

📄 Technical Report: E-Commerce Sales Chatbot

1. Project Overview

This project is part of the Uplyft Full Stack Intern Case Study – June 2025. The objective was to design and implement a full-stack chatbot that helps users search, explore, and interact with e-commerce products through a seamless and intuitive interface.

2. Technology Stack

Frontend:

- React.js
- HTML5, CSS3
- Axios, React Router

Backend:

- Django REST Framework
- Python 3
- SQLite (for demonstration)

Authentication:

- JWT (using SimpleJWT)

Other Tools:

- Faker (for mock data generation)

3. System Architecture

The architecture follows a classic full-stack layout:

User → React Frontend → Django Backend → SQLite Database

- Frontend handles user interaction, chat interface, and state management.
- Backend handles REST API endpoints, business logic, and data storage.
- Authentication is handled via JWT, and all chat messages are stored per user.

4. Features Implemented

- JWT-based login authentication
- Product search chatbot interface

- Filter products by category and sort by price
- Session info and chat reset
- User-specific chat history
- Mobile-responsive UI
- 100+ mock products with realistic data

5. Mock Data Creation

Mock products were generated using the Python 'faker' library. Each product includes a name, description, category, price, and image URL. More than 100 products were added to simulate a realistic inventory.

6. Challenges Faced & Solutions

- Handling token storage and expiration: Solved using localStorage and appropriate headers.
- Rendering dynamic HTML in chatbot messages: Solved using dangerouslySetInnerHTML in React.
- Filtering and sorting products dynamically: Solved by building custom query parameters.
- Maintaining chat history and associating it with users: Implemented user-specific chat logging.

7. Key Learnings

- Integrated frontend-backend development using modern frameworks.
- React component and state management.
- Token-based authentication using Django REST Framework.
- Clean code structure, modular design, and reusable components.

8. Future Enhancements

- Add-to-cart and purchase capabilities in chatbot.
- Admin dashboard for monitoring user queries.
- Context-aware chatbot using NLP techniques.
- Improved UI animations, loaders, and toast notifications.