Advanced Analytics – Marketing Data Science Interview Questions

Instructions

At HP, we sell our products directly through our website, through retailers such as Walmart in the United States, and through online marketplaces such as Amazon. Amazon is a dynamic and extremely important marketplace for HP. Understanding our supplies (ink and toner cartridges) business performance at Amazon is key to our global success. Therefore, an accurate media mix model which identifies the key drivers of unit sales, and the relative impact of different marketing tactics is paramount to our success.

As a marketing data scientist, you're asked to build a media mix model which estimates unit sales for our ink supplies business on Amazon.com using the provided (simulated) data. There is a data dictionary in the 'Description' tab of the data file.

We understand that you are busy and have many demands on your time. We appreciate you doing this case study and ask that you limit yourself to 3-5 hours of work. If you are unable to commit this much time, or spend more time, we'll evaluate based on the time you are able to work on the analysis.

Model Review

We will schedule a follow-up meeting for you to take us through your model. We will cover the following:

1. Communication: Create a brief presentation to explain your model results to business stakeholders.
    a. What are the key drivers of sales?
    b. What should the business do to drive incremental sales?
2. Code review: Be prepared to share your code to explain your programming and statistical decisions.
    a. What process did you follow in your analysis?
    b. What is the model output, including variable significance and model fit?

Other topics we may cover:

frequentist and bayesian

1. What types of models did you consider? Which did you choose and why?
2. How do you handle variables that are not significant?
3. What will impact the success of your recommendations?
4. How do you mitigate or communicate risk in your estimates?
5. How do you know if you have a good model?
6. What is a key insight from the model? —— what a good question!
7. What challenges did you face?
8. What other data would you want to include in this model?