AI-DRIVEN PERSONALIZED CONTENT RECOMMENDATION SYSTEM FOR E-COMMERCE WEB APPLICATIONS

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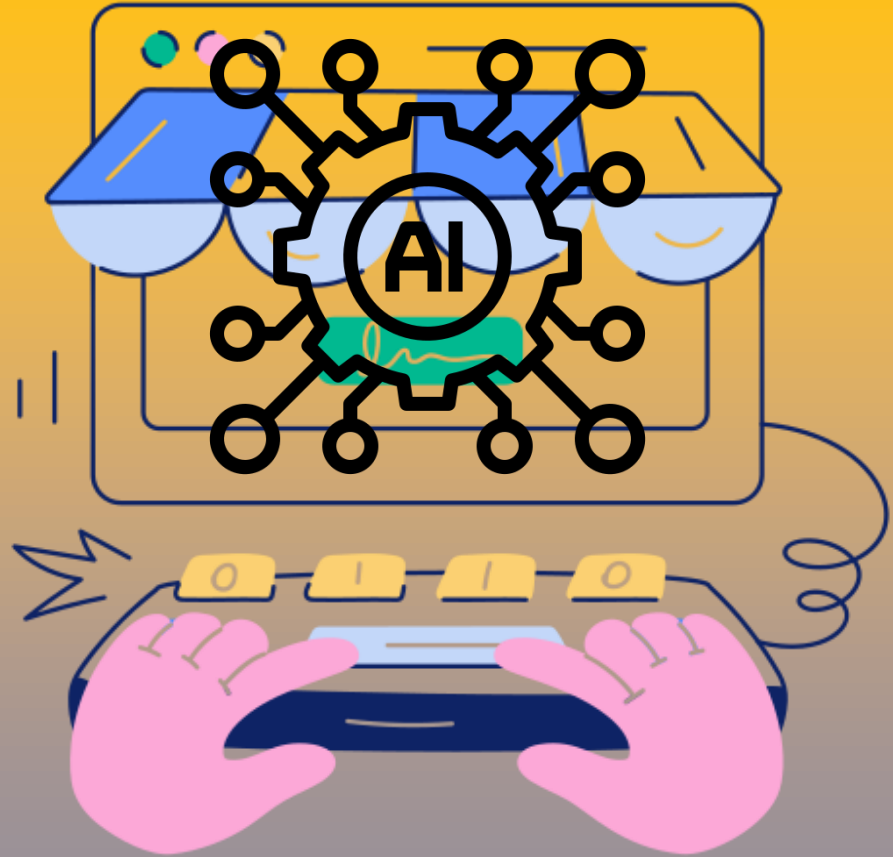
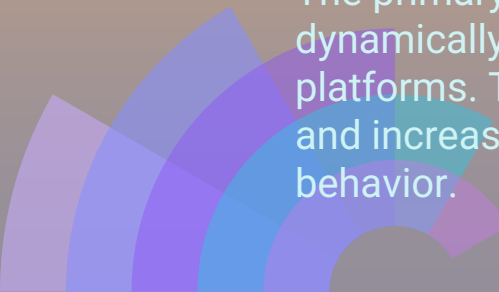# TABLE OF CONTENTS

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ABOUT THE PROJECT

INTRODUCTION

The project focuses on developing an AI-powered recommendation system for e-commerce platforms. This system aims to personalize product suggestions and content based on user preferences, behaviors, and interactions. By leveraging machine learning (ML) and natural language processing (NLP), the system will offer tailored recommendations that dynamically adapt to each user's unique shopping habits. The goal is to enhance customer engagement, boost user satisfaction, and ultimately increase sales on the platform.

OBJECTIVE

The primary goal of this project is to create an AI-powered recommendation system that dynamically personalizes product suggestions and content for users on e-commerce platforms. This system aims to enhance customer engagement, improve user satisfaction, and increase sales by offering tailored experiences based on individual preferences and behavior.
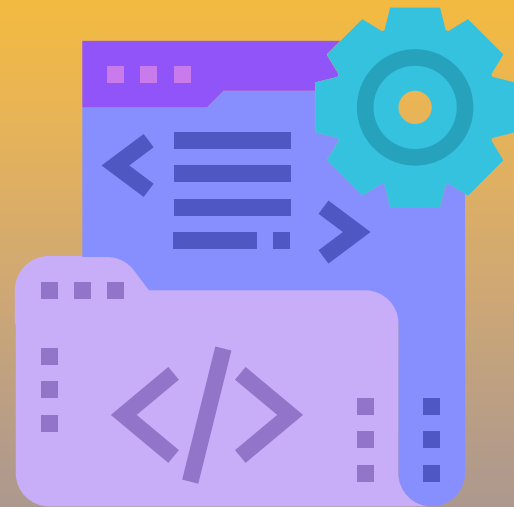
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SCOPE/KEY FEATURES
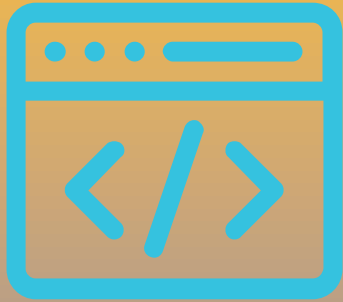
KEY FEATURES

