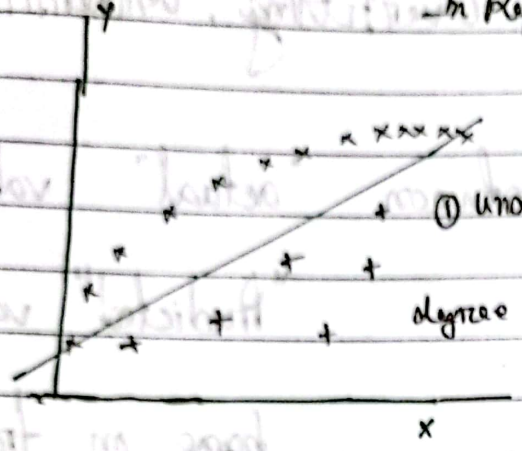
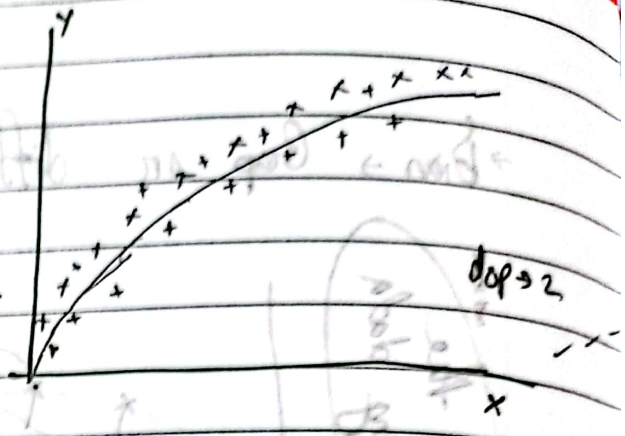
(x) training data
(+) test data.

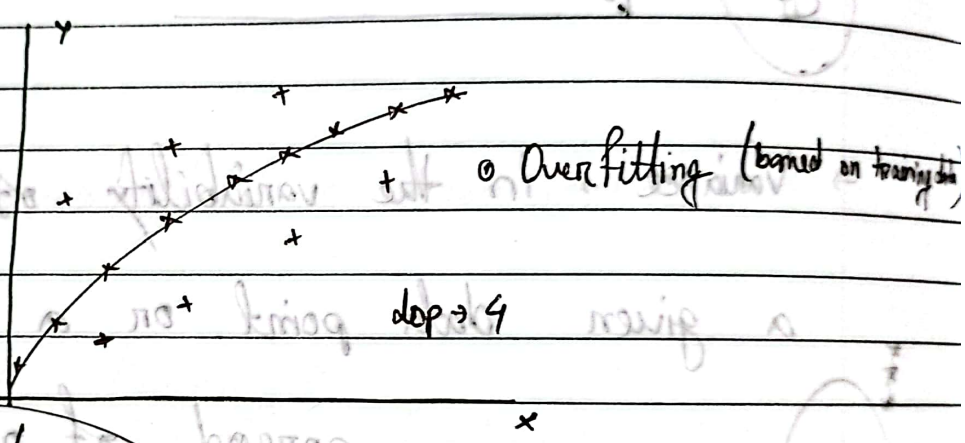
In Regression




training data → Accuracy high down.
test data → Accuracy Down.

high bias
high variance




low bias
high variance

for new or test data. will the best fit line satisfy properly ? → No So error high

So → Training data - Accuracy high
Test or new data → Accuracy down.

