



Impact of COVID-19 on Yelp Reviews

Sam Fong, Ryan Gillespie, Will Kleinschmidt, Scott Simons, Kim Woodbury

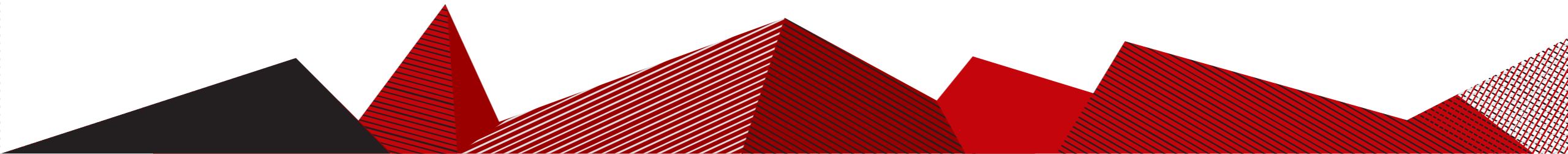
GEN BUS 760 Final Project

Professional MBA

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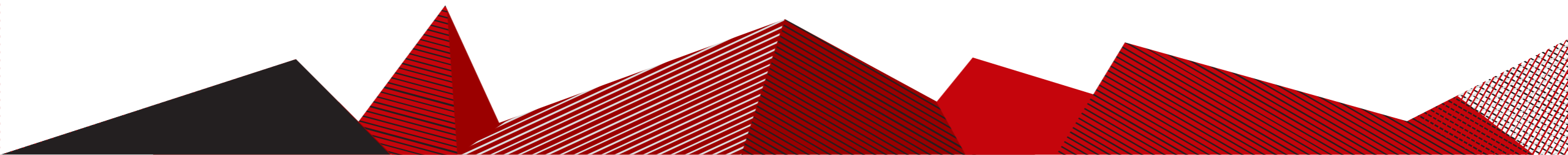
Agenda

- Research Questions & Hypothesis
- Proposed Methodology
- Data Collection
- Assumptions & Challenges
- Recap