- Admin Panel

- E-commerce interface

- Dashboard

- AI based recommendations

- Responsive UI

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RESOURCES

HARDWARE REQUIREMENTS

Laptop

8GB RAM, i5

OS & IDE

Windows or MacOS with VS Code

Stable Internet Connection

For effective testing of internet-based features

SOFTWARE REQUIREMENTS

Frontend

HTML, CSS, JavaScript, React.js and Tailwind CSS

Backend

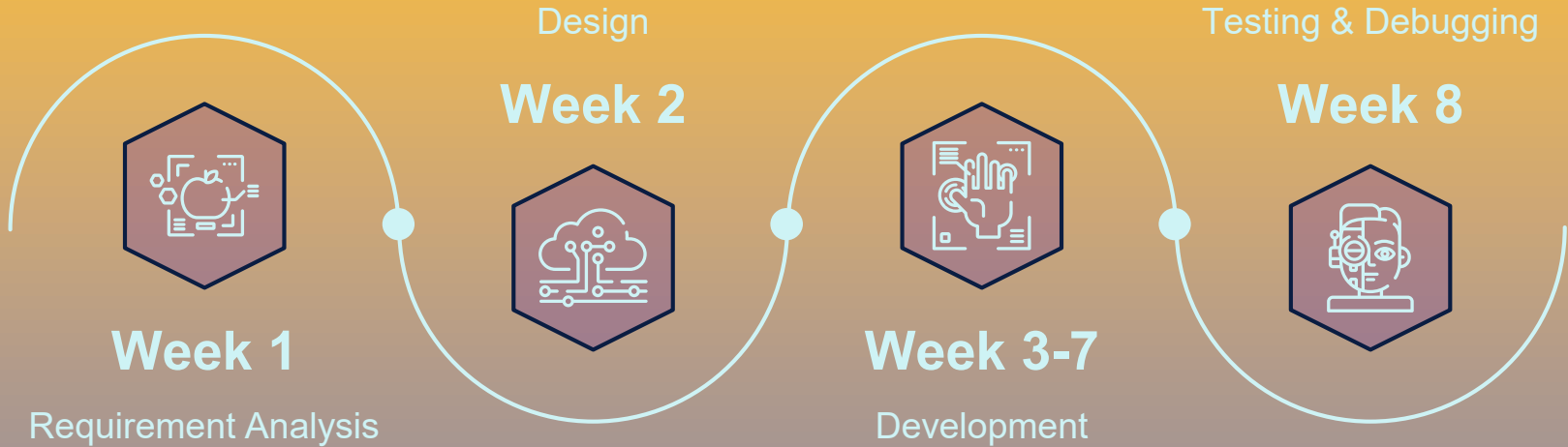Node.js, Express.js, Python, Flask and NLP and ML
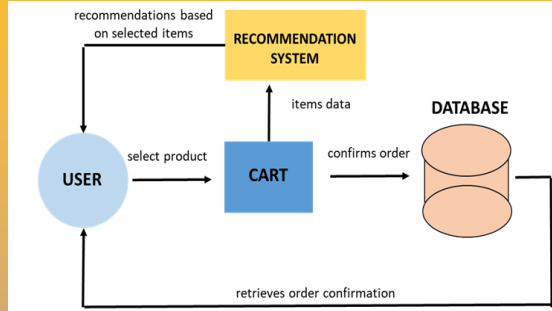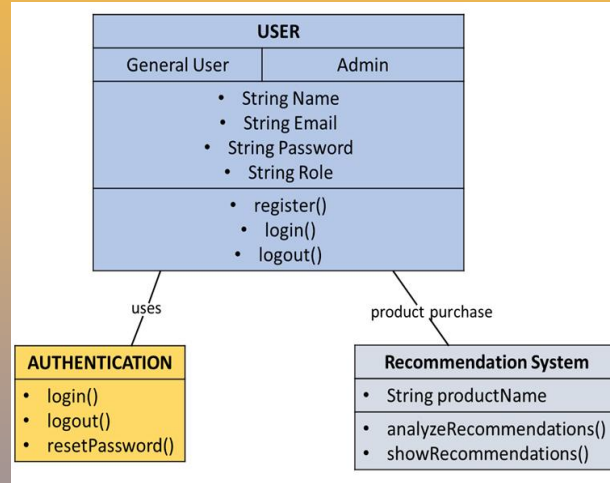
Database

