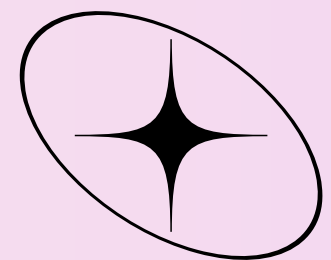




# REVIEW BOT



**G-215**  
**22BD1A0519**

# Problem Statement



Develop an application that integrates a chatbot to assist users in analyzing and understanding product reviews. This app should leverage a product review dataset to provide valuable insights and interactive features, enhancing the user experience.

# TECH STACK



## FRONTEND

- REACT



## BACKEND

- PYTHON
- JAVASCRIPT



## MIDDLEWARE

- EXPRESS



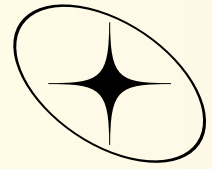
## LLMs / Models

- LLAMA - 3
- Nomic-embed-text
- sentiment-roberta-large-english
- Llama-2-7B-Chat-GGML

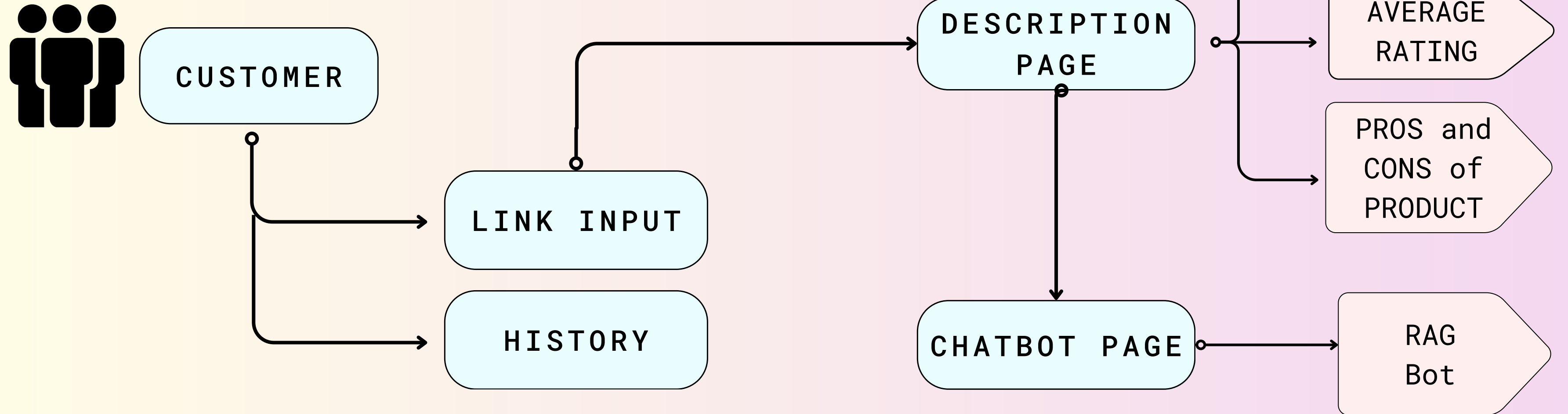


## DATABASE

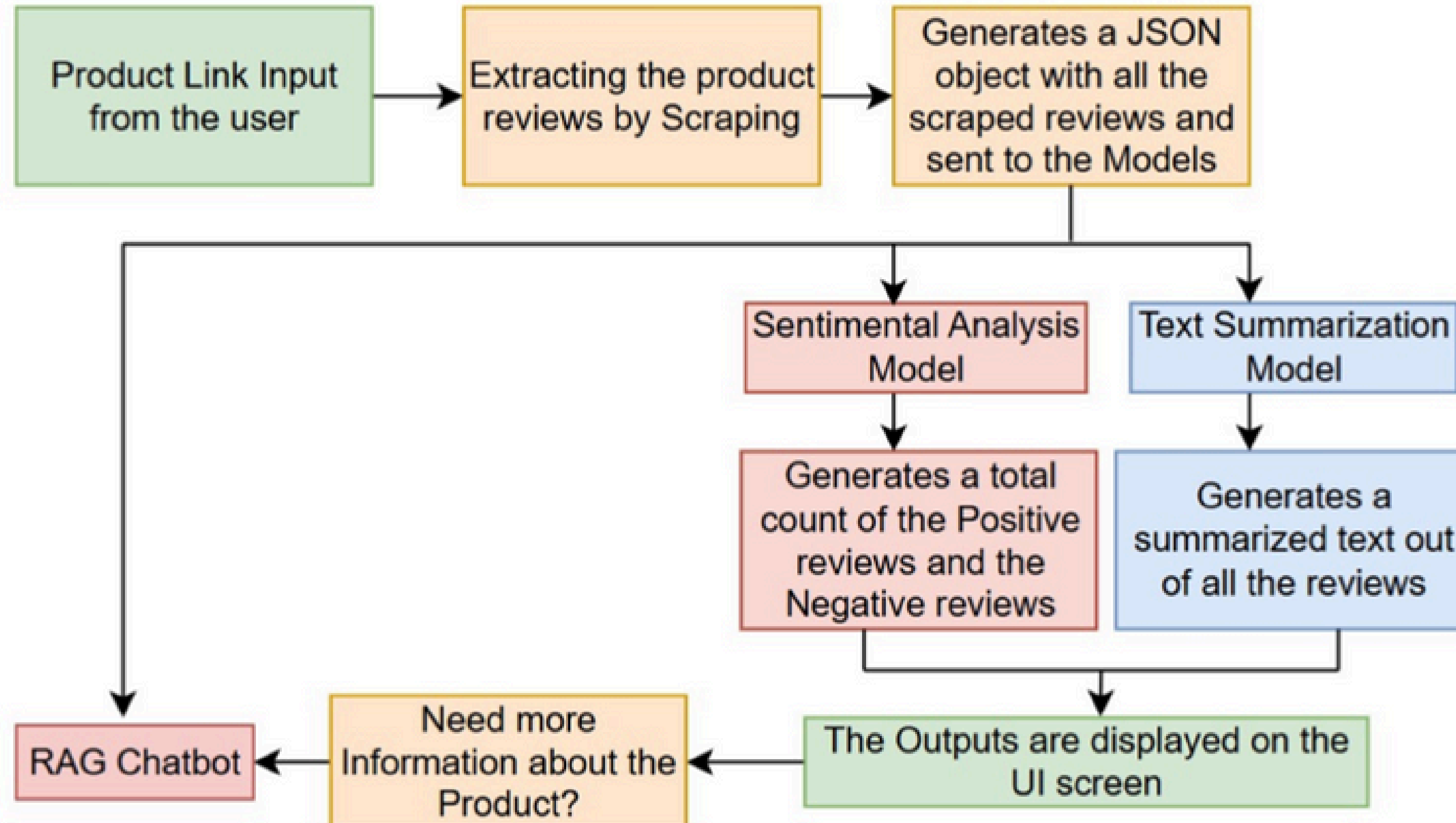
