lab7

August 26, 2024

```
[39]: import pandas as pd
      import numpy as np
```

0.1 Task 1

```
[40]: from sklearn.datasets import fetch_california_housing
      housing = fetch_california_housing()
      X = housing.data
      y = housing.target
```

```
[41]: from sklearn.model_selection import train_test_split
      X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.30,␣
      ↪random_state=42)
```

0.2 Task 2

```
[42]: from sklearn.linear_model import LinearRegression
      lr = LinearRegression()
      lr.fit(X_train,y_train)
      lr.score(X_test,y_test)
```

```
[42]: 0.5957702326061662
```

0.3 Task 3

```
[43]: from sklearn.datasets import load_diabetes
      X,y = load_diabetes(return_X_y=True)
```

```
[44]: X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.40,␣
      ↪random_state=42)
```

0.4 Task 4

```
[45]: lr = LinearRegression()
      lr.fit(X_train,y_train)
      lr.score(X_test,y_test)
```

```
[45]: 0.515743631390243
```

0.5 Task 6

```
[46]: lr.coef_
```

```
[46]: array([  18.08799763, -227.04344876,  592.27723487,  361.54123241,
              -655.90738774,  353.71636413,   14.41265469,  142.87369371,
               594.01542882,   31.67317969])
```

```
[47]: lr.intercept_
```

```
[47]: 148.92850837170067
```

0.6 Task 5

```
[48]: lr = LinearRegression(fit_intercept=False)
      lr.fit(X_train,y_train)
      lr.score(X_test,y_test)
```

```
[48]: -3.7861097351892816
```

0.7 Task 7

```
[49]: from sklearn.datasets import load_diabetes
      X,y = load_diabetes(return_X_y=True)
```

```
[50]: X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.40,␣
       ↪random_state=42)
```

```
[60]: from sklearn.linear_model import SGDRegressor
      sgdreg = SGDRegressor(max_iter=10000)
      sgdreg.fit(X_train,y_train)
      sgdreg.score(X_test,y_test)
```

```
[60]: 0.5093237977527326
```