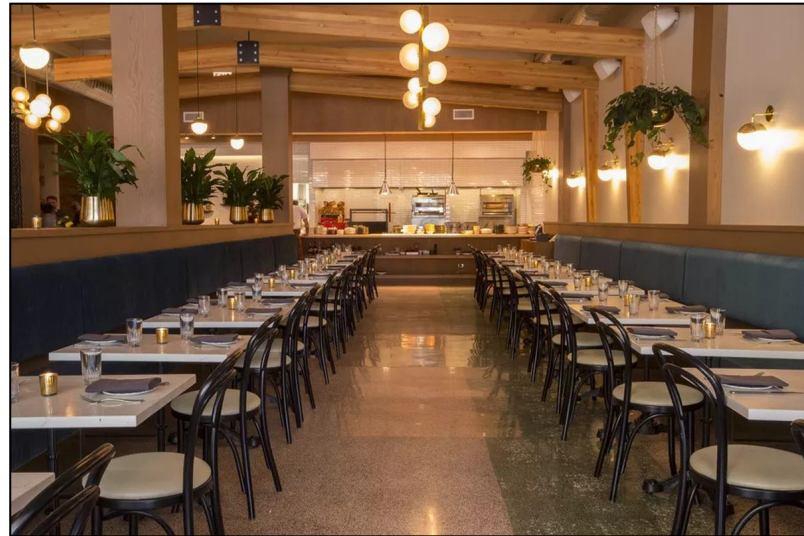# Restaurant Industry Analysis during COVID-19

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Topics for today

- ❖ Our Approach
  - ➤ Questions to answer
  - ➤ Data Sources
- ❖ Code Review for Data cleanup
- ❖ Visualizations
- ❖ Improvements
  - ➤ API Issue
  - ➤ Lessons Learned

Our Approach

- ❖ Wanted to understand the economic impact due to COVID-19 on the restaurant industry
- ❖ Used three data sources from Yelp
  - ➢ JSON File (2)
  - ➢ 'Yelp Fusion' API
- ❖ Issues with datasets
  - ➢ Two separate APIs
  - ➢ API limits 50 -> 1,000 records
  - ➢ Limit/Offsets
 - ➢ Limiting Parameters

Data Sources - Continued.

❖ After clean up and filtering our data did not allow for a total time-phased analysis - will be addressed later in improvements

❖ Our final output consisted of Yelp's Fusion API merged with a Yelp Covid JSON file that contained various pandemic related updates to restaurants where we hoped to draw several conclusions about the impact of the pandemic

|	BusinessID	Name	Category	Closed	Rating	City	State
2889	Q6nhycv6JGREujknLYz2wg	Someburros	Mexican	False	3.5	Phoenix	AZ
2923	gn9cc6-VLuCClqkWCtNcpg	Mi Pueblo Mexican Grill	Mexican	False	3.5	Charlotte	NC
2977	EPBEz9ifFo6JqPUUH_BdMg	Thai Thai Takeout	Thai	False	3.5	Charlotte	NC
3188	sjiTzC2aoy13iPuIvk37Ew	Jet's Pizza	Pizza	False	4.5	Phoenix	AZ
3200	QDqn9XWn_B-Rbc0DDMEljw	Yummy Crab	Seafood	False	3.5	Charlotte	NC
...	...	...	...	...	...	...	...
28794	3MntE_HWbNNoyiLGxywjYA	Toppers Pizza	Pizza	False	3.5	Charlotte	NC
28846	JvCuy7FEZoiZ-7cABfHKSA	PT Pho Express	Vietnamese	False	4.0	Phoenix	AZ
28860	AjWFFZN8KwyqJzzi0DyEsw	Burger Brasserie	Burgers	False	3.5	Las Vegas	NV
28867	_mg5bYknpZgaWSfjQVmrJQ	Spinato's Pizzeria	Pizza	False	4.0	Phoenix	AZ
28870	iAu8s96GKQ73Xe7j_2GyCQ	Jackson's Bar & Grill	Sports Bars	False	4.0	Las Vegas	NV

