

Linear Regression

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1 Regressão linear - Imóveis

Importando bibliotecas

```
[1]: import matplotlib.pyplot as plt
import numpy as np
from sklearn import datasets, linear_model
```

Carregando dados:

```
[2]: house_price = [245, 312, 279, 308, 199, 219, 405, 324, 319, 255]
size = [1400, 1600, 1700, 1875, 1100, 1550, 2350, 2450 , 1425, 1700]
```

```
[3]: print(size)
```

```
[1400, 1600, 1700, 1875, 1100, 1550, 2350, 2450, 1425, 1700]
```

```
[4]: novo_size = np.array(size).reshape((-1, 1))
print(novo_size)
```

```
[[1400]
 [1600]
 [1700]
 [1875]
 [1100]
 [1550]
 [2350]
 [2450]
 [1425]
 [1700]]
```

```
[5]: novo_size = np.array(size).reshape((-1, 5))
print(novo_size)
```

```
[[1400 1600 1700 1875 1100]
 [1550 2350 2450 1425 1700]]
```

```
[6]: novo_size = np.array(size).reshape((-1, 10))
print(novo_size)
```

```
[[1400 1600 1700 1875 1100 1550 2350 2450 1425 1700]]
```

```
[7]: novo_size = np.array(size).reshape((-1, 1))
     print(novo_size)
```

```
[[1400]
 [1600]
 [1700]
 [1875]
 [1100]
 [1550]
 [2350]
 [2450]
 [1425]
 [1700]]
```

```
[8]: regressao = linear_model.LinearRegression()
     print(regressao)
```

```
LinearRegression()
```

```
[11]: regressao.fit(novo_size, house_price)
      print(regressao)
```

```
LinearRegression()
```

```
[12]: print("Coeficiente: \n", regressao.coef_)
      print("Interceptação: \n", regressao.intercept_)
```

```
Coeficiente:
 [0.10976774]
Interceptação:
 98.24832962138083
```

```
[13]: def grafico(formula, x_range):
      x = np.array(x_range)
      y = eval(formula)
      plt.plot(x, y)
```

```
[15]: new_size = 1400
      price = (new_size * regressao.coef_) + regressao.intercept_
      print(price)
      print(regressao.predict([[new_size]]))
```

```
[251.92316258]
[251.92316258]
```

```
[18]: grafico('regressao.coef_*x + regressao.intercept_', range(1000, 2700))
      plt.scatter(size, house_price, color = 'black')
      plt.ylabel('Preços das Casas')
      plt.xlabel('Tamanho das Casas')
      plt.show()
```

