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ANALYTICS FOR A SMARTER FUTURE

Industry Layoffs

Navigating the Unpredictable Terrain of Workforce Reductions

For the Students of Analytics at UChicago and Active Job Seekers

PUMP Consulting



**Priya
Suvvaru**



**Monika
Shukla**



**Parth
Bansal**



**Urvaj
Shah**



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Agenda

- **Problem Statement**
 - Executive Summary/ Background
 - Business Problem and Objective
- **Methodology**
 - Data Profile
 - Final Dataset and Tools
 - Data Limitations
- **Exploratory Data Analysis**
- **Conclusion**
 - Key Findings
 - Recommendations
 - References

Tech Layoffs in 2023 Are Feeding a New Startup Surge

Tech companies laid off at least 160,000 workers in 2022, according to Layoffs.fyi, a site that tracks job losses in the industry.

2 weeks ago

Tech Leads US Layoffs with 21,387 Workers Sacked in February

Challenger data shows that the tech sector accounted for 35% of all layoffs in 2023. US employers cut 77,770 jobs in February, down 24% from...

8 hours ago

Atlassian Joins Mass Tech Layoffs With 500 Employees Cut

Atlassian, the project management software vendor behind Jira, Confluence and Trello, is the latest tech company to announce layoffs...

2 days ago

What can Seattle's 1970s 'Boeing Bust' teach us about recent ...

... some wisdom about what's ahead following recent tech layoffs. ... Hanging over these recent layoff stories is the specter of a past...

2 days ago

What's Behind the Tech Layoffs?

From tech to finance to media, the recent spate of layoffs has affected some of the world's most high-profile companies – many of which were...

A comprehensive list of 2023 tech layoffs

In 2023, layoffs have yet again cost tens of thousands of tech workers their jobs; this time, the workforce reductions have been driven by the...

1 day ago



Could tech layoffs elsewhere help Buffalo Niagara firms find ...

The mass layoffs mark the end of a period of rapid growth in the tech industry due to a demand for their products, software and services...

10 hours ago

How to Survive if You Were Part of the Tech Layoffs

Google, Amazon, Facebook, Salesforce, countless crypto startups, Microsoft: These are the tech companies, great and small, that have been...



Big Tech layoffs grab headlines. But it could be worse, economists say

Big Tech layoffs grab headlines. But it could be worse, economists say · 2023: 11 layoff actions impact 690 workers · 2022: 6 layoff actions...

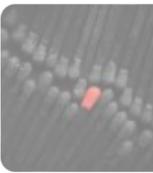
3 days ago



Tech Layoffs: Why Tech Is Getting Hit so Hard

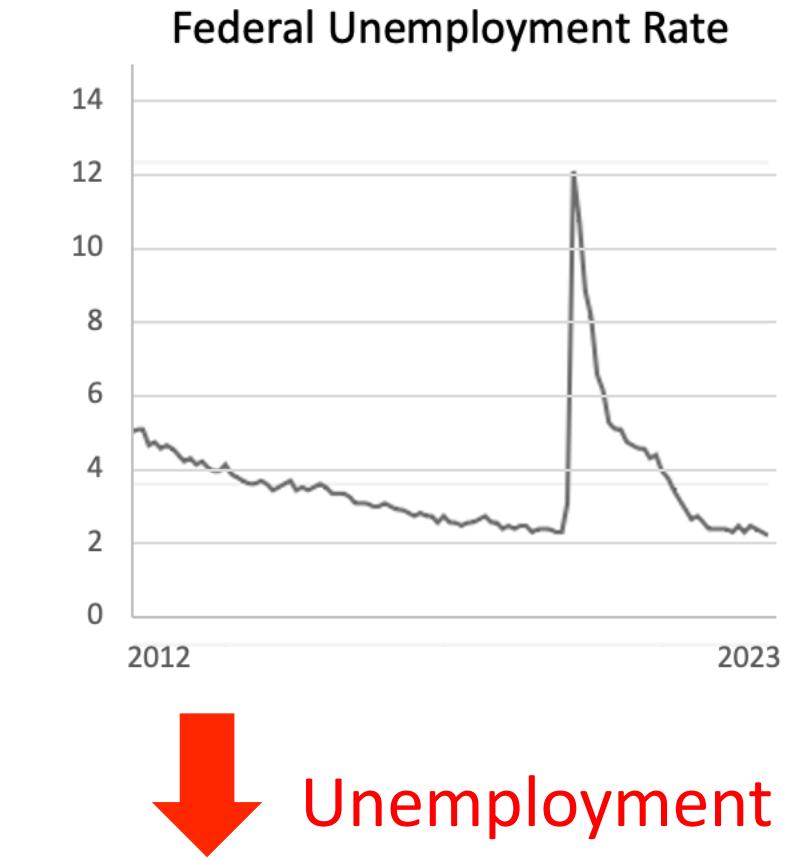
Tech layoffs began in 2022, and have only increased this year, a trend that isn't promised to stop with a likelihood of a few more quarters of...

3 weeks ago



Industry layoffs skyrocket as employment rates hit historic lows

The job industry experienced a significant increase in layoffs in 2022, **rising by 649%**. This trend has occurred at a time when the employment rate is at one of its lowest levels in recent history, **currently standing at 3.4%**. The impact of these layoffs on the industry, its employees, and the broader economy remains to be seen. Further analysis is necessary to understand the underlying causes and potential consequences of these trends.





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Business Problem and Impact



Business Problem

For job seekers in the tech industry, the current business climate presents a significant problem. With employment rates at historic lows, competition for available positions is fierce. Additionally, the recent surge in tech industry layoffs has further limited job opportunities and increased the number of qualified candidates seeking employment.



Value & Impact

Addressing this problem statement requires a multi-faceted approach. Our project aims to provide credible information for job seekers navigating the competitive job market. We would like to help present the information and support decision making with facts – enabling people to maximize their reach when job searching.



