Bias and Variance.

Bias → Error in the training data

Variance → Error in the Test data.

Classification Task

Under-fitting
(too simple to explain the variance)

Appropirate-fitting
Generalized

Over-fitting
(forcefitting--too good to be true)
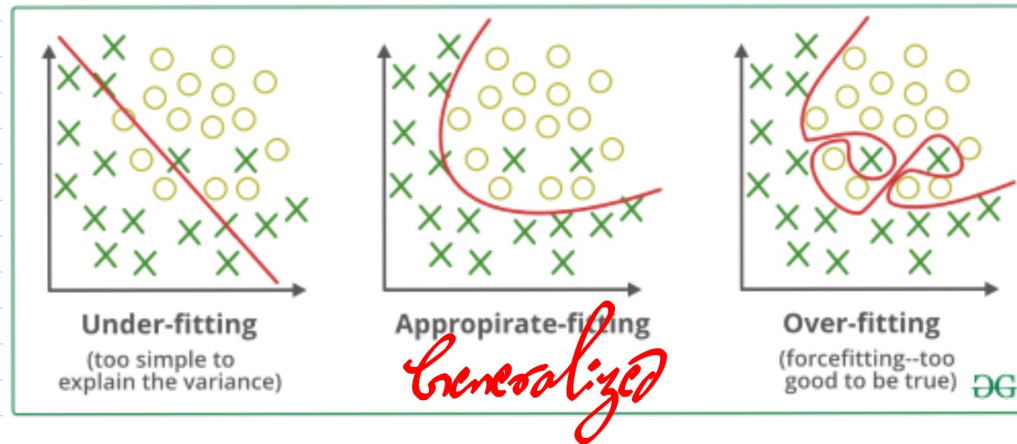
O → Negative
+ → Positive

Underfitting → Model performs poorly on the training data as well as Test data. (High Bias & High Variance)

Overfitting → When model only performs well on training data but poorly performs on test data. (Low Bias & High Variance).

e.g.-

Age	Weight	Gender	Diabetes
22.6	70.1	M	0
21.6	70.6	M	1
Test data → 21.6	70.6	M	? / 1

e.g →

Train → 100%
Test → 65% → Overfitting

Train → 45%
Test → 43% → Underfitting

Train → 10%
Test → 9% → Underfitting

Generalized → Model which performs well on Training data
as well as Test data.

Train → 78%
Test → 73% — Generalized model.
(Low Bias & Low Variance)