



Introduction

Scibids goal is to improve our client's KPIs (CPA, CTR etc...) by bidding the best price according to the probability of conversion of each auction.

The algorithm is using past data to learn the best contexts, each time a conversion is happening, it knows which contexts are responsible for the conversion and uses this to "learn" what are the best contexts to bid on.

Exercise:

Scibids ran an A/B test for one of our clients.
The test ran from July 1st - July 31st.

The KPIs were landing page pixel loads (CPA based on DCM stats) and CTR.
The client felt that due to the CTR performance of their IO they outperformed Scibids IO.

The exercise is all based on the same data included in: AB_Test.xlsx
Our target is to present to our client the AB test to prove our value. For this our strategy would be :

- 1) Defend AB test results and try to convince that Scibids did good and why
- 2) Find a way to estimate Scibids financial impact on this campaign

A valuable output is a "simple to understand" output with some clear key take-aways.

There is no "right" way to do this, we just want to see your thought process. Please include all workings / explanations of methodology.

Data manipulations must be done in python and handed out (within a script or Jupyter Notebook). Data visualization can be achieved in other ways than python but source data for the viz should be available somewhere within the code.

More explanation on the data

The excel given contains three sheets:

- 1) Some explanations and definitions
- 2) Data from the DSP
- 3) Data from the DCM

The DSP is the platform on which we are running the campaign, they are in charge of taking our bids and buying advertisements on the market. Their numbers are the source of truth for everything but conversions.

DCM is a third-party tool used to measure conversions. They do so by using a “pixel” which is a tracker allowing to link an impression to a conversion. They are the source of truth when it comes to conversions as this data is not measured by the DSP.

Some additional definitions :

- KPI: Key Performance Indicator, metric the client expects to reach
- CPA: Cost Per Acquisition, this is defined by $\text{spend} / \text{number of conversions}$
- CTR: click through rate, this is defined by $\text{number of clicks} / \text{number of impressions}$
- Impression: When an ad is displayed to a user
- Conversion: Event client considered as the goal of the campaign, this can be click, purchase, video seen, etc.
 - Context: this refers to all the information you have on an impression, e.g time of the day, browser, device, website, etc.
 - A / B Test: To test Scibids' algorithm, traders can split a campaign in two different campaigns. The first one (A) is optimized by them, and the second one is optimized by Scibids' algorithm (B). An A/B test is “won” when Scibids' campaign has a better performance than the traders' one

Beware, they do not have the same granularity !

If you have any question, feel free to contact me