Table of Content

2. libraries

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

2. Import Dataset

In [2]:
```
df_drinks= pd.read_csv('drinkMenu.csv')
df_drinks.head()
```

Out[2]:

	Beverage_category	Beverage	Beverage_prep	Calories	Total Fat (g)	Trans Fat (g)	Saturated Fat (g)	Sodium (mg)	Carbol
0	Coffee	Brewed Coffee	Short	3	0.1	0.0	0.0	0	
1	Coffee	Brewed Coffee	Tall	4	0.1	0.0	0.0	0	
2	Coffee	Brewed Coffee	Grande	5	0.1	0.0	0.0	0	
3	Coffee	Brewed Coffee	Venti	5	0.1	0.0	0.0	0	
4	Classic Espresso Drinks	Caffè Latte	Short Nonfat Milk	70	0.1	0.1	0.0	5	

In [3]:
```
1 df_drinks['Beverage_prep'].value_counts()
```

Out[3]:
```
Soymilk                66
2% Milk                50
Grande Nonfat Milk     26
Tall Nonfat Milk       23
Venti Nonfat Milk      22
Whole Milk             16
Short Nonfat Milk      12
Grande                  7
Tall                    7
Venti                   7
Short                   4
Solo                    1
Doppio                  1
Name: Beverage_prep, dtype: int64
```

In [4]:
```
1 df_drinks.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 242 entries, 0 to 241
Data columns (total 18 columns):
Beverage_category            242 non-null object
Beverage                     242 non-null object
Beverage_prep                242 non-null object
Calories                     242 non-null int64
 Total Fat (g)               242 non-null object
Trans Fat (g)                242 non-null float64
Saturated Fat (g)            242 non-null float64
 Sodium (mg)                 242 non-null int64
 Total Carbohydrates (g)     242 non-null int64
Cholesterol (mg)             242 non-null int64
 Dietary Fibre (g)           242 non-null int64
 Sugars (g)                  242 non-null int64
 Protein (g)                 242 non-null float64
Vitamin A (% DV)             242 non-null object
Vitamin C (% DV)             242 non-null object
 Calcium (% DV)              242 non-null object
```

3. Data preparation

3.1 check duplicates

In [5]:
```
1 df_drinks.duplicated().sum()
```

Out[5]:
```
0
```

3.2 Fill null values

In [6]:
```
1 df_drinks.isnull().sum()
```

Out[6]:
```
Beverage_category            0
Beverage                     0
Beverage_prep                0
Calories                     0
 Total Fat (g)               0
Trans Fat (g)                0
Saturated Fat (g)            0
 Sodium (mg)                 0
 Total Carbohydrates (g)     0
Cholesterol (mg)             0
 Dietary Fibre (g)           0
 Sugars (g)                  0
 Protein (g)                 0
Vitamin A (% DV)             0
Vitamin C (% DV)             0
 Calcium (% DV)              0
Iron (% DV)                  0
Caffeine (mg)                1
dtype: int64
```

- here we find a null value at Caffeine (mg) column
- let's dig deep into the data set to find the perfect way to fill this null value

In [7]:
```
1 df_drinks[df_drinks['Caffeine (mg)'].isnull() == True ]
```

Out[7]:

	Beverage_category	Beverage	Beverage_prep	Calories	Total Fat (g)	Trans Fat (g)	Saturated Fat (g)	Sodium (mg)	Carl
158	Shaken Iced Beverages	Iced Brewed Coffee (With Milk & Classic Syrup)	2% Milk	90	1	0.5	0.0	5	

In [8]:
```
df_Iced_Brewed_Coffee=df_drinks[df_drinks['Beverage'] == 'Iced Brewed Coffee
df_Iced_Brewed_Coffee.head()
```

Out[8]:

	Beverage_category	Beverage	Beverage_prep	Calories	Total Fat (g)	Trans Fat (g)	Saturated Fat (g)	Sodium (mg)	Carl
157	Shaken Iced Beverages	Iced Brewed Coffee (With Milk & Classic Syrup)	Tall Nonfat Milk	80	0.1	0.0	0.0	0	
158	Shaken Iced Beverages	Iced Brewed Coffee (With Milk & Classic Syrup)	2% Milk	90	1	0.5	0.0	5	
159	Shaken Iced Beverages	Iced Brewed Coffee (With Milk & Classic Syrup)	Soymilk	80	1	0.1	0.0	0	
160	Shaken Iced Beverages	Iced Brewed Coffee (With Milk & Classic Syrup)	Grande Nonfat Milk	110	0.1	0.0	0.0	0	
161	Shaken Iced Beverages	Iced Brewed Coffee (With Milk & Classic Syrup)	2% Milk	120	1.5	0.5	0.0	5	

In [9]:
```
df_Iced_Brewed_Coffee[df_Iced_Brewed_Coffee['Beverage_prep'] == '2% Milk']
```

					(g)	(g)	Fat (g)	(mg)
158	Shaken Iced Beverages	Iced Brewed Coffee (With Milk & Classic Syrup)	2% Milk	90	1	0.5	0.0	5
161	Shaken Iced Beverages	Iced Brewed Coffee (With Milk & Classic Syrup)	2% Milk	120	1.5	0.5	0.0	5
164	Shaken Iced Beverages	Iced Brewed Coffee (With Milk & Classic Syrup)	2% Milk	180	2	1.0	0.1	10

- Here we find 3 Iced Brewed Coffee (With Milk & Classic Syrup) with the same 2% milk but different calories and caffeine
- So we will use the ratio between calories and caffeine of the non null rows and get the the mean between the two results come from the two ratio
- The equation used
  - R1 <-- (calories of row index 158 * Caffeine of row index 164) /Calories of row index 164
  - R2 <-- (calories of row index 158 * Caffeine of row index 161) /Calories of row index 161
  - Mean(R1,R2)

In [10]:
```
resultfornull = round(np.mean([((90*180)/150),((90*125)/120)]))
```

In [11]:
```
df_drinks.fillna(str(resultfornull),inplace=True)
```

In [12]:
```
1 df_drinks.isnull().sum()
```

Out[12]:
```
Beverage_category            0
Beverage                     0
Beverage_prep                0
Calories                     0
 Total Fat (g)               0
Trans Fat (g)                0
Saturated Fat (g)            0
 Sodium (mg)                 0
 Total Carbohydrates (g)     0
Cholesterol (mg)             0
 Dietary Fibre (g)           0
 Sugars (g)                  0
 Protein (g)                 0
Vitamin A (% DV)             0
Vitamin C (% DV)             0
 Calcium (% DV)              0
Iron (% DV)                  0
Caffeine (mg)                0
dtype: int64
```