- MongoDB



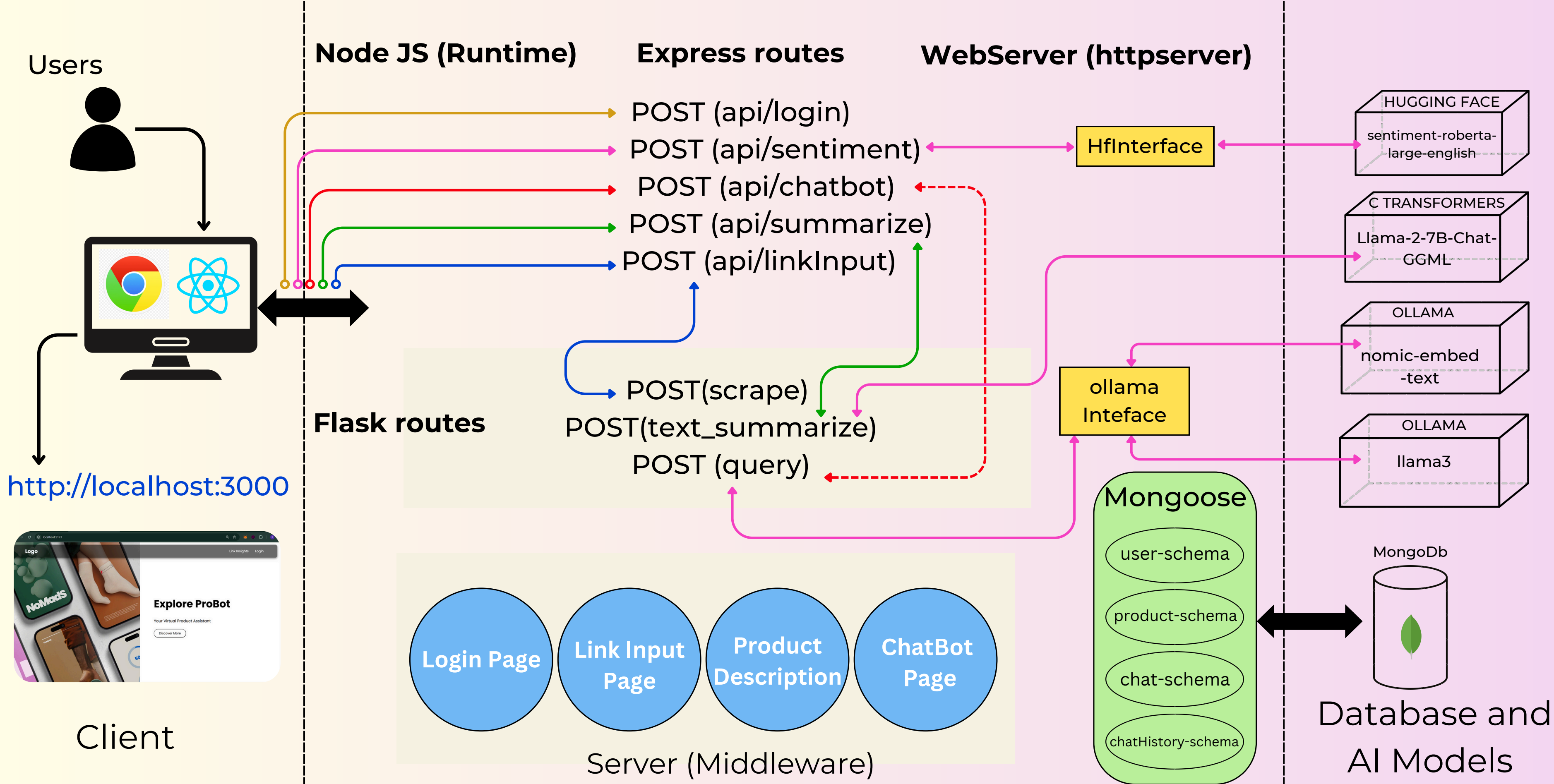
# PROCESS FLOW



# WORK FLOW



# Architecture Diagram



# Data Structures

## User Schema

### Fields:

- **userId:** Unique identifier for each user, automatically incremented.
- **username:** Unique name chosen by the user for login and identification.
- **password:** Encrypted user password for authentication.

### Purpose:

Manages user accounts, ensuring secure storage of credentials and unique identification.

## Product Schema

### Fields:

- **productId:** Auto-incremented unique identifier for products.
- **productName:** Name of the product.
- **productPrice:** Price of the product.
- **productImage:** URL of the product's image.
- **productRating:** Customer rating of the product.
- **productLink:** Link to the product's page or purchase option.

### Purpose:

Stores and organizes product details for easy retrieval, display, and interaction in the application.

# Data Structures

## Chat Schema

### Fields:

- **user:** Reference to the user initiating the chat, linking to the User schema.
- **productId:** Reference to the product being discussed, linking to the Product schema.
- **conversation:** A map of key-value pairs representing the chat conversation (e.g., message content and metadata).

### Purpose:

Tracks individual chat sessions between users and product-related queries or discussions.

