PartSelect E-commerce Chat Agent

A Specialized Assistant for Refrigerator and Dishwasher Parts

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Project Overview

Project Goal:

- Develop a specialized chat agent for PartSelect e-commerce website

Focus Areas:

- Refrigerator and Dishwasher parts

Key Functionalities:

- Provide accurate product information
- Assist with customer transactions

User Experience:

- Intuitive chat interface in Chrome's side panel
- Context-aware responses for natural conversation flow

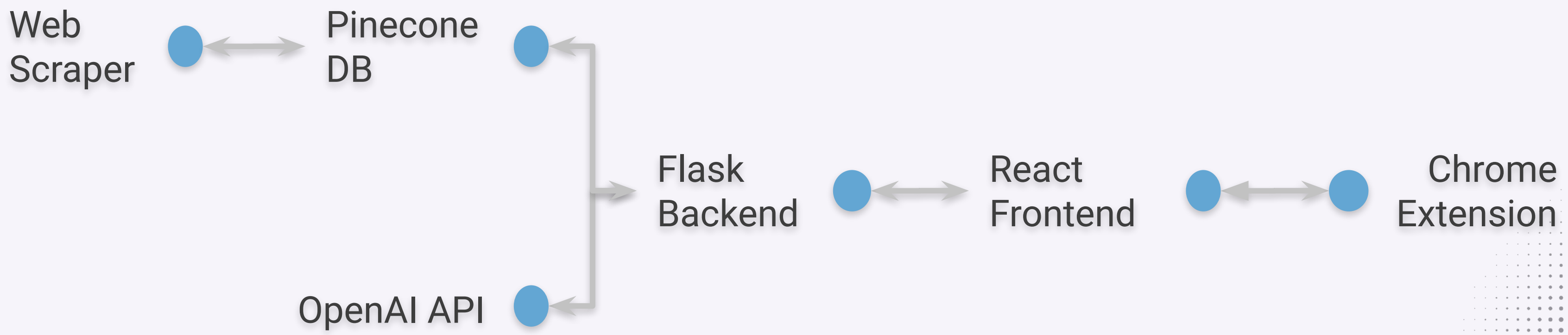
Technical Highlights:

- Chrome extension frontend for seamless user interaction
- Flask backend with OpenAI integration for natural language processing
- Pinecone vector database for efficient product data storage and retrieval
- Web scraping for up-to-date product information

Extensibility:

- Modular architecture allowing easy expansion to other product categories
- Scalable database solution for growing product catalog

