

Overview

This document outlines the requirements for a full-stack e-commerce application focused on ordering tech hardware items such as RAM, CPUs, HDDs, and SSDs. The app will use Flutter for the frontend (enabling cross-platform development for mobile and web) and Django for the backend (handling server-side logic, database interactions, and APIs). The system will include user authentication, product browsing, ordering, and payment processing.

The app assumes a basic e-commerce flow: users browse items, view details, add to cart, order, and pay. Admin functionalities are included for managing inventory and orders. Security, scalability, and user experience are prioritized.

Technology Stack

- **Frontend:** Flutter.
- **Backend:** Django with Django REST Framework (DRF) for building RESTful APIs.
- **Database:** PostgreSQL.
- **Authentication:** JWT (JSON Web Tokens) or Django's built-in auth system for secure login.
- **Payment Integration:** FAKE PAYMENT.

Functional Requirements

1. User Authentication (Login System)

- Users must register with email, password, and optional details (name, address, phone).
- Secure login via email/password, with password hashing and validation.
- Logout feature to clear session.
- Role-based access: Regular users (customers).
- Backend: Django auth models and DRF for token-based authentication.
- Frontend: Flutter screens for login/register forms, with validation and error handling.

2. Product Catalog and Viewing Item Details

- Display a list of tech items (RAM, CPUs, HDDs, SSDs) with filters (by category, price, brand, specs like capacity/speed).
- Each item should have details: Name, description, price, images, specifications (e.g., RAM: type, size, speed; CPU: cores, clock speed).
- Search functionality to find items by keywords.

3. Ordering System

- Shopping cart: Add/remove items, update quantities, view subtotal.
- Checkout process: Enter shipping address, select shipping method, review order summary.
- Order placement: Generate order ID, update stock, send confirmation email.
- Order history: Users can view past orders with status (pending, shipped, delivered).
- Guest checkout option (without login, but limited).