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Import Libraries

```
In [41]: ➤ import pandas as pd
from pandas import ExcelWriter
from pandas import ExcelFile
from matplotlib import pyplot as plt
import seaborn as sns
```

Read Excel File

```
In [42]: ➤ df = pd.read_excel('Italy.xlsx', sheet_name='Sheet1')
```

Print the data from excel file

```
In [43]: ➤ print(df)
```

```
7728
8          9          1 North-Apulia      1082          60          239
7745
9         10          1 North-Apulia      1037          55          213
7944
10        11          1 North-Apulia      1051          35          219
7978
11        12          1 North-Apulia      1036          59          235
7868
12        13          1 North-Apulia      1074          70          214
7728

13        14          1 North-Apulia       875          52          243
8018
14        15          1 North-Apulia       952          49          254
7795
15        16          1 North-Apulia      1155          98          201
7606
16        17          1 North-Apulia       943          94          183
7840
-          -          -          -          -          -
```

Descriptive statistics for Region

```
In [44]: ▶ print('Sum of Region =', df['Region'].sum())
print('Mean of Region =', df['Region'].mean())
print('Median of Region =', df['Region'].median())
print('Mode of Region =', df['Region'].mode())
print('Standard deviation of Region =', df['Region'].std())
```

```
Sum of Region = 972
Mean of Region = 1.6993006993006994
Median of Region = 1.0
Mode of Region = 0    1
dtype: int64
Standard deviation of Region = 0.8599675392803933
```

Descriptive statistics for Palmitic

```
In [45]: ▶ print('Sum of palmitic =', df['palmitic'].sum())
print('Mean of palmitic =', df['palmitic'].mean())
print('Median of palmitic =', df['palmitic'].median())
print('Mode of palmitic =', df['palmitic'].mode())
print('Standard deviation of palmitic =', df['palmitic'].std())
```

```
Sum of palmitic = 704556
Mean of palmitic = 1231.7412587412587
Median of palmitic = 1201.0
Mode of palmitic = 0    1090
dtype: int64
Standard deviation of palmitic = 168.59226405632822
```

Descriptive statistics for Palmitoleic

```
In [46]: ▶ print('Sum of palmitoleic =', df['palmitoleic'].sum())
print('Mean of palmitoleic =', df['palmitoleic'].mean())
print('Median of palmitoleic =', df['palmitoleic'].median())
print('Mode of palmitoleic =', df['palmitoleic'].mode())
print('Standard deviation of palmitoleic =', df['palmitoleic'].std())
```

```
Sum of palmitoleic = 72126
Mean of palmitoleic = 126.0944055944056
Median of palmitoleic = 110.0
Mode of palmitoleic = 0    90
dtype: int64
Standard deviation of palmitoleic = 52.49436467291647
```

Descriptive statistics for Steatic

```
In [47]: ▶ print('Sum of stearic =', df['stearic'].sum())
print('Mean of stearic =', df['stearic'].mean())
print('Median of stearic =', df['stearic'].median())
print('Mode of stearic =', df['stearic'].mode())
print('Standard deviation of stearic =', df['stearic'].std())
```

```
Sum of stearic = 130911
Mean of stearic = 228.8653846153846
Median of stearic = 223.0
Mode of stearic = 0      240
1      250
dtype: int64
Standard deviation of stearic = 36.74493506956942
```

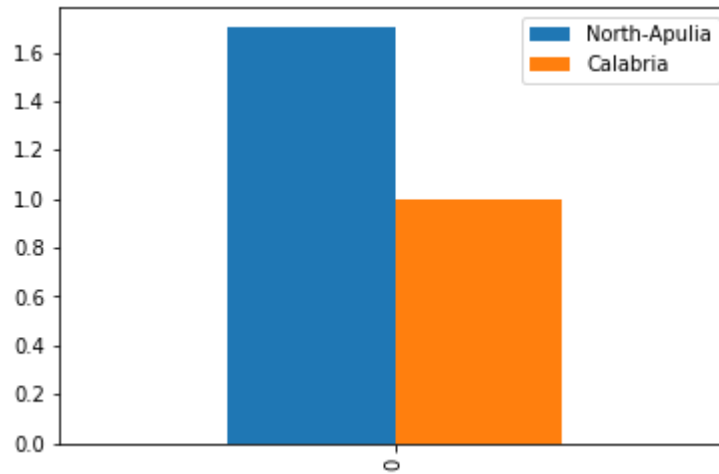
Descriptive statistics for Oleic

```
In [48]: ▶ print('Sum of oleic =', df['oleic'].sum())
print('Mean of oleic =', df['oleic'].mean())
print('Median of oleic =', df['oleic'].median())
print('Mode of oleic =', df['oleic'].mode())
print('Standard deviation of oleic =', df['oleic'].std())
```

```
Sum of oleic = 4182320
Mean of oleic = 7311.748251748252
Median of oleic = 7302.5
Mode of oleic = 0      7720
dtype: int64
Standard deviation of oleic = 405.81022228601444
```

Graph for different regions

```
In [49]: area_region1 = df['Region'].mean()
area_region2 = df['Region'].median()
data = [[area_region1, area_region2]]
df = pd.DataFrame(data, columns = ['North-Apulia', 'Calabria'])
df[['North-Apulia', 'Calabria']].plot(kind = 'bar')
plt.show()
```



Conclusion

The graph shows the comparison of two regions North-Apulia and Calabria area. The area for North-Apulia is larger than the area of Calabria.