IXIS Data Science Challenge

Online Retailer Performance Analysis

v2020-11-18

careers@ixisdigital.com

Project Scope

- Imagine that you have been tasked with helping an online retailer measure and analyze their website's performance
- The retailer uses Google Analytics (GA) to track engagement and conversion on their website
- You have been given two GA datasets containing basic ecommerce metrics and asked to summarize website performance and provide insights to help the retailer understand their website's performance

Instructions

Datasets

- Two csv files are attached:
  - sessionCounts.csv: sessions, transactions, and QTY broken out by browser * deviceCategory * date
  - addsToCart.csv: addsToCart broken out by month

Analysis

- Write an R (preferred) or Python script that produces an xlsx file with two worksheets, which would serve as reference tables delivered with the slide deck (see below):
  - The first sheet should contain a Month * Device aggregation of the data with the following metrics: Sessions, Transactions, QTY, and ECR (= Transactions / Sessions)
  - The second sheet should contain a Month over Month comparison (for the most recent two months in the data) for all available metrics (including Adds to Cart), showing: the most recent month's value, the prior month's value, and both the absolute and relative differences between them
  - Note: You may calculate and include additional metrics in these tables if desired, and also produce any additional tables that support your narrative in the slide deck
  - Hint: the `openxlsx` package provides all the required functionality to generate xlsx files if you are working in R
- **Keep in mind**: the more readable and well-documented your code is, the easier it will be for the IXIS hiring team to evaluate your skillset
- No manual modification of the xlsx output is allowed – these tables must be generated 100% programmatically through your script
- Your code should minimally include the following steps:
  - Any data exploration and cleaning steps that you believe are appropriate
  - Production of the data tables described above: show off your data wrangling/manipulation skills here (tidyverse especially)
  - Outputting the tables into separate worksheets within a single xlsx file
- Submit your code either as:
  - Preferred: A link to a git repo (GitHub, Bitbucket, etc.)

  - Alternative: A zip file emailed to the IXIS hiring manager

Client Deliverable

- Prepare a slide deck (maximum 4 slides, not including the title) that would serve as a client deliverable for this project
  - Assume the primary audience will be a non-technical marketing/UX team whose job is to improve their retail website's performance
  - Summarize the results of your analysis, referencing specific datapoints and trends where useful and using data visualizations appropriately
  - Provide concrete next steps / action items
- A minimal theme is fine – the submission will be evaluated primarily on the quality of the narrative and data visualizations and how effectively they communicate the project's results to the client
- Submit this deck as a PDF

Final Submission

- When you have completed this project, send an email to the IXIS hiring manager containing the following:
  - An estimate of the hours you spent from start to finish to complete this project
    - Note: Please limit your time spent on this project to no more than 2 working days
  - Your code, attached as a zip or a link to a git repo
  - Client deliverable (slide deck), attached as a PDF