## Chat History Schema

### Fields:

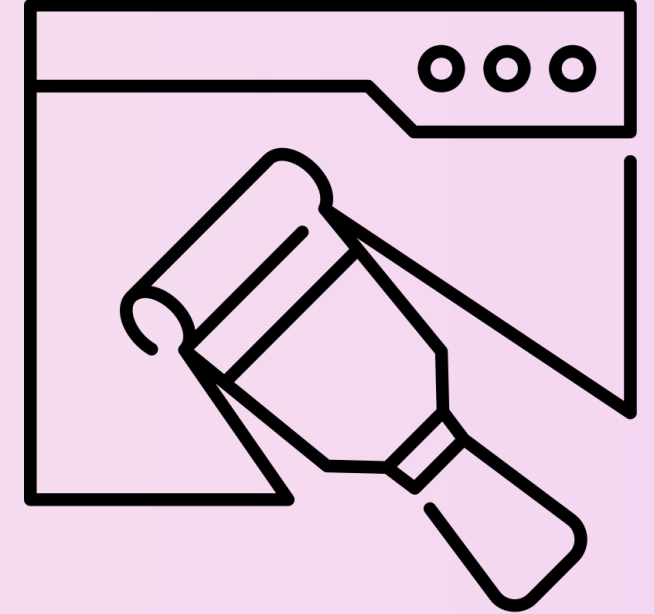
- **user:** Reference to the user associated with the chat history.
- **chat:** Array of references to individual chat records from the Chat schema.

### Purpose:

Maintains a user's complete chat history, enabling efficient retrieval and review of past conversations.



# Playwright for Webscraping



## Playwright Usage :

- Browser Initialization:  
A headless Chromium browser is launched using `playwright.sync_api`.
- Navigation:  
The page navigates to the provided URL (`page.goto(URL)`).

## Helper Functions:

- `get_product_details(page)`: Scrapes the required product Data using the ***query\_selector*** and uses the respective ***CSS selectors*** for each field.
- `get_reviews(page)`:  
Extracts user reviews and ratings. If available, click the "Reviews" section using a selector (***page.query\_selector***). Iterates through review containers to extract review titles, review text, and ratings.  
***Clicks the "Next"*** button to scrape multiple pages.  
The ***wait\_for\_selector function*** ensures that the specified elements are fully loaded and visible on the page before interacting with them.

# Scraped output

## Console

```
(venv) (base) kavya@kavyas11: ~/Desktop/ReviewBot/Flaskyy$ python app.py
* Serving Flask app 'app'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment.
tead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 645-945-968
Apple iPhone 15 (Black, 128 GB) ₹59,999 4.6 https://rukminim2.flixcart.com/image
inal-imagtc2qzgnnuhxh.jpeg?q=70&crop=false
Clicked
Scraped page 0
Scraped page 1
Scraped page 2
Scraped page 3
Scraped page 4
127.0.0.1 - - [30/Nov/2024 22:41:32] "POST /scrape HTTP/1.1" 200 -
[]
```

## Response Json

```
1 {
2   "product_details": {
3     "image": "https://rukminim2.flixcart.com/image/416/416/xif0q/mobile/h/d/9/-original-imagtc2qzgnnuhxh.jpeg?q=70&crop=false",
4     "name": "Apple iPhone 15 (Black, 128 GB)",
5     "price": "₹59,999",
6     "rating": "4.6"
7   },
8   "reviews": [
9     {
10      "count": 0,
11      "review": "Just go for it.Amazing one.Beautiful camera with super fast processor",
12      "stars": "5",
13      "title": "Worth every penny"
14    },
15    {
16      "count": 1,
17      "review": "High quality camera👍",
18      "stars": "5",
19      "title": "Mind-blowing purchase"
20    },
21    {
22      "count": 2,
23      "review": "Best mobile phone\nCamera quality is very nice\nBattery backup is very good\nSound quality is amazing.",
24      "stars": "4",
25      "title": "Worth the money"
26    },
27    {
28      "count": 3,
29      "review": "Camera Quality Is Improved Loving It",
30      "stars": "5",
31      "title": "Just want"
```

# Models / LLMs

- **LLAMA - 3** *(Reader LLM for RAG)*
- **Nomic-embed-text** *(Embeddings for RAG)*
- **sentiment-roberta-large-english** *(Sentimental Analysis)*
- **Llama-2-7B-Chat-GGML** *(Text Summarization)*

**THANK YOU**