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Methodology

Data Profile

Data Source – Lay Offs Kaggle, Data Commons, LinkedIn Open Positions Data

No. of files – 3 csv files

Data Timeline – March 2020 – February 2022

of data points (pre-processing) ~ 2,500 + 26,000

of features (pre-processing) – 12 + 10

#	Column	Non-Null Count
0	Company	2317 non-null
1	Location_HQ	2317 non-null
2	Industry	2317 non-null
3	Laid_Off_Count	1589 non-null
4	Date	2316 non-null
5	Source	2317 non-null
6	List_of_Employees_Laid_Off	2316 non-null
7	Funds_Raised	2113 non-null
8	Stage	2317 non-null
9	Date_Added	2317 non-null
10	Country	2317 non-null
11	Percentage	1550 non-null



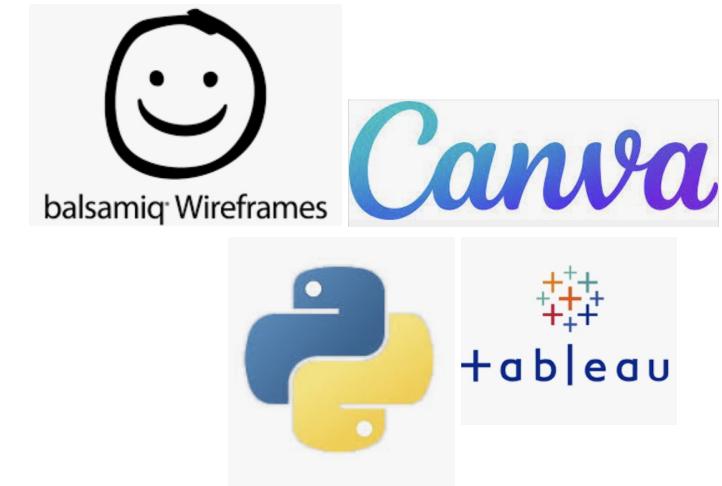
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Final Dataset and Tools Used

	Company	Location_HQ	Industry	Laid_Off_Count	Date	Source
0	Sono Motors	Munich	Transportation	300.0	2023-02-27 00:00:00	https://twitter.com/sonomotors/status/16302462...
	List_of_Employees_Laid_Off	Funds_Raised	Stage	Date_Added	Country	Percentage
	https://docs.google.com/spreadsheets/d/1I_rGoc...	126.0	Post-IPO	2023-02-28 05:02:15	Germany	NaN

(2317 data points, 12 features)

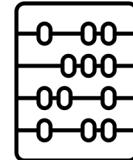




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Data Preparation

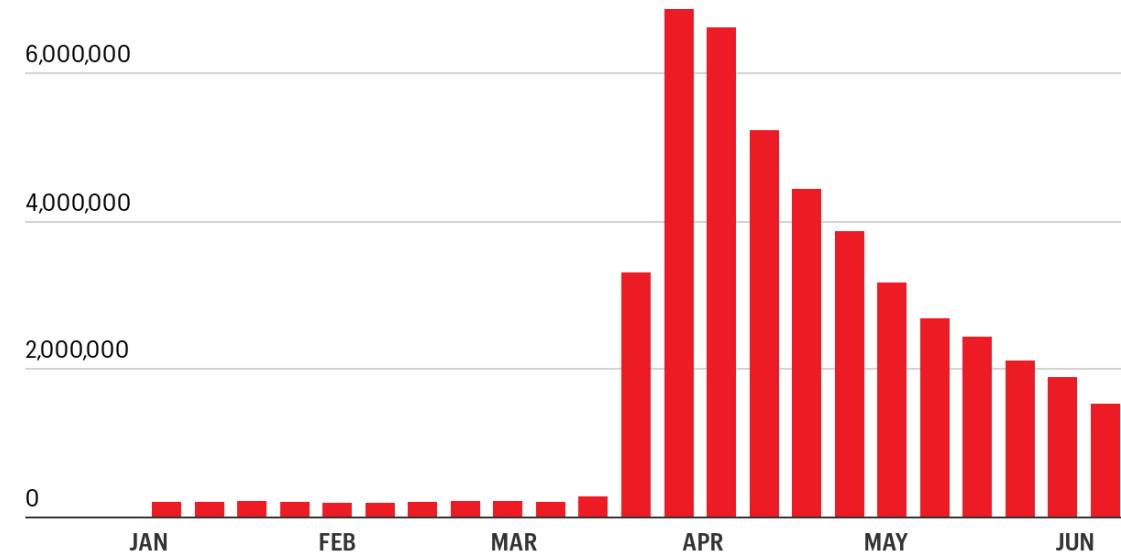


- **Redundant column removal** - Eliminating unnecessary columns from the dataset to improve efficiency and reduce noise in the analysis.
- **Randomness check of missing data (MSNO)**- Examining patterns of missing data in the dataset to determine whether they are random or systematic, and adjusting the analysis accordingly.
- **Scaling** - Standardizing the scale of the dataset to improve consistency of different variables.
- **New Features** - Created new columns variables based on location and timestamps

Data Limitations

- **Obtaining accurate downsizing figures** can be a challenging task as many companies choose not to disclose this information, particularly when they have multiple departments located across various regions of the world. The decentralized nature of these companies can make it difficult to pinpoint specific figures related to workforce reductions.
- The **COVID-19 pandemic** has had a significant impact on the dataset used analysis layoffs. The pandemic caused a major disruption to all industries, resulting in significant changes to market demand and supply. As a result, historical data may not be as reliable for analyzing layoffs during the pandemic.