Architecture Overview

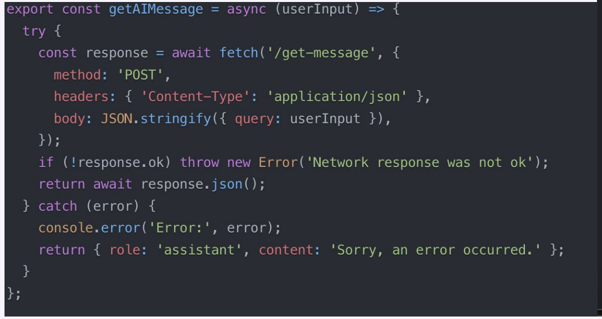


Frontend Architecture

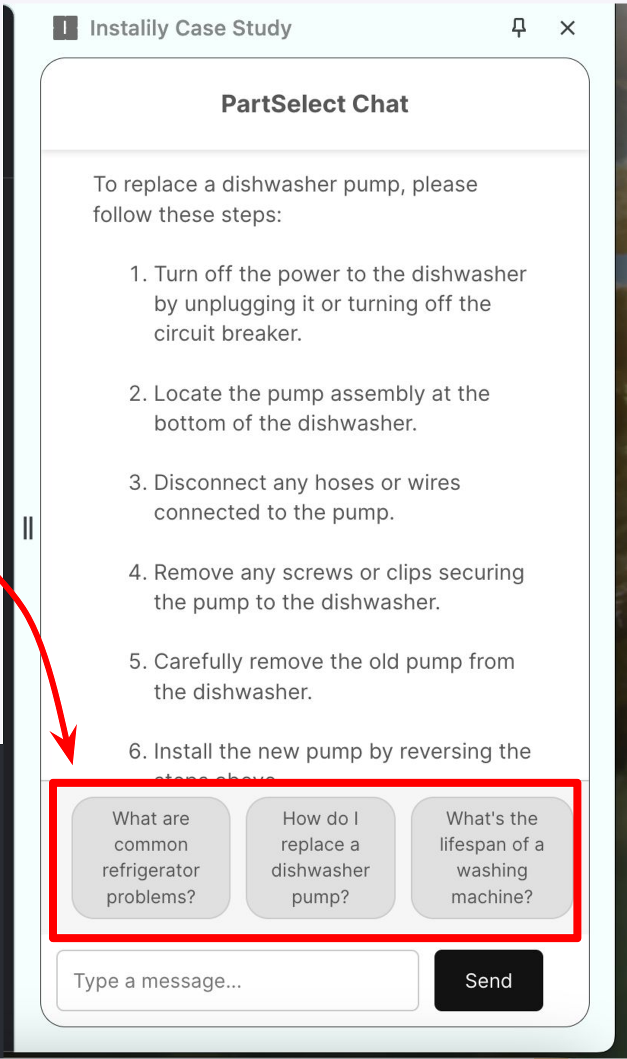
Built upon provided React frontend as a starting point

Key Changes:

- Changed name to reflect PartSelect focus
- Added suggested questions for user engagement
- Backend Integration:
  - api.js facilitates simple connection to Flask app
  - Implements error handling for robust user experience



```
export const getAIMessage = async (userInput) => {
  try {
    const response = await fetch('/get-message', {
      method: 'POST',
      headers: { 'Content-Type': 'application/json' },
      body: JSON.stringify({ query: userInput }),
    });
    if (!response.ok) throw new Error('Network response was not ok');
    return await response.json();
  } catch (error) {
    console.error('Error:', error);
    return { role: 'assistant', content: 'Sorry, an error occurred.' };
  }
};
```



