

# Week03Homework

September 17, 2020

```
[1]: import numpy as np
```

```
[2]: # Load the cereal data
```

```
raw_data = np.loadtxt("cereal.csv", dtype="str", delimiter=",")  
print(raw_data)
```

```
[['name' 'mfr' 'type' ... 'weight' 'cups' 'rating']  
 ['100% Bran' 'N' 'C' ... '1' '0.33' '68.402973']  
 ['100% Natural Bran' 'Q' 'C' ... '1' '1' '33.983679']  
 ...  
 ['Wheat Chex' 'R' 'C' ... '1' '0.67' '49.787445']  
 ['Wheaties' 'G' 'C' ... '1' '1' '51.592193']  
 ['Wheaties Honey Gold' 'G' 'C' ... '1' '0.75' '36.187559']]
```

```
[3]: feature_names = raw_data[0,:]
```

```
[4]: data = raw_data[1:, :]
```

```
[5]: # Calculate sugar per ounce
```

```
sugar_per_serving = data[:, (feature_names == "sugars")].astype(float)  
  
ounce_per_serving = data[:, (feature_names == "weight")].astype(float)  
sugar_per_ounce = sugar_per_serving / ounce_per_serving
```

```
[6]: # 1. Sugar
```

```
# which product has the least amount of sugar per ounce?
```

```
print("Name of products:", data[np.where(sugar_per_ounce == 0), 0][0])
```

```
Name of products: ['All-Bran with Extra Fiber' 'Cream of Wheat (Quick)' 'Puffed  
Rice']
```

```
'Puffed Wheat' 'Shredded Wheat' "Shredded Wheat 'n'Bran"  
'Shredded Wheat spoon size']
```

```
[7]: # What is the average amount of sugar per ounce?
```

```
print('Average sugar per ounce:', sugar_per_ounce.mean())
```

```
Average sugar per ounce: 6.555489623158796
```

```
[8]: # 2. Calories
      # Calculate the calories per gram for each cereal product
calories_per_serving = data[:, (feature_names == "calories")].astype(float)
grams_per_serving = ounce_per_serving * 28.35 # Calculate the grams

calories_per_gram = calories_per_serving / grams_per_serving
# print(calories_per_gram)

      # Identify product with the highest value of calories per gram
print("Highest calories per gram:", calories_per_gram.max())
print("Name of this product:", data[np.argmax(calories_per_gram), 0])
```

Highest calories per gram: 5.291005291005291

Name of this product: Muesli Raisins; Dates; & Almonds

```
[9]: # Identify product with the lowest value of calories per gram
print("Lowest calories per gram:", calories_per_gram.min())
print("Name of this product:", data[np.argmin(calories_per_gram), 0])
```

Lowest calories per gram: 1.763668430335097

Name of this product: All-Bran with Extra Fiber

```
[10]: # 3 Ratings
      # Five Highest-rated cereal product using np.argsort()

      # cereal ratings
cereal_rating = data[:, -1].astype(float)
sorted_rating = np.argsort(cereal_rating) # Sorted the list by index, lowest to
→highest
five_highest_rated = sorted_rating[-5:] # Get last five index

print("Highest rated cereal: ")
print(data[five_highest_rated, 0])
```

Highest rated cereal:

```
['Shredded Wheat' '100% Bran' 'Shredded Wheat spoon size'
 'Shredded Wheat 'n'Bran' 'All-Bran with Extra Fiber']
```

```
[ ]:
```