

# Decoding Our Plates: A Data-Driven Look at Nutrition and Carbon Footprints



## ✓ Step 1: Import Libraries

```
[1] import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
```

## ✓ Step 2: Configuration for better visuals

```
[56] sns.set(style="whitegrid")
plt.rcParams["figure.figsize"] = (6, 4)
```



# Step 3: Load Dataset

```
[3] from google.colab import files
    uploaded = files.upload()
```



Choose Files nutrition\_cf - Sheet5.csv

- **nutrition\_cf - Sheet5.csv**(text/csv) - 181094 bytes, last modified: 7/21/2025 - 100% done  
Saving nutrition\_cf - Sheet5.csv to nutrition\_cf - Sheet5.csv



```
df = pd.read_csv("nutrition_cf - Sheet5.csv")
print(df.info())
```



```
<class 'pandas.core.frame.DataFrame'>
```

RangeIndex: 753 entries, 0 to 752

Data columns (total 15 columns):

| #   | Column                    | Non-Null Count | Dtype   |
|-----|---------------------------|----------------|---------|
| --- | -----                     | -----          | -----   |
| 0   | Food                      | 753 non-null   | object  |
| 1   | Associativity             | 753 non-null   | object  |
| 2   | Region                    | 753 non-null   | object  |
| 3   | Type                      | 753 non-null   | object  |
| 4   | Category                  | 753 non-null   | object  |
| 5   | Allergy                   | 753 non-null   | object  |
| 6   | Serving                   | 753 non-null   | object  |
| 7   | Total Weight (gms)        | 753 non-null   | int64   |
| 8   | Energy(kcal)              | 753 non-null   | int64   |
| 9   | Proteins                  | 753 non-null   | float64 |
| 10  | Carbohydrates             | 753 non-null   | float64 |
| 11  | Fats                      | 753 non-null   | float64 |
| 12  | Fiber                     | 753 non-null   | float64 |
| 13  | Carbon Footprint(kg CO2e) | 753 non-null   | float64 |
| 14  | Ingredients               | 753 non-null   | object  |