Weekly initial unemployment claims in 2020



tempmin	temp	feelslikemax	feelslikemin	feelslike	dew	humidity	precip	precipprob	precipcover	preciptype	snow	snowdepth	windg
2.6	-7.4	-2.6	-13.6	-25.8	-19.6	-12.6	61.6	0	0	0	0	0	0.8
6.3	-8.9	-1.1	-10.1	-27.9	-18	-9.3	67.8	0	0	0	0	0	0.5
17.8	7.2	13.9	5.1	-8.2	-0.3	4.4	65.7	0	0	0	0	0.4	0.7
12.7	1.9	6.5	-1.1	-16.1	-9	-4.2	61.1	0	0	0	0	0	0.6
11	0	5.3	-3.3	-15.7	-9.4	-5.6	60.8	0	0	0	0	0	0.4
15.7	-0.3	7.3	15.7	-15.5	-3	-5	57.6	0	0	0	0	0	0.4
33.2	8.1	22.7	22.9	-6	10	13.4	67.4	0.031	100	8.33	rain,snow	0	0.4
36.1	30.8	33.9	27.7	21.8	25	30	85.6	0	0	0	0	0	0.3
34.2	28	30.3	29	19.7	24	28.1	91.3	0	0	0	0	0	0.2
56	30.7	43.5	56	23.2	38.1	41.9	94.3	0.012	100	8.33	rain	0	0.1
59.8	24.2	50.9	59.8	11	48.1	48.1	90.1	0.185	100	41.67	rain	0	0
24	16.8	21.6	11.6	-0.2	6.3	13.5	70.8	0	0	0	0	0	0
16.9	7.8	12.4	7.1	-9.6	-0.7	-2.3	51.9	0	0	0	0	0	0
21.7	7.1	14.5	7.1	-1.1	1	0.5	62.1	0.021	100	8.33	rain	0.2	0
24	9.3	17.3	7.7	-0.7	3	81.1	100	0.17	100	41.67	rain	1.1	0.6
25.1	6.8	16	3.2	8.6	3.3	0.3	0	0	0	0	0	0.7	1.5
20	6	14.4	7	-6.7	1.6	7.1	72.7	0	0	0	0	0	1.1
33	17.1	25.1	22.8	2.1	12.5	14.9	65.3	0	0	0	0	0	0.8
39.7	28.3	34.4	31.1	18.1	24.5	23.3	63.8	0	0	0	0	0	0.6
46.7	33.2	40.2	41.7	26.5	34.3	14.9	9	0	0	0	0	0	0.2
47.2	39.2	42.3	44.8	34.4	4.4	40.8	0.001	100	4.17	rain	0	0	0
54.8	38.9	48.8	54.8	32.2	31	9	96.6	100	41.67	rain	0	0	0
37.4	28.9	32.2	31.6	19.3	23.5	20.5	80	0.065	100	20.83	rain,snow	0.2	0.2
29.8	28.1	29.1	28.1	20.1	22.7	22.1	0	0	0	0	0	0	0.1
43.9	25.9	34.8	39.2	18.1	28.1	27.6	74.9	0	0	0	0	0	0
51.7	37.6	45.4	51.7	30.2	40.8	31.6	59.8	0	0	0	0	0	0
51	37.1	45.8	51	31.7	40.8	30.1	55.2	0	0	0	0	0	0
40.7	30.8	34.9	35.5	21.9	28.6	27.5	74.3	0	0	0	0	0	0
31.7	19	25.6	21.2	6.8	14	16.5	68.2	0.002	100	4.17	rain,snow	0	0
30.8	15.9	24.1	21.1	8.6	15.7	12.3	61.4	0	0	0	0	0	0
42.9	30.8	37.3	36.4	19.8	28.8	23.8	58.1	0	0	0	0	0	0
35.8	10.7	23	29.8	-6	10.3	7.3	51.4	0	0	0	0	0	0
21.7	5	13.3	10.1	-10.3	0	-4.1	45.8	0	0	0	0	0	0
40.8	21.8	30.3	32.6	9.8	20.2	13.9	52.1	0.01	100	8.33	rain,snow	0.1	0
34.8	7.8	21.4	27.7	-6.8	8.5	14.9	75.9	0.029	100	33.33	rain,snow	0.6	0.5
11.9	-1.1	6.8	2.4	-15	-5.1	-1	70.6	0.166	100	33.33	snow	1	1.3

Exploratory Data Analysis



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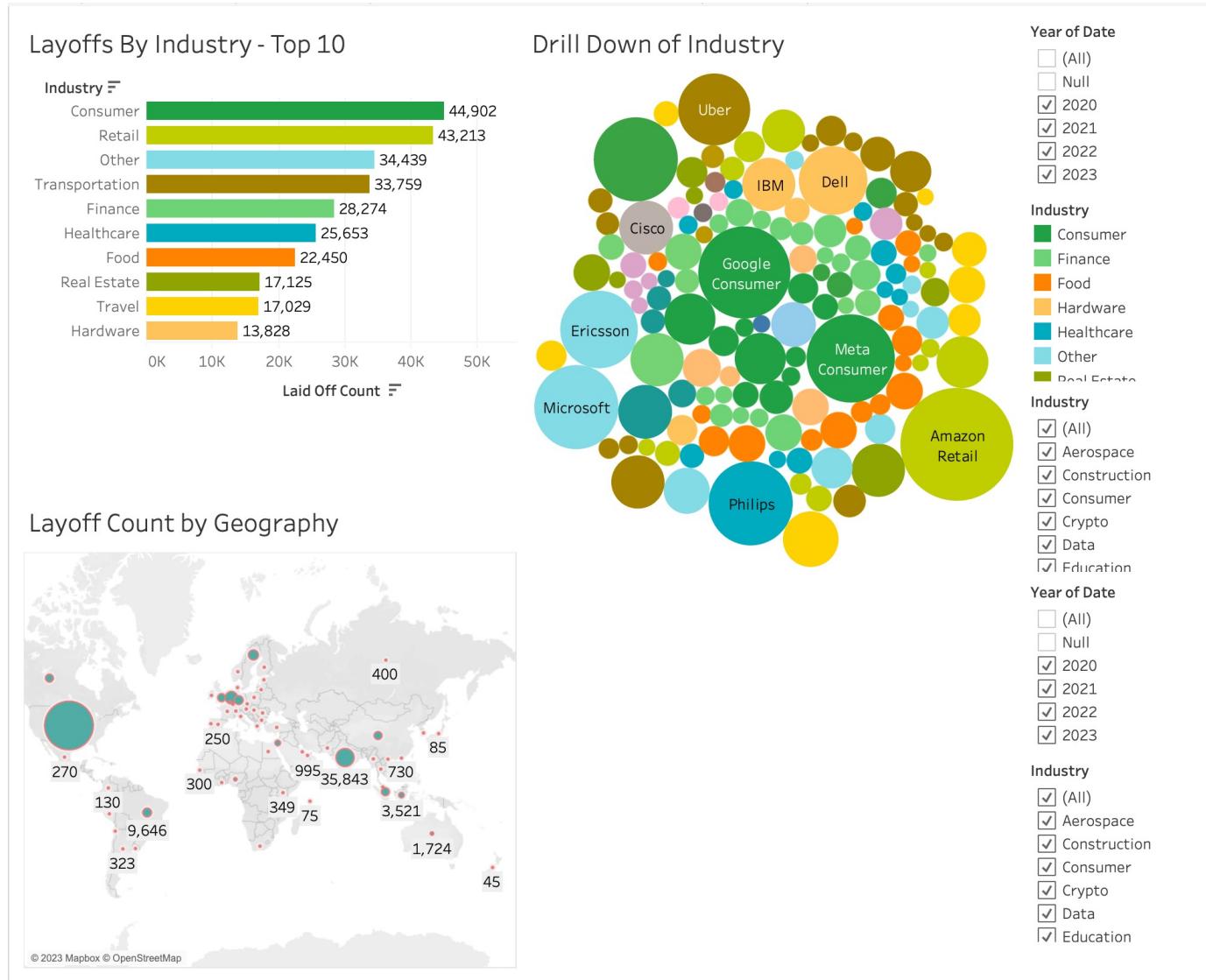