3.3 Drop unnecessary Columns

- As we can see there are some columns that have space in the beginning and end of the name so let's fix them

In [13]:
```
1 # edit columns name
2 columns = df_drinks.columns.str.strip()
3 columns = columns.str.rstrip()
4 df_drinks.set_axis(columns, axis=1, inplace=True)
5 df_drinks.columns
```

Out[13]:
```
Index(['Beverage_category', 'Beverage', 'Beverage_prep', 'Calories',
       'Total Fat (g)', 'Trans Fat (g)', 'Saturated Fat (g)', 'Sodium (mg)',
       'Total Carbohydrates (g)', 'Cholesterol (mg)', 'Dietary Fibre (g)',
       'Sugars (g)', 'Protein (g)', 'Vitamin A (% DV)', 'Vitamin C (% DV)',
       'Calcium (% DV)', 'Iron (% DV)', 'Caffeine (mg)'],
      dtype='object')
```

- There are some columns that have Percent of Daily value so let's change their data type from string to float

In [14]:
```
1 obj_columns = ['Vitamin A (% DV)', 'Vitamin C (% DV)','Calcium (% DV)', 'Iro
```

In [15]:
```
df_edit_column=df_drinks[obj_columns]
df_edit_column.head()
```

Out[15]:

	Vitamin A (% DV)	Vitamin C (% DV)	Calcium (% DV)	Iron (% DV)
0	0%	0%	0%	0%
1	0%	0%	0%	0%
2	0%	0%	0%	0%
3	0%	0%	2%	0%
4	10%	0%	20%	0%

In [16]:
```
for col in df_edit_column.columns:
    df_edit_column[col]=df_edit_column[col].astype(str).apply(lambda x: x.re
    df_edit_column[col]=df_edit_column[col].astype(float)
df_edit_column.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 242 entries, 0 to 241
Data columns (total 4 columns):
Vitamin A (% DV)    242 non-null float64
Vitamin C (% DV)    242 non-null float64
Calcium (% DV)      242 non-null float64
Iron (% DV)         242 non-null float64
dtypes: float64(4)
memory usage: 7.7 KB

C:\Users\Yousef Khaled\Anaconda3\lib\site-packages\ipykernel_launcher.py:2: Set
tingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: http://pandas.pydata.org/pandas-docs/stab
le/user_guide/indexing.html#returning-a-view-versus-a-copy (http://pandas.pydat
a.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-cop
y)

C:\Users\Yousef Khaled\Anaconda3\lib\site-packages\ipykernel_launcher.py:3: Set
tingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: http://pandas.pydata.org/pandas-docs/stab
le/user_guide/indexing.html#returning-a-view-versus-a-copy (http://pandas.pydat
a.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-cop
y)
  This is separate from the ipykernel package so we can avoid doing imports unt
il
```

In [17]:
```
df_drinks.drop(columns=obj_columns, inplace =True)

```

In [18]:
```
df_drinks=df_drinks.merge(df_edit_column, left_index=True, right_index=True)
df_drinks.head()
```

Out[18]:

	Beverage_category	Beverage	Beverage_prep	Calories	Total Fat (g)	Trans Fat (g)	Saturated Fat (g)	Sodium (mg)	Carbol
0	Coffee	Brewed Coffee	Short	3	0.1	0.0	0.0	0	
1	Coffee	Brewed Coffee	Tall	4	0.1	0.0	0.0	0	
2	Coffee	Brewed Coffee	Grande	5	0.1	0.0	0.0	0	
3	Coffee	Brewed Coffee	Venti	5	0.1	0.0	0.0	0	
4	Classic Espresso Drinks	Caffè Latte	Short Nonfat Milk	70	0.1	0.1	0.0	5	

In [19]:
```
df_drinks.info()
```

```
Beverage                  242 non-null object
Beverage_prep             242 non-null object
Calories                  242 non-null int64
Total Fat (g)             242 non-null object
Trans Fat (g)             242 non-null float64
Saturated Fat (g)         242 non-null float64
Sodium (mg)               242 non-null int64
Total Carbohydrates (g)   242 non-null int64
Cholesterol (mg)          242 non-null int64
Dietary Fibre (g)         242 non-null int64
Sugars (g)                242 non-null int64
Protein (g)               242 non-null float64
Caffeine (mg)             242 non-null object
Vitamin A (% DV)          242 non-null float64
Vitamin C (% DV)          242 non-null float64
Calcium (% DV)            242 non-null float64
Iron (% DV)               242 non-null float64
dtypes: float64(7), int64(6), object(5)
memory usage: 34.2+ KB
```

- We found that Total fats and Caffeine datatypes are object let's convert it to float

In [20]:
```
df_drinks['Total Fat (g)'].unique()
```

Out[20]:
```
array(['0.1', '3.5', '2.5', '0.2', '6', '4.5', '0.3', '7', '5', '0.4',
       '9', '1.5', '4', '2', '8', '3', '11', '0', '1', '10', '15', '13',
       '0.5', '3 2'], dtype=object)
```

In [21]:
```
df_drinks['Total Fat (g)']=df_drinks['Total Fat (g)'].astype(str).apply(lamb
df_drinks['Total Fat (g)']=df_drinks['Total Fat (g)'].astype(float)
```

In [22]:
```
df_drinks['Total Fat (g)'].unique()
```

Out[22]:
```
array([ 0.1,  3.5,  2.5,  0.2,  6. ,  4.5,  0.3,  7. ,  5. ,  0.4,  9. ,
        1.5,  4. ,  2. ,  8. ,  3. , 11. ,  0. ,  1. , 10. , 15. , 13. ,
        0.5, 32. ])
```

In [23]:
```
df_drinks['Caffeine (mg)'].unique()

```

Out[23]:
```
array(['175', '260', '330', '410', '75', '150', '85', '95', '180', '225',
       '300', '10', '20', '25', '30', '0', 'Varies', '50', '70', '120',
       '55', '80', '110', 'varies', '165', '235', '90', '101', '125',
       '170', '15', '130', '140', '100', '145', '65', '105'], dtype=object)
```