Code Review

Impacts on different cuisine by analyzing the status of rating in different cities:
Higher the average rating, better performance
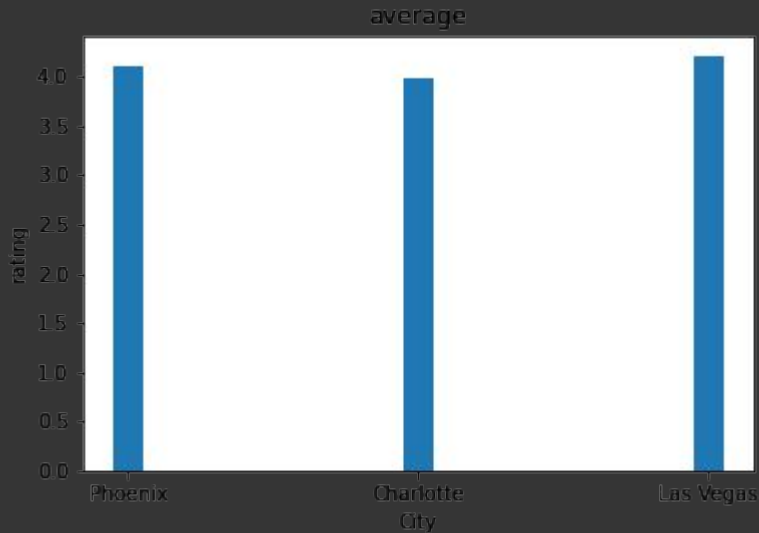
	Name	means
0	Phoenix	4.107
1	Charlotte	3.986
2	Las Vegas	4.208

Observation: Delivery and Takeout are Essential to Survival and Growth

Percentage of Restaurants w/Delivery /Takeout

Not Offered

4.52%

95.48%

Delivery/Takeout Offered
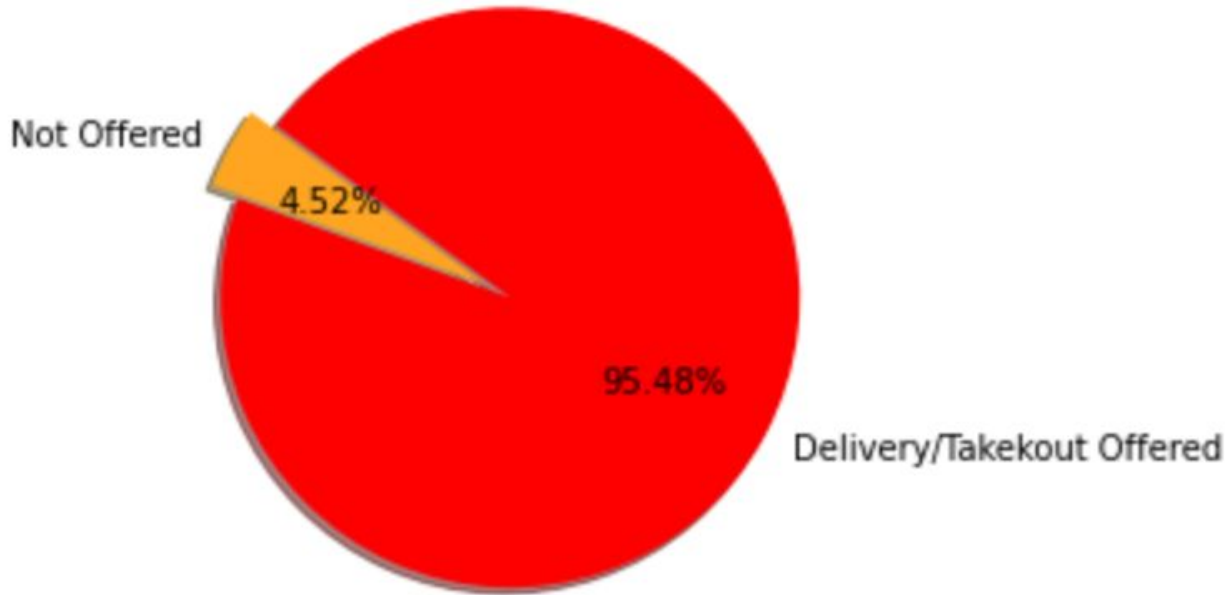
Baseline value (Pre-COVID) = **64.70%**