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Key Questions

- What locations or regions experienced the most significant layoffs?
- How many employees were impacted by the layoffs?
- What departments or teams were affected by the layoffs?
- What was the average tenure of employees who were laid off?
- What was the reason for the layoffs?
- Was there any correlation between the company's financial performance and the decision to downsize?

Identifying Global Layoff Trends



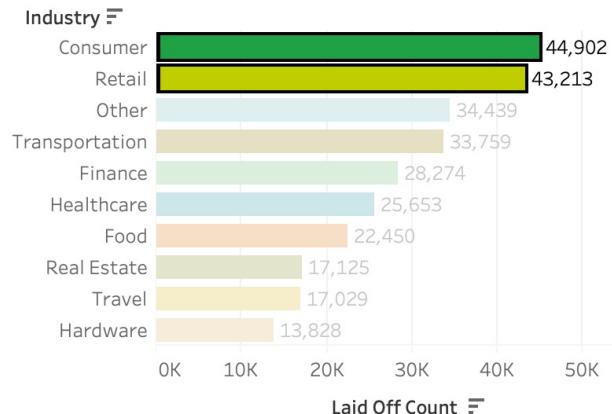
The dashboard allows for detailed examination of the data and reveals that the layoffs have impacted various industries.



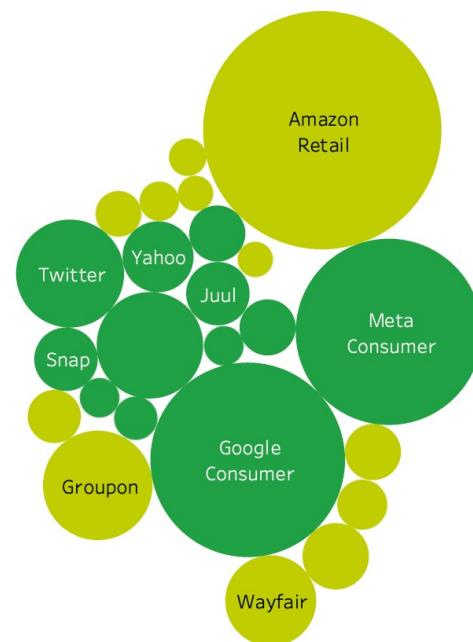
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Layoffs By Industry - Top 10



Drill Down of Industry



Year of Date

- (All)
- Null
- 2020
- 2021
- 2022
- 2023

Industry

- Consumer
- Finance
- Food
- Hardware
- Healthcare
- Other
- Real Estate

Industry

- (All)
- Aerospace
- Construction
- Consumer
- Crypto
- Data
- Education

Year of Date

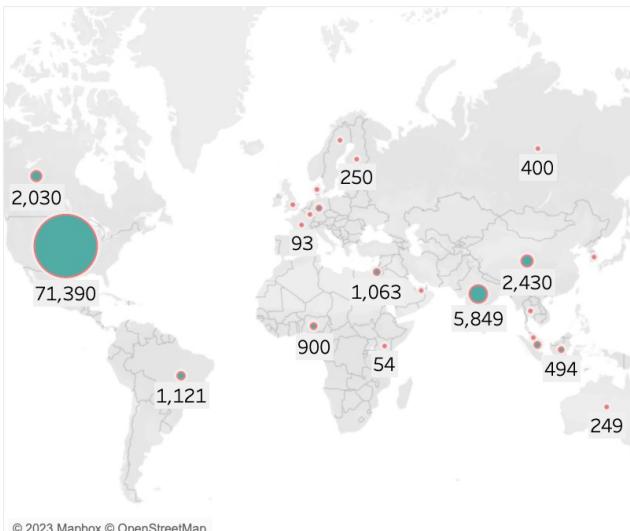
- (All)
- Null
- 2020
- 2021
- 2022
- 2023