In [24]:
```
df_drinks[df_drinks['Caffeine (mg)']=='varies']
```

137	Tazo® Tea Drinks	Full-Leaf Tea Latte	2% Milk	190	4.0	2.0	0.1	15
138	Tazo® Tea Drinks	Tazo® Full-Leaf Tea Latte	Soymilk	170	3.5	0.4	0.0	0
139	Tazo® Tea Drinks	Tazo® Full-Leaf Tea Latte	Venti Nonfat Milk	190	0.2	0.1	0.0	5
140	Tazo® Tea Drinks	Tazo® Full-Leaf Tea Latte	2% Milk	230	5.0	2.5	0.2	20
141	Tazo® Tea Drinks	Tazo® Full-Leaf Tea Latte	Soymilk	210	4.0	0.5	0.0	0

In [25]:
```
df_drinks[df_drinks['Caffeine (mg)']=='Varies']
```

Out[25]:

	Beverage_category	Beverage	Beverage_prep	Calories	Total Fat (g)	Trans Fat (g)	Saturated Fat (g)	Sodium (mg)
102	Tazo® Tea Drinks	Tazo® Tea	Short	0	0.0	0.0	0.0	0
103	Tazo® Tea Drinks	Tazo® Tea	Tall	0	0.0	0.0	0.0	0
104	Tazo® Tea Drinks	Tazo® Tea	Grande	0	0.0	0.0	0.0	0
105	Tazo® Tea Drinks	Tazo® Tea	Venti	0	0.0	0.0	0.0	0
167	Shaken Iced Beverages	Shaken Iced Tazo® Tea (With Classic Syrup)	Grande	80	0.0	0.0	0.0	0
		Shaken Iced						

- We found that there are Three Beverage_category which have value various in caffeine which are Tazo® Tea Drinks, Shaken Iced Beverages and Smoothies
- So, We will get mean of caffiene for each Beverage Category and replace various for each Beverage Category

In [26]:
```
# Find mean value of caffiene for Tazo® Tea Drinks Category
df_Tazo_Tea=df_drinks[df_drinks['Beverage_category'] == 'Tazo® Tea Drinks']
df_Tazo_Tea=df_Tazo_Tea[df_Tazo_Tea['Caffeine (mg)'] != 'varies']
df_Tazo_Tea=df_Tazo_Tea[df_Tazo_Tea['Caffeine (mg)'] != 'Varies']
df_Tazo_Tea['Caffeine (mg)']=df_Tazo_Tea['Caffeine (mg)'].astype(float)
Mean_of_Tazo_tea=round(df_Tazo_Tea['Caffeine (mg)'].mean())
```

In [27]:
```
# Find mean value of caffiene for Shaken Iced Category
df_Shaken_Iced =df_drinks[df_drinks['Beverage_category'] == 'Shaken Iced Bev
df_Shaken_Iced=df_Shaken_Iced[df_Shaken_Iced['Caffeine (mg)'] != 'Varies']
df_Shaken_Iced['Caffeine (mg)']=df_Shaken_Iced['Caffeine (mg)'].astype(float
Mean_Shaken_Iced=round(df_Shaken_Iced['Caffeine (mg)'].mean())
```

In [28]:
```
# Find mean value of caffiene for Smoothies Category
df_Smoothies=df_drinks[df_drinks['Beverage_category'] == 'Smoothies']
df_Smoothies=df_Smoothies[df_Smoothies['Caffeine (mg)'] != 'Varies']
df_Smoothies['Caffeine (mg)']=df_Smoothies['Caffeine (mg)'].astype(float)
Mean_df_Smoothies=round(df_Smoothies['Caffeine (mg)'].mean())
```

In [29]:
```
# Replace various or Various with the specific mean for each category
for i in range(len(df_drinks)):
    if df_drinks['Beverage_category'].iloc[i] == 'Smoothies' and (df_drinks[
                                                        df_drinks['Caffeine

        df_drinks['Caffeine (mg)'].iloc[i] = str(Mean_df_Smoothies)
    elif df_drinks['Beverage_category'].iloc[i] == 'Shaken Iced Beverages' a
                                                        df_drinks['Caffeine

        df_drinks['Caffeine (mg)'].iloc[i] = str(Mean_Shaken_Iced)
    elif df_drinks['Beverage_category'].iloc[i] == 'Tazo® Tea Drinks' and (d
                                                        df_drinks['Caffeine

        df_drinks['Caffeine (mg)'].iloc[i] = str(Mean_of_Tazo_tea)
```

```
C:\Users\Yousef Khaled\Anaconda3\lib\site-packages\pandas\core\indexing.py:205:
SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: http://pandas.pydata.org/pandas-docs/stab
le/user_guide/indexing.html#returning-a-view-versus-a-copy (http://pandas.pydat
a.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-cop
y)
  self._setitem_with_indexer(indexer, value)
```

In [30]:
```
df_drinks['Caffeine (mg)'].unique()

```

Out[30]:
```
array(['175', '260', '330', '410', '75', '150', '85', '95', '180', '225',
       '300', '10', '20', '25', '30', '0', '50', '70', '120', '55', '80',
       '110', '165', '235', '90', '101', '125', '170', '137', '6', '15',
       '130', '140', '100', '145', '65', '105'], dtype=object)
```

In [31]:
```
df_drinks['Caffeine (mg)']=df_drinks['Caffeine (mg)'].astype(float)
```

In [32]:
```
1 df_drinks.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 242 entries, 0 to 241
Data columns (total 18 columns):
Beverage_category          242 non-null object
Beverage                   242 non-null object
Beverage_prep              242 non-null object
Calories                   242 non-null int64
Total Fat (g)              242 non-null float64
Trans Fat (g)              242 non-null float64
Saturated Fat (g)          242 non-null float64
Sodium (mg)                242 non-null int64
Total Carbohydrates (g)    242 non-null int64
Cholesterol (mg)           242 non-null int64
Dietary Fibre (g)          242 non-null int64
Sugars (g)                 242 non-null int64
Protein (g)                242 non-null float64
Caffeine (mg)              242 non-null float64
Vitamin A (% DV)           242 non-null float64
Vitamin C (% DV)           242 non-null float64
Calcium (% DV)             242 non-null float64
Iron (% DV)                242 non-null float64
dtypes: float64(9), int64(6), object(3)
memory usage: 34.2+ KB
```

