

FROOSN

Identifying Fake Reviews on OSNs(Yelp)



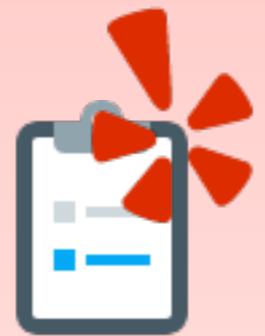
Contributors

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Motivation

behind the project!





Motivation

EYEWITNESS NEWS abc 7

SECTIONS TRAFFIC WATCH Los Angeles

BREAKING NEWS

BUSINESS

Yelp cracking down on businesses that reward reviewers

JUN 27, 2016 @ 04:44 PM 2,580 ◊

The Danger Of Incentivizing Customer Reviews



Steve Olenski, CONTRIBUTOR

I write about advertising, marketing, media & all subgroups therein. [FULL BIO](#) ▾

Opinions expressed by Forbes Contributors are their own.

Fake Yelp reviews: anatomy of an 'astroturfing' post

It's no surprise that people are paid to write fake internet reviews - but how do you spot astroturfing? Here's our guide to help

Incentivised reviews are warping Amazon's product star ratings, report says

Reviewers given discounts or free products award higher ratings, detrimentally affecting Amazon's star system

Amazon bans 'incentivised' reviews over lack of impartiality

Evidence shows reviewers awarded higher star ratings to products that were discounted in exchange for a review



Motivation

[Support Center](#)

Don't Ask for Reviews

You may be hurting your Yelp rating by proactively asking your customers for reviews.

 ReviewTrackers

We're hiring!

Product

Plans

Industries

Resources

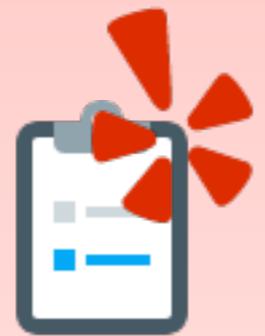
Requesting Customers to Review Your Business? Don't Incentivize.

By Migs Bassig on March 7, 2017

 HUFFPOST

THE BLOG 05/27/2016 11:55 am ET | Updated May 28, 2017

Are Online Reviews Reliable? (Or Understanding Astroturfing)



Where
do we intend to work?





Where?

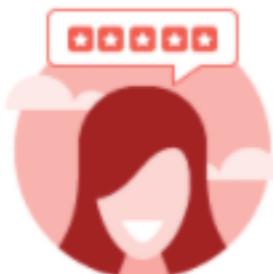


Yelp Open Dataset

An all-purpose dataset for learning



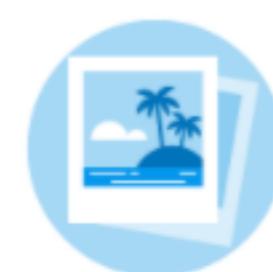
The Dataset



4,700,000 reviews



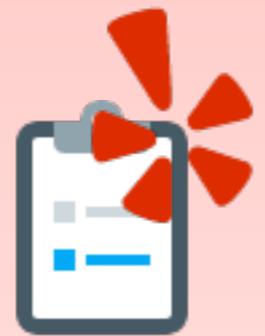
156,000 businesses



200,000 pictures



12 metropolitan areas



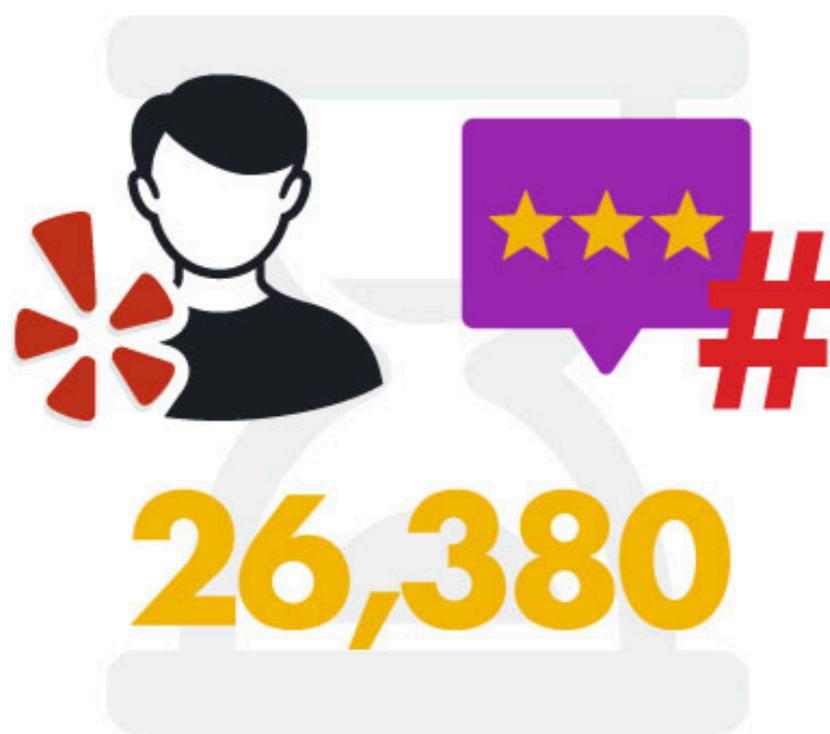
Why
are we doing, what we are doing?



