Interview Questions: Products

Signal Data Science

- Given training data on tweets and their retweets, how would you predict the number of retweets of a given tweet after 7 days after only observing 2 days worth of data?

- How could you collect and analyze data to use social media to predict the weather?

- How would you construct a feed to show relevant content for a site that involves user interactions with items?

- How would you design the "people you may know" feature on LinkedIn or Facebook?

- How would you predict who someone may want to send a Snapchat or Gmail to?

- How would you suggest to a franchise where to open a new store?

- In a search engine, given partial data on what the user has typed, how would you predict the user's eventual search query?

- Given a database of all previous alumni donations to your university, how would you predict which recent alumni are most likely to donate?

- You're Uber and you want to design a heatmap to recommend to drivers where to wait for a passenger. How would you approach this?

- How could you use GPS data from a car to determine the quality of a driver?

- How would you quantify the influence of a Twitter user?

- You have 100 mathletes and 100 math problems. Each mathlete gets to choose 10 problems to solve. Given data on who got what problem correct, how would you rank the problems in terms of difficulty?

- You have data on all purchases of customers at a grocery store. Describe to me how you would program an algorithm that would cluster the customers into groups. How would you determine the appropriate number of clusters to include?

- Let's say you're building the recommended music engine at Spotify to recommend people music based on past listening history. How would you approach this problem?

- What would be good metrics of success for an advertising-driven consumer product? (Buzzfeed, YouTube, Google Search, etc.) A service-driven consumer product? (Uber, Flickr, Venmo, etc.)

- What would be good metrics of success for a productivity tool? (Evernote, Asana, Google Docs, etc.) A MOOC? (edX, Coursera, Udacity, etc.)

- What would be good metrics of success for an e-commerce product? (Etsy, Groupon, Birchbox, etc.) A subscription product? (Netflix, Birchbox, Hulu, etc.) Premium subscriptions? (OKCupid, LinkedIn, Spotify, etc.)

- What would be good metrics of success for a consumer product that relies heavily on engagement and interac- tion? (Snapchat, Pinterest, Facebook, etc.) A messaging product? (GroupMe, Hangouts, Snapchat, etc.)

- What would be good metrics of success for a product that offered in-app purchases? (Zynga, Angry Birds, other gaming apps)

- Growth for total number of tweets sent has been slow this month. What data would you look at to determine the cause of the problem?

- You're a restaurant and are approached by Groupon to run a deal. What data would you ask from them in order to determine whether or not to do the deal?

- You are tasked with improving the efficiency of a subway system. Where would you start?

- Say you are working on Facebook News Feed. What would be some metrics that you think are important? How would you make the news each person gets more relevant?

- How would you measure the impact that sponsored stories on Facebook News Feed have on user engagement? How would you determine the optimum balance between sponsored stories and organic content on a user's News Feed?

- You are on the data science team at Uber and you are asked to start thinking about surge pricing. What would be the objectives of such a product and how would you start looking into this?

- Say that you are Netflix. How would you determine what original series you should invest in and create?

- You're a data scientist at Khan Academy. How would you use machine learning to predict a student's success on a subsequent question, based on knowing their performance on past questions they have answered?