# Business Data Technologies

**Covid-19 Impact: Business Trends and Insights By Categories**

Team White

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# Data Collection and Description:

❏    We have considered Yelp dataset and COVID-19 dataset.

❏    We have considered data for 14 states in the United States based on number of Active Businesses

❏    Categories with businesses less than 100 were excluded for the analysis

❏    All the data is between the timeframe Jan 1st, 2011 - Dec 31st ,2021

❏    Limitations of Dataset :
     ❏    Incomplete Information
     ❏    Incorrect Data entry at multiple points.

**Part 1: Hypothesis Analysis**

Hypothesis 1: Number of Active Business in the United States increases year on year except COVID-19 years (2020 and 2021)

Hypothesis 2: The Average rating for Businesses is affected during Covid-19 years (2020 and 2021)

**Part 2: Exploratory Analysis**

Exploring Yelp and Covid dataset for Pre-Covid (2018-2019) and Post-covid (2020-2021) years.
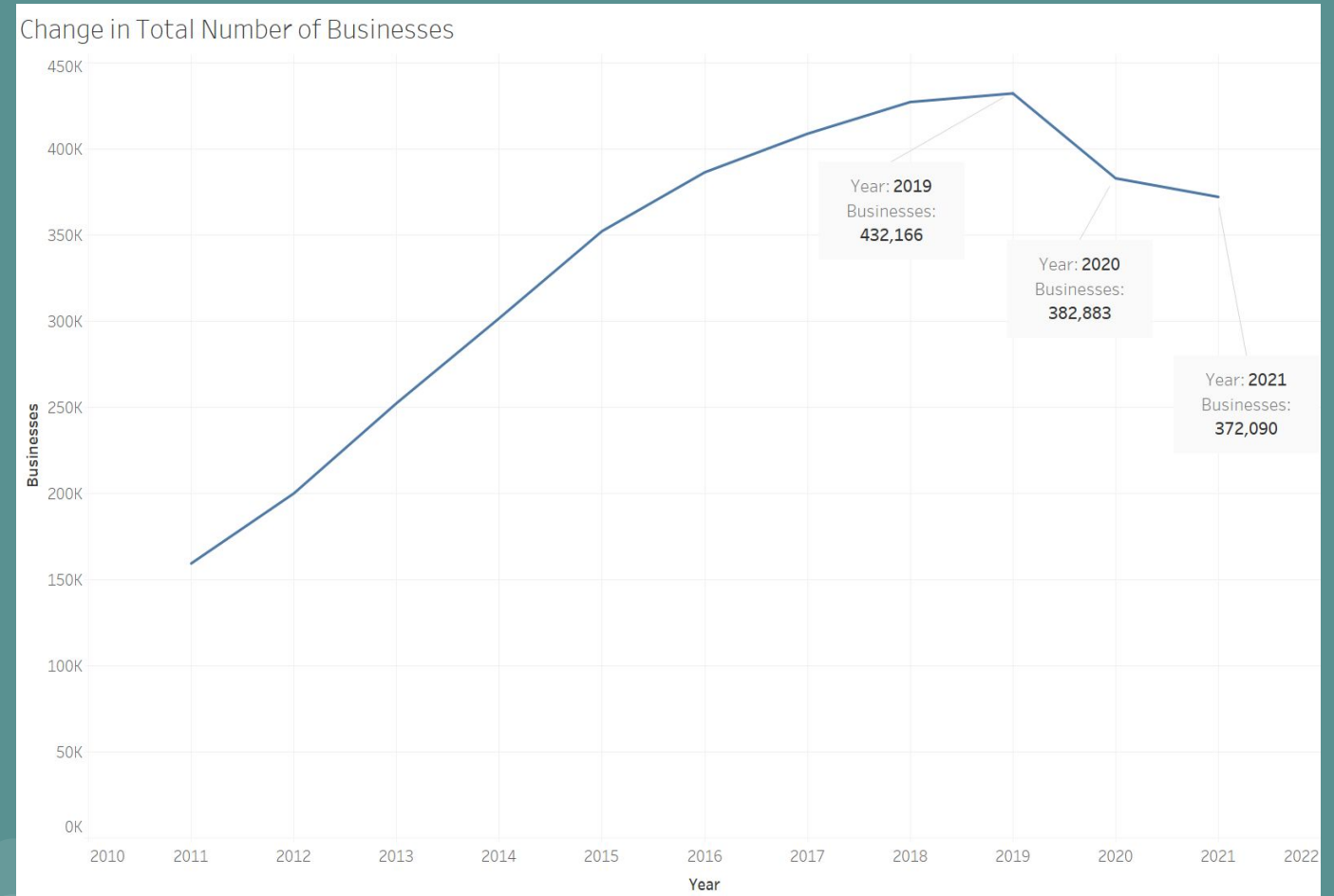
Considering the following Three KPIs for analysis:

I.    % Change in Total Number of Active Businesses in each Category
II.   % Change in Popularity with respect to Categories.
III.  Change in Quality/Perceived Quality of Businesses across Categories.

# Hypothesis Analysis-1

Hypothesis: Number of Active Business in the United States increases year on year except the COVID-19 years (2020 and 2021)

- According to our initial hypothesis, the number of businesses continuously rose from 2011-2019
- Due to the Covid-19 impact, it dropped by 13.89% between 2019-2021

Result: Hypothesis proved to be Correct

### Change in Total Number of Businesses

Year: **2019**
Businesses:
432,166

Year: **2020**
Businesses:
382,883

Year: **2021**
Businesses:
372,090

Businesses

Year

we also observed the trend for each Category in the Dataset.
Showcasing here the trends on category level for top 10 categories:

**Active BUSINESSES**

| Categories | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Trends |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Automotive | 2210 | 3066 | 4152 | 5265 | 6388 | 7010 | 7270 | 7711 | 7775 | 7022 | 6909 | |
| Bars | 3998 | 4542 | 5139 | 5741 | 6308 | 6672 | 6973 | 7289 | 7354 | 6734 | 6662 | |
| Beauty & Spas | 2899 | 3932 | 5132 | 6475 | 7729 | 8714 | 9245 | 9838 | 10046 | 8187 | 8089 | |
| Event Planning & Services | 3403 | 4080 | 4778 | 5501 | 6129 | 6568 | 6830 | 7086 | 7069 | 5978 | 5928 | |
| Food | 7993 | 9810 | 11789 | 13442 | 14934 | 15900 | 16719 | 17440 | 17816 | 16833 | 16507 | |
| Health & Medical | 1797 | 2580 | 3698 | 4807 | 6059 | 7052 | 7686 | 8247 | 8476 | 7079 | 6791 | |
| Home Services | 1645 | 2501 | 3754 | 5139 | 6814 | 8205 | 8870 | 9828 | 9960 | 9228 | 8813 | |
| Nightlife | 4490 | 5048 | 5737 | 6411 | 7024 | 7381 | 7682 | 8005 | 8043 | 7272 | 7216 | |
| Restaurants | 18455 | 21449 | 24291 | 26838 | 29121 | 30409 | 31321 | 32552 | 33100 | 31190 | 30592 | |
| Shopping | 6358 | 7856 | 10099 | 11902 | 13841 | 14916 | 15545 | 15851 | 15770 | 13653 | 13201 | |

# Hypothesis Analysis-2

Hypothesis: The Average rating for Active Businesses is affected during Covid-19 years (2020 and 2021)

- In contrary to our initial hypothesis, Overall "average stars" does not see any difference pre and post covid

Result: Hypothesis proved to be Incorrect.



