R^2 Score

R^2 Score also known as **coefficient of determination** ranges from **0 to 1**.

- Shows how well our chosen variable predict the target variable

$$R^2 \text{ Score} = 1 - \frac{SSres}{SStot}$$

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"How much the predicted values deviate from the actual values"

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$$R^2 \text{ Score} = \frac{\text{1 - SSres}}{\text{SStot}}$$

"Measures the total variance in the dependent variable"

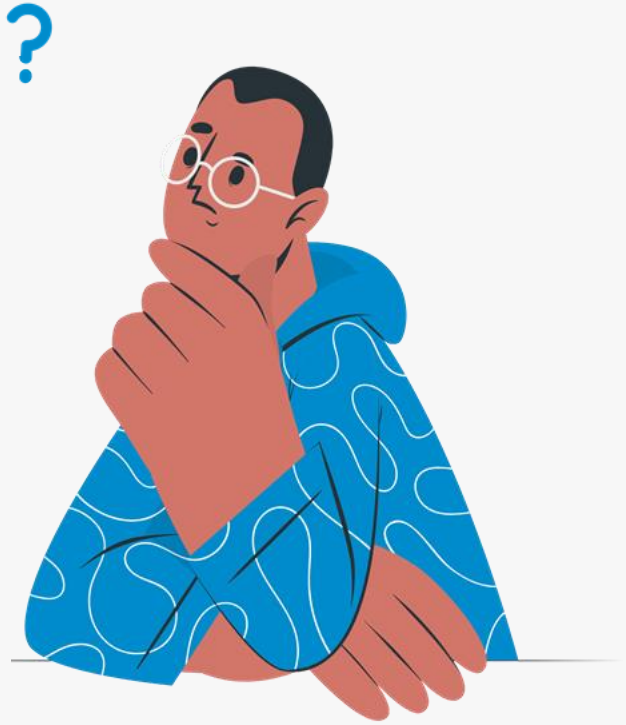
How is R^2 Score interpreted?

R^2 Score

R2 Score of the model = **72%**

Model **explains 72% variability** in the dependent variable

Model fails to **explain 28% variability** in the dependent variable



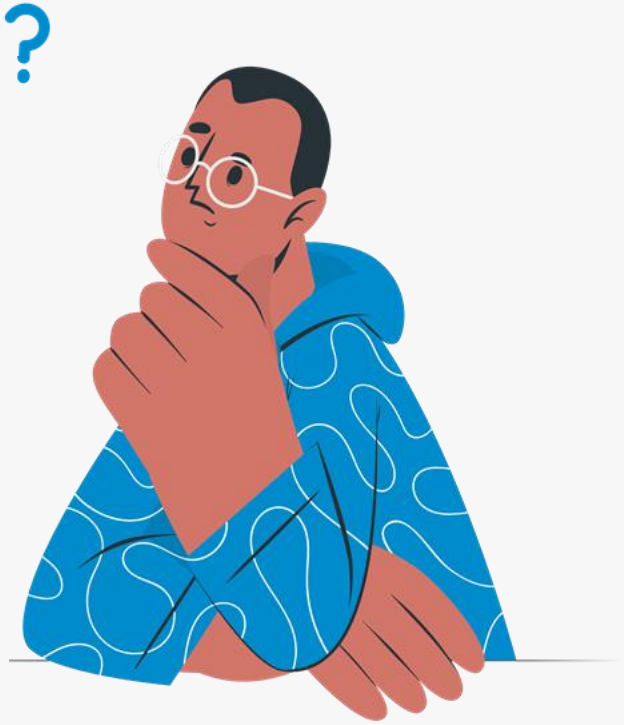
Note: Closer the R^2 Score is to 1, better the model explains the variability

R^2 Score

OVERFIT MODEL

R^2 Score

On addition of **irrelevant features** to the data



Adjusted R^2 Score

R^2 Score

A modified version of R^2 Score that accounts for overfitting by penalizing excessive features in a model.

$$\text{Adjusted } R^2 \text{ Score} = 1 - \left[\frac{(1 - R^2) \times (n-1)}{(n - k - 1)} \right]$$

R^2: The R^2 of the model
n: The number of observations
k: The number of predictor variables