The Data Analyst position requires a combination of strong business intuition and reasonable technical skills. In order to assess your collective skillset, you will be responsible for delivering a sample project.

Deliverables

You have been provided raw historical data that simulates an advertising campaign on LockerDome's ad platform. You will need to do the following:

(1) Define a set of metrics that can be used to evaluate the given data from LockerDome's perspective. Use these metrics in your evaluation and recommendations.
(2) Output a data table that can be used to evaluate the given data with a human eye Supplement with useful visualizations. Please use R or Python in your analysis.
(3) Make concrete recommendations for **Creative.ID, Slot.ID**, and **Device** on how to optimize the campaign. Creative.ID is an ad (see example here) anonymized with a numerical value. Slot.ID is an ad unit (example: CNN - Below Content) anonymized with a numerical value, and Device is the traffic source (desktop, mobile, or tablet).
(4) If there is additional time, detail any additional observations worth noting.

You may use whatever toolsets you are most comfortable with, and you are free to research anything you need to during the course of this project. At LockerDome, we use Python in a Jupyter-based notebook environment similar to Google Colab along with an R-based environment, so we prefer that candidates use either R or Python in their data analysis. Please share your project files as attachments via email or use a tool like Github or GoogleDrive.

Notes:
- LockerDome embeds its ad units on third-party websites and pays publishers for the cost of impressions (publisher split). For the purposes of this project, assume the advertiser pays LockerDome whenever a conversion occurs. LockerDome revenue is therefore equal to conversion value * conversions. Assume LockerDome's only cost is publisher split, or the amount we pay publishers for their impressions.

- In the category of direct-response marketing where LockerDome focuses, the sole aim is tracking and optimizing for quantifiable value creation that can be directly attributed to spend. On LockerDome's platform, any of these revenue events is known as a conversion. Examples of a conversion include a lead, such as an email submission or account creation, or the sale of a product. For the given dataset, assume the conversion value is **$35.00 through 1/7**, and **$40.00 as of 1/8** (1/7 and 1/8 are dates).

- Beyond conversions, the dataset includes raw data on impressions and referrals. An impression is when an ad is shown to a user. A referral is when a user clicks on an ad and hits an advertiser's landing page. These do not directly measure customer value creation, but can be useful in identifying red flags and opportunities when conversion data is limited or absent.

- A single advertiser is represented across the full dataset, and with the granularity of data by date, device, creative and ad unit. Performance can vary significantly due to each of these factors, so be sure to take them into consideration during your evaluation.

- A creative is a piece of content used as an ad, with traits that can be measured and optimized, such as a headline, image, description, call-to-action text, landing page, etc. See an example [here](). For this project, however, you will not have access to nor need to evaluate creative traits, but should consider the performance of each creative.

- An ad unit represents a specific placement through which an ad can be served (it has an ID associated with it, called a Slot.ID). Similar to creatives, ad units have numerous traits by which data can be evaluated. For this project, however, you will not have access to nor need to evaluate ad unit traits, but should consider the performance of each Slot.ID.

- Additional features that have not been explicitly defined above can also be explored.