MongoDB

BENEFITS

- Personalized Experience: By analyzing user behavior and preferences, the recommendation system tailors product suggestions, leading to a more personalized shopping experience.

- Increased Engagement: Users are more likely to interact with products that match their interests, which can lead to higher engagement rates and longer session durations.

- Boosted Sales: With better product recommendations, users are more likely to make additional purchases, thereby increasing the platform's overall sales.

- Admin Control: The e-commerce admin panel allows administrators to perform CRUD (Create, Read, Update, Delete) operations on products, view purchase history, and gain insights into consumer behavior.

- Efficient User Interaction: Users benefit from a streamlined shopping experience, where their preferences and past orders influence future recommendations.

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DEVELOPMENT

TIMELINE

Design

Week 2

Testing & Debugging

Week 8

Week 1

Requirement Analysis

Week 3-7

Development

PROCESS FLOW
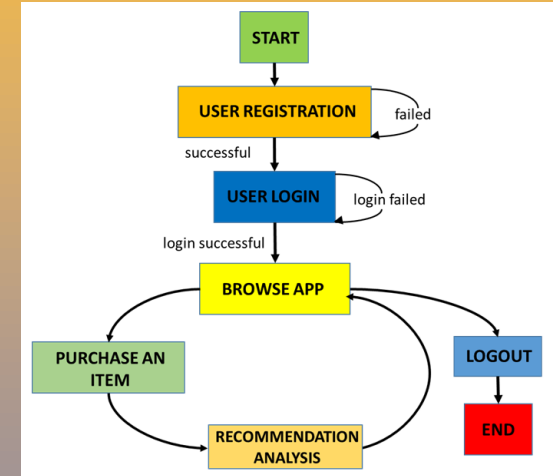
Data Flow Diagram

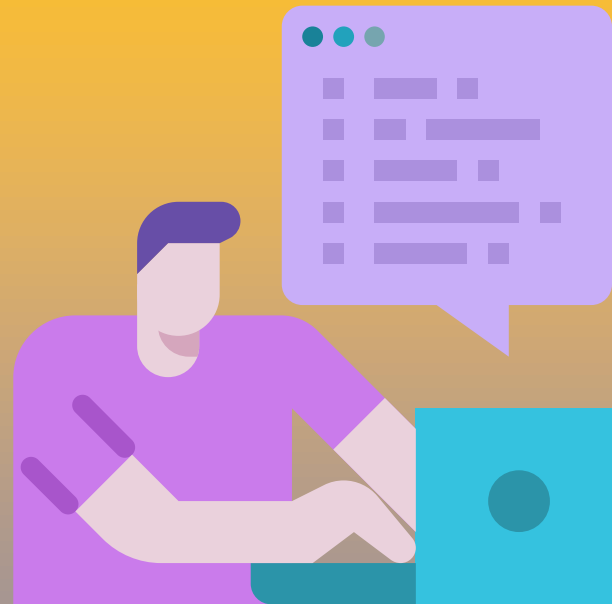Entity Relationship Diagram

Class Diagram
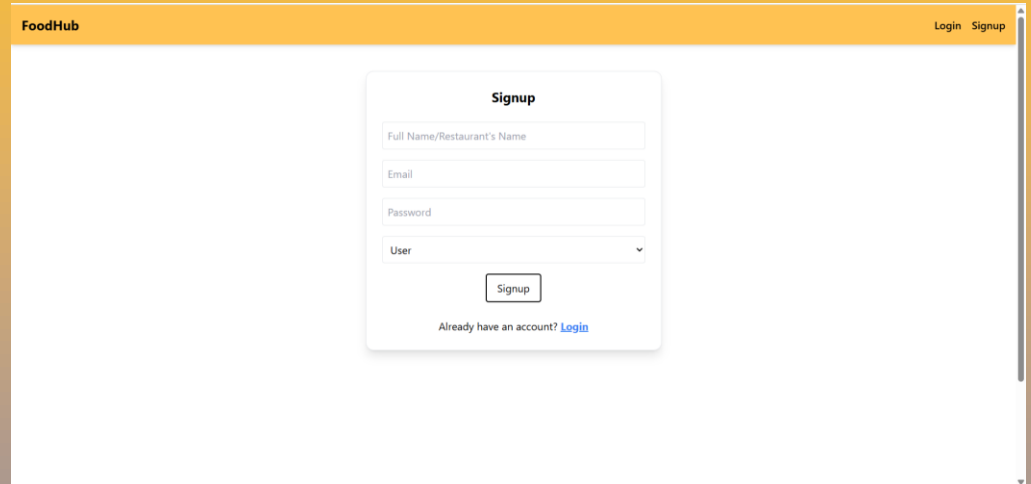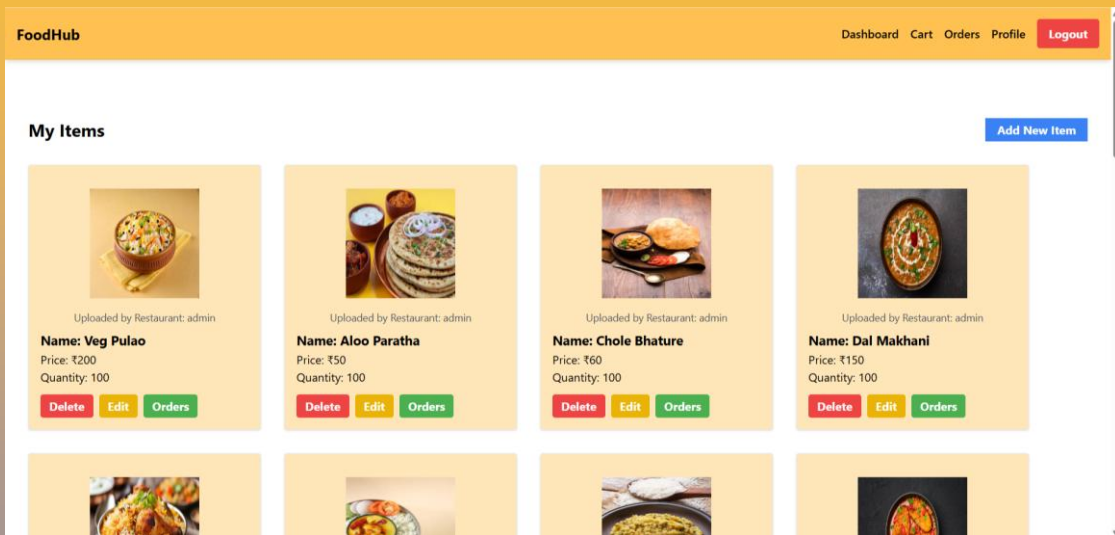

Activity Diagram

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PROJECT MODULES

USER AUTHENTICATION MODULE

User authentication ensures secure access to the app by requiring users to sign up and log in with their credentials.

