Q: What are the assumptions associated with a linear regression model?

A1: There are four assumptions associated with a linear regression model:

Linearity: The relationship between X and the mean of Y is linear.  
Homoscedasticity: The variance of residual is the same for any value of X.  
Independence: Observations are independent of each other.  
Normality: For any fixed value of X, Y is normally distributed.

Q: What is Ordinary Least Squares in regression?

A1: Ordinary Least Squares regression (OLS) is a common technique for estimating coefficients of linear regression equations which describe the relationship between one or more independent variables and a dependent variable. In other words, you can consider the OLS as a strategy to obtain, from your model, a ‘straight line’ which is as close as possible to your data points. Even though OLS is not the only optimization strategy, it is the most popular for regression tasks.

A2: Ordinary least squares (OLS), estimates the parameters in a regression model by minimizing the sum of the squared residuals. This method draws a line through the data points that minimizes the sum of the squared differences between the observed values and the corresponding fitted values.

A3: Ordinary Least Squares regression (OLS) often called “Linear Regression”. It’s a common technique for estimating coefficients of linear regression equations which describe the relationship between one or more independent variables and a dependent variable.

A4: Bir tahmin yaparken eldeki verilerin doğrusal bir çizgi etrafında olmasını isteriz. Eldeki verilerin çizilecek olan bu doğruya olan uzaklıklarının karelerinin toplamının minimum olması daha sonra yapılacak tahminlerin daha doğru sonuç vermesini sağlayacaktır.

A5: Error is the difference between prediction and reality: the vertical distance between a real data point and the regression line. OLS is concerned with the squares of the errors. It tries to find the line going through the sample data that minimizes the sum of the squared errors.