Endpoints:**

9. **PATCH /products/{id}**
  - *Description*: Update product details (e.g., price, description).
  - *Difficulty*: [2] Medium
10. **GET /orders**
  - *Description*: Retrieve a list of all orders for a user.
  - *Difficulty*: [2] Medium
11. **DELETE /wishlist/{id}**
  - *Description*: Remove an item from the user's wishlist.
  - *Difficulty*: [1] Easy
12. **PATCH /vendors/{id}/products/{productId}**
  - *Description*: Update a product's information in the vendor's catalog.
  - *Difficulty*: [2] Medium

**Focus:**

- Implement product reviews, vendor management, and file uploads.
- Add functionality for managing user profiles, orders, and reviews.
- Finalize product updates and vendor-specific features.

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## Assignment 5 (Final Product and Deployment)

**Total Difficulty: 10 points**

**Requirements:**

- **4 Easy Endpoints** = 4 points

- **1 Medium Endpoint** = 2 points
- **Remaining:** 4 points (additional easy/medium endpoints)

## Endpoints to Implement:

### Easy Endpoints:

1. **DELETE /users/{id}**
  - *Description:* Soft delete a user account by marking it inactive.
  - *Difficulty:* [1] Easy
2. **PATCH /cart/{id}**
  - *Description:* Update the quantity of an item in the cart.
  - *Difficulty:* [1] Easy
3. **POST /notifications**
  - *Description:* Send notifications to the user for status updates or alerts.
  - *Difficulty:* [1] Easy
4. **GET /users/orders/{id}**
  - *Description:* Retrieve detailed information about a specific order.
  - *Difficulty:* [1] Easy

### Medium Endpoints:

5. **PATCH /orders/{id}/status**
  - *Description:* Update the status of an order (e.g., from "Processing" to "Shipped").
  - *Difficulty:* [2] Medium



### Additional Endpoints:

6. **GET /analytics/sales**
  - *Description:* Retrieve aggregated sales data for analytics purposes.
  - *Difficulty:* [2] Medium
7. **PATCH /users/{id}/preferences**
  - *Description:* Update user preferences (e.g., notification settings).
  - *Difficulty:* [2] Medium

### Focus:

- Finalize user account management, cart, and notifications.
- Implement final order status updates and analytics.
- Perform final performance optimizations and deployment preparation.