ADMIN MODULE

- Products CRUD

- Personalized Dashboard

- Product Purchasers

USER MODULE

- Product purchasing
- Cart System
- Order history

AI RECOMMENDATION MODULE

Name: Veg Pulao
Price: ₹200
Quantity: 2

[Confirm Order] [Reject]

AI-Recommended Dishes

Dish Name

Veg Pulao

[Get Recommendations]

Recommended Dishes:
- Fryums
- Raita
- Salad

- NLP based item processing

- ML based item's Recommendation Analysis

- Flask based communication

FUTURE SCOPE

Cross-Platform Integration

Real-Time Data Processing

Advanced Personalization

Multi-Language Support

AI-Driven Analytics

PROTOTYPE

Welcome to FoodHub. Enjoy best meals and AI driven recommendations for your personalized taste.

Restaurant's Specials

Uploaded by Restaurant: admin

Name: Veg Pulao
Price: ₹200

Uploaded by Restaurant: admin

Name: Biryani
Price: ₹250

Uploaded by Restaurant: admin

Name: Fish Curry
Price: ₹300

Uploaded by Restaurant: admin

Name: Paneer Butter Masala
Price: ₹200

CONCLUSION

This AI-powered recommendation system is a step toward revolutionizing the e-commerce experience by providing personalized product recommendations that cater to individual preferences. It not only improves user satisfaction and engagement but also supports the growth of the platform by driving higher sales and fostering customer loyalty. As the system evolves, it holds the potential to become even more sophisticated, benefiting both customers and e-commerce businesses alike.

THANK YOU