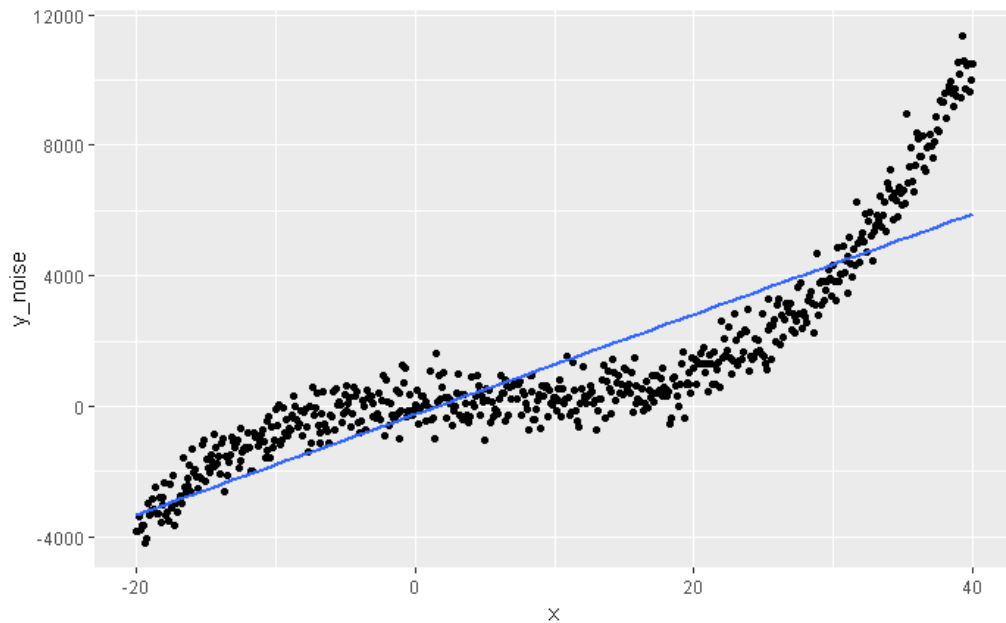


Polynomial Regression 101

Polynomial Regression

Linear Model

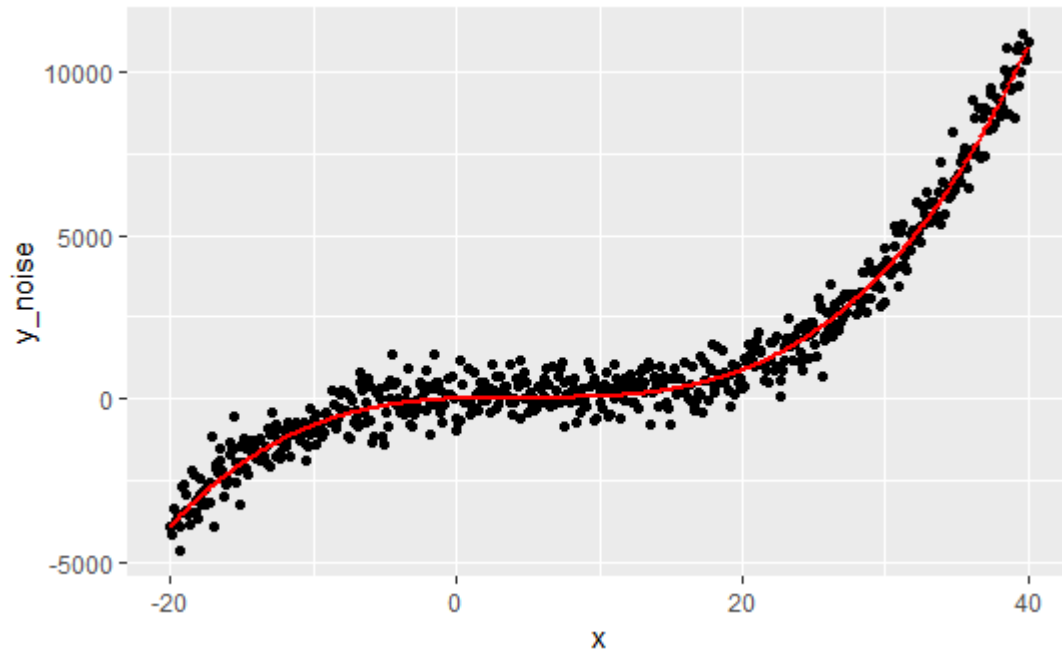
- Data is non-linear (3rd order polynom)
 - Linear regression does not cover complexity of data
- Underfitting!



Polynomial Regression

Polynomial Fit

- Used when relationship non-linear
- Can estimate a polynomial fit of higher-order
- User needs to define order
- $y = b + m_1 x^1 + m_2 x^2 + m_3 x^3$
- Sidenote: polynomial regression still type of linear regression (x^2 is just feature and m_2 a linear parameter)



Polynomial Regression

Too High-Order Fit

- „The more, the better“???
 - $b + m_1 x^1 + m_2 x^2 + \dots + m_N x^N$
 - $N \gg$ than best fit
 - Model covers noise rather than only general shape of data
- Overfitting!