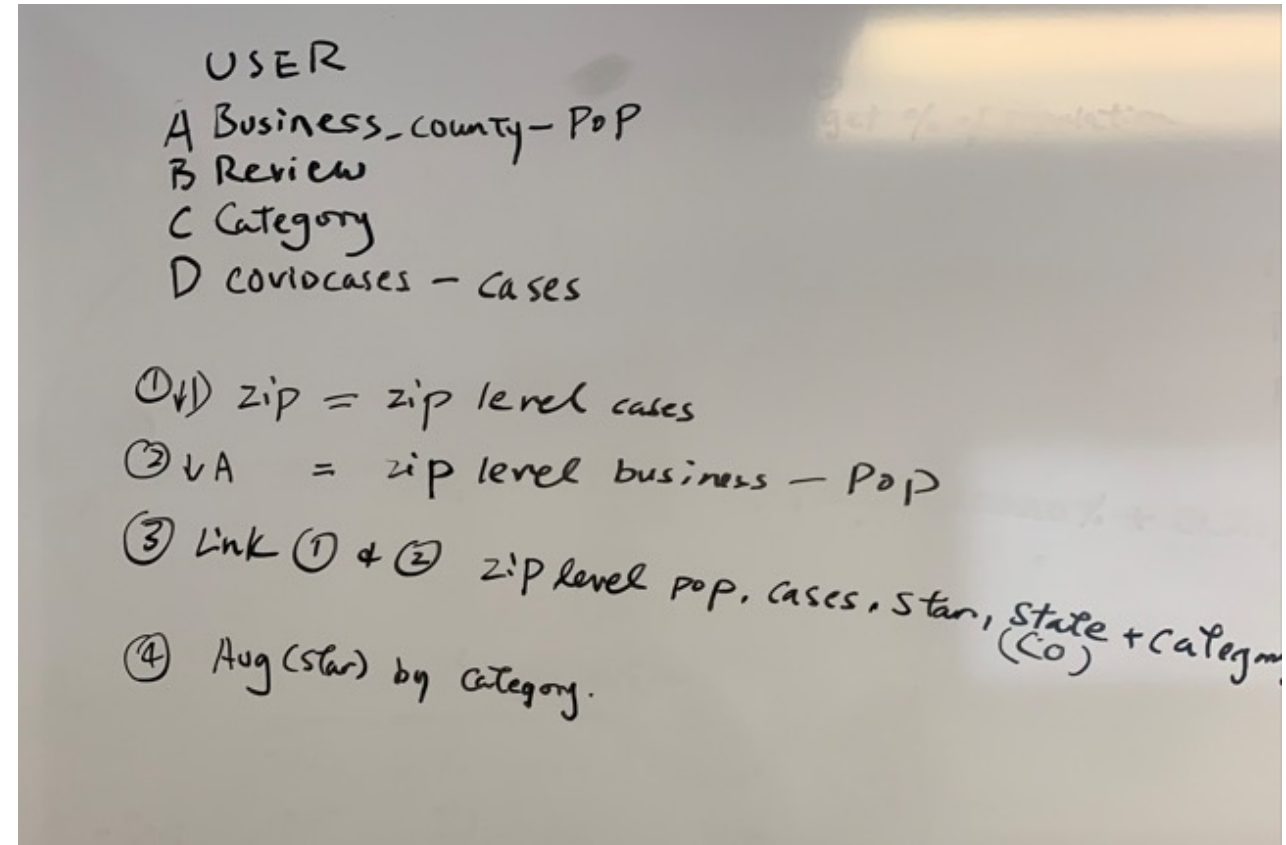
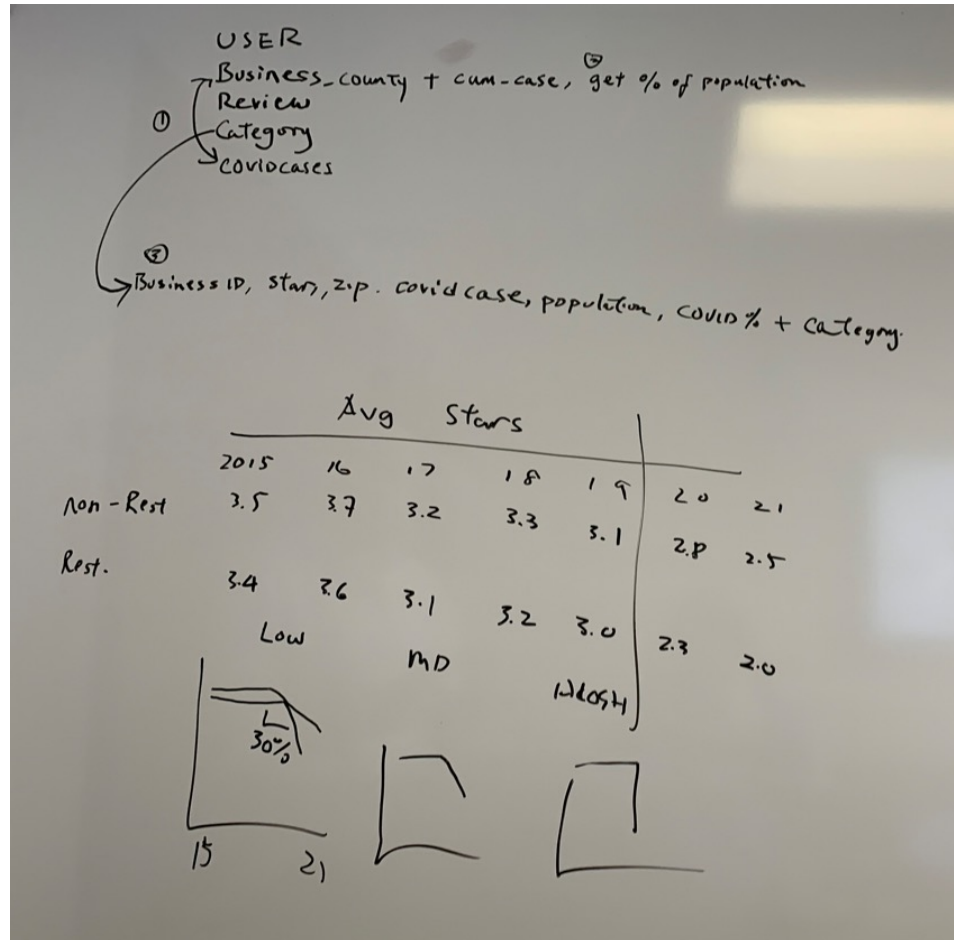


Research & Hypothesis

- **Business / research question:** Did the COVID-19 pandemic create an appreciable change in restaurant or other business Yelp reviews in 2020 as compared to pre-pandemic levels (from 2017-2019) in the United States?
- **Hypotheses:** Zip codes that experienced disproportionately high case counts will see an appreciable decline in both number of Yelp reviews and an overall decline in star ratings.

