Healthy Snack

July 11, 2024

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# Healthy Snack Recommendation System for UK Kids_Palanichamy Naveen
# 1. Setting up the Environment

#pip install pandas numpy sklearn

#2. Creating the Dataset

import pandas as pd

# Create a synthetic dataset
data = {
    'SnackID': range(1, 21),
    'SnackName': ['Apple Slices', 'Carrot Sticks', 'Yogurt', 'Granola Bar',␣
 ↪'Banana',
                  'Mixed Nuts', 'Oatmeal', 'Berries', 'Smoothie', 'Cheese␣
 ↪Cubes',
                  'Whole Wheat Crackers', 'Hummus and Veggies', 'Popcorn',␣
 ↪'Fruit Salad',
                  'Trail Mix', 'Rice Cakes', 'Peanut Butter', 'Celery Sticks',␣
 ↪'Boiled Egg', 'Pita Bread'],
    'MinAge': [2, 2, 2, 4, 2, 5, 2, 2, 3, 3, 4, 4, 5, 2, 5, 4, 5, 2, 3, 4],
    'MaxAge': [12, 12, 12, 12, 12, 12, 12, 12, 12, 12, 12, 12, 12, 12, 12, 12,␣
 ↪12, 12, 12, 12],
    'DietaryPreference': ['Vegetarian', 'Vegetarian', 'Vegetarian',␣
 ↪'Vegetarian', 'Vegetarian',
                          'Vegan', 'Vegetarian', 'Vegan', 'Vegetarian',␣
 ↪'Vegetarian',
                          'Vegan', 'Vegan', 'Vegan', 'Vegan', 'Vegan', 'Vegan',␣
 ↪'Vegetarian',
                          'Vegan', 'Vegetarian', 'Vegan'],
    'Calories': [52, 25, 100, 150, 89, 200, 150, 50, 120, 80, 70, 180, 90, 70,␣
 ↪200, 35, 190, 10, 70, 160]
}

snacks_df = pd.DataFrame(data)

print(snacks_df.head())
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# 3. Building the Recommendation System - content-based filtering

def recommend_snacks(age, dietary_preference, num_recommendations=5):
    # Filter snacks based on age suitability
    suitable_snacks = snacks_df[(snacks_df['MinAge'] <= age) &␣
 ↪(snacks_df['MaxAge'] >= age)]

    # Further filter based on dietary preference
    preferred_snacks = suitable_snacks[suitable_snacks['DietaryPreference'] ==␣
 ↪dietary_preference]

    # Sort by Calories and select top recommendations
    recommended_snacks = preferred_snacks.sort_values(by='Calories').
 ↪head(num_recommendations)

    return recommended_snacks

# Example usage
age = 5
dietary_preference = 'Vegan'
recommendations = recommend_snacks(age, dietary_preference)

print(recommendations)

# 4. Visualizing the Recommendations

import matplotlib.pyplot as plt

def visualize_recommendations(recommendations):
    plt.figure(figsize=(10, 6))
    plt.bar(recommendations['SnackName'], recommendations['Calories'],␣
 ↪color='green')
    plt.xlabel('Snack Name')
    plt.ylabel('Calories')
    plt.title('Recommended Healthy Snacks')
    plt.xticks(rotation=45)
    plt.show()

# Visualize the recommendations
visualize_recommendations(recommendations)
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	SnackID	SnackName	MinAge	MaxAge	DietaryPreference	Calories
0	1	Apple Slices	2	12	Vegetarian	52
1	2	Carrot Sticks	2	12	Vegetarian	25
2	3	Yogurt	2	12	Vegetarian	100
3	4	Granola Bar	4	12	Vegetarian	150

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4         5         Banana       2      12        Vegetarian        89
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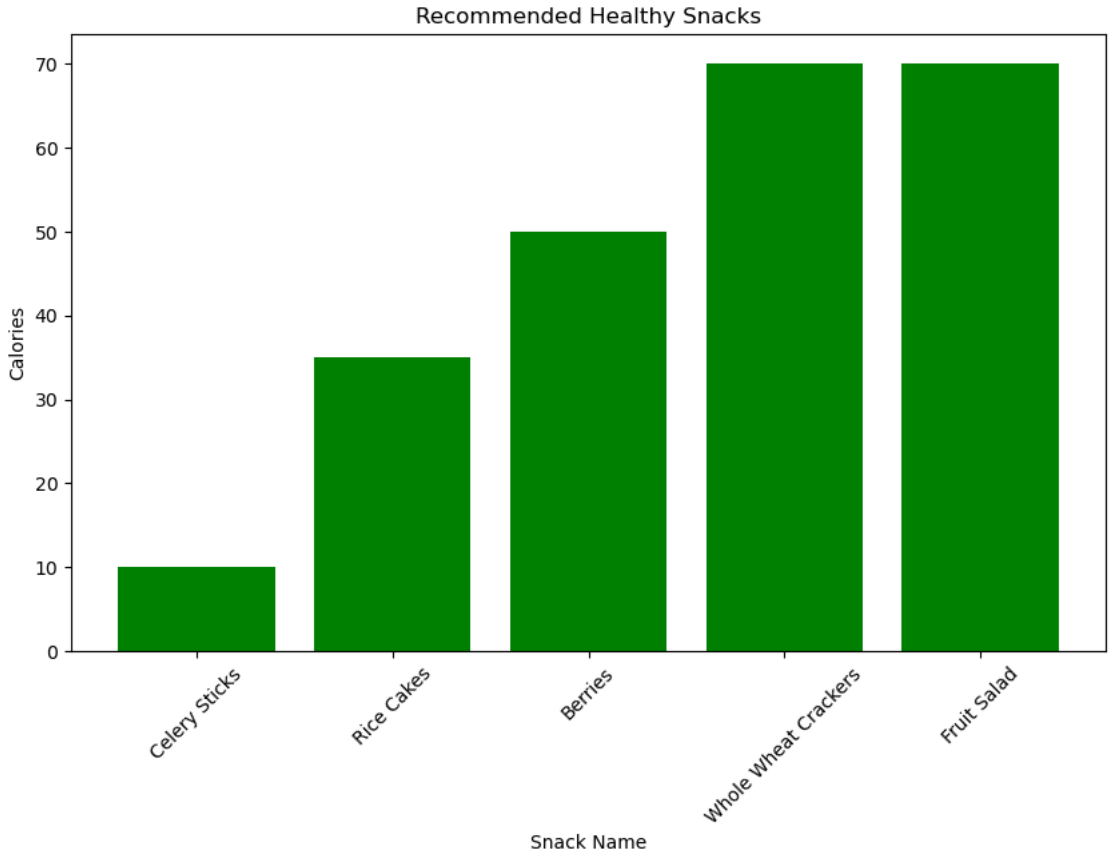
	SnackID	SnackName	MinAge	MaxAge	DietaryPreference	Calories
17	18	Celery Sticks	2	12	Vegan	10
15	16	Rice Cakes	4	12	Vegan	35
7	8	Berries	2	12	Vegan	50
10	11	Whole Wheat Crackers	4	12	Vegan	70
13	14	Fruit Salad	2	12	Vegan	70



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