Change of Average Stars overall in Each Year in US
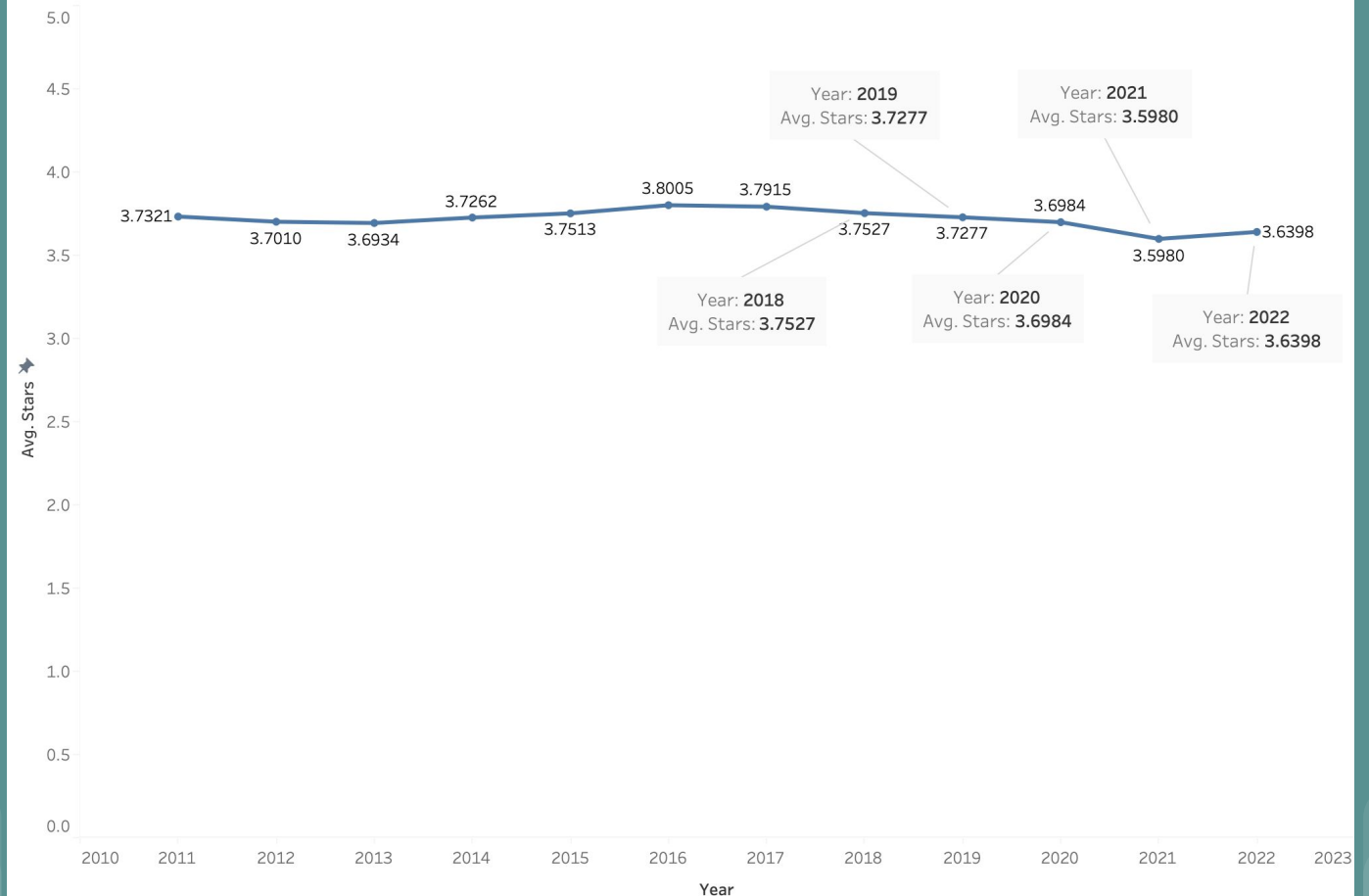
# Exploratory Analysis

