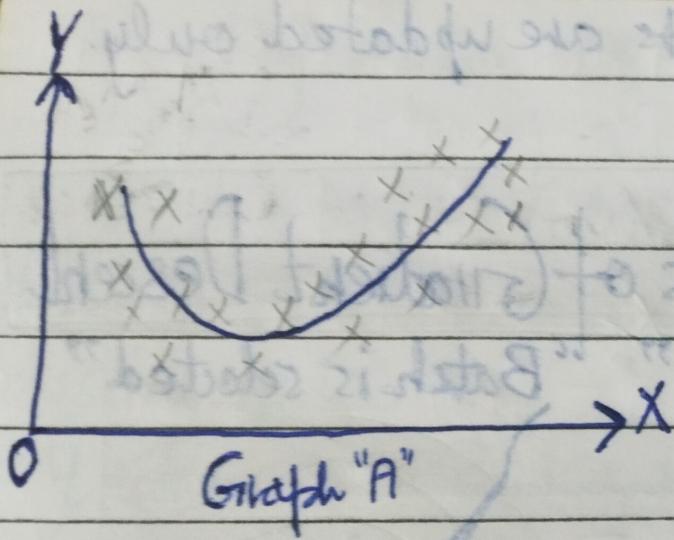


Polynomial Regression



Q What is the use of Polynomial Linear Regression when we have our Linear Regression?

Ans As we can see this Graph "A" is non-linear in nature. To have a best fit slope for this type of data requires Polynomial Regression.

Let's say the Data is :-

X_1	X_2	Y

Assuming that the Degree = 3

So, the formula

will be formed as \Rightarrow

$$Y = \beta_0 + \beta_1 X_1^1 + \beta_2 X_1^2 + \beta_3 X_1^3$$
$$\beta_0 + \beta_1 X_2^1 + \beta_2 X_2^2 + \beta_3 X_2^3$$

Intercept



{ It means for every Input Feature we will calculate the Degree. }
Degree 3 = Degree 0, Degree 1, Degree 2, Degree 3

Spiral

Date.....

Q How to determine, that which value is best for the Degree [Hyperparameter]?

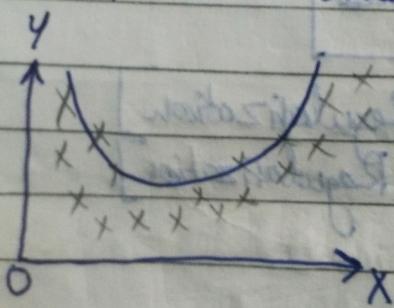
Ans

Degree Value [HyperParameter]

If Value is too small



The Model will Underfitted.

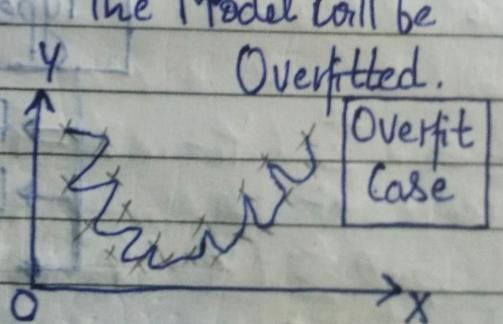


Underfit Case

If the Value is too high



The Model will be Overfitted.



Overfit Case