Actual Aim for training data and Test data both should be high i.e Accuracy ↑

→ Degree of polynomial 2

→ low bias
low variance } most Suitable

→ for. Training data Accuracy high (less error)
Test data Accuracy high (less error)

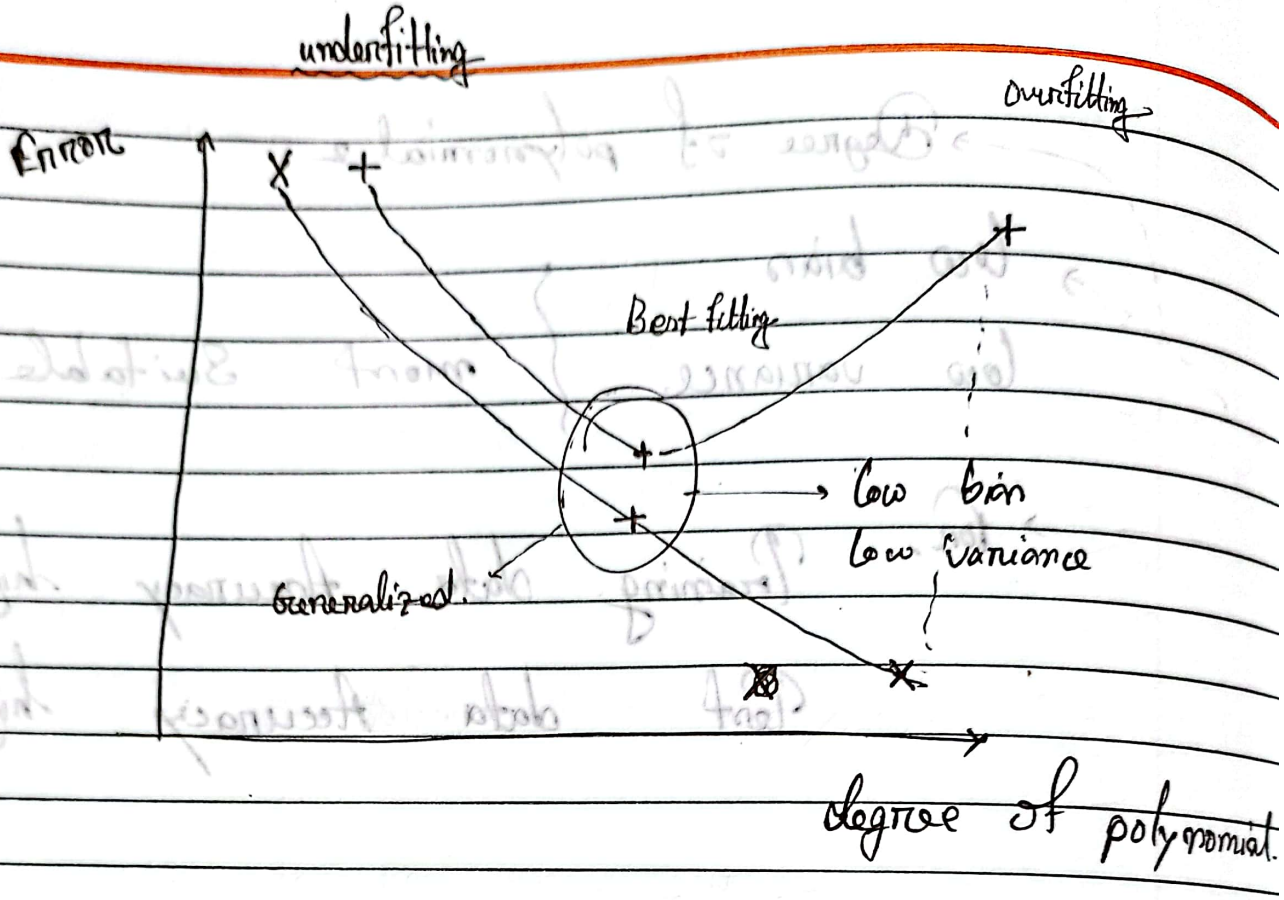
⇒ In Classification problem.

Hyperparameter optimization that,

| Model 1 | Model 2 | Model 3 |
|---|---|---|
| Training error - 1% | Training Error - 25%. | Traing error → <10% |
| Test error → 20% | Testing Error → 26%. | Test Erro → <10% |
| So, | So, | So, |
| ① low bias | ① High bias. | ① low bias |
| ② High variance | ② High variance | ② low variance |
| Overfitting | Underfitting | Best fitting |
| | | ↓ |
| | | most Generalized. |

x → training error

+ → Test Error.




## Polynomial linear Regression: