[**Data**](#_ds0n0mzhz7z1) **1**

[**Objectives**](#_ardj82isgg6s) **1**

# Data

The data provided captures some basic measures of application engagement within the first 14 days of a new account as well as if the account converted to paid within that 14 day period.

* 1 row per account
  + An account corresponds to a law firm.
  + Each account is 14 days old (i.e. data is collected from the first 14 days of the account’s life with the application).
* Columns:
  + Number of page views in the 1st hour, day, week, 2 weeks
  + Time to complete goals: first matter, first time entry, first bill
    - Measured in seconds.
    - Null values indicate a goal was not reached.
    - These generally correspond to engagement with specific features within the application during the 14 day period.
  + Time to invite a second user.
    - Measured in seconds.
    - Null values indicate a second user was not invited.
    - Note that not all firms have more than one user.
  + Time to conversion to paid (i.e. an account gives us money for the first time).
    - Measured in seconds.
    - Null values indicate an account did not convert during the 14 day period.
  + Conversion value
    - Measured in USD.
* Training set: 1000 accounts
* Test set: 100 accounts

# Objective

We are interested in understanding and increasing conversion rates. i.e. we’d like to develop a hypothesis for the question “how do we increase paid conversion rates in the first 14 days?”

## Additional Context

* The business follows a typical SaaS model with marketing, sales, account management, and an active software development team.
* The teams are ready to make improvements to process and the application based on your recommendations, provided they are sufficiently justified.

## Tasks

Please attempt to complete the following tasks:

* Describe the data.
* Find interesting relationships between the variables, especially between conversion and the application engagement in the 14 day period.
  + Validate or otherwise justify the relationships are real/meaningful/significant.
  + Note that accounts can convert to paid *before* they engage with the application. (e.g. an account may have converted to paid before it created a matter.) Please account for this in your analysis and models.
* Develop a model to predict an account’s future conversion based on early application engagement.
  + Justify the selected model.
  + Provide some interpretation of the model for laypeople.
* Provide a justified hypothesis/recommendation.
* Stretch objective:
  + Design an experiment (e.g. an A/B test) to validate the hypothesis.
  + Assumptions: 1000 new accounts per month.

## Requirements

* These tasks are intentionally broad. Narrow and focus them as you see fit. We would like this to take up to 4 hours of focused effort and for the output to provide a sample of your skills; it is not meant to be exhaustive.
* It is not required that you implement everything; explaining your high level approach without implementing is also appreciated.
* Feel free to note approaches, models, etc. you considered but did not pursue.
* Submit your code
  + if you use git, including the git repo is also appreciated
* Submit results and a writeup motivating your approach.
  + Please include the amount of time you spent completing the challenge.