- Pre covid (2018 - 2019) vs Post covid (2020 - 2021)

  - % Change in Active Businesses:
    - (# Post-Covid Businesses ) - (#Pre-Covid Businesses)/ (# Pre-Covid Businesses )

  - % Change in Popularity with respect to Categories
    - (# Post-Covid Reviews ) - (#Pre-Covid Reviews)/ (# Pre-Covid Reviews )

  - Change in Quality of the Categories
    - (Post-Covid Avg. rating ) - (Pre-Covid Avg. rating)

# % Change in Active Businesses

**Best and Worst performing Categories**
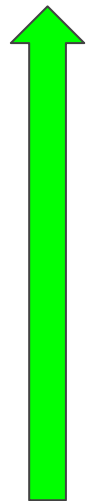
| Biggest Risers (%) | | Biggest Fallers (%) | |
|---|---|---|---|
| **22.6%** | Ramen | **50.6%** | Festivals |
| **21.4%** | Cannabis Dispensaries | **32.9%** | Libraries |
| **21.2%** | Bubble Tea | **31.4%** | Boxing |
| **20.5%** | Cannabis Clinics | **30.7%** | Barre Classes |
| **16.9%** | Brewpubs | **30.3%** | Boot Camps |

Note: Changes in law  may have affected Cannabis Businesses

# INCREASED CANNABIS LEGALIZATION

## September 2019



Marijuana legalized for medical and recreational use

Marijuana legalized for medical use

## November 2022



Recreational   Medical   Illegal
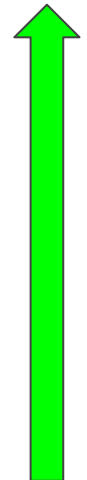
Note: Updated as of Nov 9, 2022.

# % Change in Popularity

**Best and Worst performing Categories**

## Biggest Risers (%)

| | |
|---|---|
| **51.7%** | Mortgage Lenders |
| **35.1%** | Cannabis Dispensaries |
| **20.7%** | Irrigation |
| **20.0%** | Guns & Ammo |
| **15.0%** | Mailbox Centers |

## Biggest Fallers (%)

| | |
|---|---|
| **73.4%** | Cinema |
| **66.2%** | Stadiums & Arenas |
| **66.2%** | Boxing |
| **65.9%** | Performing Arts |
| **65.4%** | Festivals |

# SPIKE IN LENDER USAGE DURING/POST COVID



Mortgage Lenders Review Count

Legend: Pre COVID, Post COVID — Review Count
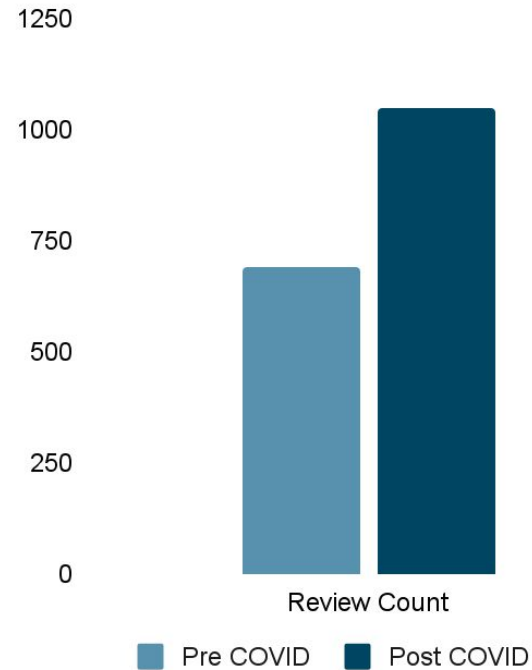


