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machineLearning / maxabs scaler.ipynb



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 History

 1 contributor

554 lines (554 sloc) | 209 KB



```
In [2]: import pandas as pd
import matplotlib.pyplot as plt
%matplotlib inline
import numpy as np
import seaborn as sns
from sklearn.preprocessing import MaxAbsScaler
```

```
In [4]: from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestRegressor
from sklearn.neighbors import KNeighborsRegressor
from sklearn.linear_model import LinearRegression
from sklearn.svm import SVR
from sklearn.pipeline import Pipeline
```

```
In [5]: from sklearn.datasets import fetch_california_housing
```

```
In [6]: X, y = fetch_california_housing(return_X_y=True, as_frame=True)
```

```
In [7]: X.head()
```

Out[7]:

	MedInc	HouseAge	AveRooms	AveBedrms	Population	AveOccup	Latitude	L
0	8.3252	41.0	6.984127	1.023810	322.0	2.555556	37.88	-
1	8.3014	21.0	6.238137	0.971880	2401.0	2.109842	37.86	-
2	7.2574	52.0	8.288136	1.073446	496.0	2.802260	37.85	-
3	5.6431	52.0	5.817352	1.073059	558.0	2.547945	37.85	-
4	3.8462	52.0	6.281853	1.081081	565.0	2.181467	37.85	-

```
In [8]: y.head()
```

Out[8]:

0	4.526
1	3.585
2	3.521
3	3.413
4	3.422

Name: MedHouseVal, dtype: float64

```
In [9]: X = X.iloc[:, :-2]
```

```
In [10]: X.head()
```

Out[10]:

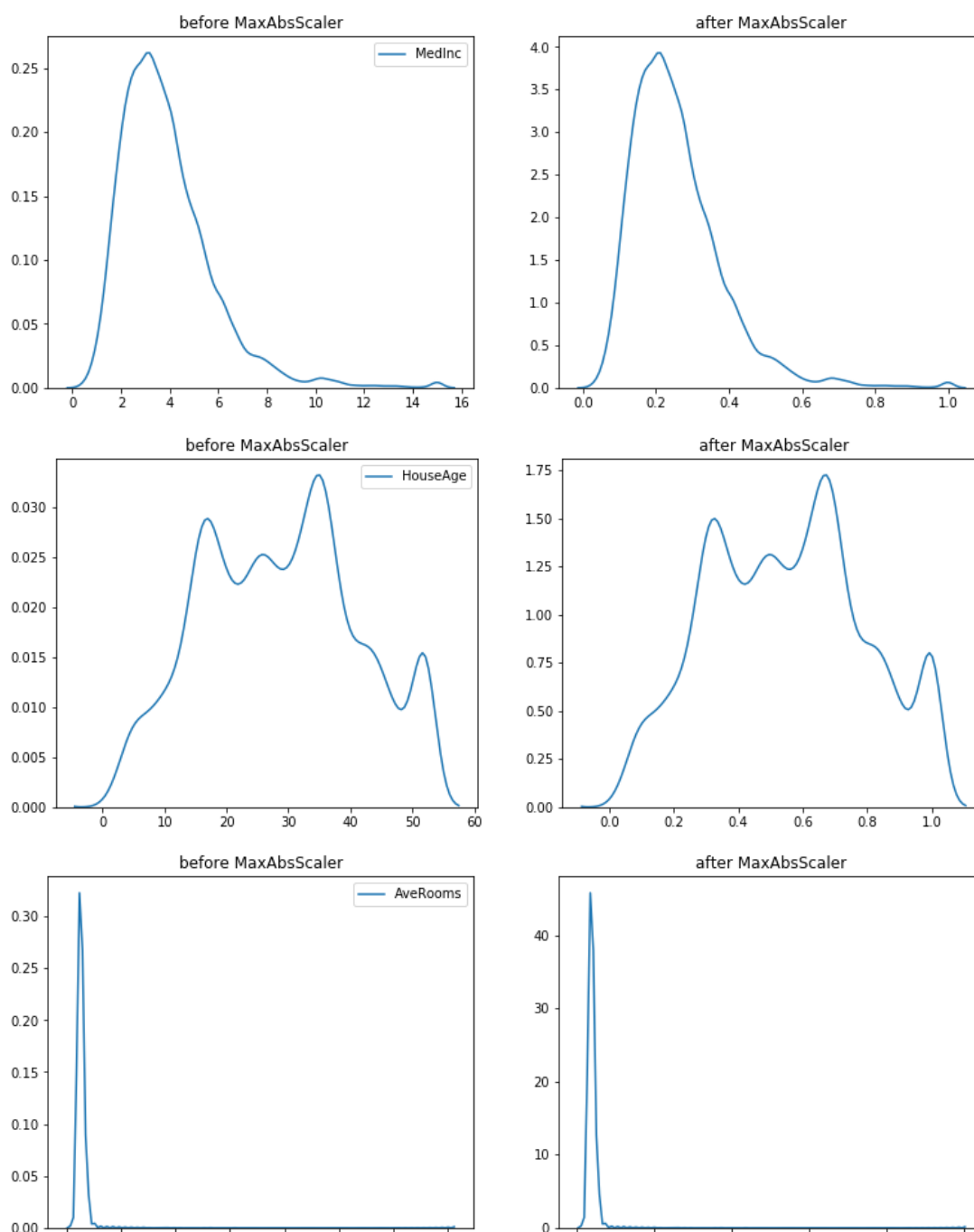
	MedInc	HouseAge	AveRooms	AveBedrms	Population	AveOccup
0	8.3252	41.0	6.984127	1.023810	322.0	2.555556
1	8.3014	21.0	6.238137	0.971880	2401.0	2.109842
2	7.2574	52.0	8.288136	1.073446	496.0	2.802260
3	5.6431	52.0	5.817352	1.073059	558.0	2.547945