Industry

- (All)
- Aerospace
- Construction
- Consumer
- Crypto
- Data
- Education

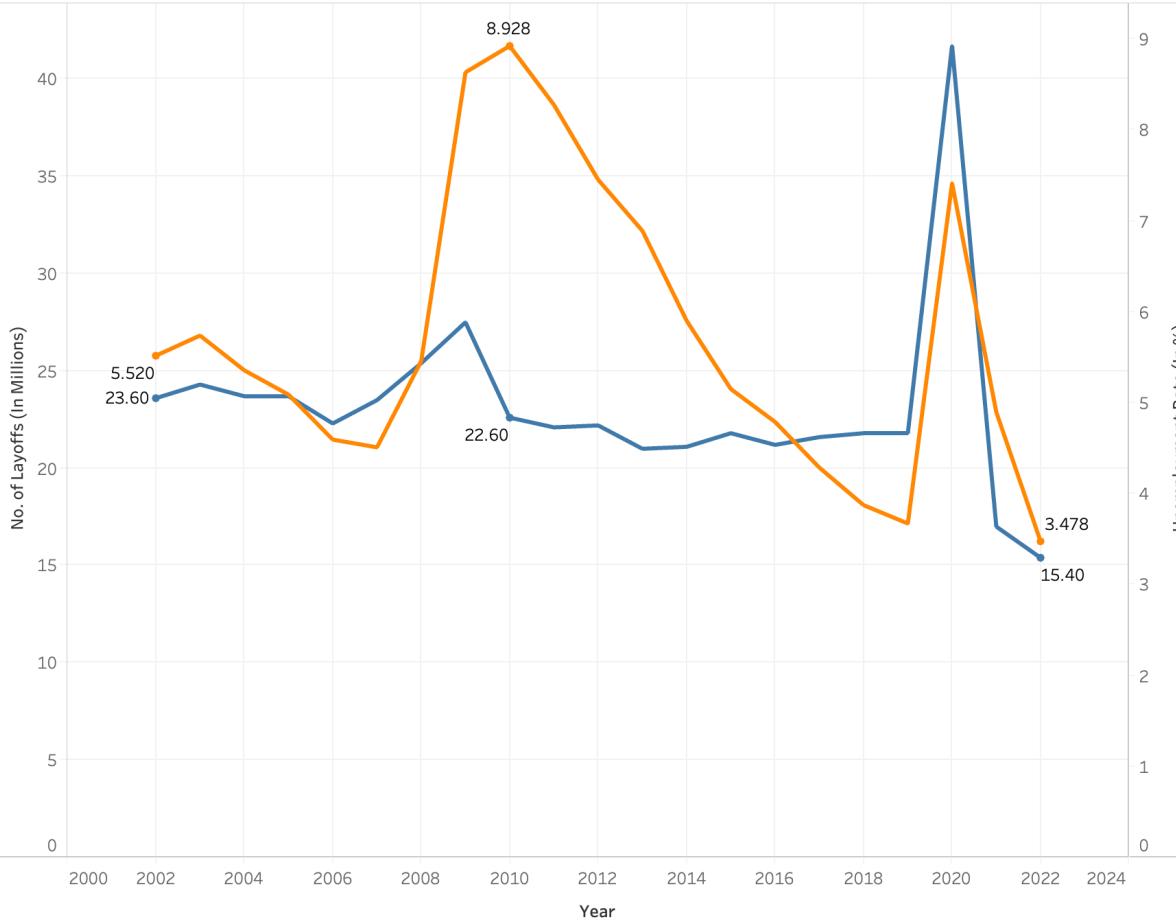
Our info. is presented in a way that allows users to drill down into the specific details.

Layoff Count by Geography



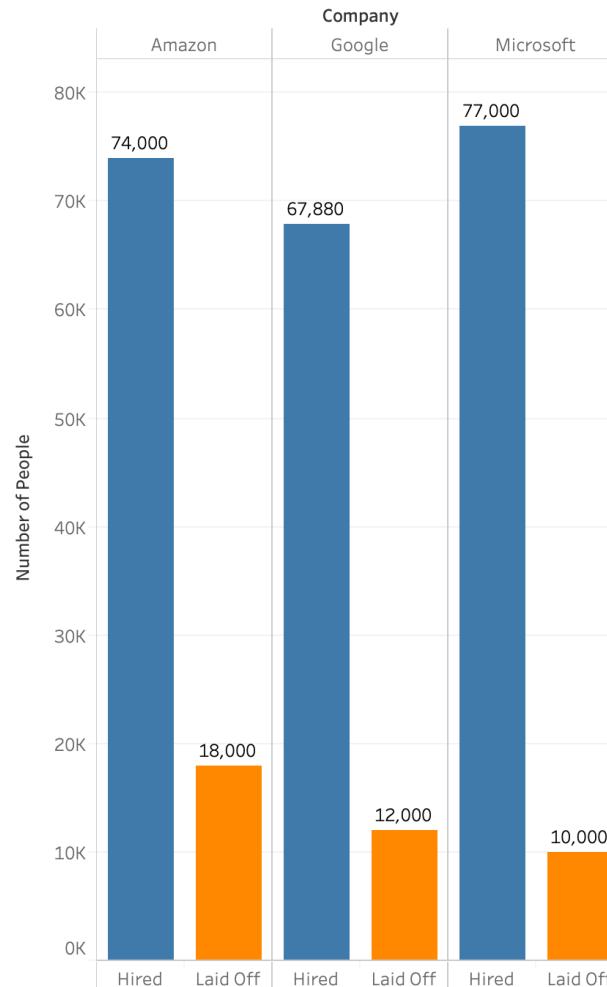
Unemployment vs Layoffs in United States

