Diet Recommendation System

A personalized diet recommendation system that suggests food items based on your BMI, age, and dietary preferences.

Overview

This Diet Recommendation System uses machine learning algorithms to provide personalized food recommendations that align with user health goals. The system analyzes user inputs like age, weight, height, and dietary preferences to calculate BMI and then uses K-means clustering and Random Forest classification to recommend appropriate food items.

Features

- **Personalized Recommendations**: Get food recommendations tailored to your specific body metrics
- **Multiple Diet Goals**: Choose between weight loss, weight gain, or maintaining a healthy diet
- **BMI Calculation**: Automatic BMI calculation and classification
- **User-friendly Interface**: Simple GUI built with Tkinter for easy interaction

System Requirements

- Python 3.6+
- Required libraries:
    - pandas
    - numpy
    - scikit-learn
    - tkinter

How it Works

1. **Data Collection**: The system collects user data:
    - Age
    - Vegetarian/Non-vegetarian preference
    - Weight (in kg)

    - Height (in cm)
2. **Data Processing**:
    - BMI calculation and classification
    - Age grouping
    - Food categorization based on nutritional data
3. **Machine Learning Models**:
    - K-means clustering to categorize foods
    - Random Forest classification to predict suitable food items
4. **Recommendation Generation**:
    - The system recommends food items based on the user's BMI, age, and dietary goals

Dataset

The system uses two main datasets:

- food.csv: Contains food items with their nutritional values and meal categories
- nutrition_distribution.csv: Contains nutritional distribution data for different diet categories

Usage

1. Enter your age, dietary preference (1 for vegetarian, 0 for non-vegetarian), weight, and height
2. Select your diet goal:
    - Weight Loss
    - Weight Gain
    - Healthy Diet
3. View the recommended food items based on your inputs

Future Enhancements

- Add more detailed nutritional information
- Implement daily meal planning

- Include exercise recommendations
- Create a web/mobile interface
- Add more food items to the database
- Implement user feedback system for recommendation improvement

Contributing

Contributions are welcome! Please feel free to submit a Pull Request.

1. Fork the repository
2. Create your feature branch (git checkout -b feature/amazing-feature)
3. Commit your changes (git commit -m 'Add some amazing feature')
4. Push to the branch (git push origin feature/amazing-feature)
5. Open a Pull Request

Acknowledgements

- Thanks to all contributors who helped in building this project
- Special thanks to the scikit-learn library for providing the machine learning algorithms
- The nutrition data used in this project is for demonstration purposes