- I didn't prefer to drop any columns from the dataset, In case we want them to answer some questions

In [33]:
```
1 df_drinks.describe()
```

Out[33]:

	Calories	Total Fat (g)	Trans Fat (g)	Saturated Fat (g)	Sodium (mg)	Total Carbohydrates (g)	Cholesterol (mg)	
count	242.000000	242.000000	242.000000	242.000000	242.000000	242.000000	242.000000	24
mean	193.871901	3.023967	1.307025	0.037603	6.363636	128.884298	35.991736	
std	102.863303	3.488167	1.640259	0.071377	8.630257	82.303223	20.795186	
min	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	120.000000	0.200000	0.100000	0.000000	0.000000	70.000000	21.000000	
50%	185.000000	2.500000	0.500000	0.000000	5.000000	125.000000	34.000000	
75%	260.000000	4.500000	2.000000	0.100000	10.000000	170.000000	50.750000	
max	510.000000	32.000000	9.000000	0.300000	40.000000	340.000000	90.000000	

4. Data Visualization

Q1- Which drink has the highest calories from the

dataset?

- So let's use column Beverage and make group by this column to get mean of calories for each drink

In [34]:
```
df_calories_drinks=df_drinks.groupby(by='Beverage',as_index = False).agg({'C

df_calories_drinks = df_calories_drinks.sort_values(by='Calories', ascending
```

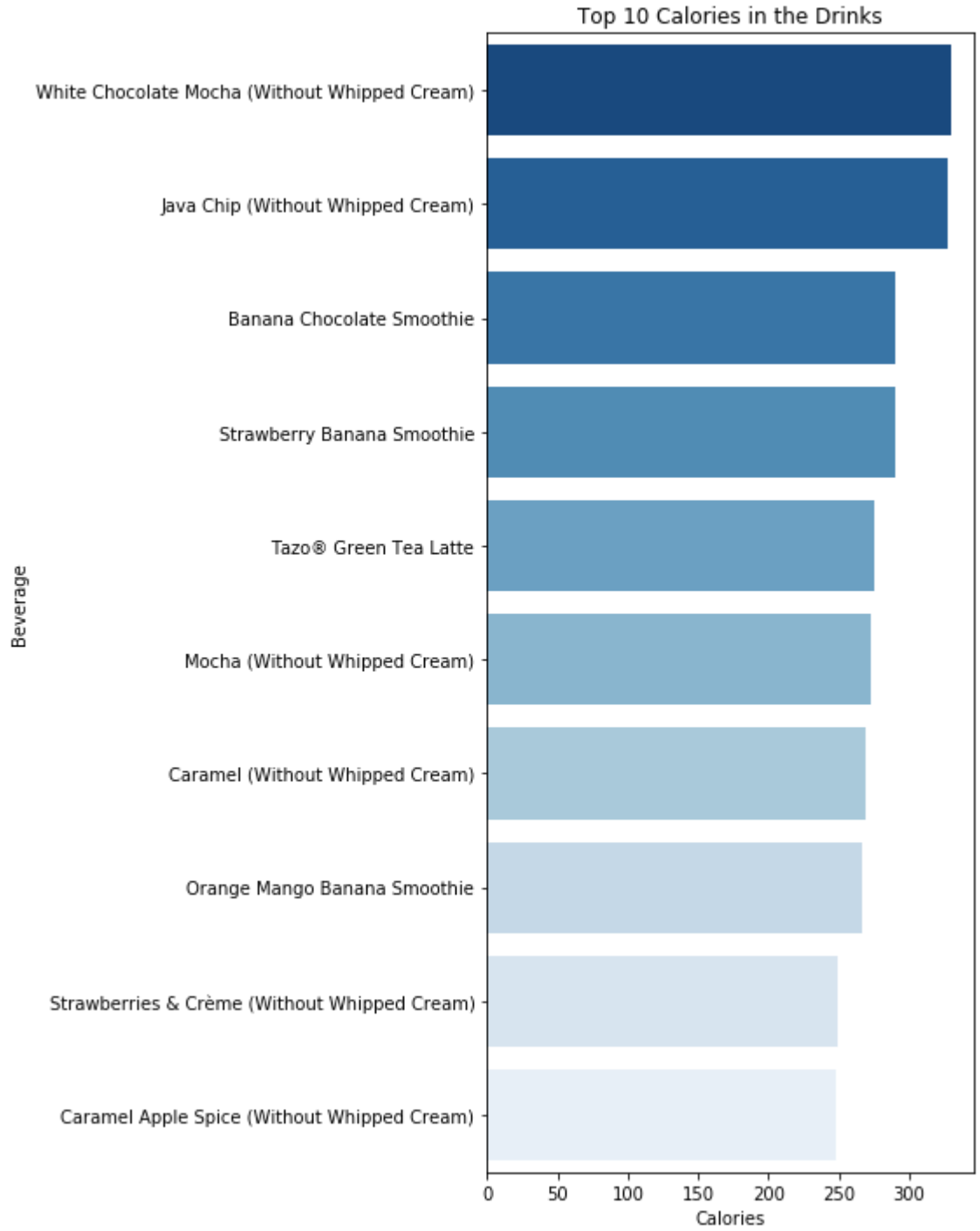
In [35]:
```
df_calories_drinks.head(10)
```

Out[35]:

	Beverage	Calories	Beverage_prep
32	White Chocolate Mocha (Without Whipped Cream)	330.000000	12
16	Java Chip (Without Whipped Cream)	327.777778	9
0	Banana Chocolate Smoothie	290.000000	3
24	Strawberry Banana Smoothie	290.000000	3
28	Tazo® Green Tea Latte	275.000000	12
18	Mocha (Without Whipped Cream)	272.222222	9
7	Caramel (Without Whipped Cream)	268.888889	9
19	Orange Mango Banana Smoothie	266.666667	3
23	Strawberries & Crème (Without Whipped Cream)	248.888889	9
8	Caramel Apple Spice (Without Whipped Cream)	247.500000	4

In [36]:

```
plt.figure(figsize=(5,12))
sns.barplot( y='Beverage',x='Calories', data=df_calories_drinks.sort_values(
        palette='Blues_r')
plt.title('Top 10 Calories in the Drinks')
plt.show();
```