Unemployment % vs No. Of Layoffs - Over 20 yrs

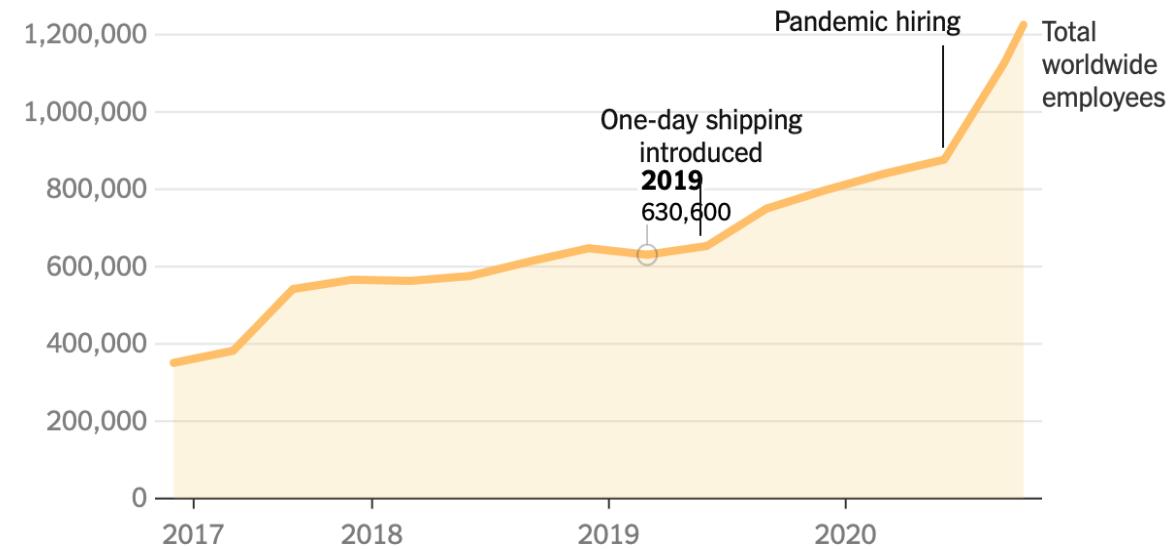


Large layoffs and low unemployment can be indicative of a complex and challenging economic landscape. On one hand, large layoffs can suggest that businesses are struggling to maintain profitability and productivity, leading to significant workforce reductions. On the other hand, low unemployment rates can indicate a robust job market with high demand for qualified candidates.

Layoffs and Unemployment - Exploring the Disconnect



The company added 427,300 employees between January and October, pushing its work force to more than 1.2 million people globally.



Factors that affected the hiring market

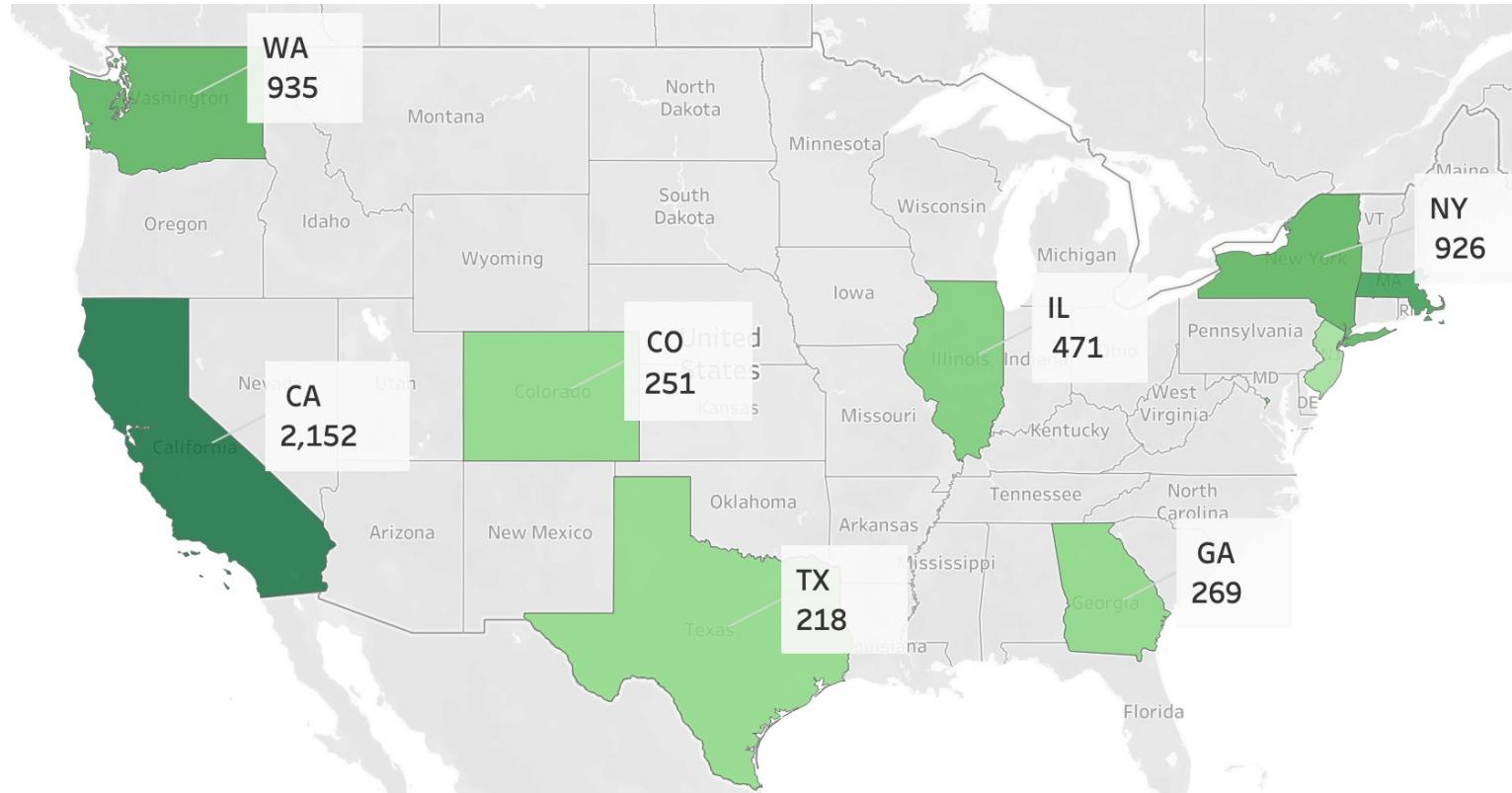
- Fed Reserve raising interest rates
- Increase in rates causing stock market to tank
- Certain industries hit harder than others



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Who is hiring?

