Regresión Lineal - Velásquez Luna Elí Jafet

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1 EJERCICIO

[1]:
```
import pandas as pd
import numpy as np

data_url = "http://lib.stat.cmu.edu/datasets/boston"
raw_df = pd.read_csv(data_url, sep="\s+", skiprows=22, header=None)
data = np.hstack([raw_df.values[::2, :], raw_df.values[1::2, 1:2]])

target = raw_df.values[1::2, 2]
frame = pd.DataFrame(data)
```

[2]:
```
# Muestra las variables predictoras
frame
```

[2]:

	0	1	2	3	4	5	6	7	8	9	10	\
0	0.00632	18.0	2.31	0.0	0.538	6.575	65.2	4.0900	1.0	296.0	15.3	
1	0.02731	0.0	7.07	0.0	0.469	6.421	78.9	4.9671	2.0	242.0	17.8	
2	0.02729	0.0	7.07	0.0	0.469	7.185	61.1	4.9671	2.0	242.0	17.8	
3	0.03237	0.0	2.18	0.0	0.458	6.998	45.8	6.0622	3.0	222.0	18.7	
4	0.06905	0.0	2.18	0.0	0.458	7.147	54.2	6.0622	3.0	222.0	18.7	
..	…	…	…	…	…	…	…	…	…	…	…	
501	0.06263	0.0	11.93	0.0	0.573	6.593	69.1	2.4786	1.0	273.0	21.0	
502	0.04527	0.0	11.93	0.0	0.573	6.120	76.7	2.2875	1.0	273.0	21.0	
503	0.06076	0.0	11.93	0.0	0.573	6.976	91.0	2.1675	1.0	273.0	21.0	
504	0.10959	0.0	11.93	0.0	0.573	6.794	89.3	2.3889	1.0	273.0	21.0	
505	0.04741	0.0	11.93	0.0	0.573	6.030	80.8	2.5050	1.0	273.0	21.0	

	11
0	4.98
1	9.14
2	4.03
3	2.94
4	5.33
..	…
501	9.67
502	9.08

```
503  5.64
504  6.48
505  7.88

[506 rows x 12 columns]
```

[ ]:
```
from sklearn.model_selection import train_test_split
from sklearn import linear_model

X = frame
y = target
```

[ ]:
```
# Separación del conjunto de datos
X_train, X_test, y_train, y_test = train_test_split(X,y,test_size=0.2)
```

[ ]:
```
# Definición y ajuste del modelo de regresión lineal
modelo = linear_model.LinearRegression()
modelo.fit(X_train,y_train)
```

[ ]:
```
LinearRegression()
```

[ ]:
```
# Coeficientes lineales (pesos)
modelo.coef_
```

[ ]:
```
array([-1.27583003e-01,  4.68864899e-02, -1.69443699e-02,  2.26874750e+00,
       -1.76658593e+01,  3.42548309e+00, -1.45360203e-03, -1.55066393e+00,
        2.90062190e-01, -1.18622238e-02, -9.29394006e-01, -5.73130636e-01])
```

[ ]:
```
# Intercepto del modelo lineal
modelo.intercept_
```

[ ]:
```
43.34767619305636
```