

Case Study Report

Development of an E-commerce Sales Chatbot

ASK MART

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1. Introduction

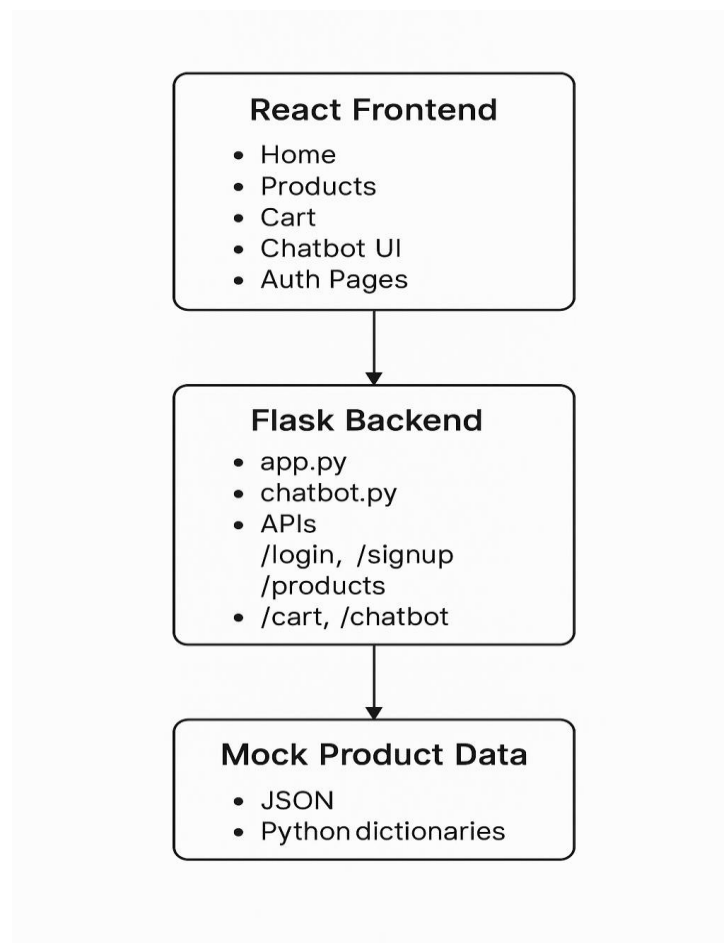
Ask Mart is a simulated e-commerce platform tailored for selling products in a specific domain (e.g., textiles). The goal of this project was to develop a responsive, intelligent, and modular **sales chatbot** that helps users search for products, apply filters, and make purchase decisions using natural language input. The chatbot is fully integrated with a React frontend, Flask backend, and a MySQL database that holds a mock inventory.

2. System Architecture

The system is built using a modular, fault-tolerant architecture with the following layers:

- **Frontend (React.js):** Renders the chatbot interface and product suggestions.
- **Backend (Flask):** Handles user sessions, interprets queries, fetches product data.
- **Database (MySQL):** Stores mock product inventory.

Architecture Flow:



3. Technology Stack & Justification

Layer	Technology	Justification
Frontend	React.js	Component-based architecture, SPA-friendly
Backend	Flask	Lightweight, Python-based REST API framework
Auth	Flask-Login	Simplified session and login management
CORS	Flask-CORS	Solves cross-origin access issues
Database	MySQL	Relational, structured inventory management
Tools	Postman, GitHub	Testing and version control

4. Backend Implementation

The Flask backend exposes RESTful endpoints and handles:

- **Authentication** (/signup, /login, /logout, /me)
- **Chat Queries** (/chatbot/query)
- **Product Retrieval** (/products)

Sample Query Endpoint:

POST /chatbot/query

```
{  
  "message": "Show me shirts under ₹800"  
}  
  
{
```

Response:

```
"products": [  
  {  
    "id": 12,  
    "name": "shirt– Blue",  
    "price": 699,  
    "link": "/product/12"
```

```
},  
...  
]  
}
```

The chatbot parses key elements from the message (e.g., category, price) and returns filtered products.

5. Frontend Interface

Developed using React.js with modular components:

- **Auth Pages:** Login and Sign-up with form validation
- **Chat Interface:**
 - Message bubbles with timestamps
 - Reset button to clear chat
 - Product cards with image, name, and link
- **Responsiveness:** Manually done

6. Mock Data Creation

A MySQL database with 100+ entries was populated using:

- Curation of realistic product names and details using Chatgpt
- Used fakestoreapi for images

Product Fields:

- id, name, category, description, price, stock, image_url

7. Sample Queries and Results

Query	Parsed Filters	Results
"Cotton shirts under 800"	category: shirts, price < 800	5 matching products
"SSD above 1000"	category: SSD, price > 1000	3 matching products

Screenshots attached in appendix.