An increase of **30.78%** = monumental shift
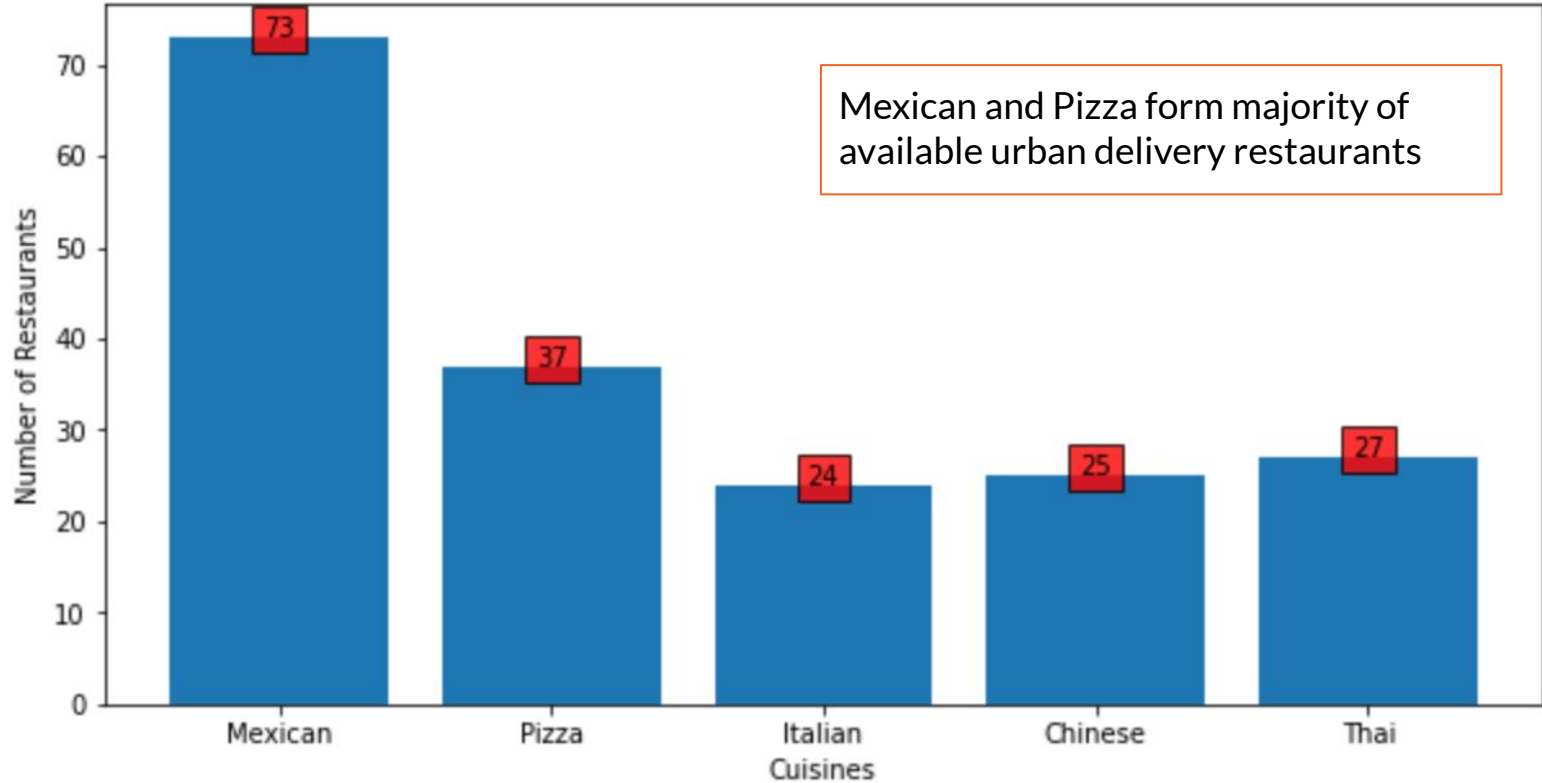
Observation: Thai, Pizza and Mexican Places proportionally form majority of delivery-enabled restaurants

