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9/30/18

Problem Set 5

**Monday**

* 1. The best way to start an observational study in this scenario would be to fetch all of the relevant log data related to mobile pay. Then, decide what criteria to evaluate the effectiveness of mobile pay with. I imagine data points like speed of transaction and method of payment (card vs. mobile phone). We could use this data to see what percentage of users are using their mobile phone for
  2. Focus groups would involve recruiting a number of users that are already common Starbucks customers, via a random sample. I believe that a random sample of Starbucks Reward members would be a quality sample for this study. To collect data, I would place researchers inside of the focus group rooms, or film each focus group. This will allow our study team to code each interview based on key words given by the focus group. This method would allow us to obtain data regarding the thoughts and payment habits of users, in the format of quotes. We could use this data to answer what types of issues they have with the mobile pay system.
  3. An online survey would be the best method to get a lot of data in the shortest amount of time. To answer weather mobile pay is making a positive impact on customer interactions, I would use slider (1-10 scale) type questions to rate their level of satisfaction with various aspects of the mobile pay system. This data would give us an average of customer satisfaction on a 1-10 scale. This data would give us a quantitative answer on the level of satisfaction with mobile pay system overall.
  4. How does the emotion of users change, based on what type of content is shown in their news feed?
  5. Independent Variables: Interaction with friend’s posts (likes, comments, etc), time spent on the app
  6. Dependent variables: Emotion/reaction used (like, love, sad, etc.), level of engagement on friend’s posts (how often are they liking/commenting), and overall level of happiness (determined by interview, based on Facebook interactions)

1. Data collection strategies
   1. The best strategies to use here are likely survey data and focus group data. A social media campaign could be shipped with a survey attached to it, in order to gauge consumer reactions to the advertisements. This would provide some quick insights as to the general reactions of the advertisement but would not provide a ton of detail. To follow up on the effectiveness of the campaign, I’d use a focus group strategy to get detailed insights on what users liked/did not like specifically about the campaign. These two methods combined would give us an idea on the overall impact of the campaign.
   2. To assess the effectiveness of a web redesign, I’d likely use log data as my primary analysis of effectiveness. Usually, when performing a web redesign project, the web designer is trying to direct traffic to a certain area of the website or increase traffic overall. For that reason, I would measure total website hits, website hits per individual page, and total website sales (if website is an online store).
   3. To decide whether the next iPhone will be a hit, I would also use a log data strategy. This is simply due to the fact that the iPhone usually is unveiled about a week before it comes out, so there is a grace period to measure online engagement related to the new iPhone. To measure whether the iPhone will be a hit, I would use social media data related to the release. For example: what are the total number of tweets related to the new iPhone? How does social media engagement related to this iPhone relate to previous iPhone releases?
2. Explain your method for each scenario above
   1. Research question: Has engagement with our product/website increased based on a previous research study? We would answer this question using survey data, as mentioned before. To determine if there is a statistically significant difference between the new campaign and the old strategy, I would compare survey results to a baseline test.
   2. Research question: Does the new design of our website increase engagement amongst our users? This log data-based study would also use a baseline, as we want to compare the effectiveness of the new website compared to the old one. I would take a log data sample of the average engagement on the old website, and then compare it to the engagement data on the new website.
   3. Research question: How can we determine if this new product will be a hit, compared to other iterations of the past product? For this research question, I would scrape data from social media websites that is pertinent to previous iPhone releases. Things such as: total mentions of the word “iPhone” on twitter, correlations between the word “iPhone” and positive and negative words, and pre-order sales data.
3. Ideally, I’d like to use Apple’s universe of user data to answer this question. The iPhone provides access to Find My Friends (an app that allows you to track your friends using an Apple ID) and iMessage (an app that allows you to message your friends using Apple ID). Ideally, if both of these datasets were to even exist, they would use Apple ID as their main identifier. With the combination of these datasets, we can see the most popular locations where messages are sent, where each individual person sends the most messages from, and use this data to draw insights on some of the most popular social locations in the area.

**Friday: In repository.**