

# 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  
}
```

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**Response:**

```
{  
  
  "status": "item added"  
}
```

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### 3.3 Generate Shareable Cart Link API

**Endpoint:** `POST /api/cart/{cart_id}/share`

**Response:**

```
{  
  
  "shareable_link": "https://quince.com/cart/share/C67890"  
}
```

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### 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. 🚀