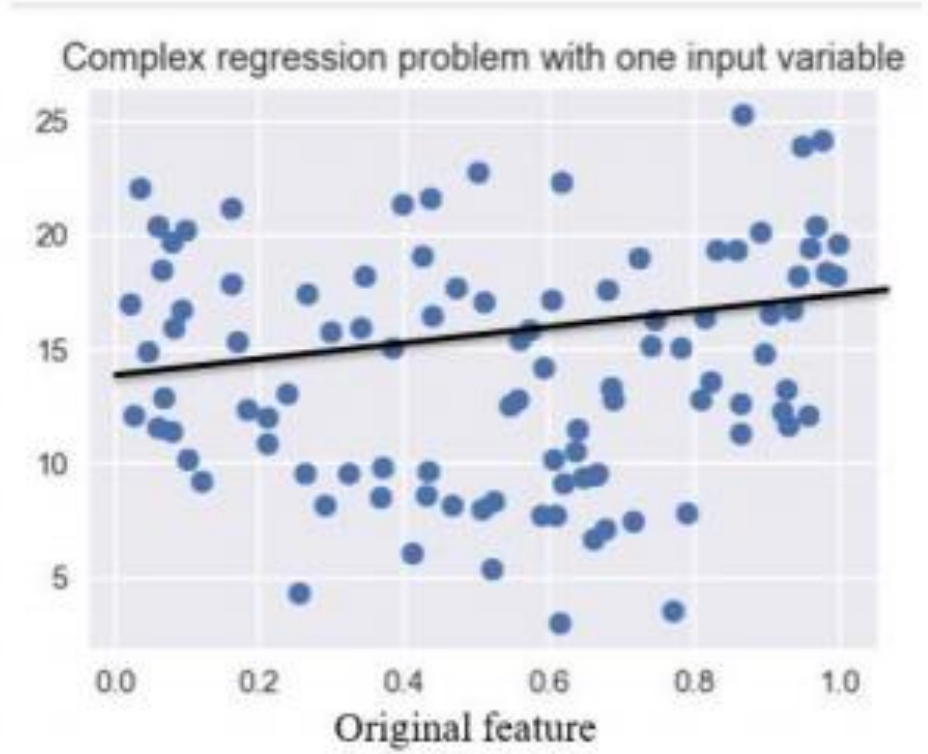
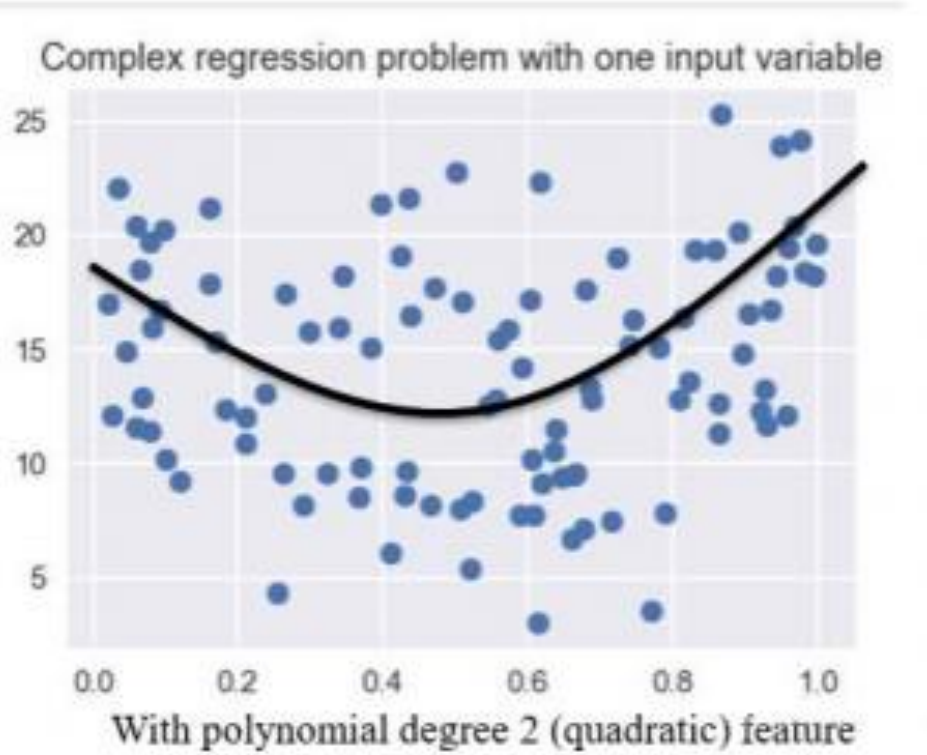
Polynomial Regression: -

$$y = B_0 + B_1 x_1 + B_2 x_2 + B_{11} x_1^2 + B_{22} x_2^2 + B_{12} x_1 x_2$$

- The new features are generated that consist the combinations of original features (X1, X2) .
- The degree shows how many variables participate in creating new features.

Least-Squares Polynomial Regression





Polynomial Features with Linear Regression: -

- Why we transform our data this way?
  - To load features many times in order to captures more information
  - To make our problem easier
- What are the problems are using higher degree polynomial in our model?
  - By increasing the degree, the model some times tends to overfit the data.
  - So, using degree of 2-4 is recommended while training a model with polynomial regression.