# Step 4: Data Cleaning

```
df.isnull().sum()
```

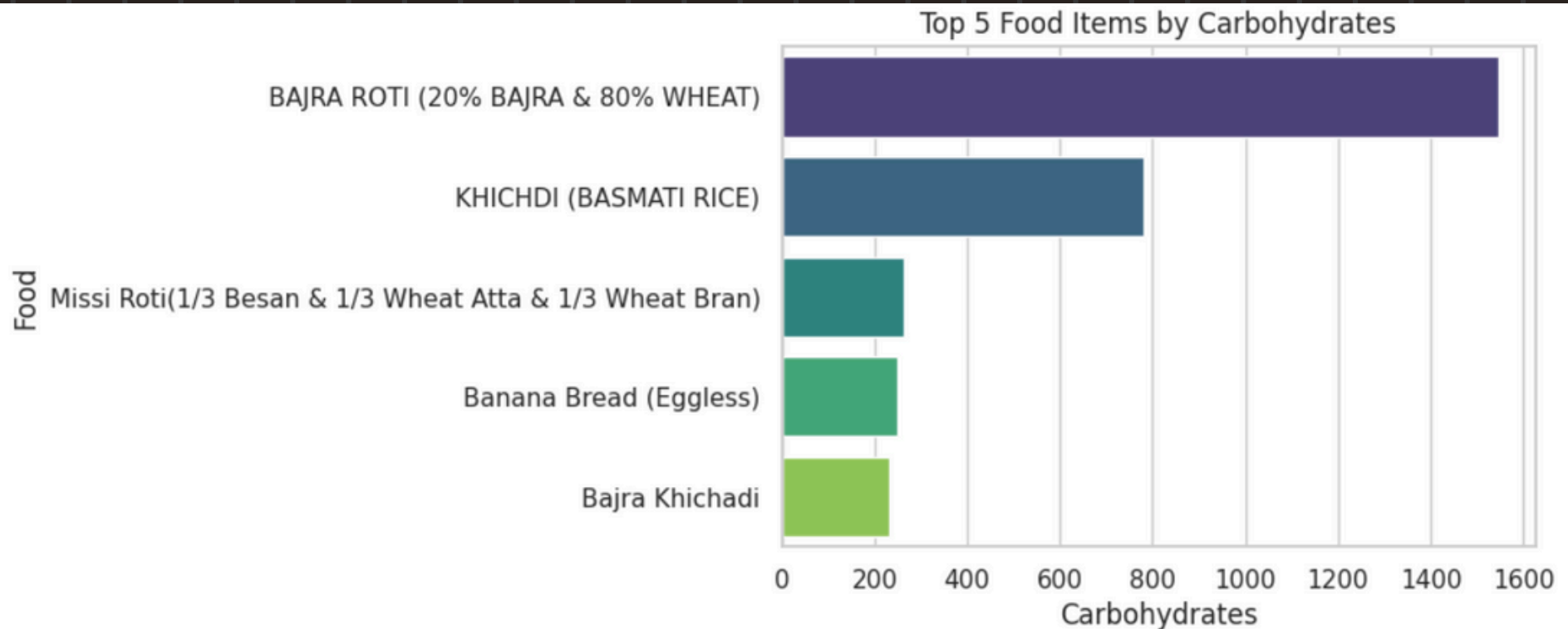
|                           |   |
|---------------------------|---|
|                           | 0 |
| Food                      | 0 |
| Associativity             | 0 |
| Region                    | 0 |
| Type                      | 0 |
| Category                  | 0 |
| Allergy                   | 0 |
| Serving                   | 0 |
| Total Weight (gms)        | 0 |
| Energy(kcal)              | 0 |
| Proteins                  | 0 |
| Carbohydrates             | 0 |
| Fats                      | 0 |
| Fiber                     | 0 |
| Carbon Footprint(kg CO2e) | 0 |
| Ingredients               | 0 |

dtype: int64

# ✓ Step 5: Exploratory Data Analysis (EDA)

## 1. Which food items have the highest carbohydrates?

```
# Top 5 high-carbohydrates items
top_carbohydrates = df.nlargest(5, 'Carbohydrates')
sns.barplot(x='Carbohydrates', y='Food', data=top_carbohydrates, palette='viridis')
plt.title("Top 5 Food Items by Carbohydrates")
plt.show()
```