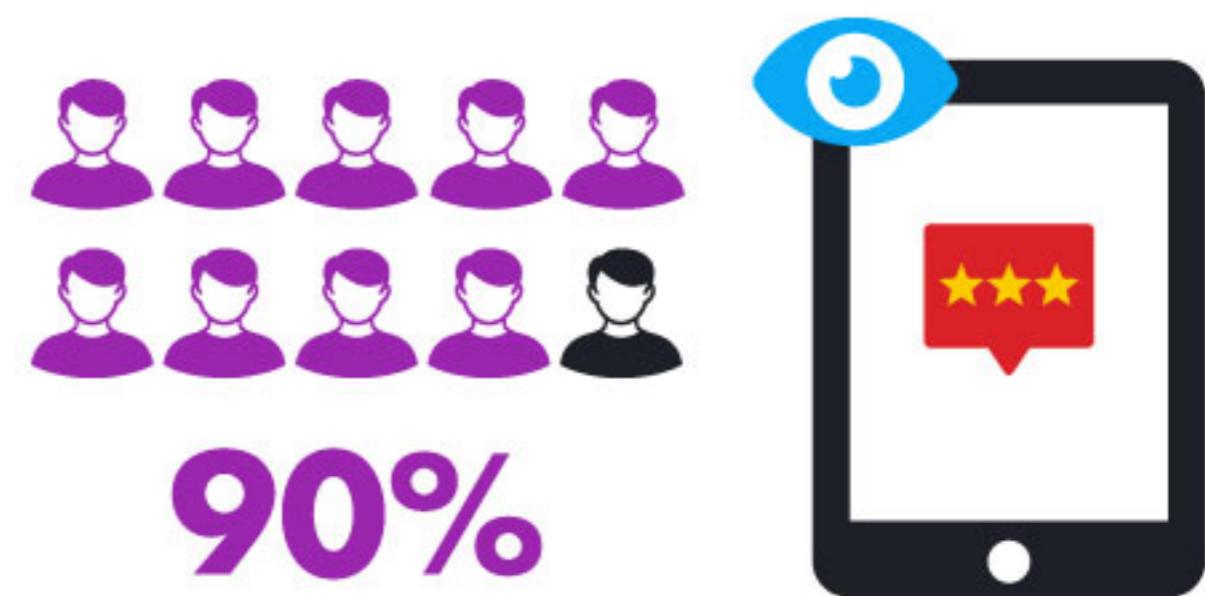


Why?

Number of reviews posted every minute by Yelp users - **26,380**



90% of consumers read online reviews before visiting a business.



90%

86% of people will hesitate to purchase from a business that has negative online reviews.

Compiled & designed by:



86%



Why?

88% Of Consumers Trust Online Reviews As Much As Personal Recommendations.



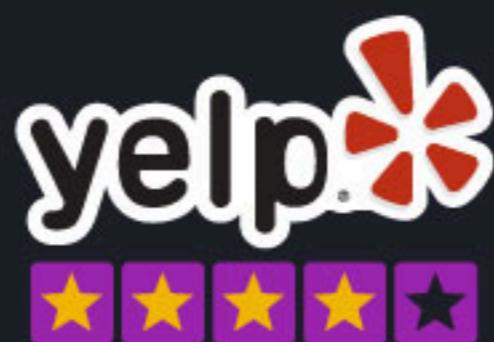
72% say that positive reviews make them trust a local business more.





Why?

On average, a one-star increase on Yelp leads to a **5 to 9** percent increase in a business's revenue, one negative review can cost you **30 customers**.



