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Interview Practice 03/05: Halfway Mark

2 messages

Jonah & Robert Signal Data Science <signaldatascience@gmail.com> Fri, Mar 4, 2016 at 6:03 PM
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Hello all,

This Saturday, we're going to be talking about product questions. These are the sorts of questions where somebody asks "how would you analyze XXX" and you have to give an on the fly speculative answer. I'll be sending out materials later tonight for everyone to look over.

Logistics-wise, it'll be at the CFAR office from 12 - 5, and I'll be there from 12:00 - 5:00. However, the formal practice won't start until 2:30. We're giving you this earlier time so you can rest & relax if you so desire, or come in and use the time to prepare--talk about the questions, review your footage, Google things, etc.

The format is going to be simpler and shorter as well: I'm going to talk from 2:30 - 3, and then we're going to do 4 practice interview sessions.

Best,
Robert

Jonah & Robert Signal Data Science <signaldatascience@gmail.com> Sun, Mar 6, 2016 at 12:49 AM
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Hey all,

As promised, here are some notes from today's session, along with a few things more.

Metrics that Matter

DAU: Daily Active Users.

MAU: Monthly Active Users.

LTV: Long-Term Value. How much a customer is likely to produce in revenue for your company once acquired. Used most often for apps, where the initial install is worthless right away but total revenue per player can be on the order of \$5.

D1 / D7 / D30 retention: The day somebody first comes to your site or app is Day Zero. What % of people who show up on day 0 come back exactly 1, 7, and 30 days from then.

Some more metrics & words that matter slightly less

CTR: Click-Thru Rate. How many people clicked on your ad / how many times people saw your ad

Conversion Rate: How many times people bought something / how many times people saw your ad or visited your website

CPA / CPI: Cost Per Action / Cost Per Install. Bottom of the funnel pricing: how much your ad costs to run / how many people do something about it

CPC: Cost per click. Middle of the funnel pricing: how much your ad costs / how many people clicked on it

CPM: Cost Per Mil (1,000 impressions). Top of the funnel pricing: how much your ad costs / how many thousands of people saw it.

Bounce rate: how many people hit your website and immediately leave. Useful to know, especially if you're counting clicks.

Churn: What % of existing customers period of time. Not a perfect metric because new users are often more likely to leave than ones who have already stuck around.

Ideas that Matter

Marketing Funnel. You can google this, but the idea is pretty simple. A user has to go through a series of steps to get from "doesn't care" to "bought your stuff" At every step, you can measure the number of users who have made it to that step; this allows you to see where users are falling off.

Saw ad

Clicked on ad

Bought something

In general, it's easier to measure things at the top of the funnel but more important to optimize for those at the bottom. Trying to optimize for eyeballs on ad is not a great call, since your ad might be placed somewhere like the right-hand column that nobody looks at.

This concept is broadly useful: as an exercise, make a funnel for Tinder dates.

Cannibalization. When you add a source of revenue, how much does it take away from existing sources? Let's start with an example. Suppose you've been reading The 4-Hour Work Week and set up a nice website that sells three different pairs of board shorts, each of which sells 20,000 pairs a year. Wanting a bit more money, you add a fourth pair, which sells 15,000 a year. Then a fifth, which makes you 12,000 and a sixth at 10,000. At this point your ability to compute fractions and looming sense of foreboding kick in, and you realize you really should have worried about total rather than incremental sales.

Fortunately, your new shorts just aren't as good as the classics, which are still selling 20,000 per year. So you're making 62% more revenue instead of 0%. Phew.

Seasonality. The most common cycle is weekly: people almost always will use your app or game or website differently on different days of the week (Fridays often being the biggest). There are also broad cycles (people buy more around Christmas) and sometimes monthly ones (the first and last of the month often matter). Hence why 28-day metrics are good if you're looking for broad trends.

Power Laws. You'll see them a lot. Google the term and read up on it; it's worth the time. The most archetypical free-to-play gaming, where a few users known as **whales** make up a disproportionately large chunk of app revenue. Startup returns and personal incomes also follow power laws.

Techniques that matter

Business Über Alles. A useful first thing to ask is "why do we care / what are we trying to accomplish" unless the answer is immediately obvious. Also important: what's the expected value of an improvement?

Descriptive, not Prescriptive. Avoid making "hard" value judgements. You can say "I think X, therefore I will run test Y to see if this is true," or better yet "it might be X therefore we should examine Y." Because you don't know, you don't want to end up explaining how a not-like button is a dumb idea.

Common Slices. Ways of subcategorizing users that matter:

Tenure. IMO this is probably the most broadly useful. Does a change affect long-time users more or less than

new ones?

User age / gender. Are those darn teens up to something?

State / country. Are we big in Japan?

Payer / nonpayer. This matters a lot for game companies. People who have already made a purchase matter a lot more!

KISS. Suggest the simplest metric or test that's reasonable. It's very easy to ask very hard analytics questions and go too deep into "let's filter out for factor X." Often this just means "divide users into two buckets, compare buckets."

Best,
Robert