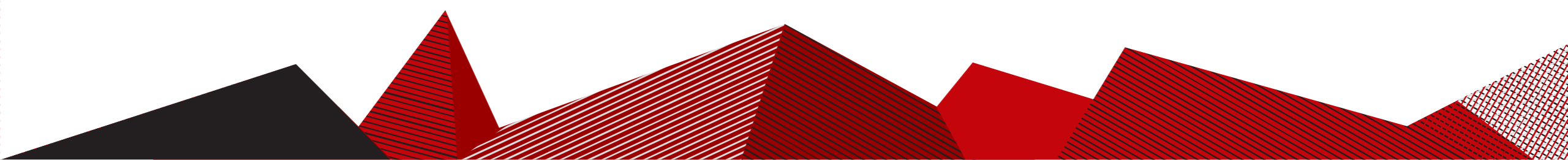


Proposed Methodology



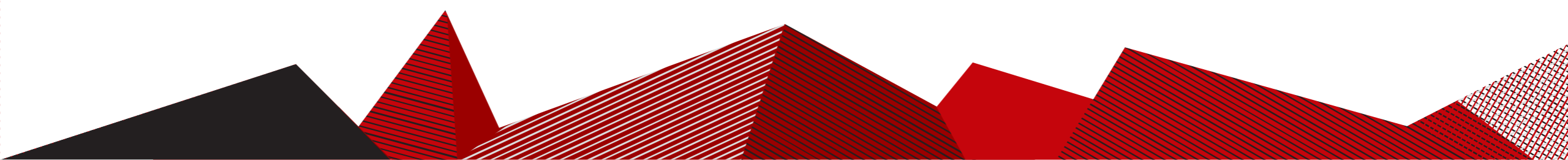
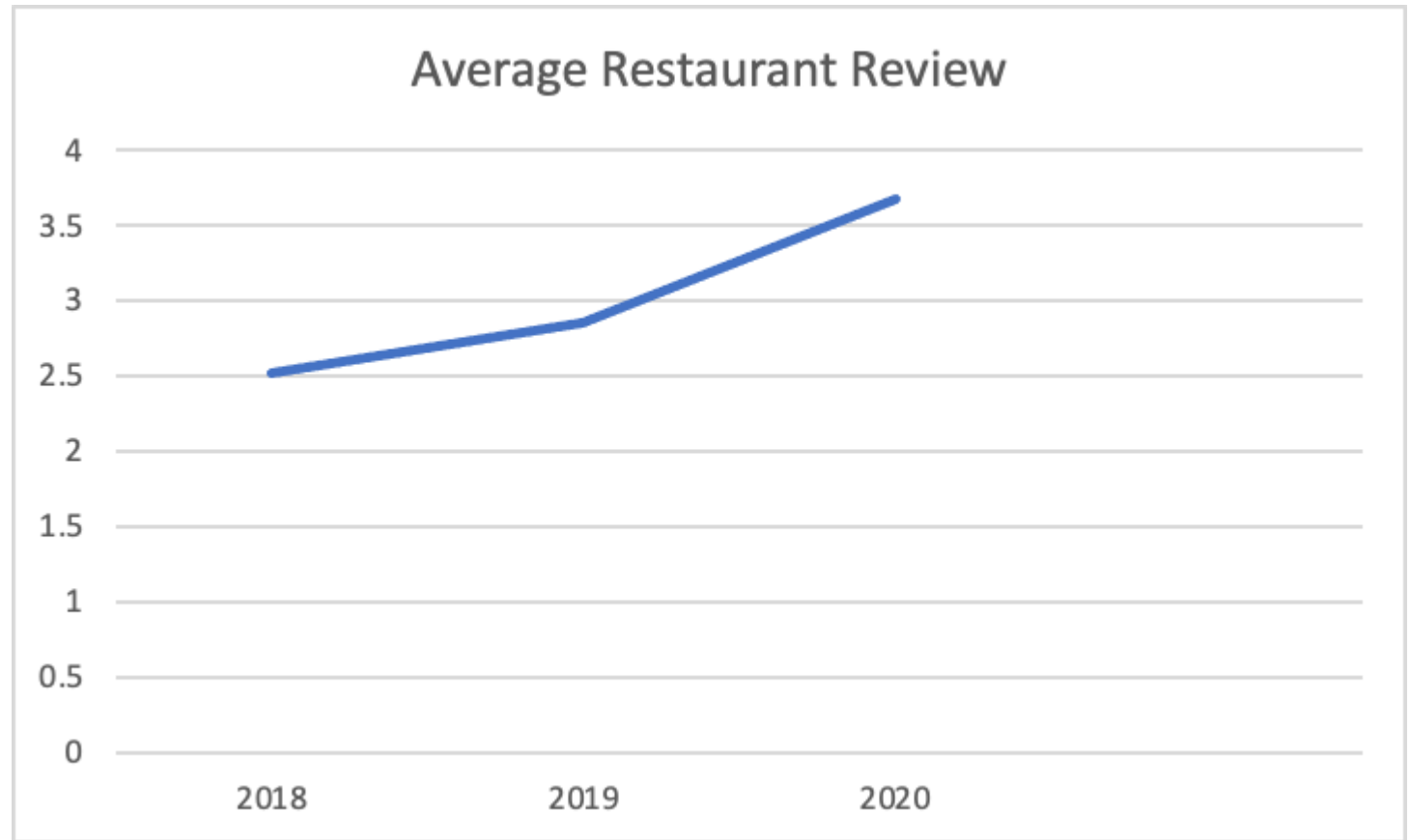
Data Collection

