Exploratory Data Analysis Global Layoff Dataset

1. Introduction

This analysis explores global layoff data based on records stored in the *layoffs_stagging2* table. The goal is to understand the scale, distribution, and trends of layoffs across companies, industries, and time. The SQL queries examine data at multiple levels — individual events, companies, industries, funding stages, and time periods.

The insights below summarize your EDA results and translate them into a meaningful narrative.

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2. Key Findings and Insights

2.1 Overview of Dataset

A quick inspection of the full dataset shows that it contains:

- Company names
- Total employees laid off
- Percentage laid off
- Funding information
- Stages (Seed, Series A, IPO, etc.)
- Dates
- Locations and industries (if included)

The earliest and latest dates in the dataset help define the time span of the analysis — allowing us to understand layoffs across multiple years.

2.2 Highest Layoffs in a Single Event

From the query:

```
SELECT MAX(total_laid_off), MAX(percentage_laid_off)
```

We observe that:

- Some companies experienced full (100%) layoffs, indicating shutdowns or total collapse.
- The largest single-event layoffs highlight major economic or organizational crises.

Companies with 100% layoffs, especially those with high funding, suggest cases where well-funded companies still failed entirely due to mismanagement, market disconnects, or unsustainable business models.

2.3 Companies With the Highest Total Layoffs

The query:

SELECT company, SUM(total_laid_off)

identifies companies responsible for the largest share of total layoffs.

Key insights:

- Large or well-known companies tend to dominate the layoff totals.
- Workforce reductions often come from a small number of major players.
- These companies typically influence their industry's stability or market perception.

This metric is essential for understanding organizational impact and broader industry disruptions.

2.4 Layoffs Over Time (Yearly Trends)

The query:

SELECT year(date), SUM(total_laid_off)

provides year-by-year insights.

Observations:

- Certain years show significantly higher layoffs, reflecting economic downturns, market corrections, or post-pandemic adjustments.
- Peaks often align with financial stress periods, reduced investment, or operational restructuring.

This helps contextualize layoffs in relation to global economic conditions.

2.5 Layoffs by Company Funding Stage

Using the query:

SELECT stage, AVG(total_laid_off)

we see how layoffs differ across company maturity levels.

Insights:

- Late-stage and publicly traded companies tend to have higher average layoffs because they employ more people.
- Early-stage startups sometimes experience full layoffs (complete shutdowns), though with smaller totals.
- Mid-stage companies may show volatility due to dependency on funding rounds and market conditions.

This illustrates how company maturity affects workforce stability.

2.6 Monthly Layoff Trends

Monthly summaries from:

`SELECT SUBSTRING(date, 1, 7), SUM(total_laid_off)`

show layoffs at a granular time scale.

Insights:

- Layoff activity forms clear waves rather than random patterns.
- Monthly spikes often correspond to quarterly financial reporting, changes in market sentiment, or industry-wide corrections.

This helps identify short-term economic pressure points.

2.7 Rolling (Cumulative) Layoff Trends

The rolling sum:

`SUM(total_off) OVER (ORDER BY month)`

illustrates how layoffs accumulate over time.

Observations:

- Periods with rapid increases indicate intense economic stress.
- A flattening curve suggests stabilization or recovery.
- This long-term view highlights the cumulative impact of prolonged downturns.

2.8 Company-Level Yearly Rankings

The analysis of the top 5 companies with the most layoffs each year reveals:

- Which companies were the biggest contributors during each specific year.
- How dominant layoff contributors shift over time.
- Which industries face repeated pressure.

For example, some years may be dominated by large technology companies, while other years may show more layoffs from early-stage startups or consumer-focused businesses.

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3. Summary of Insights

1. Layoffs are heavily concentrated in a small number of companies.
2. Several companies experienced complete workforce cuts (100% layoffs), indicating shutdowns.
3. Layoff trends vary significantly across years, reflecting major economic cycles.

4. Later-stage companies lay off more in total, while early-stage companies show higher failure rates.
5. Monthly trends reveal distinct waves of layoffs tied to economic or financial cycles.
6. Ranking companies by layoffs each year highlights shifting industry vulnerabilities.

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4. Recommendations Based on Analysis

For Investors

- Examine sustainability, not just funding levels.
- Watch for industries vulnerable to rapid downturns.

For Companies

- Avoid over-expansion during high-growth periods.
- Maintain financial discipline to reduce the need for large layoffs.

For Policymakers

- Industries showing repeated layoff waves may require support programs.
- Workforce reskilling initiatives can reduce the long-term impact of layoffs.

For Job Seekers

- Consider industry stability and company funding stage when evaluating job opportunities.
- High-growth startups may carry higher layoff risks.