OneNote for Windows 10

Home Insert Draw View Help

Shapes Ink to Shape Ink to Text

100 Days of ML

- Day 31 - Power Tra...
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Add section

- Regression Metrics
- MAE
- MSE
- RMSE
- R2 Score
- Adjusted R2 score

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Regression Metrics

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1) MAE
2) MSE
3) RMSE
4) R2 score
5) Adjusted R2 score

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MAE

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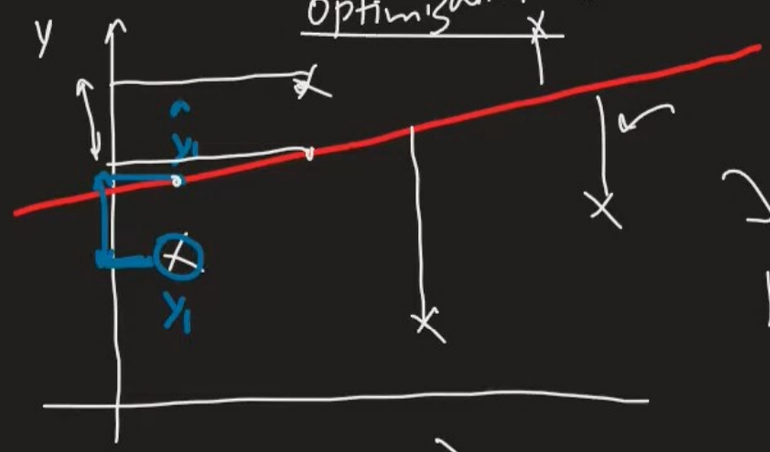

$$|y_1 - \hat{y}_1| + |y_2 - \hat{y}_2| + \cdots + |y_n - \hat{y}_n|$$

$$mae = \frac{\sum_{i=1}^{n} |y_i - \hat{y}_i|}{n}$$

Advantage

1) same unit
2) Robust outliers

Disadvantage

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MSE

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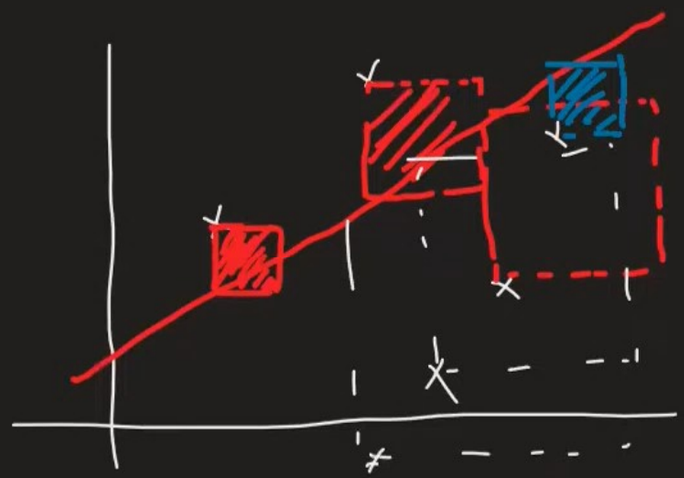
mean squared error



11.25

$$mae = \frac{\sum_{i=1}^{n} |y_i - \hat{y}_i|}{n}$$

mse → L function

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

$(y_i - \hat{y}_i)^2$

Advantage → L function

Disadvantage → Not Robust to outliers

y_hat

mse - (hat)^2

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RMSE

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$$Rmse = \sqrt{mse}$$

mse

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

rmse → Loss functions

rmse - lpa → benefit

y - lpa

disadvantage

+ Robust outliers

1.5 lpa

R2 score

y

mse more

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R2 Score

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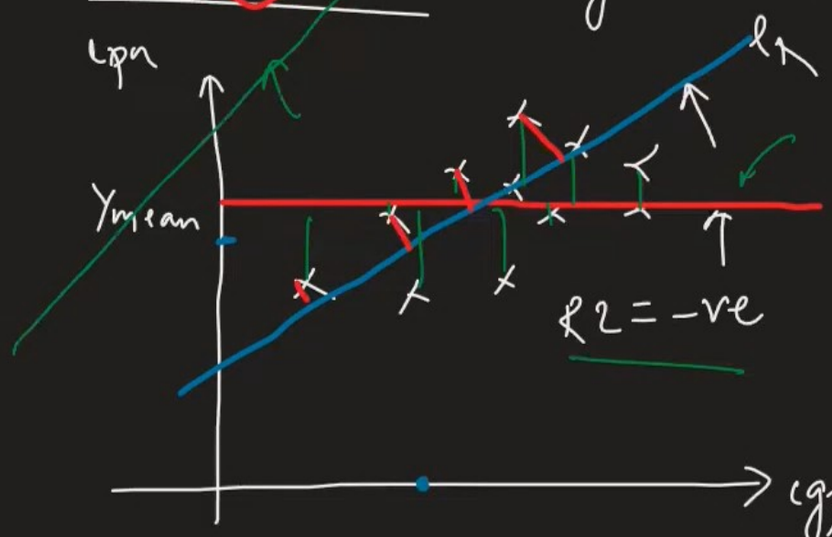
100 → mean 3.4

cgpa | package (lpa)

coeff of det
↳ goodness of fit



R2 = -ve

$$R2 = 1 - \frac{SS_R}{SS_m} \quad \geq 1 \quad = 1 \quad = 0$$

$$R2 = 1 - \frac{\left[\sum_{i=1}^{n} (y_i - \hat{y}_i)^2\right]_{Rg}}{\left[\sum_{i=1}^{n} (y_i - \hat{y}_i)^2\right]_{m}}$$

→ 0

$R_2 = 0$

Sum of squared error Rg

$R_2 = 1$

$0 \rightarrow R2 \rightarrow 1$

$SS_R > SS_m$

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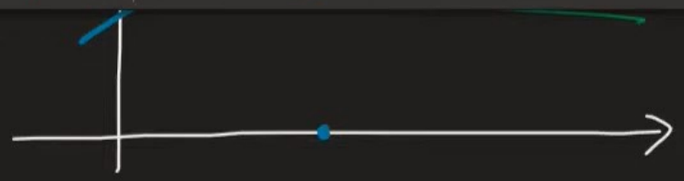

Sum of squared error

Rg

$R_2 = 1$

20%

$0 \rightarrow R2 \rightarrow 1$

SSR > SSm

86%

R2 → 0.80

cgpa | lpa ↑ 20%

cgpa | in | lpa

lpa

cgpa explain 80% of variance in lpa

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Adjusted R2 score

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