```
import pandas as pd
import numpy as np
import random
#dane - informacje o pogodzie
outlook=['Sunny','Sunny','Overcast','Rainy','Rainy','Overcast','Sunny','Sunny','Rainy','Overcast','Overcast','Rainy']
temp=['Hot','Hot','Mild','Cool','Cool','Cool','Mild','Mild','Mild','Mild','Mild','Mild']
#etykiety - czy pogoda jest odpowiednia na grę w tenisa?
play=['No','No','Yes','Yes','Yes','No','Yes','No','Yes','Yes','Yes','Yes','Yes','No']
Konwersja danych kategorycznych do danych numerycznych:
from sklearn import preprocessing
le = preprocessing.LabelEncoder()
#Sunny-2, Rainy-1, Overcast-0
outlook_encoded=le.fit_transform(outlook)
temp_encoded=le.fit_transform(temp)
print(outlook_encoded)
print(temp_encoded)
      [ 2 \ 2 \ 0 \ 1 \ 1 \ 1 \ 0 \ 2 \ 2 \ 1 \ 2 \ 0 \ 0 \ 1 ]
      [1 1 1 2 0 0 0 2 0 2 2 2 1 2]
```

Nowa sekcja

Konersja etykiet do danych numerycznych:

```
#No-0,Yes-1
label=le.fit_transform(play)
print(label)

[0 0 1 1 1 0 1 0 1 1 1 1 1 1 0]

Outlook + temp

data=list(zip(outlook_encoded,temp_encoded))
print(data)

[(2, 1), (2, 1), (0, 1), (1, 2), (1, 0), (1, 0), (0, 0), (2, 2), (2, 0), (1, 2), (2, 2), (0, 2), (0, 1), (1, 2)]

from sklearn.neighbors import KNeighborsClassifier

dataFile = pd.read_csv('tenis.csv')

dataFile.head()
```

	Day	Outlook	Temperature	Humidity	Wind	PlayTennis
0	D1	Sunny	Hot	High	Weak	No
1	D2	Sunny	Hot	High	Strong	No
2	D3	Overcast	Hot	High	Weak	Yes
3	D4	Rain	Mild	High	Weak	Yes
4	D5	Rain	Cool	Normal	Weak	Ves

Α

```
from sklearn.neighbors import KNeighborsClassifier
neigh = KNeighborsClassifier(n_neighbors=3)
neigh.fit(data,label)
point = np.array([[2,2]])
```

```
print(neigh.predict(point))
                   [0]
 C
outlook = list(dataFile["Outlook"])
print(outlook)
                   ['Sunny', 'Sunny', 'Overcast', 'Rain', 'Rain', 'Rain', 'Overcast', 'Sunny', 'Sunny', 'Rain', 'Sunny', 'Overcast', 'Overcast', 'Rain', 'Sunny', 'Sun
temperature = list(dataFile["Temperature"])
print(temperature)
                   ['Hot', 'Hot', 'Mild', 'Cool', 'Cool', 'Cool', 'Mild', 'Cool', 'Mild', 'Mild', 'Mild', 'Hot', 'Mild']
humidity = list(dataFile["Humidity"])
print(humidity)
                   ['High', 'High', 'High', 'High', 'Normal', 'Normal', 'High', 'Normal', 'Normal', 'Normal', 'High', 'Normal', 'High']
wind = list(dataFile["Wind"])
print(wind)
                   ['Weak', 'Strong', 'Weak', 'Weak', 'Strong', 'Strong', 'Weak', 'Weak', 'Strong', 'Strong', 'Weak', 'Strong']
play = list(dataFile["PlayTennis"])
print(play)
                   ['No', 'No', 'Yes', 'Yes', 'No', 'Yes', 'No', 'Yes', 'Yes', 'Yes', 'Yes', 'Yes', 'Yes', 'No']
outlook_encoded=le.fit_transform(outlook)
temp_encoded=le.fit_transform(temperature)
humidity_encoded=le.fit_transform(humidity)
wind_encoded=le.fit_transform(wind)
data=list(zip(outlook_encoded,temp_encoded,humidity_encoded,wind_encoded))
print(data)
                   [(2, 1, 0, 1), (2, 1, 0, 0), (0, 1, 0, 1), (1, 2, 0, 1), (1, 0, 1, 1), (1, 0, 1, 0), (0, 0, 1, 0), (2, 2, 0, 1), (2, 0, 1, 1), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0), (1, 0, 1, 0),
label=le.fit transform(play)
print(label)
                   [0 0 1 1 1 0 1 0 1 1 1 1 1 0]
neigh = KNeighborsClassifier(n_neighbors=3)
neigh.fit(data,label)
point = np.array([[2,0,0,0]])
print(neigh.predict(point))
                   [0]
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