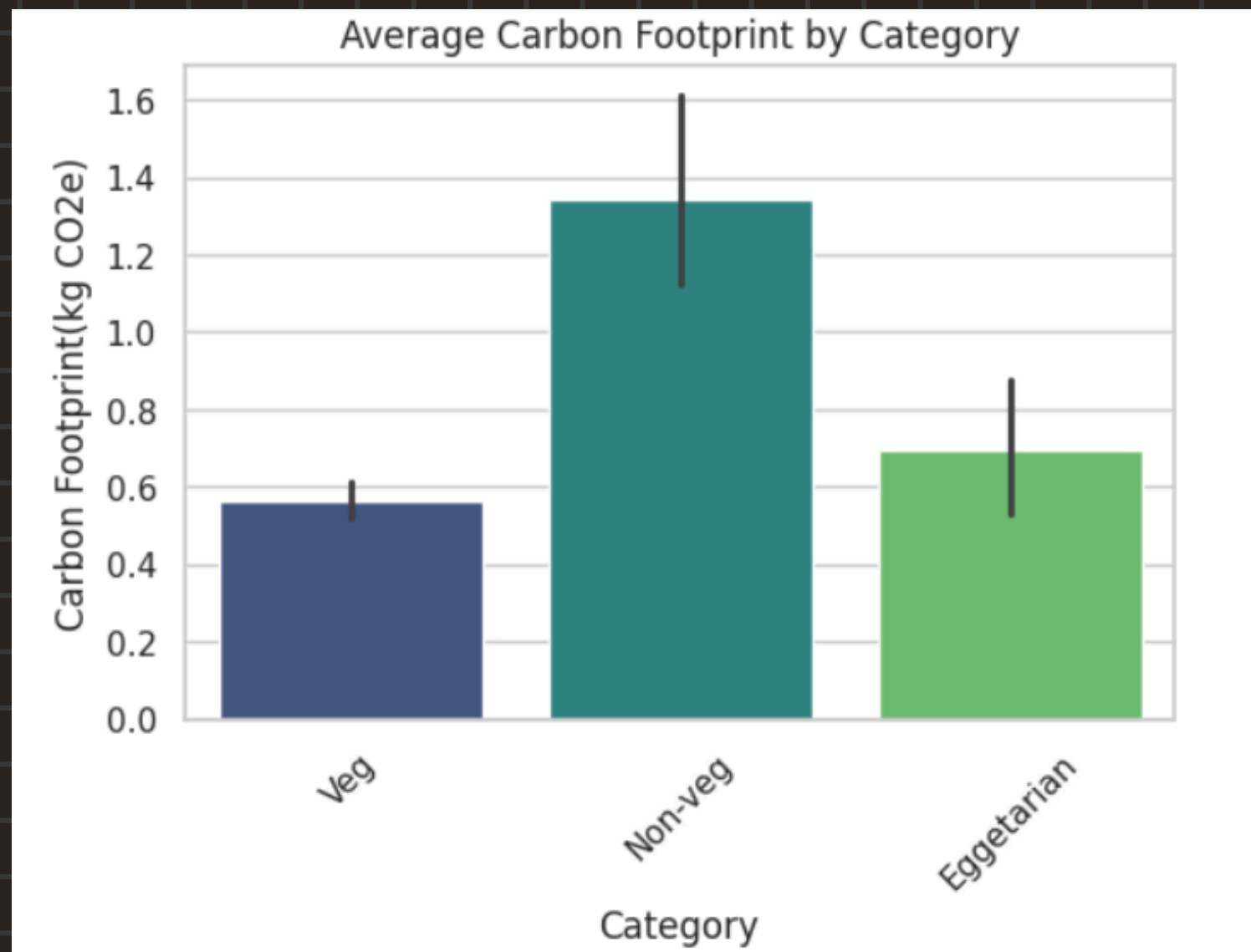




# ✓ Step 5: Exploratory Data Analysis (EDA)

## 2. Which food category contributes the most to carbon footprint?

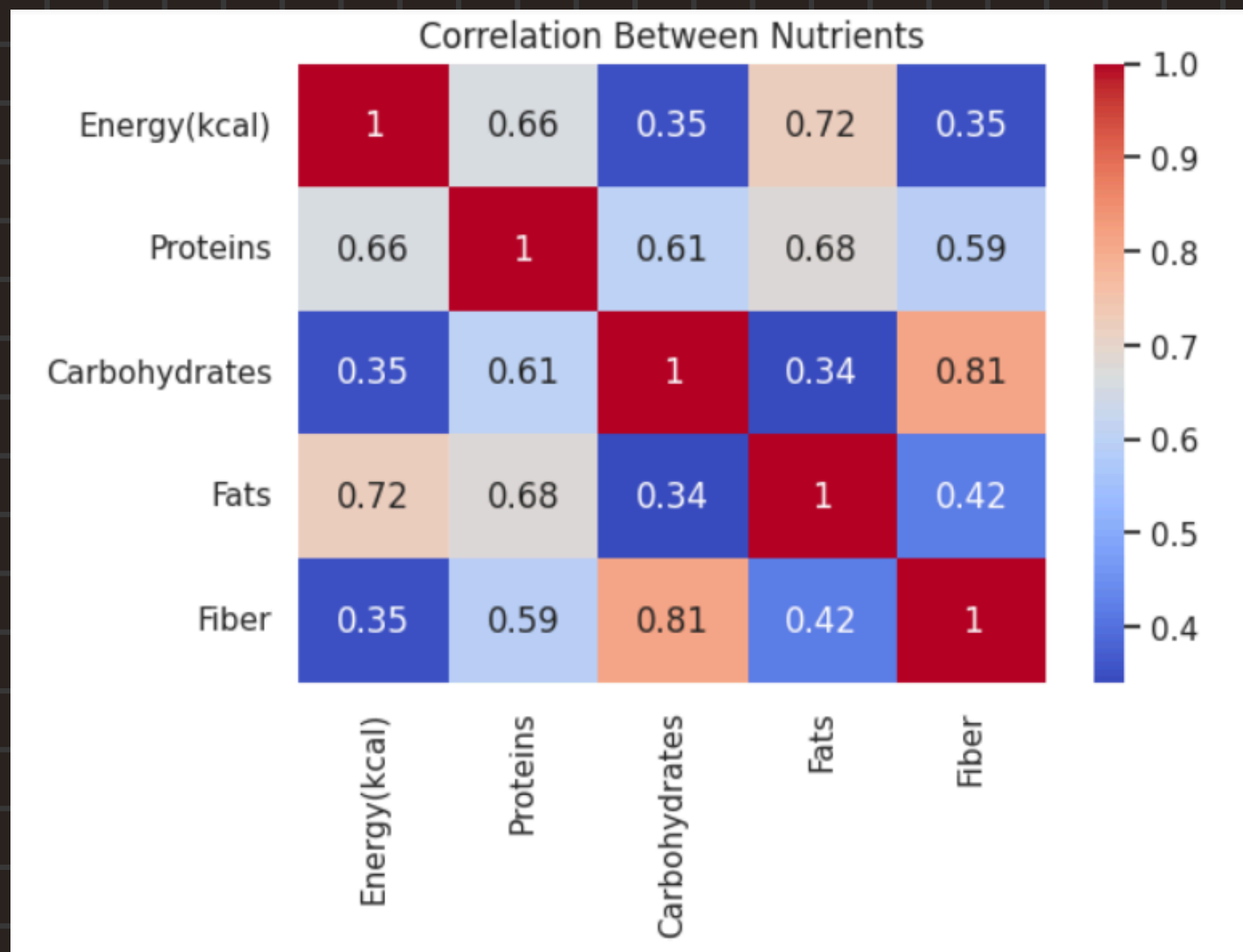
```
[58] #food category contributing the most to carbon footprint
sns.barplot(x='Category', y='Carbon Footprint(kg CO2e)', data=df, estimator=np.mean, palette='viridis')
plt.xticks(rotation=45)
plt.title("Average Carbon Footprint by Category")
plt.show()
```