Installily Case Study

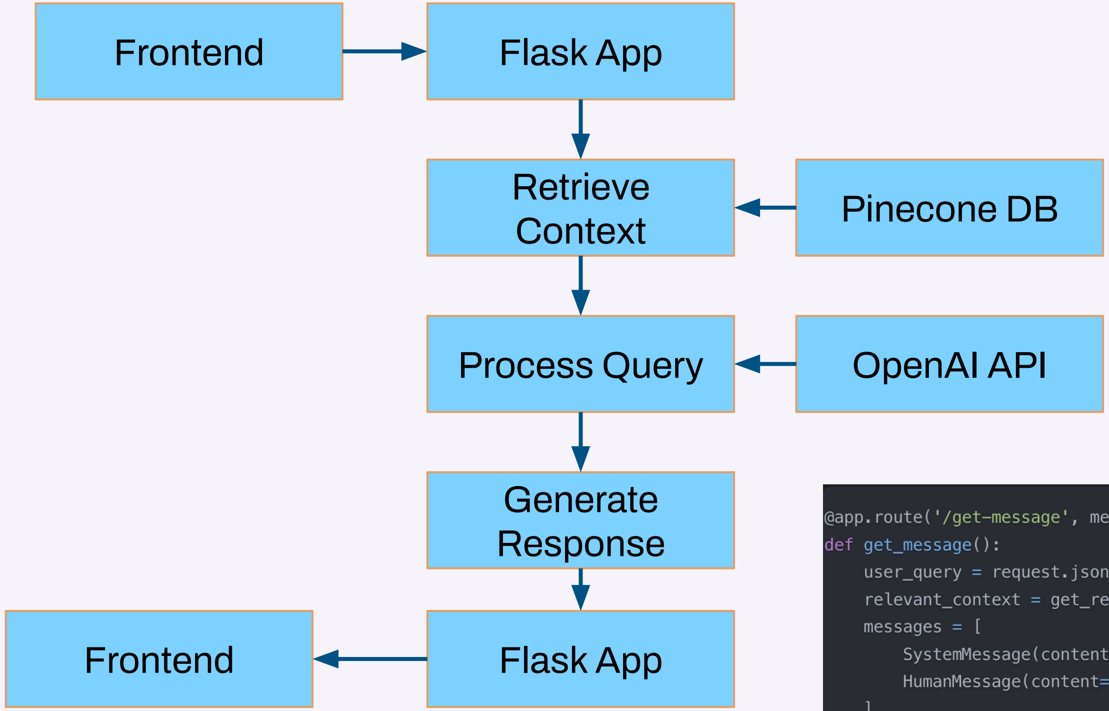
PartSelect Chat

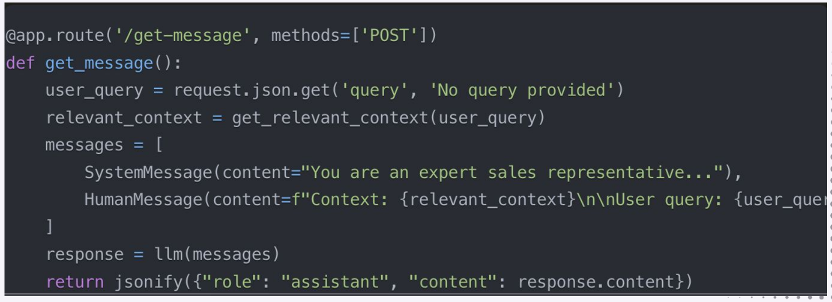
To replace a dishwasher pump, please follow these steps:

1. Turn off the power to the dishwasher by unplugging it or turning off the circuit breaker.
2. Locate the pump assembly at the bottom of the dishwasher.
3. Disconnect any hoses or wires connected to the pump.
4. Remove any screws or clips securing the pump to the dishwasher.
5. Carefully remove the old pump from the dishwasher.
6. Install the new pump by reversing the

What are common refrigerator problems?
How do I replace a dishwasher pump?
What's the lifespan of a washing machine?
Type a message...
Send

Backend Architecture





```
@app.route('/get-message', methods=['POST'])
def get_message():
    user_query = request.json.get('query', 'No query provided')
    relevant_context = get_relevant_context(user_query)
    messages = [
        SystemMessage(content="You are an expert sales representative..."),
        HumanMessage(content=f"Context: {relevant_context}\n\nUser query: {user_que
    ]
    response = llm(messages)
    return jsonify({"role": "assistant", "content": response.content})
```

Data Management

Pinecone Vector Database:

- Scalable
- Low latency
- Easy API Integration

Web Scraping:

- Scope: Focused on refrigerator and dishwasher parts
- Configurable scraping depth (default: 0)
- Efficient

Scraping Considerations:

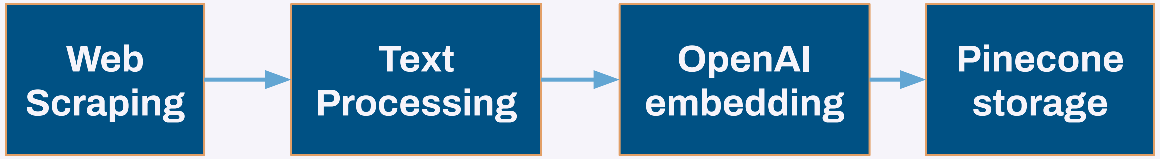
- Respects website's robots.txt and rate limits
- Extracts structured data for consistent storage
- Manual periodic updates; room for expansion on update frequency

Trade-offs and Optimizations:

- Limited initial dataset for quicker setup and testing
- Prioritized response quality over quantity
- Potential for depth increase to expand knowledge base

