

# Technical Documentation: Shared Cart

## 1. Overview

**Feature Name:** Shared Cart

**Purpose:** Allows users to create multiple shopping carts, add items, and share carts with friends for collaborative shopping.

## 2. System Architecture

### 2.1 High-Level Architecture

- **User Devices:** Web, iOS, and Android applications.
- **Backend Services:**
  - Cart Management API
  - Shared Cart Service
  - User Authentication & Permissions
  - Notifications & Updates Service
  - Inventory & Pricing Management
- **External Dependencies:** Payment Gateway, Product Catalog Service, Social Sharing APIs.

### 2.2 Data Flow Diagram (DFD)

1. **Cart Creation:** User creates a cart and adds items.
2. **Sharing Process:** User generates a shareable link.
3. **Recipient Access:** Friend views the shared cart and provides suggestions.
4. **Cart Synchronization:** Updates reflect in real-time.
5. **Checkout Process:** User proceeds to checkout with selected items.

## 3. API Documentation

### 3.1 Cart Creation API

**Endpoint:** POST /api/cart/create

**Request Body:**

{

  "user\_id": "U12345",

  "cart\_name": "Vacation Shopping"

}

•

**Response:**

{

  "cart\_id": "C67890",

  "status": "created"

}

•

### 3.2 Add Item to Cart API

**Endpoint:** POST /api/cart/{cart\_id}/add-item

**Request Body:**

{

  "product\_id": "P98765",

  "quantity": 2

}

•

**Response:**

{

  "status": "item added"

}

•

### 3.3 Generate Shareable Cart Link API

**Endpoint:** POST /api/cart/{cart\_id}/share

**Response:**

{

  "shareable\_link": "https://quince.com/cart/share/C67890"

}

•

### 3.4 Retrieve Shared Cart API

**Endpoint:** GET /api/cart/shared/{cart\_id}

**Response:**

```
{  
  "cart": {  
    "cart_id": "C67890",  
    "items": [  
      {"product_id": "P98765", "quantity": 2}  
    ]  
  }  
}
```

•

### 3.5 Cart Checkout API

**Endpoint:** POST /api/cart/{cart\_id}/checkout

**Response:**

```
{  
  "order_id": "O34567",  
  "status": "order placed"  
}
```

•

## 4. Data Schema

### Cart Table

Field	Type	Description
cart_id	UUID	Unique cart identifier

user_id	UUID	Cart owner's ID
cart_name	Text	Custom cart name
created_at	Timestamp	Creation date

### Cart Items Table

Field	Type	Description
item_id	UUID	Unique item identifier
cart_id	UUID	Associated cart ID
product_id	UUID	Product identifier
quantity	Integer	Number of units

### Shared Cart Table

Field	Type	Description
shared_id	UUID	Unique share identifier
cart_id	UUID	Associated cart ID
link	Text	Generated shareable link

expiry_date	Timestamp	Expiration time
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## 5. Security & Privacy

- **Authentication:** Only the cart owner can check out.
- **Authorization:** Shareable links provide read-only access.
- **Data Protection:** Encrypted cart details to prevent unauthorized access.

## 6. Deployment & Monitoring

- **Staging & Testing:** Load testing with 10,000 shared carts.
  - **Logging & Alerts:** Monitor API failures and sharing activity.
  - **Feature Flags:** Phased rollout with real-time performance tracking.
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## Next Steps

- Developers implement backend APIs and frontend UI.
  - QA testing for usability and system stability.
  - Security review & threat modeling post-development.
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This document provides a thorough **technical foundation** for developing the Shared Cart feature at Quince. 