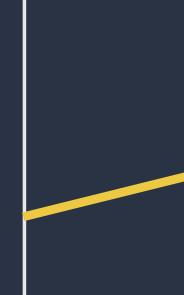




LINEAR REGRESSION

DEFINITION

A statistical model which predicts and extract insights about the linear relationships between variables

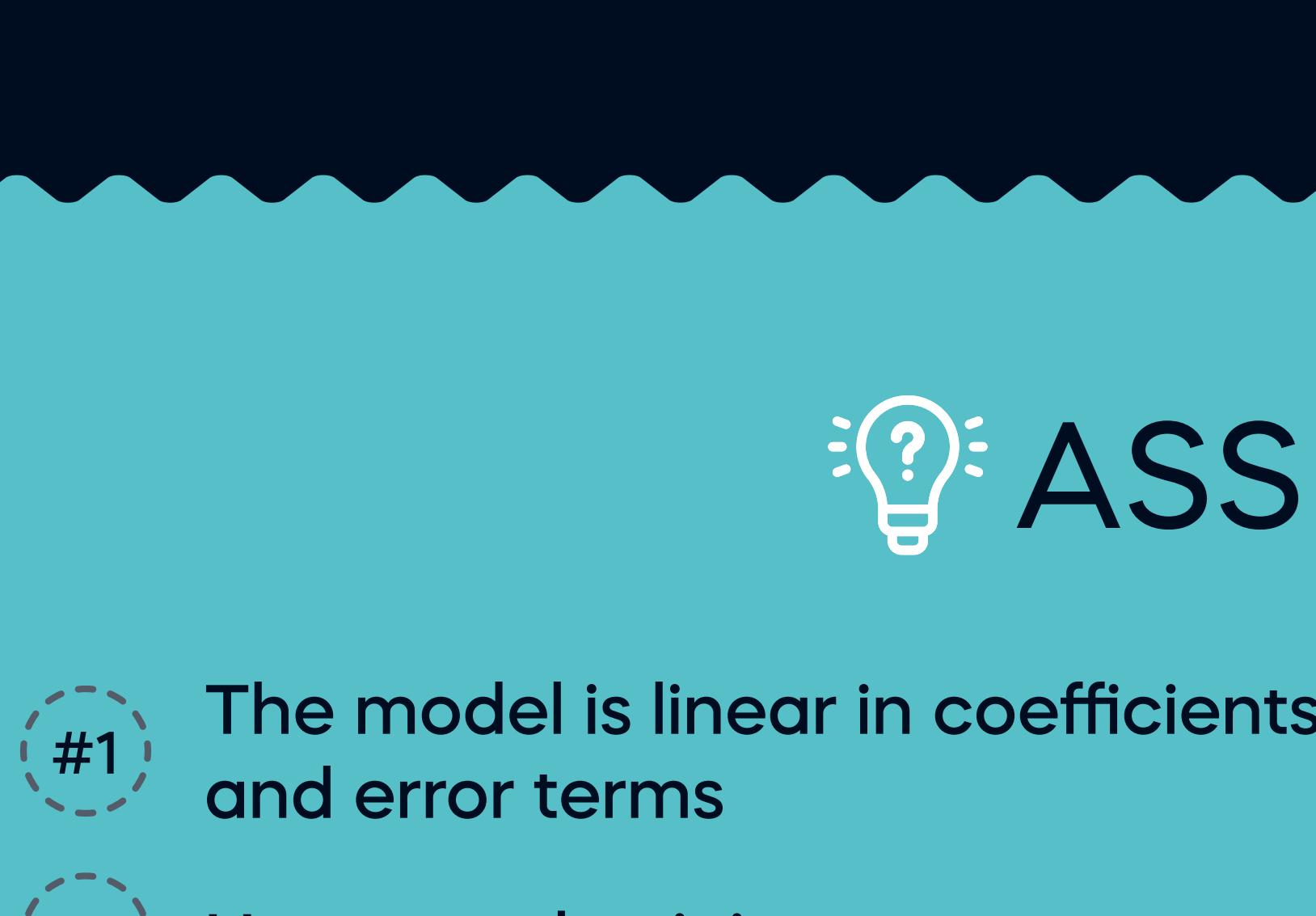


INTUITION BEHIND THE MODEL

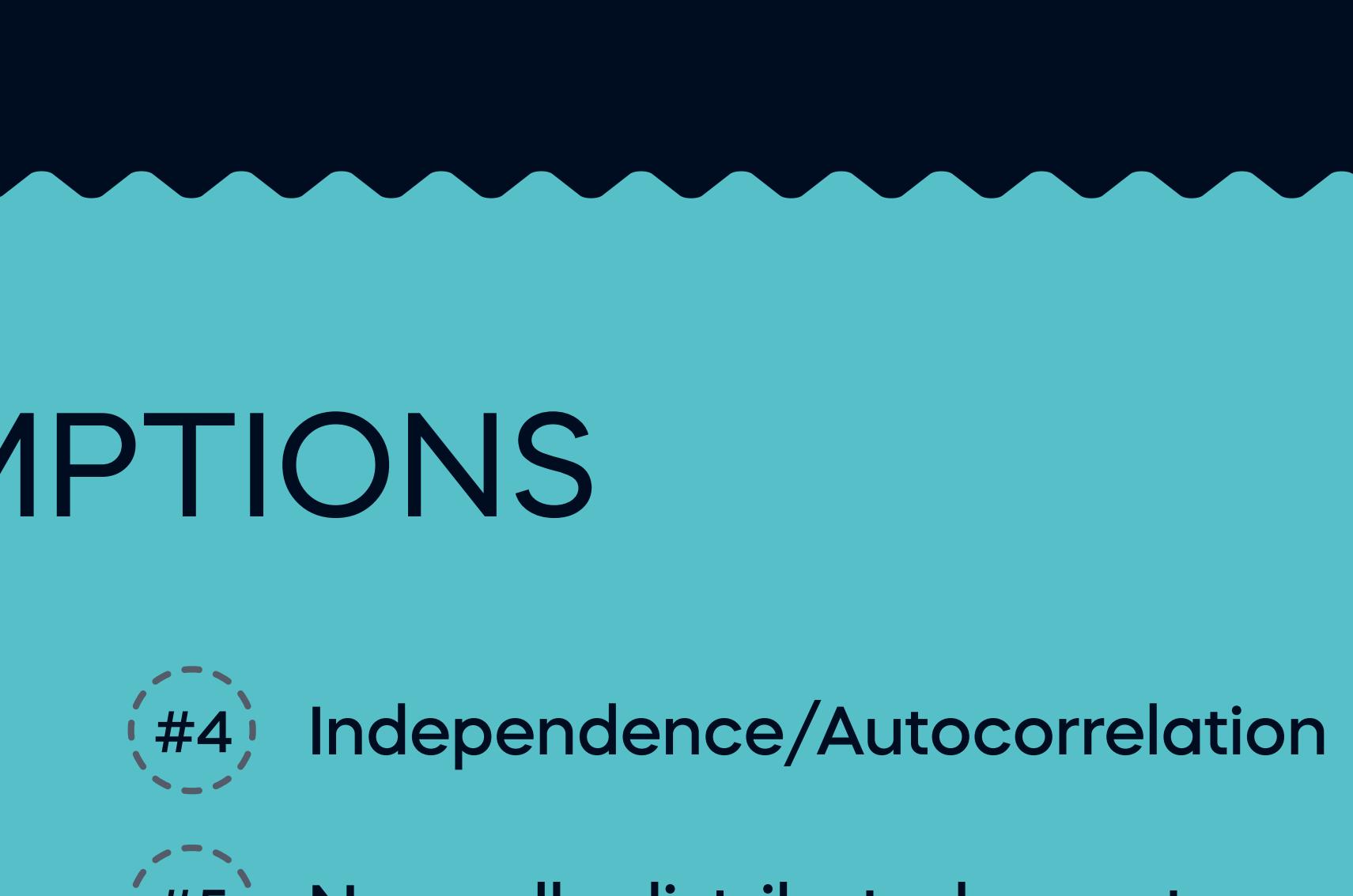


STEP-BY-STEP TRAINING

HOW DO WE DRAW THIS LINE MATHEMATICALLY?



HOW DO WE FIGURE OUT WHICH LINE IS OPTIMAL?



💡 ASSUMPTIONS

- #1 The model is linear in coefficients and error terms
- #2 Homoscedasticity
- #3 Multicollinearity
- #4 Independence/Autocorrelation
- #5 Normally distributed error terms
- #6 Outliers

💬 PROS & CONS

<ul style="list-style-type: none"> ✓ Linear regression is very interpretable and easy to explain to people ✓ It's very, very dynamic, so you can use it for both inference & predictions ✓ Can productionize in $O(1)$ time complexity, so it's fast at making predictions ✓ The analytic method in estimating its parameters improves the speed of training as well 	<ul style="list-style-type: none"> ✗ High-dimensional data ✗ Nonlinear data ✗ Assumptions are not met ✗ You want the most accurate model
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