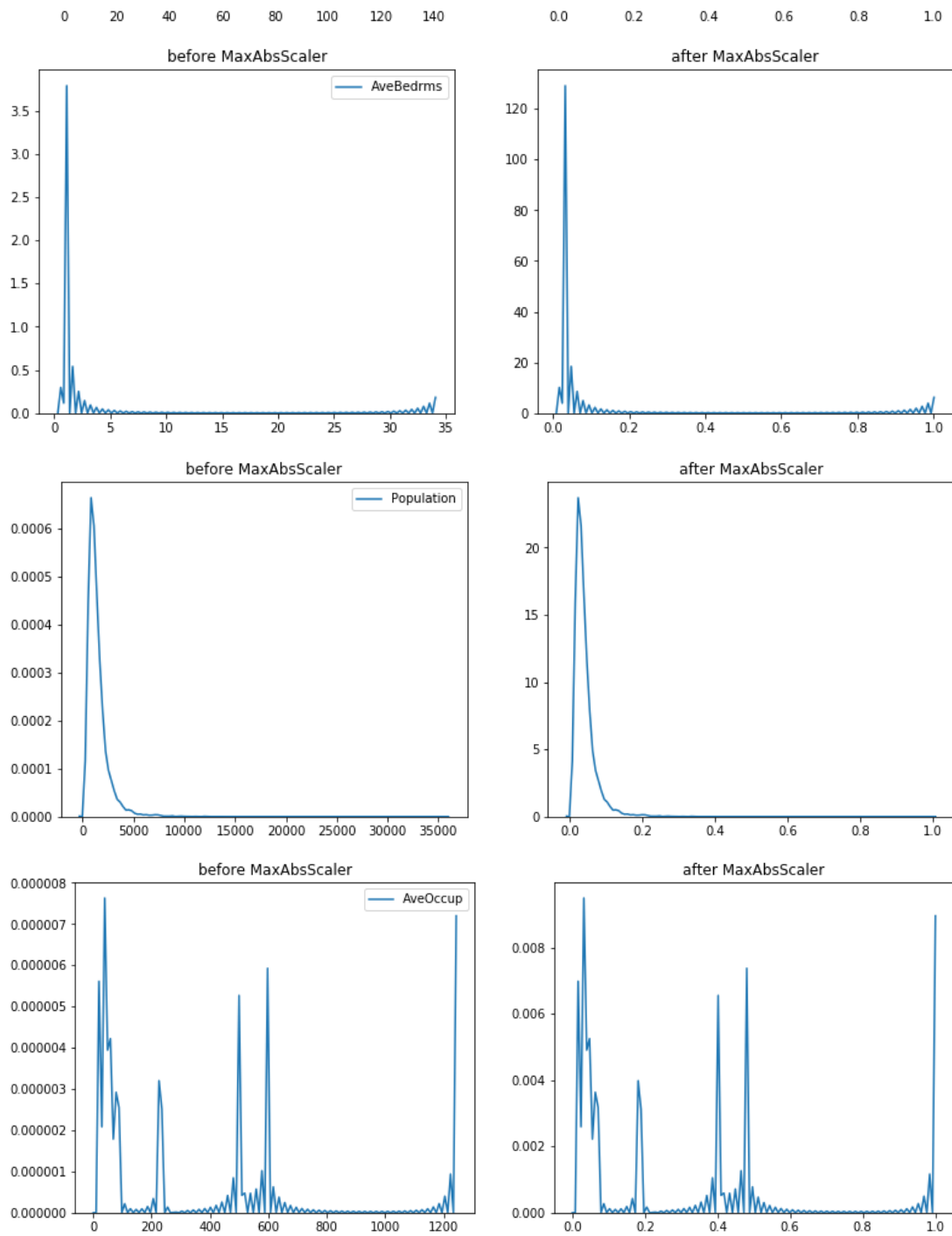
4	3.8462	52.0	6.281853	1.081081	565.0	2.181467
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```
In [11]: def plots(df, var, t):
plt.figure(figsize=(13,5))
plt.subplot(121)
sns.kdeplot(df[var])
plt.title('before ' + str(t).split('(')[0])

plt.subplot(122)
p1 = t.fit_transform(df[[var]]).flatten()
sns.kdeplot(p1)
plt.title('after ' + str(t).split('(')[0])
```

```
In [12]: for col in X.columns:
plots(X, col, MaxAbsScaler())
```





```
In [15]: X_train, X_test, y_train, y_test = train_test_split(X, y,
                                                             test_size=0.2, random_state=0)
```

```
In [13]: def model_accuracy_scaled(mod):
            model_scaled = Pipeline([
                ('scale', MaxAbsScaler()),
                ('model', mod)
            ])
            model_scaled.fit(X_train, y_train)
            return model_scaled.score(X_test, y_test)

        def model_accuracy_unscaled(mod):
            model_unscaled = Pipeline([
                ('model', mod)
```

```
    \ model, model,\n    ])\n    model_unscaled.fit(X_train, y_train)\n    return model_unscaled.score(X_test, y_test)
```

In [16]: `model_accuracy_scaled(KNeighborsRegressor())`

Out[16]: 0.5008872469810728

In [17]: `model_accuracy_unscaled(KNeighborsRegressor())`

Out[17]: 0.17191143873653625

In [18]: `model_accuracy_scaled(RandomForestRegressor(random_state=0))`

Out[18]: 0.6679779032294808

In [19]: `model_accuracy_unscaled(RandomForestRegressor(random_state=0))`

Out[19]: 0.6687567614986214

In []: