

question

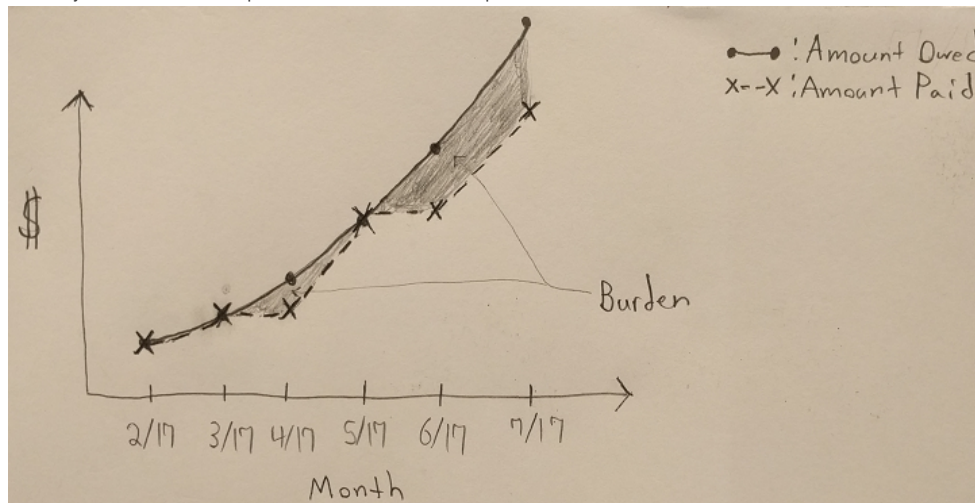
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Proposed Method for Tracking Customer Payment History

A customer's payment history is an important piece of predicting whether they are likely to pay an outstanding bill or not.

I've seen several posts proposing using a CUSUM model to flag a customer for more scrutiny when they pass some threshold. I have not seen a proposed cost function for this thresholding and wanted to share a simple one that I think could work.

Below is an example plot where the x-axis is the time period from February of 2017 to July of 2017 and the y-axis is dollars. Here we are comparing a plot of the **cumulative** amount of money owed over time to a plot of the **cumulative** amount paid.



Let's call the area between the curve of money paid and money owed the burden which the customer is imposing on the power company. This is the quantity that we would want to track in a CUSUM model. As this burden passes some threshold, the customer becomes a liability.

The equation for a customer's burden at the current time, t_b , would be

$$\int_{t_a}^{t_b} O(t) - P(t) dt$$

where $O(t)$ is the cumulative amount owed as a function of time, $P(t)$ is the cumulative amount paid and t_a is the date that the customer's service started.

Wondering what you guys think about this. Any issues with this approach?

hw8 week8

Updated 3 hours ago by Thomas Huelsnitz

the students' answer, where students collectively construct a single answer

Hi There,

I think this is a really interesting approach. My only comment/concern would be, is it feasible to expect a customer to pay a partial bill? (It might be feasible, I'm not asserting that it's totally out of the realm of possibility). If they are paying a partial amount of their bill, I think that would put them into the category described in the first video of a customer that the company doesn't "want" to shut the power off on.

As for the CUSUM model to determine when the customer is out of the acceptable range, we would need payment data for all customers and specifically the mean payment value, correct? Because that value will vary from customer to customer (in terms of overall amount paid), would we need to have an additional variable to determine if this was a full bill payment?

I definitely like this approach, struggling to organize my own thoughts together on how exactly this would look, so preemptive apologies if I overlooked a detail or two! :)

Updated 1 hour ago by Alex Catanzaro

followup discussions for lingering questions and comments