8. Challenges and Solutions

Challenge	Solution
CORS errors between React and Flask	Configured Flask-CORS with credentials support
Session cookies not preserved	Used withCredentials: true in Axios
Matching natural language to filters	Used rule-based keyword parsing
Generating realistic product data	Combined Chatgpt and fakestoreapi

9. Conclusion

Ask Mart's chatbot provides a seamless and intuitive product exploration experience using conversational input. This project demonstrates how modern web technologies can be combined with rule-based logic to deliver scalable and interactive e-commerce solutions.

Future Scope:


- Integrate NLP models like spaCy or GPT
- Add voice command support
- Enable payment flow simulation
- Multi-category inventory and user profiles


Appendix:

- MySQL schema (products table)


id	name	category	description	price	stock	image_url
1	Fjallraven Backpack	backpack	Perfect for everyday use and outdoor activities.	3599.00	25	https://fakestoreapi.com/img/81fPKd-2AYL._AC_SL1500_.jpg
2	Mens Casual Premium T-Shirts	t-shirt	Slim fit t-shirt with cotton comfort.	799.00	40	https://fakestoreapi.com/img/71YXzeOusL._AC_UY879_.jpg
3	Mens Cotton Jacket	jacket	Great outerwear jackets for Spring/Autumn/Winter...	1299.00	35	https://fakestoreapi.com/img/71li-ujtUL._AC_UX679_.jpg
4	Mens Casual Slim Fit	shirt	Soft and comfortable cotton shirt.	899.00	20	https://fakestoreapi.com/img/71YXzeOusL._AC_UY879_.jpg
5	Womens Short Sleeve T-shirt	t-shirt	95% Cotton with scoop neck and soft feel.	699.00	50	https://fakestoreapi.com/img/51Y5NI-15JL._AC_UX679_.jpg
6	Womens Boat Neck Tunic	shirt	Elegant and casual tunic shirt.	999.00	18	https://fakestoreapi.com/img/61pHAEJ4NML._AC_UX679_.jpg
7	Womens Rain Jacket	clothing	Waterproof and windproof raincoat.	1799.00	10	https://fakestoreapi.com/img/71HbIAHs5xL._AC_UY879_-2.jpg
8	Solid Gold Petite Micropave	jacket	Rose Gold Plated Double Flared Tunnel Plug.	1499.00	12	https://fakestoreapi.com/img/61sbMILUnoGL._AC_UL640_QL65_ML3_.jpg
9	White Gold Plated Princess	jewelry	White Gold Plated Princess Ring with Cubic Zirco...	2399.00	22	https://fakestoreapi.com/img/71YAIFU48IL._AC_UL640_QL65_ML3_.jpg
10	Pierced Owl Rose Gold Plated Stainless Steel	jewelry	Rose gold plated ring with floral design.	1099.00	30	https://fakestoreapi.com/img/51UDEzMJvpL._AC_UL640_QL65_ML3_.jpg
11	WD 2TB Elements Portable HDD	hdd	2TB USB 3.0 portable hard drive.	4599.00	40	https://fakestoreapi.com/img/61lBbVjvSDL._AC_Sy879_.jpg
12	SanDisk SSD PLUS 1TB	ssd	SSD for faster boot and data transfer.	5999.00	28	https://fakestoreapi.com/img/61U7T1koQQL._AC_SX679_.jpg
13	Silicon Power 256GB SSD	ssd	Reliable and efficient SSD for laptops.	3299.00	55	https://fakestoreapi.com/img/71kNymZ+c+L._AC_SX679_.jpg

- Screenshot of chat session and product results




srz
Logout
Chat



Product List




Fjallraven Backpack
₹3599.00





Mens Casual Premium T-Shirts
₹799.00



Mens Cotton Jacket
₹1299.00







Chat history reset. How can I help you now? 😊

shirts under 1000

Here are some products you might like:

- Mens Casual Premium T-Shirts** - ₹799.00
[View Product](#)
- Mens Casual Slim Fit** - ₹899.00
[View Product](#)
- Womens Short Sleeve T-shirt** - ₹699.00
[View Product](#)
- Womens Boat Neck Tunic** - ₹999.00

Type your message... Send Reset