Grubhub Enabled Percentage by Cuisine

Mexican 18.7%
Thai 24.8%
Pizza 22.4%
Italian 16.8%
Chinese 17.4%
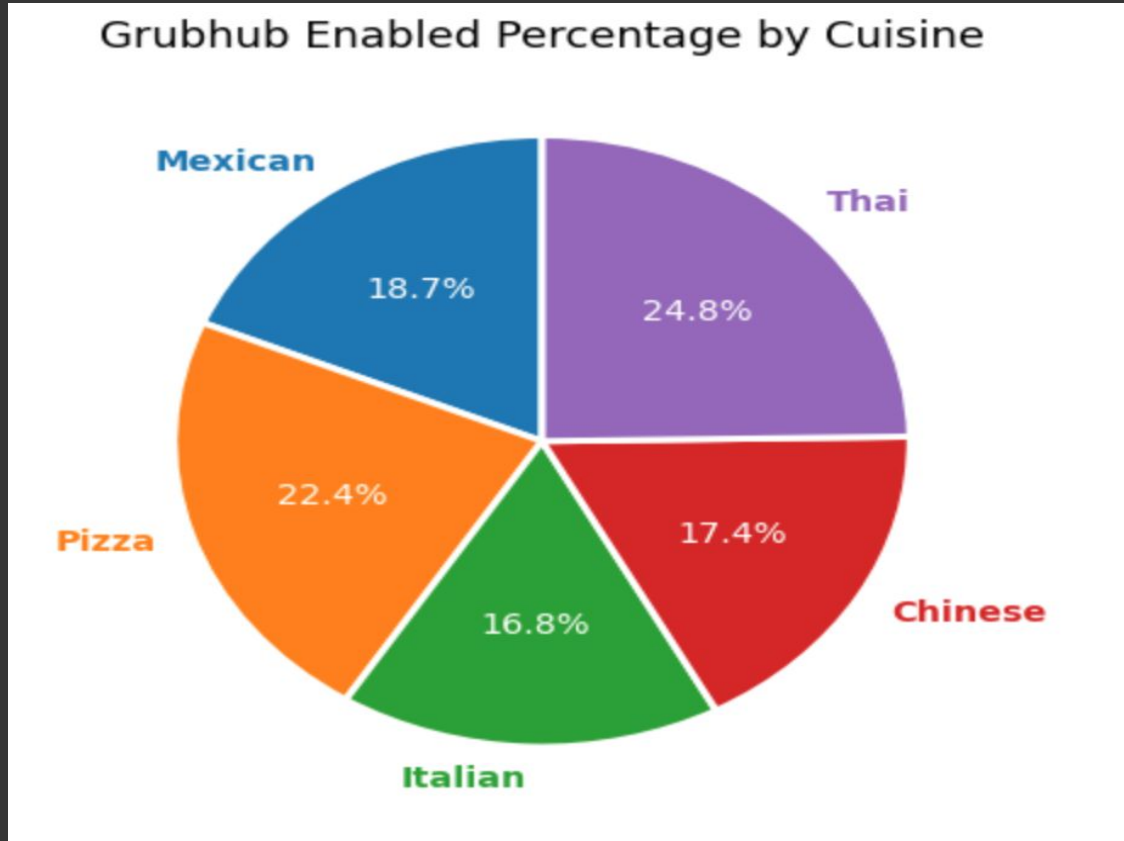
Roughly equal distribution by top 5 cuisines

Cafes and Coffee Shops were the lowest in comparison (less than <1%)