- **White Chocolate Mocha (Without Whipped Cream)** has highest calories

In [37]:
```
df_drinks['Beverage_with_preparation'] = df_drinks['Beverage']+df_drinks['Be

```

- Here we want to take in considration also the preparation of the drinks as it can increase amount of calories

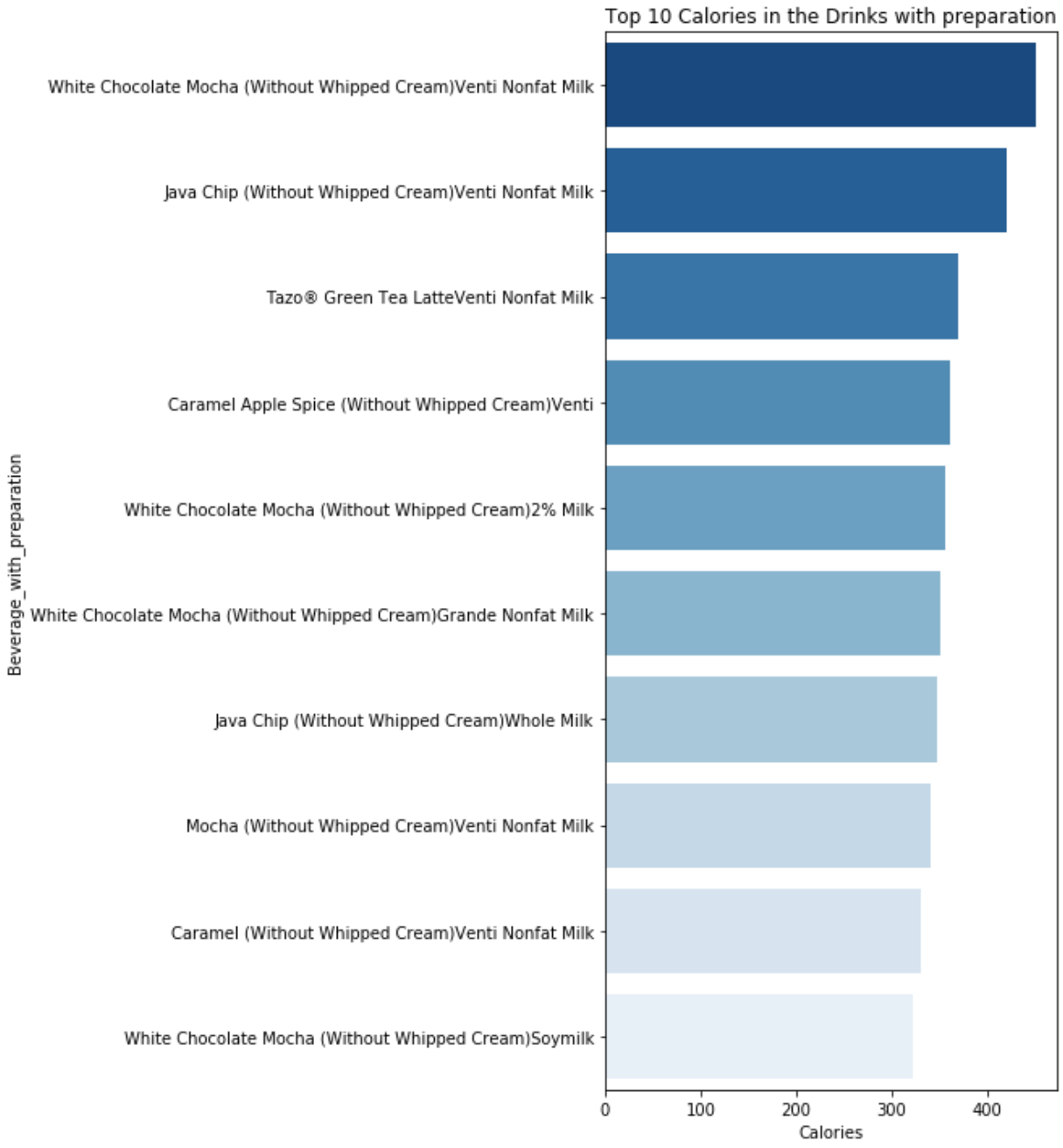
In [38]:
```
df_calories_drinkswithprep=df_drinks.groupby(by='Beverage_with_preparation',

df_calories_drinkswithprep = df_calories_drinkswithprep.sort_values(by='Calo
df_calories_drinkswithprep.head()
```

Out[38]:

	Beverage_with_preparation	Calories	Beverage_prep
148	White Chocolate Mocha (Without Whipped Cream)V...	450.0	1
71	Java Chip (Without Whipped Cream)Venti Nonfat ...	420.0	1
128	Tazo® Green Tea LatteVenti Nonfat Milk	370.0	1
37	Caramel Apple Spice (Without Whipped Cream)Venti	360.0	1
143	White Chocolate Mocha (Without Whipped Cream)2...	355.0	4

In [39]:

```
plt.figure(figsize=(5,12))
sns.barplot( y='Beverage_with_preparation',x='Calories', data=df_calories_dr
        palette='Blues_r')
plt.title('Top 10 Calories in the Drinks with preparation')
plt.show();
```



White Chocolate Mocha (Without Whipped Cream) Venti Nonfat Milk has highest calories

