Data Science with Python: Polynomial regression #4751

NAME: DEEPTHI M

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BATCH-5

Polynomial Regression

•Polynomial Regression is a supervised machine learning algorithm.

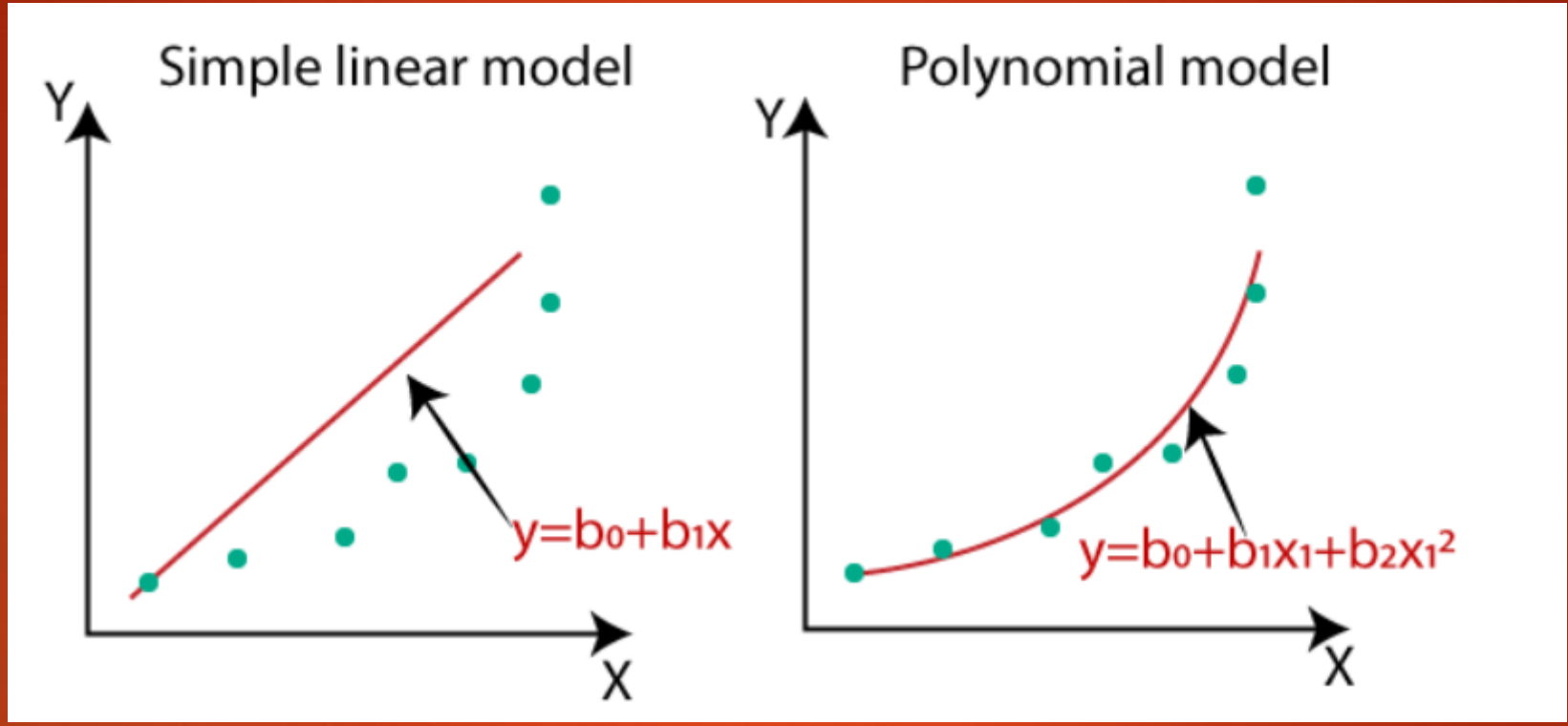
•It is the relationship between a dependent variable and independent variables as nth degree polynomial.

Equation:

$y= b_0+b_1x_1+ b_2x_1^2+ b_2x_1^3+..... b_nx_1^n$

Why do we use Polynomial regression?

- Polynomial regression is a special type of multiple linear regression.
- Multiple linear regression is converted to polynomial regression by adding the polynomial terms to the linear equation.
- It is a linear model with some modification in order to increase the accuracy.
- When data points are arranged in a non-linear fashion, we need the Polynomial Regression model.


Simple linear model
Y
X
y=b0+b1x
Polynomial model
Y
X
y=b0+b1x1+b2x1²

Advantages:

- Model accuracy is increases.
- For non-linear data points we can draw the best fit line.

Disadvantages:

- Model complexity increases.
- Training time increases.
- In some cases, it might lead to overfitting for the data values.