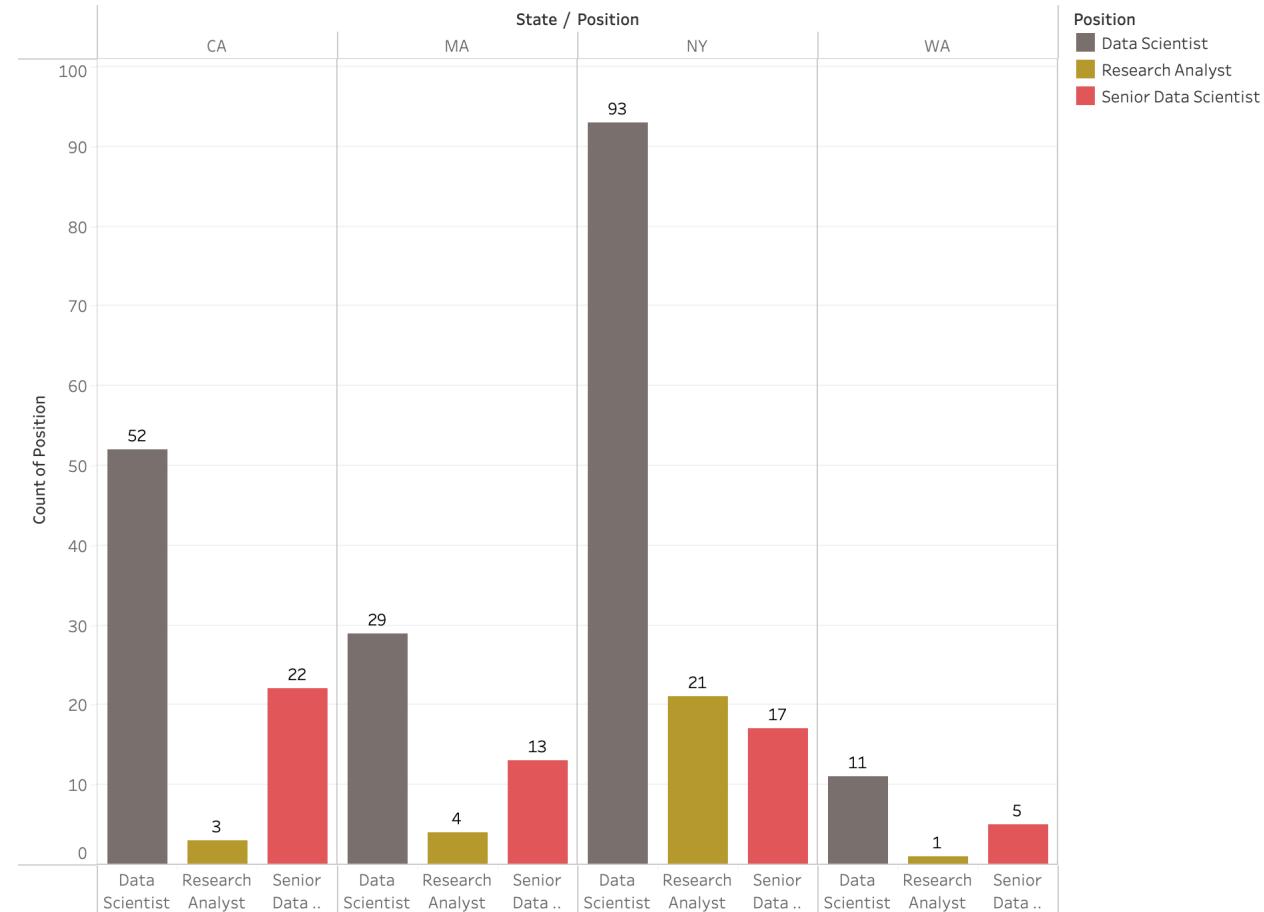


Employment opportunities available in various states



Top companies hiring data scientists

The distribution of jobs by top 4 states



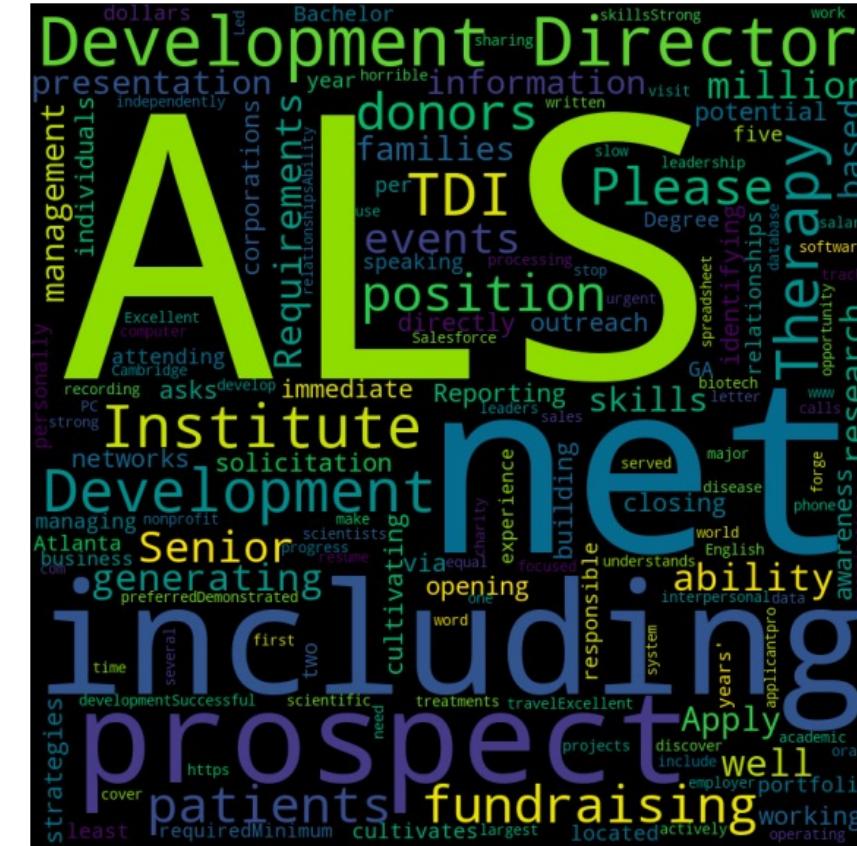


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Top In-Demand Skills in Today's Job Market



Most frequent job description words for the **Data Scientist** position.