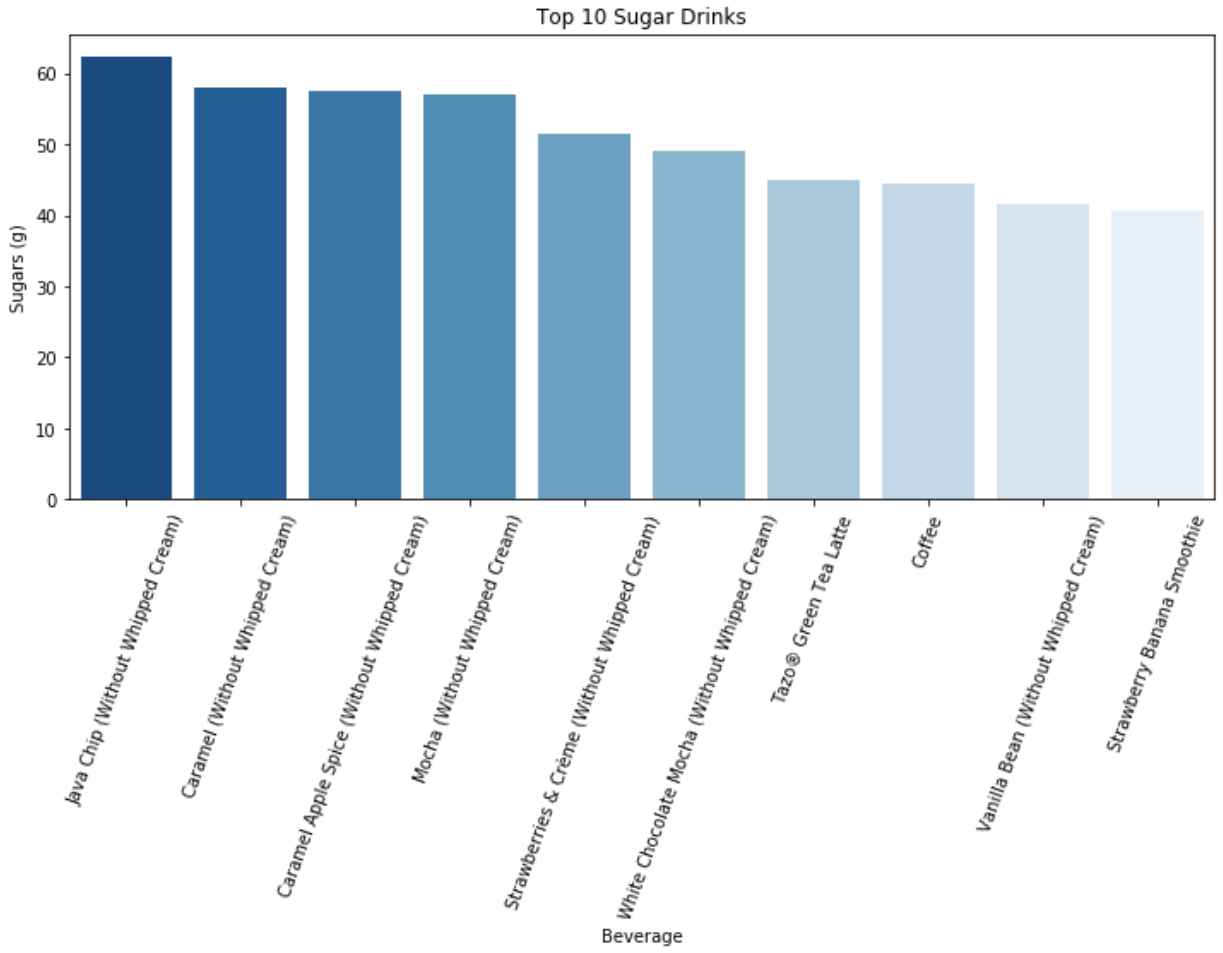
Q2. Highest Sugar Drink ?

In [40]:
```
df_sugar_drinks=df_drinks.groupby(by='Beverage',as_index = False).agg({'Suga

df_sugar_drinks = df_sugar_drinks.sort_values(by='Sugars (g)', ascending=Fal
df_sugar_drinks.head()
```

Out[40]:

	Beverage	Sugars (g)	Beverage_prep
16	Java Chip (Without Whipped Cream)	62.444444	9
7	Caramel (Without Whipped Cream)	58.000000	9
8	Caramel Apple Spice (Without Whipped Cream)	57.500000	4
18	Mocha (Without Whipped Cream)	57.111111	9
23	Strawberries & Crème (Without Whipped Cream)	51.555556	9

In [41]:
```
plt.figure(figsize=(12,5))
sns.barplot( x='Beverage',y='Sugars (g)', data=df_sugar_drinks.sort_values(b
        palette='Blues_r')
plt.xticks(rotation=70)
plt.title('Top 10 Sugar Drinks')
plt.show();
```



- **Java Chip (Without Whipped Cream)** has highest sugar amount

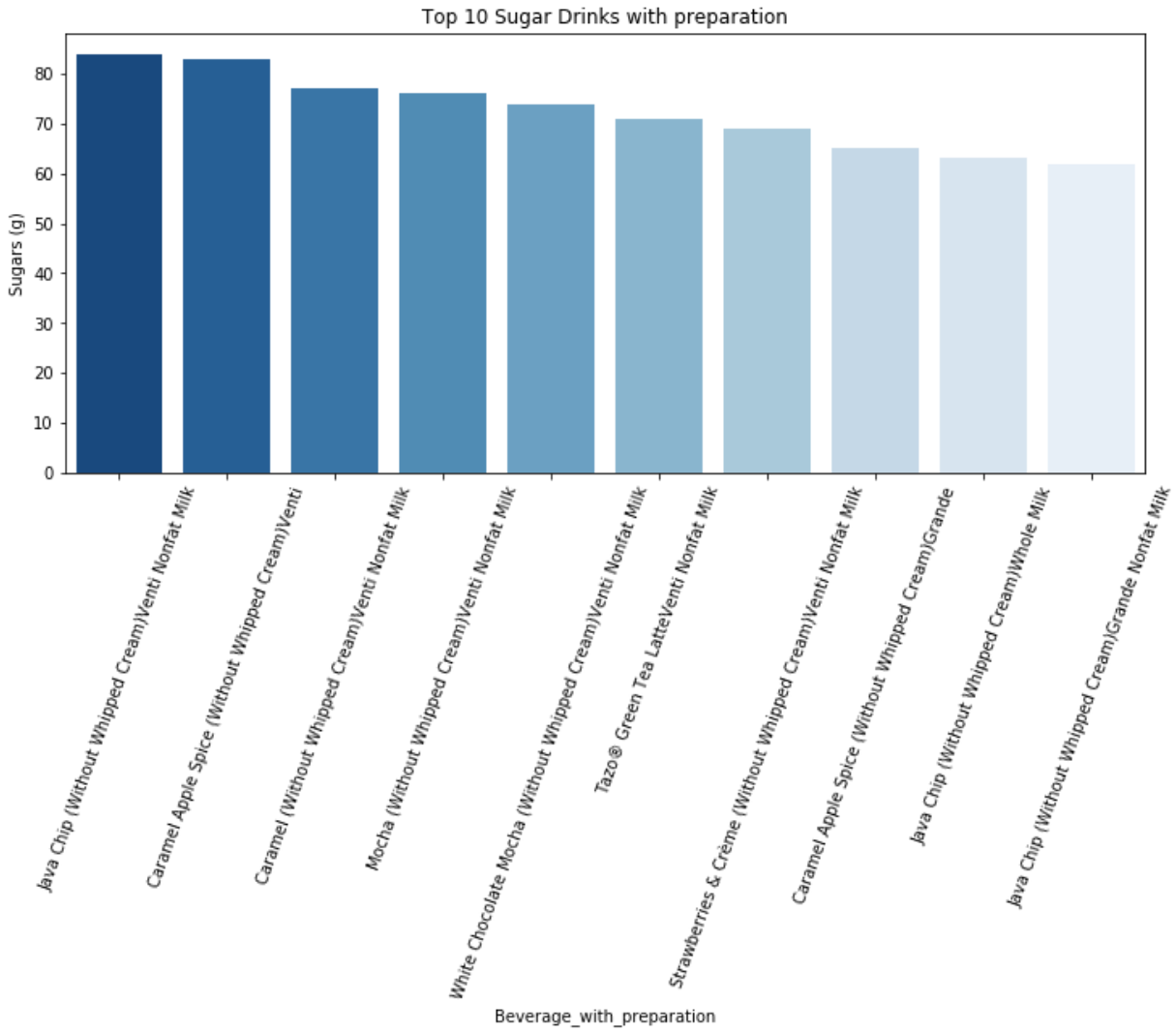
In [42]:
```
df_sugar_drinks_withprep=df_drinks.groupby(by='Beverage_with_preparation',as

df_sugar_drinks_withprep = df_sugar_drinks_withprep.sort_values(by='Sugars (
df_sugar_drinks_withprep.head()
```

