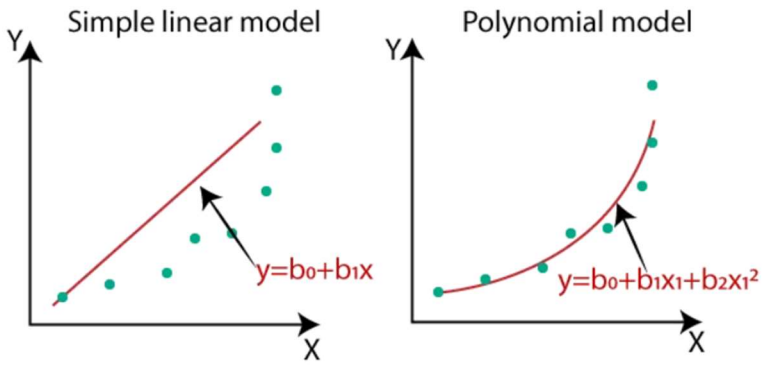
Polynomial Regression

It is regression algorithm that models the relationship b/w a dependent Y & independent X as nth degree polynomial. It is used when the data shows a non-linear relationship. Instead of fitting a straight line (as in linear regression), polynomial regression fits a curve to the data points.

$$y = b_0 + b_1 x_1 + b_2 x_1^2 + b_3 x_1^3 + \cdots + b_n x_1^n$$



As we increase the degree in the model, it tends to increase the performance of the model. However, increasing the degrees of the model also increases the risk of over-fitting and under-fitting the data.

Overfitting happens when the model performs well on the training set but not so well on unseen (test) data.

Underfitting happens when it neither performs well on the train set nor on the test set.