Star Ratings based on COVID Case Data			
Row Labels	Count of ZIP	Average of AVG_REST_STAR	Average of AVG_NON_REST_STAR
Restaurants	54247	3.78	3.87
AZ	2690	3.70	3.88
CA	1161	4.01	4.28
CO	1	4.00	4.00
DE	1021	3.67	3.58
FL	9038	3.84	3.93
HI	1	4.00	4.00
ID	1798	3.78	4.24
IL	1010	3.57	3.63
IN	4150	3.72	3.87
LA	3687	3.84	3.96
MO	4873	3.82	3.94
MT	1	5.00	5.00
NC	1	2.00	2.00
NJ	3892	3.68	3.65
NV	1928	3.79	4.18
PA	14078	3.78	3.74
TN	4917	3.73	3.88
Grand Total	54247	3.78	3.87



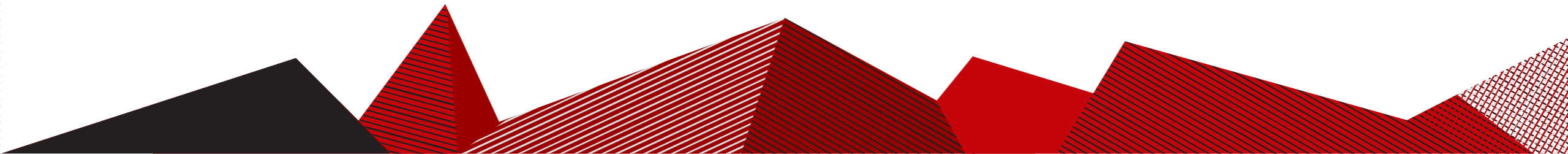
Data Collection

	Restaurant
2018	2.52
2019	2.86
2020	3.67



Challenges

- Challenges with dataset
 - Incomplete information
 - One to many
 - States, Counties, Canada, etc
 - Incorrect data entry
 - Actual: Saint Paul, Minnesota 55101, Ramsey County
 - Entry: Saint Paul, Wisconsin, 55101, Ramsey County
 - Entry: Philadelphia, Pennsylvania, 55101, Ramsey County
 - Example: Philadelphia, Pennsylvania 15501-19640



Data Collection

Yelp2 Week3 revised ACCOUNTADM

Worksheets Databases

Yelp2

- Week3 revised
- Week3
- countyjoin
- COVID
- Queries

Yelps

- Set Up

Tutorials

```
YELP.PUBLIC  
11 select a.business_id, b.category_name as cat from review_year2 a  
12 left join category b  
13 on a.business_id = b.business_id;  
14  
15 select * from category  
16 order by business_id  
17
```

Objects Query Results Chart

	CID	BUSINESS_ID	...	CATEGORY_NAME
53	206178	--OS_I7dnABrXvRCCuWOGQ		Car Rental
54	363840	--S43rulnmlsGrnnkmavRw		Music & DVDs
55	363841	--S43rulnmlsGrnnkmavRw		Vinyl Records
56	363844	--S43rulnmlsGrnnkmavRw		Shopping
57	363843	--S43rulnmlsGrnnkmavRw		Women's Clothing
58	363845	--S43rulnmlsGrnnkmavRw		Books
59	363847	--S43rulnmlsGrnnkmavRw		Music & Video
60	363846	--S43rulnmlsGrnnkmavRw		Mags
61	363842	--S43rulnmlsGrnnkmavRw		Fashion
62	173008	--SJXpAa0E-GCp2smaHf0A		Beer
63	173009	--SJXpAa0E-GCp2smaHf0A		Wine & Spirits

Zip Code Issues - PA

Worksheets Databases

YELP.PUBLIC

```
1  
2  
3  
4  
5  
6  
7  
8 select distinct state, zip from covidcases  
9 where state like '%Penn%'  
10 order by zip
```