# ✓ Step 5: Exploratory Data Analysis (EDA)

## 3. How are Energy, Proteins, Carbohydrates, and Fats related?

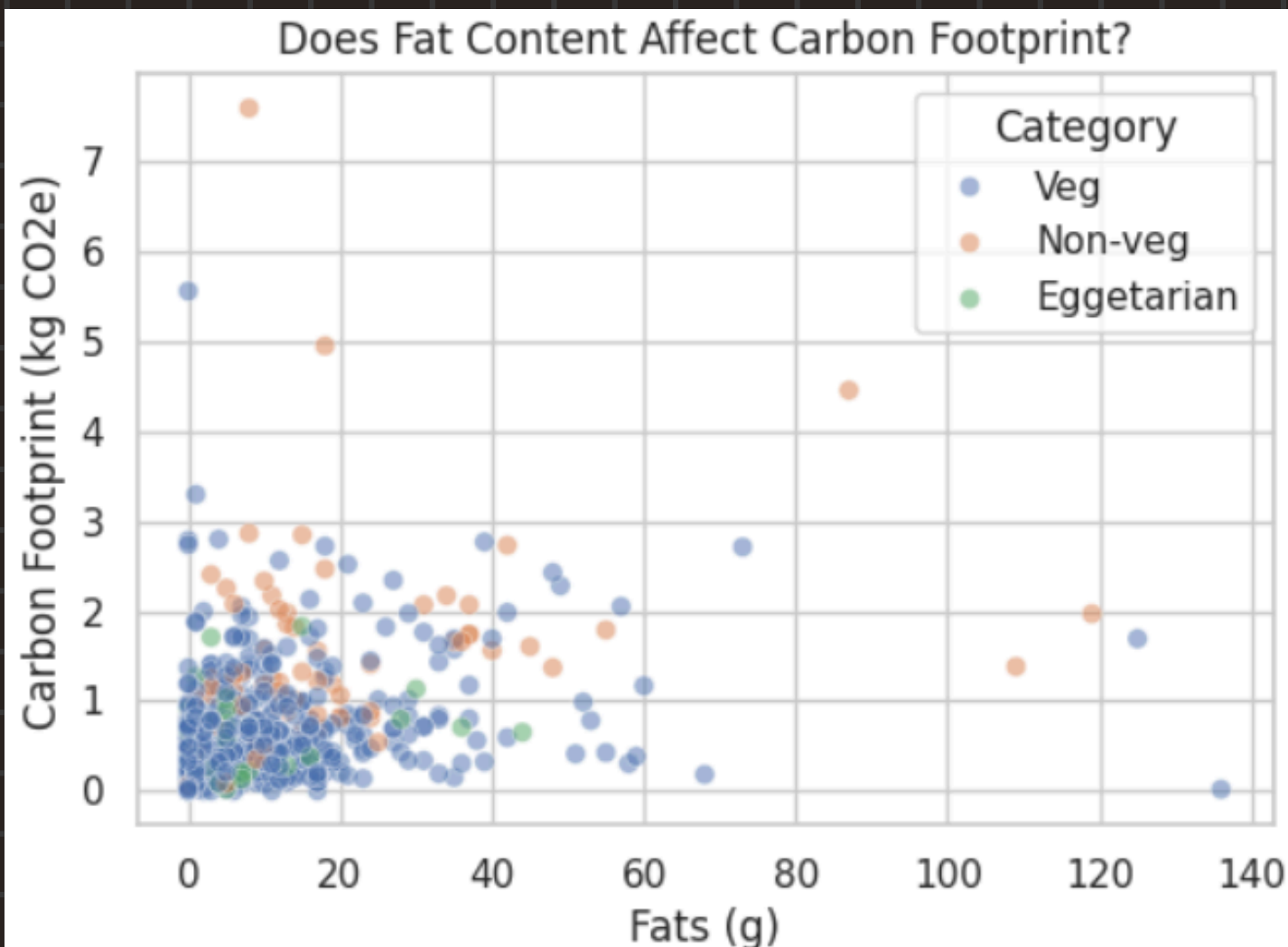
```
[59] # Correlation heatmap for nutrient columns.  
      nutrient_cols = ['Energy(kcal)', 'Proteins', 'Carbohydrates', 'Fats', 'Fiber']  
      sns.heatmap(df[nutrient_cols].corr(), annot=True, cmap='coolwarm')  
      plt.title("Correlation Between Nutrients")  
      plt.show()
```



# ✓ Step 5: Exploratory Data Analysis (EDA)

## 4. Do fatty foods have a larger environmental impact?

```
[60] # Fatty foods have a larger environmental impact
plt.figure(figsize=(6,4))
sns.scatterplot(data=df, x='Fats', y='Carbon Footprint(kg CO2e)', hue='Category', alpha=0.5)
plt.title('Does Fat Content Affect Carbon Footprint?')
plt.xlabel('Fats (g)')
plt.ylabel('Carbon Footprint (kg CO2e)')
plt.show()
```