5-9%

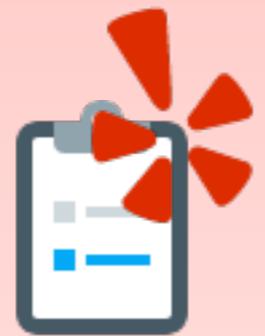
increase in revenue



one negative review



can cost you **30 customers**



What are we doing & what is the scope?





What?

For this project

Fake = Incentivised

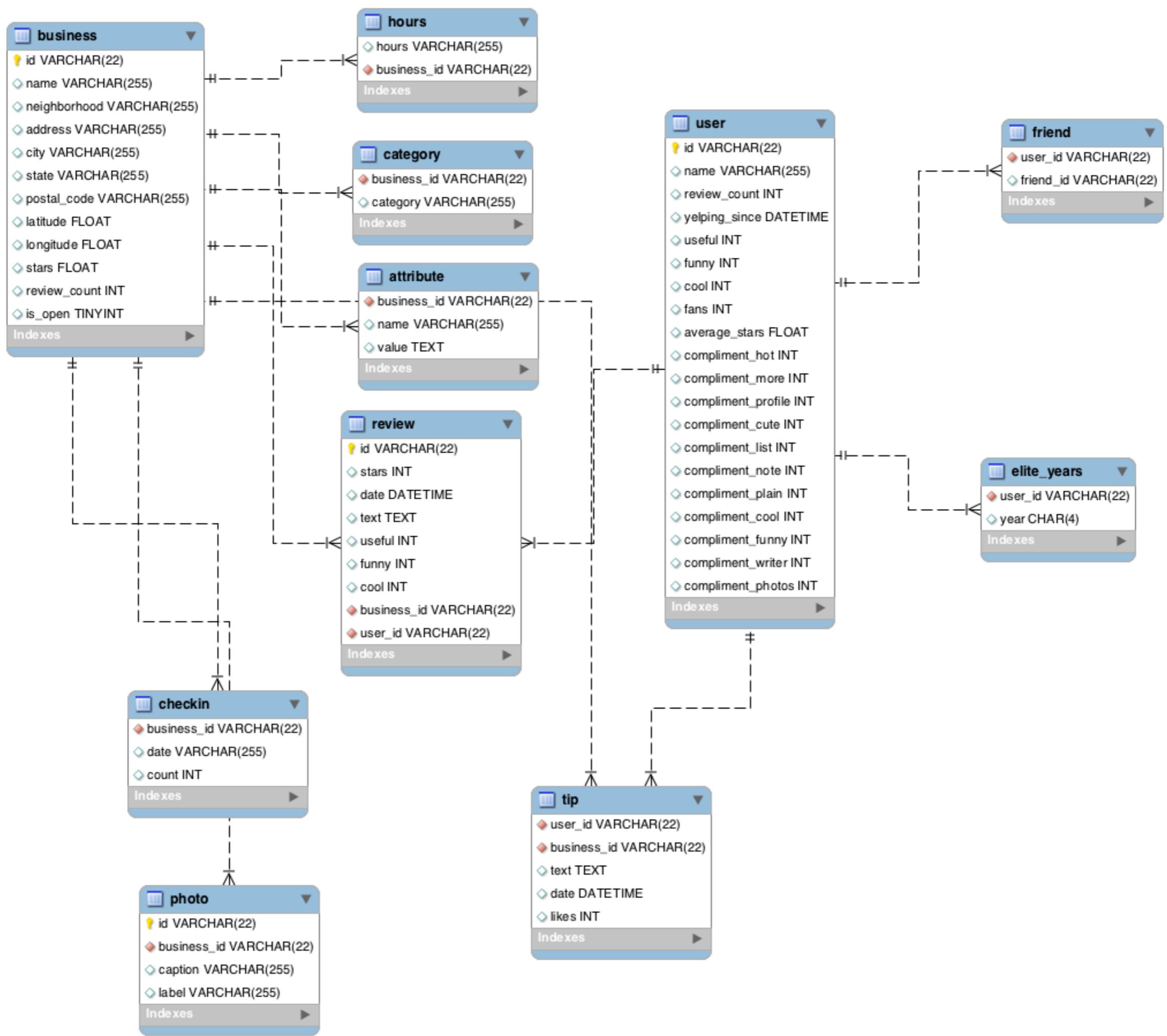
OSN = Yelp

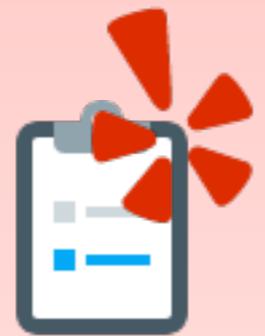
Problem Statement

“Building a mechanism to identify fake reviews among the set of all user reviews, in order to maintain the authenticity of online businesses.”

