PRODUCT RECOMMENDATION

AI Agent for Product Recommendation Based on Browsing and Purchase History.

INTRODUCTION:

However, in the current digital age, e-commerce platforms are offering customers thousands of products, which is making it difficult for customers to find what they actually need.

An AI-based product recommendation system helps customers to find products that they have previously browsed or purchased.

The objective of this project is to develop a simple AI agent that will analyze customer behavior and recommend products to the customers.

OBJECTIVE:

- To develop an AI model that suggests products to customers.
- To examine the browsing and purchase history.
- To offer personalized product recommendations.
- To comprehend the fundamental functionality of recommendation systems.
- To develop a simple and efficient software model.

TECHNOLOGY USED:

- Frontend: HTML, CSS
- Backend: Python
- Database: CSV / SQLite
- AI Logic:
- Rule-based logic OR
- Simple Machine Learning

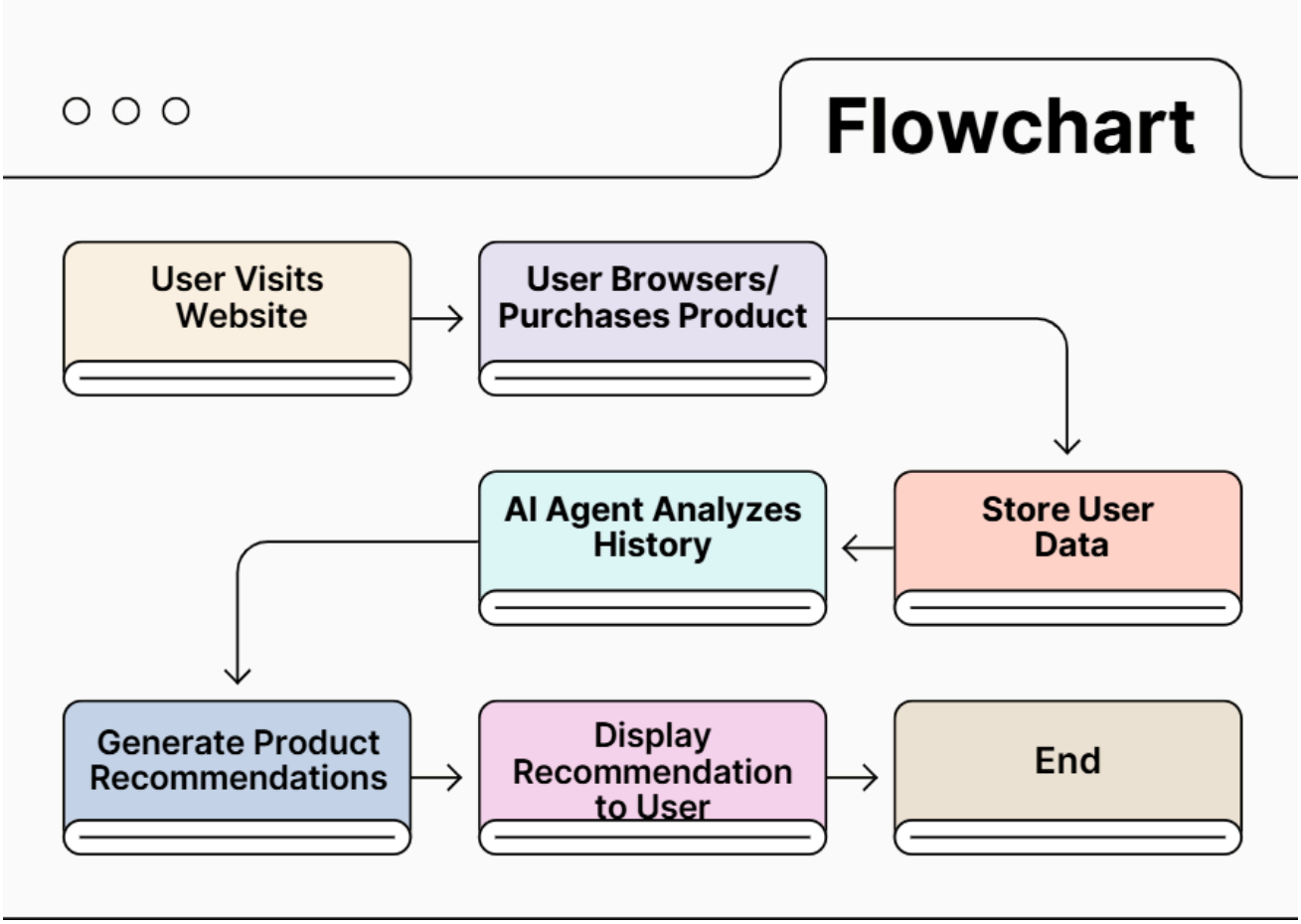
IMPLEMENTATION:

- Users browse products on the website.
- Browsing data and purchase data are stored in the database.
- The AI agent analyzes:
- Product categories.
- User interests.
- Based on similarity, the system recommends products.
- Recommended products are displayed to the user.

```python
import pandas as pd

products = pd.DataFrame({
    "product_id": [1, 2, 3, 4, 5, 6, 7],
    "product_name": [
        "Smartphone", "Laptop", "Headphones",
        "T-Shirt", "Jeans", "Shoes", "Watch"
    ],
    "category": [
        "Electronics", "Electronics", "Electronics",
        "Clothing", "Clothing", "Footwear", "Accessories"
    ]
})

users = pd.DataFrame({
    "user_id": [101, 102, 103],
    "browsed_category": ["Electronics", "Clothing", "Electronics"],
    "purchased_category": ["Electronics", "Clothing", "Accessories"]
})

def recommend_products(user_id):
    user = users[users["user_id"] == user_id]

    if user.empty:
        return None

    interest = user.iloc[0]["browsed_category"]

    recommended = products[
        products["category"] == interest
    ]["product_name"].tolist()

    return recommended

user_id = int(input("Enter your User ID: "))

recommendations = recommend_products(user_id)

if recommendations:
    print("\nRecommended Products for You:")
    for product in recommendations:
        print("-", product)
else:
    print("\nUser not found. Please register first.")
```

```
Enter your User ID: 101

Recommended Products for You:
- Smartphone
- Laptop
- Headphones
```

FLOWCHART



OUTCOME:

- Personalized product recommendations.
- Better user engagement.
- Basic understanding of AI-based recommendation systems.