Out[42]:

	Beverage_with_preparation	Sugars (g)	Beverage_prep
71	Java Chip (Without Whipped Cream)Venti Nonfat ...	84.0	1
37	Caramel Apple Spice (Without Whipped Cream)Venti	83.0	1
32	Caramel (Without Whipped Cream)Venti Nonfat Milk	77.0	1
79	Mocha (Without Whipped Cream)Venti Nonfat Milk	76.0	1
148	White Chocolate Mocha (Without Whipped Cream)V...	74.0	1

- Here we want to take in considration also the preparation of the drinks as it can increase amount of sugar

In [43]:
```
plt.figure(figsize=(12,5))
sns.barplot( x='Beverage_with_preparation',y='Sugars (g)', data=df_sugar_dri
        palette='Blues_r')
plt.xticks(rotation=70)
plt.title('Top 10 Sugar Drinks with preparation')
plt.show();
```



- **Java Chip (Without Whipped Cream) Venti Nonfat Milk** has highest sugar amount

Q3. What are the average amount of fat in each category ?

In [44]:

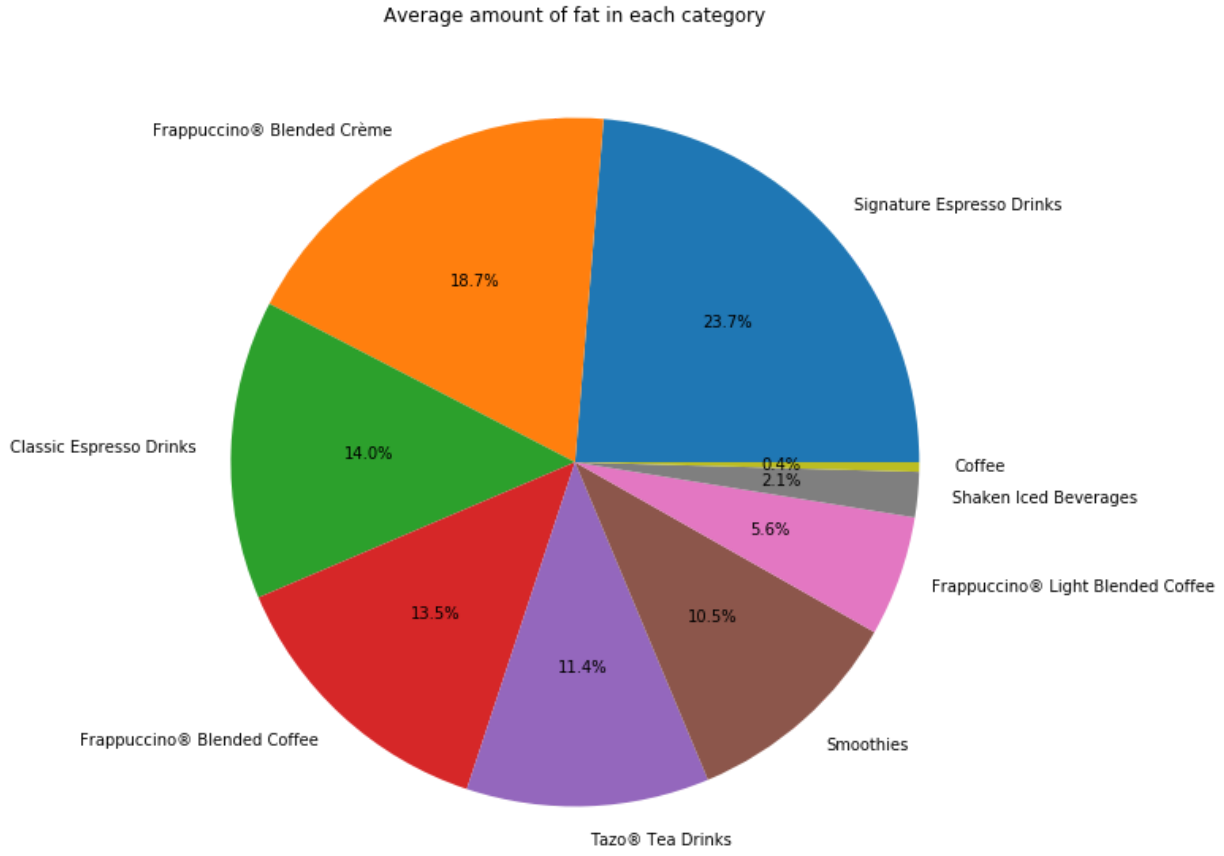
```
df_amount_of_fats=df_drinks.groupby(by='Beverage_category',as_index = False)

df_amount_of_fats = df_amount_of_fats.sort_values(by='Total Fat (g)', ascend
df_amount_of_fats
```

