### **Epic: ShopSmart eCommerce App Development**

**Description:** Development of the "ShopSmart" eCommerce app with features for offline functionality, QR code scanning, and comprehensive user management. The app will be developed for iOS using Swift, leveraging Core Data and AVFoundation for offline storage and QR code scanning, respectively.

### **User Stories**

#### **1. User Authentication and Profile Management**

**User Story 1.1: User Registration and Login**

**As a new user**I want to register and log in using email, phone number, or social media  
So that I can create an account to access personalized features and manage my orders.

**Acceptance Criteria:**

* **Registration Form:**
  + Fields for email, phone number, and password.
  + Social media login options (e.g., Google, Facebook) using OAuth.
  + Field validations: Ensure email format is valid, password meets security criteria (e.g., minimum length, special characters).
* **Error Handling:**
  + Display messages for duplicate accounts, incorrect credentials, or registration failures.
  + Inform users of successful registration and automatically log them in or prompt them to log in manually.
* **Security Measures:**
  + Use OAuth for social media logins.
  + Ensure data transmission is encrypted using HTTPS.

**User Story 1.2: User Profile Management**

**As a registered user**I want to update my profile information such as name, email, and password  
So that I can keep my account details current and secure.

**Acceptance Criteria:**

* **Profile Screen:**
  + Display current user information with editable fields for name, email, and password.
* **Save Changes:**
  + Validate new inputs (e.g., password strength, email format).
  + Provide feedback on successful updates or errors.
* **Security Measures:**
  + Ensure changes are transmitted securely and validate that the new password meets security requirements.

#### **2. Product Browsing and Search**

**User Story 2.1: Product Listings**

**As a user**I want to browse products categorized by type (e.g., electronics, clothing)  
So that I can quickly find items of interest.

**Acceptance Criteria:**

* **Category Navigation:**
  + Main screen displays product categories in a grid or list format.
  + Each category links to a list of products.
* **Product Listings:**
  + Display images, names, prices, and brief descriptions.
  + Enable sorting and filtering within categories by attributes such as price or popularity.

**User Story 2.2: Product Search**

**As a user**I want to search for specific products by name, keyword, or barcode  
So that I can quickly locate desired items.

**Acceptance Criteria:**

* **Search Bar:**
  + Prominently placed on the main screen or accessible via a navigation menu.
* **Search Results:**
  + Display relevant products with images, names, prices, and descriptions.
  + Include filters to refine search results (e.g., by price range, ratings).
* **Error Handling:**
  + Provide feedback if no results are found or if there is a search error.

#### **3. Product Details and Cart Management**

**User Story 3.1: Product Details**

**As a user**I want to view detailed information about a product, including images, specifications, and reviews  
So that I can make an informed purchasing decision.

**Acceptance Criteria:**

* **Product Detail Screen:**
  + High-resolution images, detailed descriptions, and specifications.
  + User reviews and ratings with options to sort or filter.
* **Add to Cart:**
  + Option to select quantity and add the product to the cart with immediate visual feedback.

**User Story 3.2: Shopping Cart**

**As a user**I want to view and manage my shopping cart  
So that I can review and modify items before checkout.

**Acceptance Criteria:**

* **Cart Screen:**
  + List of items with product images, names, quantities, individual prices, and total cost.
* **Update Cart:**
  + Options to adjust quantities, remove items, and apply promo codes.
* **Proceed to Checkout:**
  + Button to navigate to the checkout screen.

#### **4. Checkout Process**

**User Story 4.1: Checkout**

**As a user**I want to complete my purchase by entering shipping and payment details  
So that I can finalize my order and receive my products.

**Acceptance Criteria:**

* **Checkout Screen:**
  + Fields for shipping address, payment method, and order summary.
  + Validation for all required fields (e.g., address, payment details).
* **Error Handling:**
  + Display appropriate error messages for invalid entries or failed transactions.
* **Order Confirmation:**
  + Provide a summary of the order and estimated delivery time with a confirmation message or screen.

**User Story 4.2: Order Confirmation and Tracking**

**As a user**I want to receive an order confirmation and track my order status  
So that I can stay informed about my order’s progress.

**Acceptance Criteria:**

* **Order Confirmation:**
  + Summary of the order with order number and details on a confirmation screen.
* **Order Tracking:**
  + Provide tracking information and status updates in the user profile or order history section.
* **Notifications:**
  + Push notifications for order updates, such as shipping and delivery status.

#### **5. User Reviews and Ratings**

**User Story 5.1: Submitting Reviews**

**As a user**I want to submit a review and rating for purchased products  
So that I can share my feedback and help other users make informed decisions.

**Acceptance Criteria:**

* **Review Form:**
  + Fields for rating (1-5 stars) and text feedback.
* **Display Reviews:**
  + Show user reviews on the product detail page with options to sort or filter.
* **Moderation:**
  + Implement a system for reviewing and moderating submitted reviews to ensure appropriateness.

#### **6. Notifications and Alerts**

**User Story 6.1: Order Notifications**

**As a user**I want to receive notifications about order updates and promotions  
So that I can stay informed about my purchases and special offers.

**Acceptance Criteria:**

* **Push Notifications:**
  + Notifications for order confirmation, shipping updates, and promotional offers.
* **In-App Notifications:**
  + Alerts or banners within the app for important events or changes.

#### **7. Security and Privacy**

**User Story 7.1: Data Security**

**As a user**I want my personal and payment information to be secure  
So that I can trust the app with my sensitive data.

**Acceptance Criteria:**

* **Secure Transmission:**
  + Use HTTPS to encrypt data during transmission.
* **Data Storage:**
  + Securely store sensitive information using encryption (e.g., payment details, personal data).
* **Compliance:**
  + Ensure compliance with data privacy regulations (e.g., GDPR, CCPA).

#### **8. Offline Functionality**

**User Story 8.1: Offline Adding to Cart**

**As a user**I want to be able to add items to my cart even when I am offline  
So that I can continue shopping without an internet connection.

**Acceptance Criteria:**

* **Offline Mode:**
  + Implement local storage to save cart items when offline.
  + Synchronize cart data with the server when connectivity is restored.
* **User Feedback:**
  + Notify users that changes made while offline will be updated once the connection is restored.
* **Error Handling:**
  + Display warnings if the app attempts to perform actions that require an internet connection while offline.

**User Story 8.2: Offline Order Management**

**As a user**I want to view my cart and saved items offline  
So that I can manage my shopping even when I lose internet access.

**Acceptance Criteria:**

* **Offline Access:**
  + Users can view items in their cart and previous orders offline.
* **Synchronization:**
  + Update order history and cart data with the server when connectivity is restored.

#### **9. QR Code Scanning**

**User Story 9.1: QR Code Scanning for Product Search**

**As a user**I want to scan QR codes on products to quickly access their details  
So that I can easily find product information and add items to my cart.

**Acceptance Criteria:**

* **QR Code Scanner:**
  + Integrate QR code scanning feature using AVFoundation.
* **Product Lookup:**
  + Automatically search for the product based on the scanned QR code and display its details.
* **Error Handling:**
  + Provide feedback if the QR code cannot be scanned or the product is not found.

**User Story 9.2: QR Code Scanning for Adding to Cart**

**As a user**I want to scan a QR code to add a product directly to my cart  
So that I can streamline the shopping process.

**Acceptance Criteria:**

* **Add to Cart:**
  + After scanning, display an option to add the product to the cart with immediate visual feedback.
* **Offline Functionality:**
  + Save the scanned items in local storage if the user is offline and synchronize when back online.