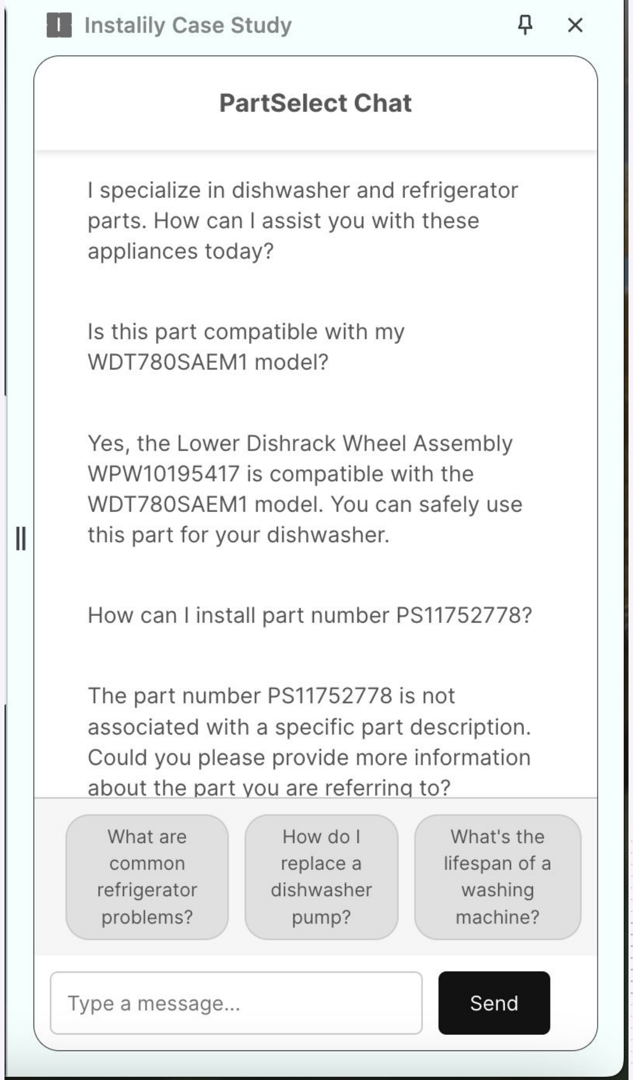
Data Flow:

- Enables semantic search and relevant context retrieval



RAG Pipeline

- OpenAI Integration
- Langchain Framework
  - Future maintainability
- Context Retrieval with Pinecone
  - Semantic search
- Prompt Engineering
- Conversation Memory



Instally Case Study

PartSelect Chat

I specialize in dishwasher and refrigerator parts. How can I assist you with these appliances today?

Is this part compatible with my WDT780SAEM1 model?

Yes, the Lower Dishrack Wheel Assembly WPW10195417 is compatible with the WDT780SAEM1 model. You can safely use this part for your dishwasher.

How can I install part number PS11752778?

The part number PS11752778 is not associated with a specific part description. Could you please provide more information about the part you are referring to?

What are common refrigerator problems?
How do I replace a dishwasher pump?
What's the lifespan of a washing machine?
Type a message...
Send

Extensibility and Scalability

Modular Architecture

- Separation of frontend, backend, and data storage
- Potential to extend to other product categories beyond refrigerators and dishwashers

Scalable Database Solution

- Pinecone vector database can efficiently handle millions of product entries
- Real-time updates allow for dynamic product information management

Frontend Adaptability

- Chrome extension can be adapted for other browsers
- Potential for developing standalone web or mobile applications

Flexible AI Integration

- Langchain framework allows easy switching between AI models; adaptable to future advancements in natural language processing

Expandable Web Scraping

- Scraping depth can be increased to cover more products
- Framework in place to add new product categories

Backend Scalability

- Flask application can be scaled horizontally
- Potential for containerization (e.g., Docker) for easier deployment and scaling
- Can implement load balancing for handling increased traffic

Future Expansion

Routing Prompt

- Implement an initial classification layer to categorize user queries

+Product Categories

- Extend beyond refrigerators and dishwashers to cover all PartSelect offerings

Automatic Scraping

- Develop a scheduled, automated web scraping system

Prompt Refinements

- Continuously improve and specialize prompt engineering

Q&A