Mortgage originations on one-to-four family properties in the United States from 1st quarter 2012 to 4th quarter 2021, by type (in billion U.S. dollars)
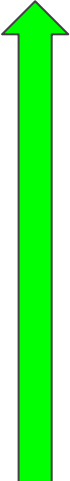
Legend: Purchase, Refinance
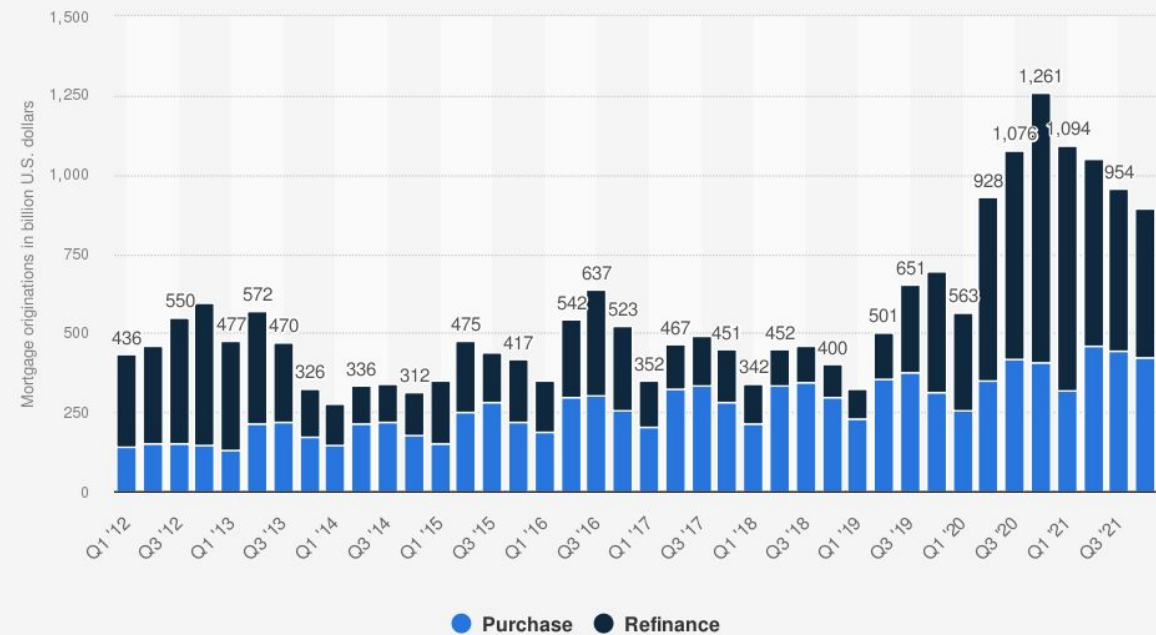
Source
Mortgage Bankers Association
© Statista 2022

Additional Information:
United States; Mortgage Bankers Association; Q1 2012 to Q4 2021

# Change in Quality/Perceived Quality of Categories

**Best and Worst performing Categories**

## Biggest Risers

| | |
|---|---|
| **0.44** | Security Systems |
| **0.42** | Auto Insurance |
| **0.30** | Shoe Repair |
| **0.29** | Pasta Shops |
| **0.27** | Dry Cleaning/Laundry |

## Biggest Fallers

| | |
|---|---|
| **0.88** | Walk-in Clinics |
| **0.74** | Hot Tub & Pool |
| **0.73** | Family Practice |
| **0.71** | Urgent Care |
| **0.68** | Cannabis Clinics |

# GENERAL TREND

**91%**  Categories decreased in # of businesses

**96%**  Categories decreased in # of reviews

**66%**  Categories decreased in average star rating

Only **3** Categories increased in all three areas:

- **Gardening**
- **Landscaping**
- **Tree Services**

# Key Takeaways:

- General impacts of Covid-19: Strong downward trends in business staying power, perceived quality, and consumer interactions with businesses.
- Average Rating for Clinics dropped the most.
- Bottom performers generally include places for gathering, recreation, or art.
- Stay-at-home was a boon for certain consumer goods and services, with a special mention for loan servicers.

# Thank you!