Out[44]:

	Beverage_category	Total Fat (g)
6	Signature Espresso Drinks	5.275000
3	Frappuccino® Blended Crème	4.169231
0	Classic Espresso Drinks	3.127586
2	Frappuccino® Blended Coffee	3.002778
8	Tazo® Tea Drinks	2.540385
7	Smoothies	2.333333
4	Frappuccino® Light Blended Coffee	1.258333
5	Shaken Iced Beverages	0.472222
1	Coffee	0.100000

In [45]:

```
1 plt.figure(figsize=(10,10))
2 plt.pie(df_amount_of_fats['Total Fat (g)'] ,labels = df_amount_of_fats['Beve
3 plt.title('Average amount of fat in each category')
4 plt.show();
```



Q4. Which features affect on calories ?

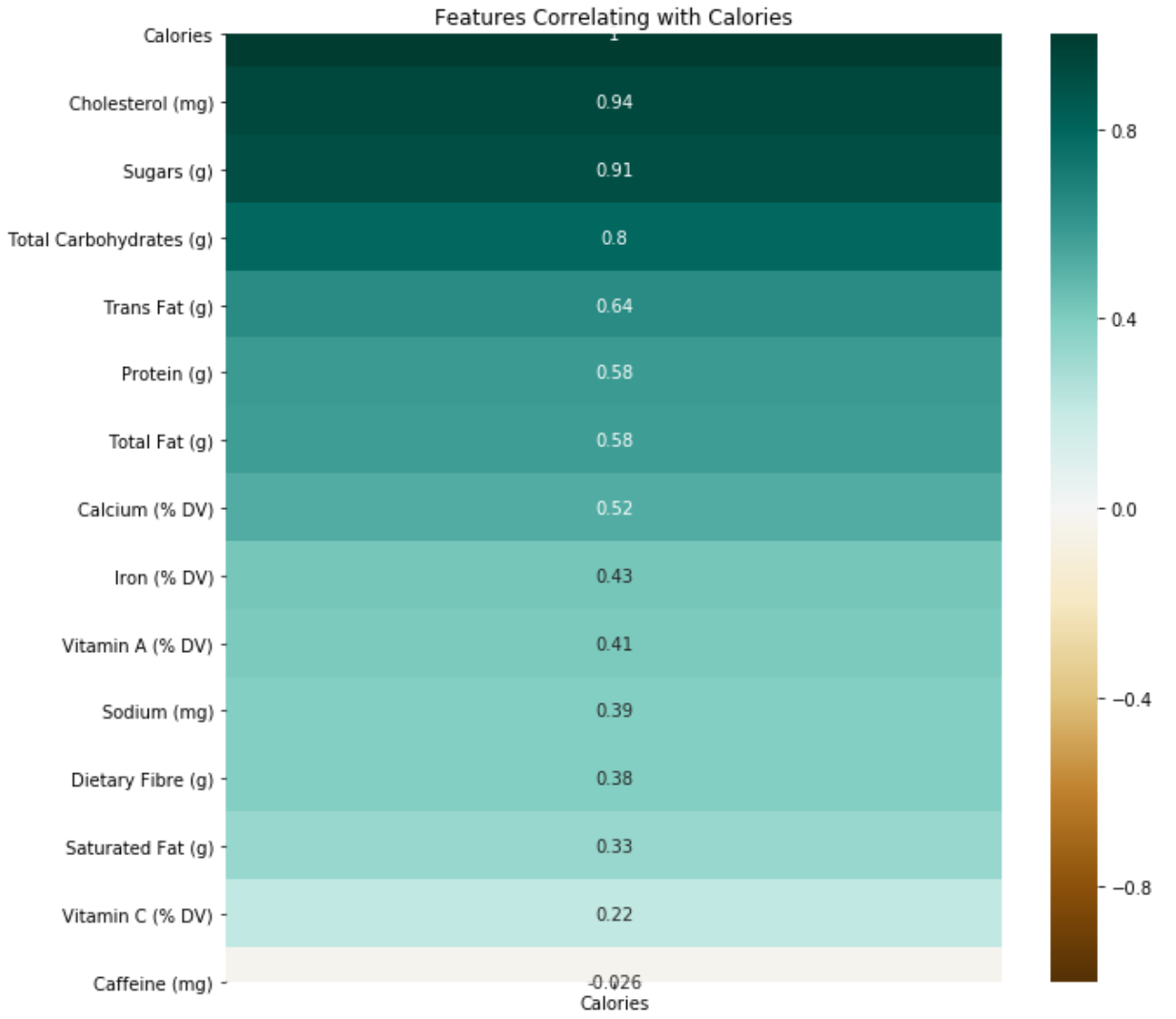
In [46]:
```
1 df_drinks.corr()[['Calories']].sort_values(by = 'Calories' , ascending = Fal
```

Out[46]:

	Calories
Calories	1.000000
Cholesterol (mg)	0.940034
Sugars (g)	0.909675
Total Carbohydrates (g)	0.795037
Trans Fat (g)	0.642818
Protein (g)	0.578453
Total Fat (g)	0.576144
Calcium (% DV)	0.518720
Iron (% DV)	0.427153
Vitamin A (% DV)	0.406820
Sodium (mg)	0.387892
Dietary Fibre (g)	0.384292
Saturated Fat (g)	0.331047
Vitamin C (% DV)	0.215433
Caffeine (mg)	-0.025880

In [47]:

```
plt.figure(figsize=(10,10))
hmap = sns.heatmap(df_drinks.corr()[['Calories']].sort_values(by='Calories',
plt.title('Features Correlating with Calories');
```



- Cholesterol, Sugars and Carbohydrates has the highest correlation to calories of the drinks

5. Conclusion

- There are 242 type of drinks with 18 features as Calories, Trans Fat, Cholesterol, Beverage Preparation Type, Beverage Category and so on.
- if You are on diet you should avoid high calories drink like White Chocolate Mocha (Without Whipped Cream) ang high sugar drink as Java Chip (Without Whipped Cream)
- For your health avoid drinks with high Cholesterol, Sugars and Carbohydrates
- Signature Espresso Drinks are the highest category that have high average amount of fats