Scope

- We assume that **there are no bots**, so everyone is a legit user.
 - Yelp has very stringent security provisions, for e.g. it detects anonymous network browsing, web scraping, tracks IP addresses, does automated filtering, etc.
- We can only **leverage the attributes of data** provided in the Yelp Dataset and Yelp Business API and anything outside those, cannot be analysed.





How
are we achieving our end goals?





How?

Methodology

Step 1: URL of the business/review is input into the system.

`https://www.yelp.com/biz/gary-danko-san-francisco`

Step 2: Parse the URL and find the business ID.

`'leJWawvw4oAb9EjAP-W5hA'`

Step 3: Calculate the following 4 metrics for the business:

User Rating Deviation

Business Rating Trend

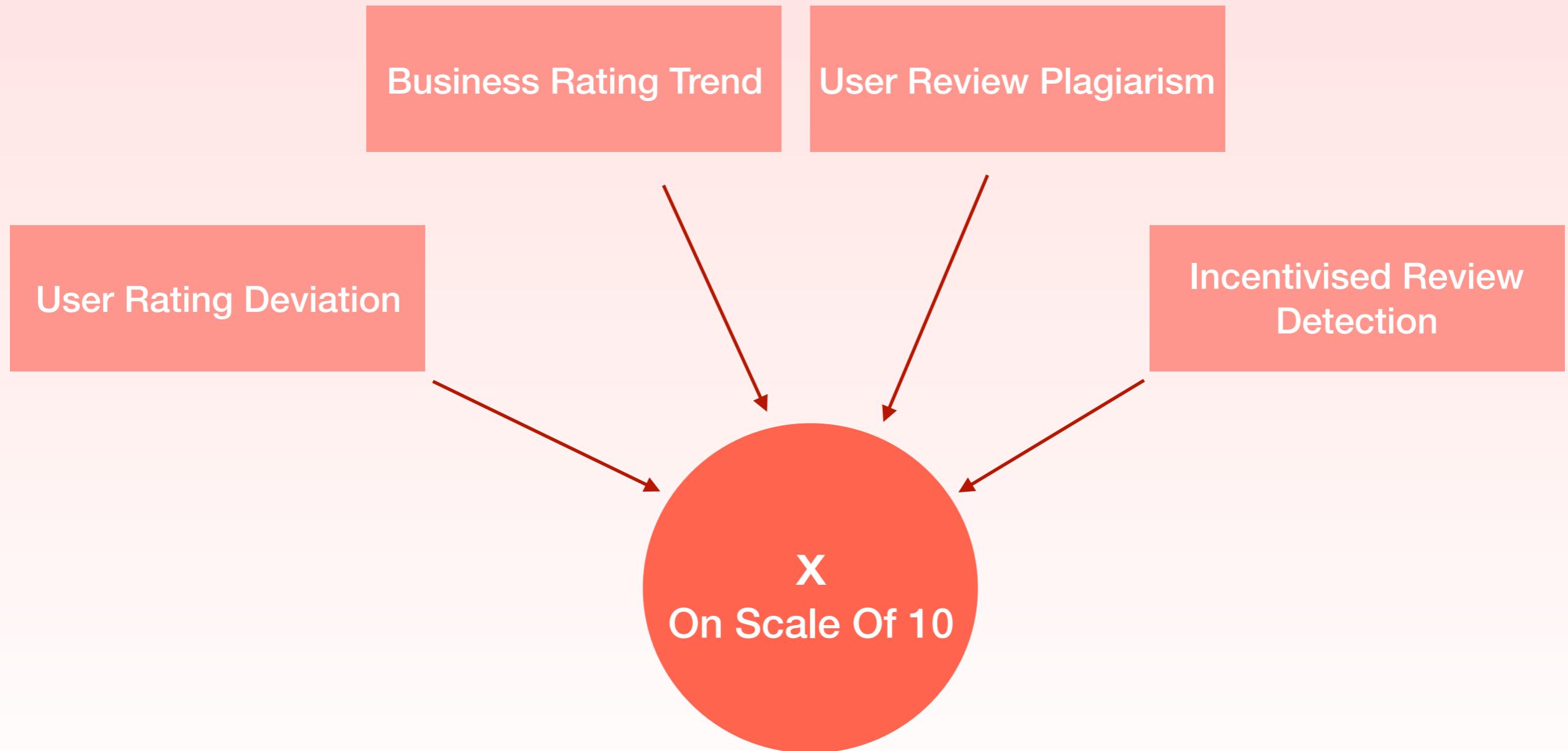
User Review Plagiarism

Incentivised Review
Detection



How?

