EVALUACIÓN MODELOS REGRESIÓN

Métricas de regresión

Explained variance
Max error
Mean absolute error
Mean squared error
Mean squared logarithmic error
Root Mean Square Error

Explained variance

$$explained\_variance(y, \hat{y}) = 1 - \frac{Var\{y - \hat{y}\}}{Var\{y\}}$$

```
from sklearn.metrics import explained_variance_score
y_true = [3, -0.5, 2, 7]
y_pred = [2.5, 0.0, 2, 8]
explained_variance_score(y_true, y_pred)
0.957...
```

Max error

$$\text{Max Error}(y, \hat{y}) = max(|y_i - \hat{y}_i|)$$

```
from sklearn.metrics import max_error
y_true = [3, 2, 7, 1]
y_pred = [9, 2, 7, 1]
max_error(y_true, y_pred)
6
```

Mean absolute error

$$\text{MAE}(y, \hat{y}) = \frac{1}{n_{\text{samples}}} \sum_{i=0}^{n_{\text{samples}}-1} |y_i - \hat{y}_i|.$$

```
from sklearn.metrics import mean_absolute_error
y_true = [3, -0.5, 2, 7]
y_pred = [2.5, 0.0, 2, 8]
mean_absolute_error(y_true, y_pred)
0.5
```

Mean squared error

$$\mathrm{MSE}(y, \hat{y}) = \frac{1}{n_{\text{samples}}} \sum_{i=0}^{n_{\text{samples}}-1} (y_i - \hat{y}_i)^2.$$

```
from sklearn.metrics import mean_squared_error
y_true = [3, -0.5, 2, 7]
y_pred = [2.5, 0.0, 2, 8]
mean_squared_error(y_true, y_pred)
0.375
```

Mean squared logarithmic error

$$\text{MSLE}(y, \hat{y}) = \frac{1}{n_{\text{samples}}} \sum_{i=0}^{n_{\text{samples}}-1} (\log_e(1 + y_i) - \log_e(1 + \hat{y}_i))^2.$$

```
from sklearn.metrics import mean_squared_log_error
y_true = [3, 5, 2.5, 7]
y_pred = [2.5, 5, 4, 8]
mean_squared_log_error(y_true, y_pred)
0.039...
```

Root Mean Square Error

$$RMSE = \sqrt{\sum_{i=1}^{n} \frac{(\hat{y}_i - y_i)^2}{n}}$$

```
from sklearn.metrics import mean_squared_error
from numpy import sqrt
y_true = [3, -0.5, 2, 7]
y_pred = [2.5, 0.0, 2, 8]
rmse = sqrt(mean_squared_error(y_true, y_pred))
0.375
```