Most frequent job description words for the **Development Director** position.



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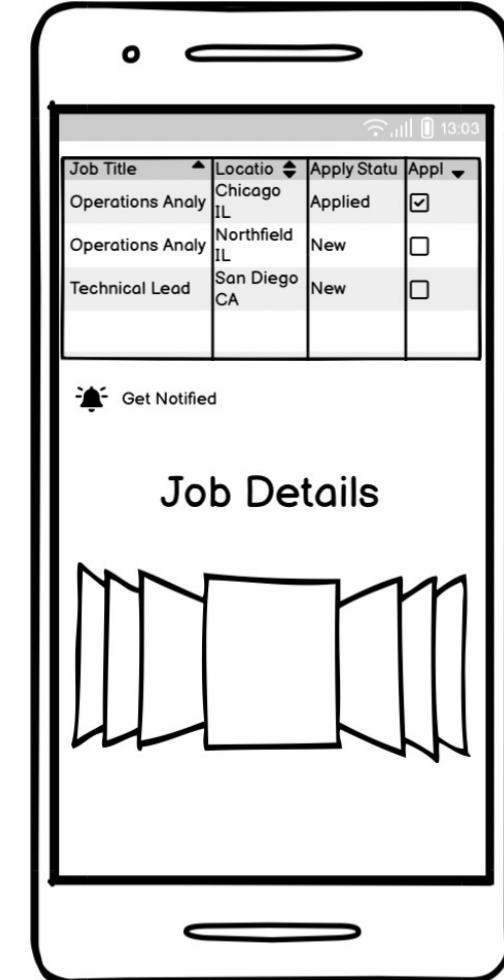
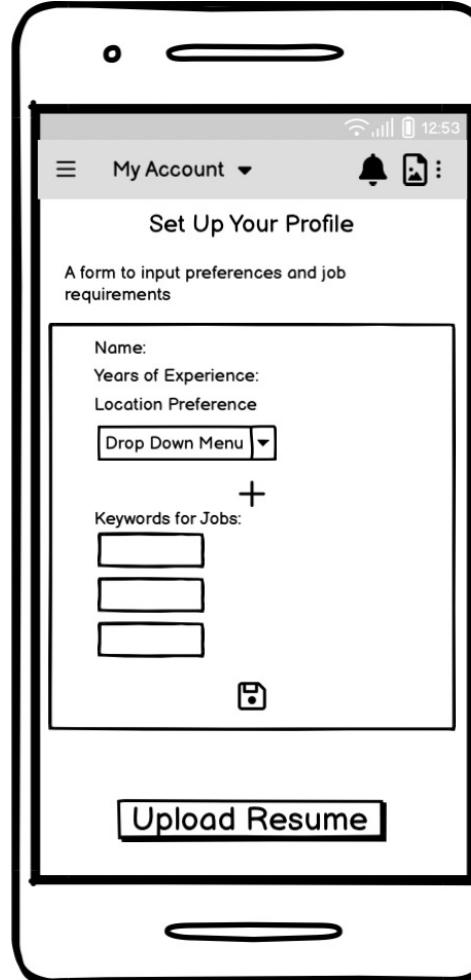
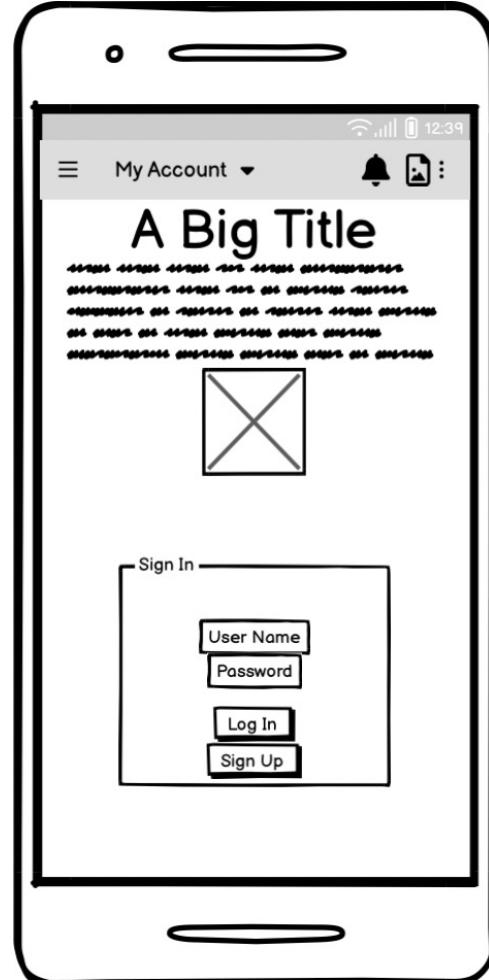
Conclusion

We intend to empower Job Seekers with In-Demand Skill Information through an Innovative App Model



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Key Takeaways

- Despite the layoffs, the broader economy remains relatively strong, with consumer spending starting to slip but still holding up, and jobless claims remaining near historic lows.
- Sectors seeing growth in jobs include government, healthcare, retail trade, professional and business services, construction, transportation and warehousing and manufacturing according to the report.
- Tech workers are relatively advantaged in the labor market. They are better educated than most workers, with skills that are still in high demand.
- They see tech specialties as increasingly needed in all sorts of industries and functions—HR, product and workflow management, e-commerce and communications, cybersecurity, etc. They argue many companies, not just tech specialists, need to “transform business processes to become more flexible” and can hire tech workers for their own business.

Q & A

Reference Links

<https://www.forbes.com/sites/richardmcgahay/2023/01/31/tech-workers-will-find-new-jobs-but-layoffs-signal-growing-tensions/?sh=a3ef0c379395>

<https://www.bls.gov/charts/employment-situation/employment-levels-by-industry.htm>