A fun problem

Jim Savage, Head of Data Science, Lendable

1 December 2017

I'm looking to hire a couple of data scientists. We at Lendable get to work on some incredibly fun problems, apply cutting-edge tools and spend a lot of time thinking deeply about modeling. If you enjoy the problem below, you'd love working with us.

Please download the following demo data here. The problem is described below.

The file contains three columns, `individual_id`, `dates`, and `default`. The panel describes a portfolio of loans made in January 2013. Each loan pays $1 for each month into perpetuity, or until it defaults. When the default column is 0, the loan pays, when it is 1, it defaults. Defaulted loans never make another payment.

The questions:

- How many loans are active at the beginning of November 2017?
- What are your lower and upper bounds for the number of active loans in each month until November 2017?   Typo: 2019
- Let's say we purchase the right to receive the payments of these loans for the next 2 years. If we can borrow money for 12% compounded annually and want to earn principle and interest back on our investment in the lower 5% case, what is a fair price to pay for these receivables?

I hope this is fun! If you have any questions or proposed answers, please send me an email at james@lendable.io.

Jim