1. Logistic Regression
   1. Why is it named **logistic** regression

Because of logit which is specialized case of sigmoid function.

* 1. How is logistic regression related to linear regression

Logit/Probit converts a numeric value to probability.

* 1. What are some differences between logistic and linear regression
  2. Logistic regression
  3. Describe the sigmoid function
     1. What happens to the shape of the sigmoid as you increase the slope coefficient of the linear function

Sigmoid becomes like a step function

* + 1. What happens to the shape of the sigmoid as you increase the y\_intercept of the linear function

Sigmoid shifts either right or left

* 1. What is the relationship between linear and logistic regression

1. Regularization
   1. What is the purpose / goal of regularization.

To prevent overfitting, reduce variance in a model by penalizing the variables that have higher weights

* 1. How does regularization meet its stated goal.
  2. What’s the difference between L1 and L2 regularization
  3. Describe a unique / useful mathematical property of L1 regularization

Square of theta and mod of theta

* 1. Where does the L1 and L2 names come from

L1 can lead co-efficients to 0; useful for feature selection.

* 1. What is elastic net regularization
  2. Describe a case where you would need to use regularization in machine learning
  3. Is regularization limited to use only in regression models?

Regularization is not limited regression. Whichever model is having co-efficients, regularization can be used. Even with decision tree.

1. TF-IDF
   1. Describe a use case for TF-IDF in data science
   2. How does TF work
   3. How does IDF work
   4. How do TF and IDF work together
2. What is a linear combination

Multiplying constant times variable and adding them up

1. How does one increase the flexibility of a linear regression model?

Adding more columns to data