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DASC 1223 – Intro to Data Science (Dr. Schubert)

Data Collection, Data Inference, and Casual Inference

Describe a business/social problem where understanding causation would be important

A business problem where understanding causation is important is predicting customer churn. A company wants to predict customer churn to establish what type of intervention will be most successful in keeping a loyal customer. “A customer who has spent too long waiting for customer support requires a different intervention than a customer who no longer needs your product” (O’Reilly article).

Discuss why causation is important to solving this problem

Causation is important to predicting customer churn because the business needs to know the actual reasons why customers are leaving. If a company can differentiate between correlation and causation, they can figure out the factors that directly impact customer churn. For example, if data shows a correlation between customer churn and a new marketing campaign, understanding causation will reveal whether the campaign is directly responsible for churn, or if other confounding variables are involved.

Discuss challenges that might make it difficult to make casual inferences in this case

Time is always important because customer behavior and biases can change, so a perceived causation from a year ago could be inaccurate today. Another problem like I stated earlier, is confounding variables. These are factors that can cause apparent causations but are hidden. For example, the company could say that customers aren’t returning because the new marketing campaign isn’t reaching the target audience, when in reality the campaign just isn’t motivating the customers to return. The confounding variable in this example would be the effectiveness of the campaign, not the scale of it.