Objects Query Results Chart

	STATE	ZIP
1	Pennsylvania	42001
2	Pennsylvania	42003
3	Pennsylvania	42005
4	Pennsylvania	42007
5	Pennsylvania	42009
6	Pennsylvania	42011
7	Pennsylvania	42013
8	Pennsylvania	42015
9	Pennsylvania	42017
10	Pennsylvania	42019
11	Pennsylvania	42021
12	Pennsylvania	42023

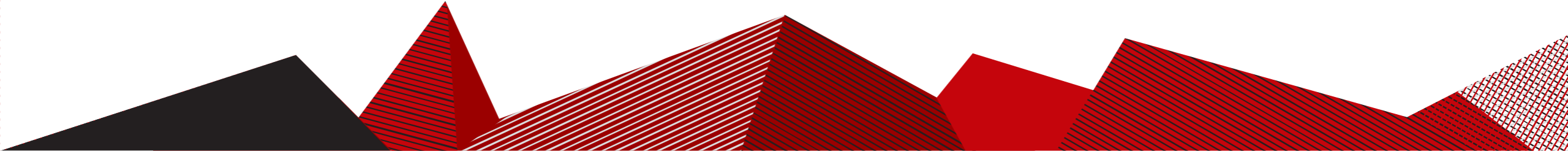
Worksheets Databases

YELP.PUBLIC

```
1 select distinct state, postal_code from business_and_county  
2 where state = 'PA'  
3 order by postal_code desc  
4  
5
```

Objects Query Results Chart

	STATE	POSTAL_CODE
1	PA	8340
2	PA	8102
3	PA	8002
4	PA	79047
5	PA	76903
6	PA	55101
7	PA	43215
8	PA	28217
9	PA	19874
10	PA	19804
11	PA	19703
12	PA	19603



Zip Code Issues – Where is 55101?

Worksheets Databases

YELP.PUBLIC ▾

```
3  
4  
5  
6  
7 |  
8 | select distinct state, zip from covidcases  
9 | where zip = '55101'
```

Objects Query Results Chart

	STATE	ZIP
1	Wisconsin	55101

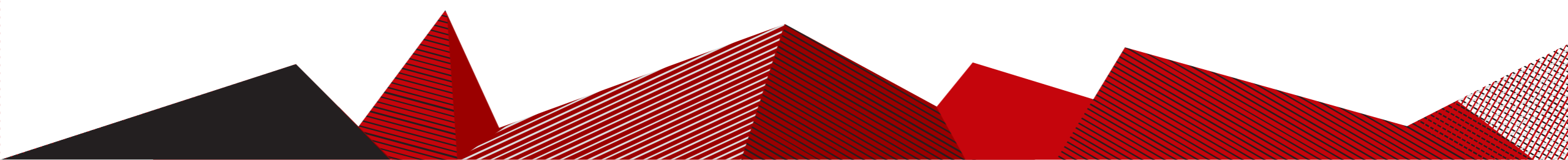
Worksheets Databases

YELP.PUBLIC ▾

```
1 |  
2 | select distinct state, postal_code from business_and_county  
3 | where postal_code = '55101'  
4 |  
5 |  
6 |  
7 | select distinct state, zip from covidcases
```

Objects Query Results Chart

	STATE	POSTAL_CODE
1	PA	55101



Downtown Saint Paul MN

Saint Paul, MN 55101

Menu

St Paul, MN 55101
Postal code

Cloudy · 68°F
7:56 AM

Directions Save Nearby Send to phone Share

Restaurants Hotels Attractions Museums Transit Pharmacy

St Paul, MN 55101

Map data ©2022 Google United States Terms Privacy Send feedback 2000 ft

The screenshot shows a Google Maps interface for downtown Saint Paul, MN. The search bar at the top left contains 'Saint Paul, MN 55101'. Below it is a 'Menu' button and a blue header image. The main map area shows a street grid with major roads like I-94 and I-35E. Landmarks such as the Minnesota State Capitol, Regions Hospital, and the Science Museum of Minnesota are labeled. The Mississippi River is visible on the right side. A sidebar on the left provides navigation options: Directions, Save, Nearby, Send to phone, and Share. At the top of the map, there are filters for Restaurants, Hotels, Attractions, Museums, Transit, and Pharmacy. The bottom of the map shows map data, copyright information, and a scale bar.

Recap

- Data validation is very important
 - Understand where your data is coming from and what is in it
- Budgeting time for rework is crucial
- The question is still valid and worth exploring if the data can be tied together
- Since we are leveraging two sources of data, we are assuming that if there is a change in the results, it is directly correlated to the pandemic impacting restaurants and bars.