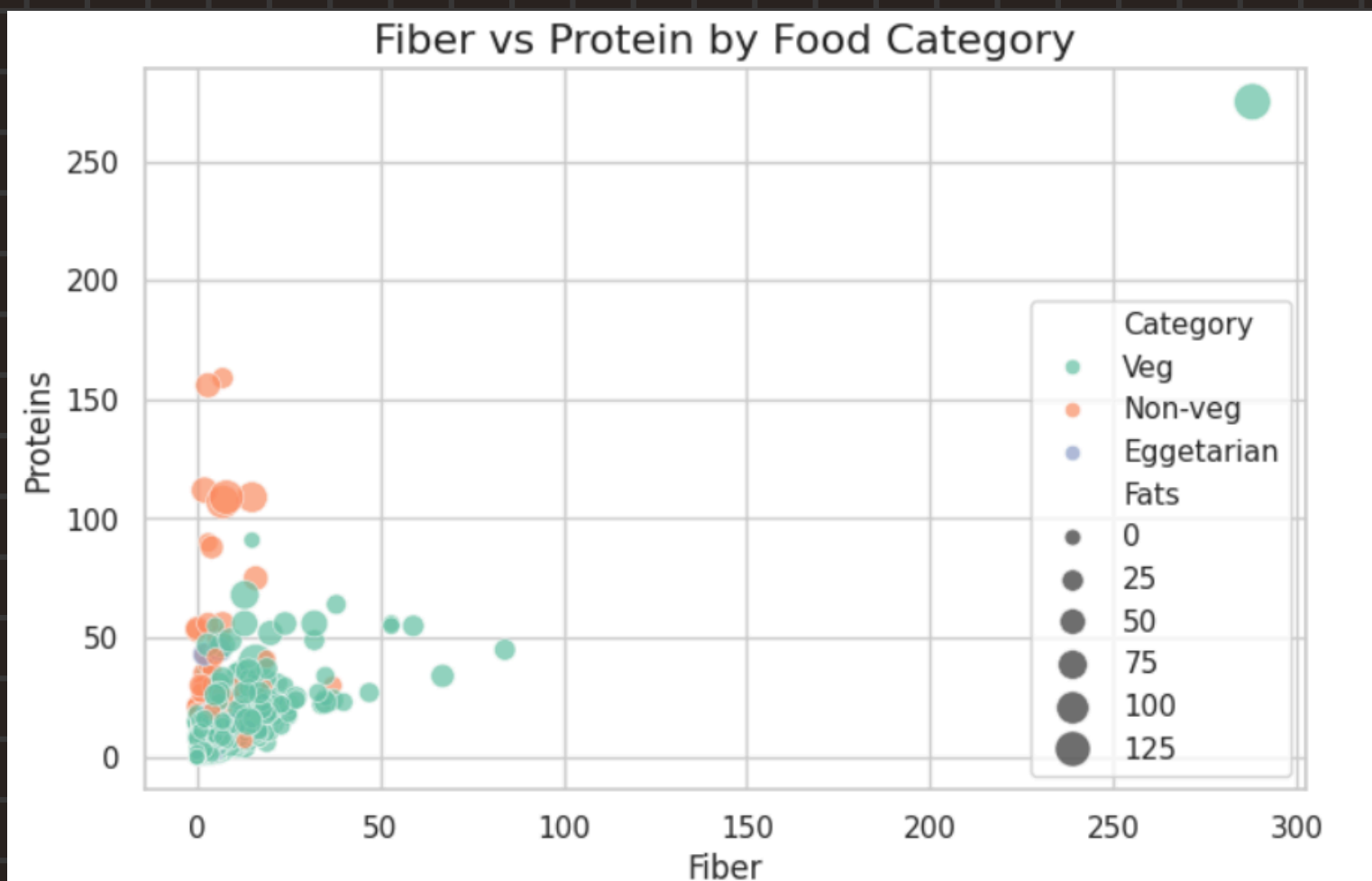




# ✓ Step 5: Exploratory Data Analysis (EDA)

## 5. What is the Fiber vs Protein by Food Category?

```
[53] # Fiber vs Protein by Food Category
plt.figure(figsize=(8,5))
sns.scatterplot(x='Fiber', y='Proteins', hue='Category', size='Fats',
                palette='Set2', data=df, sizes=(40,200), alpha=0.7)
plt.title('Fiber vs Protein by Food Category', fontsize=16)
plt.xlabel('Fiber')
plt.ylabel('Proteins')
plt.show()
```



## My Takeaway ✨

**This project that conscious food choices can make a real difference, both for our health and for the planet.**