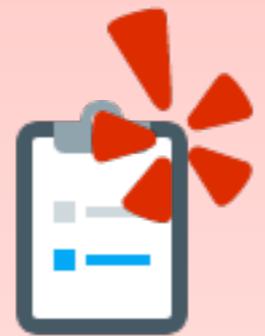
Step 4: Calculate the credibility score for all the reviews present on the business's profile page.





How?

Step 5: Show the visualisations in the form of graphs and statistics of the analysis done in Step 3.



Initial Work

done till now!





Preliminary Work

1 Lakh Users, Business, Reviews Data Collected



Preliminary Work

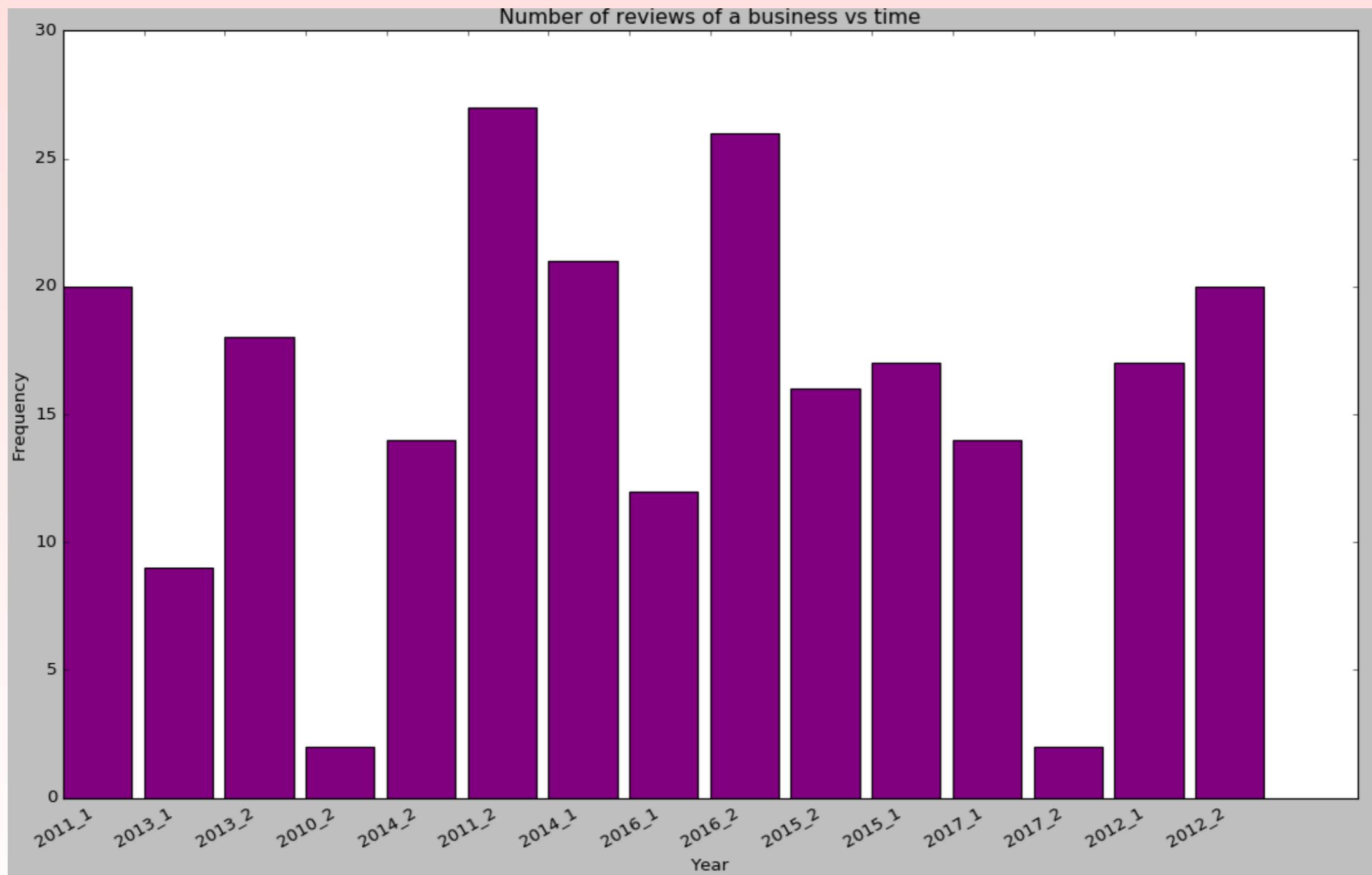
User Rating Deviation Analysis





Preliminary Work

Rating Trend Analysis





Preliminary Work

Examples



Himalayan Flavors

\$\$ • Indian, Himalayan/Nepalese

1585 University Ave
Berkeley, CA 94703

9/29/2013

What a cluster f#\$k !! Waitress brought my entree 10 minutes before bringing my wife's, totally forgot the appetizer and my daughter's entree. We sat trying to get someone's attention (while trying to eat our now cooling-off meals). So much fun trying to eat while glancing about for our missing-in-action waitress. Finally flagged down another waitress and spent a further 5 minutes waiting for our message to be delivered and for our waitress to return. We asked to cancel the appetizer, as both my wife and I had finished our meals, and to PLEASE, for god's sake, get my daughter something to eat other than that bowl of rice you brought to accompany her, as of yet ,non-existent entree. So the waitress cancels both the appetizer and my daughter's entree!! We finally surrendered and asked to just get out of this place as soon as possible. By way of apology they took \$2.60 off the bill!!! Can't imagine this could have been worse except, oh yes, the "medium spice" the waitress had advised turned out to be NO SPICE whatsoever! Abandon all hope ye who enter this place when the wait staff are this crew.

Was this review ...?

Useful 4

Funny 1

Cool 1



Kim's Cafe & Sandwiches

\$ • Sandwiches, Vietnamese, Cafes

1309 Solano Ave
Albany, CA 94706

6/15/2013

Used a Groupon, never been here before. Finished our vermeccelli bowl and sodas, had two spring rolls left over. I asked for a box and the very rude woman wanted \$2. Never see me in there again. Your loss.

Was this review ...?

Useful

Funny 1