Observation: Restaurants that deliver correlate with higher rating

Cuisine by Rating

Cuisine	Rating
Thai	4.10
Chinese	3.71
Italian	3.87
Pizza	3.99
Mexican	3.92
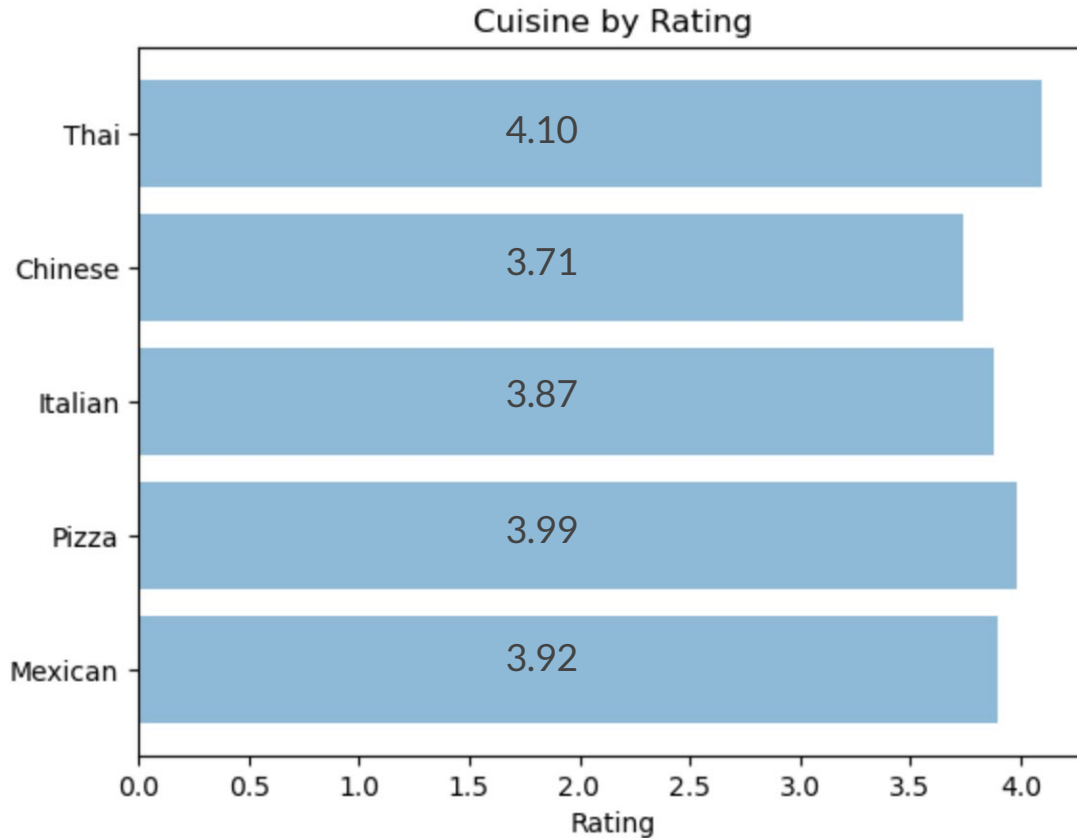
Rating range
=
2.5 - 5.0

P value = 0.036

Significant Correlation

Improvements

Working with this API had its limitations:

➜ **Limited Dataset**
  -Shows only current data

  -Variables with more insight:

  Price Category, Temporarily Closed,
  Permanently Closed, Transaction Type

➜ **Public Dataset**

  - To gain insight growth and survival, variables to
    include:

Revenue, # of employees, consumer interest,
marketing cost, internal costs vs baseline values

'Most variables are available with Yelp Developer Beta
Program

Improvements

Working with this API had its limitations:

➜ **Timeframe**
   -Shows only current data

   -Timeframe set between **March 2020 - May 2021** of aforementioned variables

➜ **Geographic Impacts**

   - Dataset focuses on 4 urban cities, comparison needed with suburban and rural areas to compare COVID-19 impact
   - Use of Heat Map on focused area (Chicagoland area, 50 mile radius)