Cool



Tacorea

\$ • Mexican, Korean, Latin American

809 Bush St
San Francisco, CA 94108

3/27/2017

Korean tacos are good. Not new, been done for a decade-plus now, and Tacorea isn't pushing the envelope here (and no, tater tots are not pushing the envelope), either with regards to creativity or execution. Stuff's fine, nothing special. Middling at best.

But here's the thing: the combination of poor delivery of the service and absurdly rude management (for evidence see any of the belligerent responses to reviews by David) makes what would otherwise be a 2 star review ("meh, I've experienced better") decidedly a 1 star review.

And let's be honest: the assembly of tacos and/or burritos is neither complex nor labor-intensive. Proper preparation of ingredients--proper barbacoa*, after all, is Jesus-brilliant and seemingly as technically demanding as rocket science, and let's not even talk about mole*--is often both of these, but any good taqueria takes care of that on the back end (and it's not like Tacorea is delivering on mind-blowing meats and sauce). So expecting customers to be OK with a 20 minute wait just because you inform them of it is absurd, and Tacorea is in desperate need of efficiency and attitude improvements.

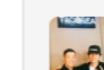
edit: *I am well aware that Tacoma does not serve these, but since their social media manager's reading comprehension skills are on par with his customer service skills, let me clarify: the implication was that the place doesn't even have the excuse of 40-ingredient sauces or slow-roasted whole-animal meat to fall back on.

Was this review ...?

Useful 4

Funny 1

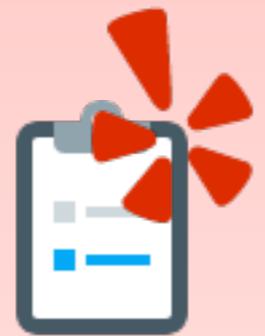
Cool 2



Comment from David L. of Tacorea

Business Owner

3/27/2017 • Mole? Barbacoa? We don't serve that



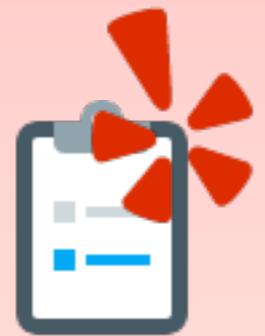
Next
things on our to-do list!





Next Steps

- Calculating the remaining metrics as mentioned earlier.
- Real-time review analysis. So that businesses not in Yelp Data Set, can also be analysed.
- Use phrase-repetition detection, in plagiarism analysis.



Your Feedback

is indispensable for us!

