**Academic Project**

**Layoff Trends Analysis: Workforce Impact & Business Insights**

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**Layoff Trend Analysis: Key Insights**

**Introduction**

This analysis uses SQL-based data analysis to explore workforce reductions across industries, countries, and company stages. The goal is to identify **layoff patterns, industry trends, and the impact of funding on employment**.

**DATA: COLUMNS in layoffs Table**

SELECT \* FROM layoffs;

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-- ===================== BASIC ANALYSIS SECTION =====================

1. **Layoff Trends by Company, Industry, & Country**

* **Companies with the Most Layoffs**: Some organizations had significantly higher layoffs, indicating financial struggles or restructuring.

-- To Find Total layoffs per Company

SELECT company, SUM(total\_laid\_off) AS total\_layoffs

FROM layoffs

GROUP BY company

ORDER BY total\_layoffs DESC;

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* **Industry Impact**: Sectors like consumer, retail, and hardware saw the most layoffs, reflecting economic shifts.

-- To Find Layoffs by Industry

SELECT industry, SUM(total\_laid\_off) as total\_layoffs

FROM layoffs

GROUP BY industry

ORDER BY total\_layoffs DESC;

A table with numbers and text

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* **Geographic Trends**: Layoffs were **higher in certain countries**, influenced by **economic downturns and market conditions**.

-- To Find layoffs by Country

SELECT country, SUM(total\_laid\_off) as total\_layoffs

FROM layoffs

GROUP BY country

ORDER BY total\_layoffs DESC;

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1. **Monthly Layoff Patterns**

* **Fluctuations**: Layoffs varied by month, with some periods showing significant spikes.

-- To Find layoffs by Month (Monthly Trend)

SELECT DATE\_FORMAT(date, '%Y-%m') AS month,

SUM(total\_laid\_off) AS total\_layoffs

FROM layoffs

GROUP BY month

ORDER BY month DESC

LIMIT 100;

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-- To Find Companies with Highest Percentage of Layoff

SELECT company, percentage\_laid\_off

FROM layoffs

WHERE percentage\_laid\_off IS NOT NULL

ORDER BY percentage\_laid\_off DESC

LIMIT 10;

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1. **Effect of Funding on Layoffs**

* Companies with high funding still had layoffs, which may indicate:
  + Inefficient capital use.
  + Strategic restructuring despite available funds.
  + Market overvaluation leading to downsizing.
* Some layoffs occurred shortly after funding rounds, raising concerns about management decisions and investor influence.

-- To Find the Impact of Funding on layoffs

SELECT company, funds\_raised, total\_laid\_off

FROM layoffs

WHERE funds\_raised IS NOT NULL

ORDER BY funds\_raised DESC;

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-- To Find layoffs by stage.

SELECT stage, SUM(total\_laid\_off) AS total\_layoffs

FROM layoffs

GROUP BY stage

ORDER BY total\_layoffs DESC;

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**-- ======= ADVANCED ANALYSIS WITH WINDOWS FUNCTIONS ========**

* 1. Tracking cumulative layoffs over time to observe trends (Windows Function).

WITH Layoff\_Trend AS (

SELECT date, SUM(total\_laid\_off) AS daily\_layoffs

FROM layoffs

WHERE total\_laid\_off IS NOT NULL

GROUP BY date

)

SELECT date,

daily\_layoffs,

SUM(daily\_layoffs) OVER(ORDER BY date) AS cumulative\_layoffs

FROM Layoff\_Trend;

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* 1. Identify Companies that had layoffs in consecutive MONTHS (using Windows Function and LAG)

-- CTE (Monthly\_Layoffs) aggregates total layoffs by company and month and converts dates into year-month format

WITH Monthly\_Layoffs AS (

SELECT company,

DATE\_FORMAT(date, '%Y-%m') AS month,

SUM(total\_laid\_off) AS total\_layoffs

FROM layoffs

WHERE total\_laid\_off IS NOT NULL

GROUP BY company, month

)

SELECT \*

FROM (

SELECT company, month, total\_layoffs,

LAG(month) OVER (PARTITION BY company ORDER BY month) AS

prev\_month

FROM Monthly\_Layoffs

) subquery -- subquery applies LAG(month) to compute the previous month for each company

WHERE prev\_month S NOT NULL; -- we cannot use WHERE in the subquery section

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**-- ==================== Self-join =======================**

* 1. Examine whether companies that raised funds experienced layoffs before or after the event.

SELECT l1.company,

l1.date AS layoff\_date,

l2.date AS funding\_date,

l2.total\_laid\_off,

l2.funds\_raised,

DATEDIFF(l1.date, l2.date) AS days\_difference

FROM layoffs l1

JOIN layoffs l2

ON l1.company = l2.company

AND l2.funds\_raised IS NOT NULL

WHERE l1.total\_laid\_off IS NOT NULL

ORDER BY company, days\_difference

LIMIT 1000;

A screenshot of a data table

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* 1. INDUSTRY LAYOFF TRENDS: Year-over\_Year (CTE & WINDOWS FUNCTION)

-- To Show how layoffs in each industry changed compared to the previous year.

WITH Industry\_Layoffs AS (

SELECT industry,

DATE\_FORMAT(date, '%Y') AS year,

SUM(total\_laid\_off) AS yearly\_layoffs

FROM layoffs

WHERE total\_laid\_off IS NOT NULL

GROUP BY industry, year

)

SELECT industry,

year,

yearly\_layoffs,

LAG(yearly\_layoffs) OVER(PARTITION BY industry ORDER BY year) AS

prev\_year\_layoffs,

(yearly\_layoffs - LAG(yearly\_layoffs) OVER (PARTITION BY industry ORDER BY year)) AS yoy\_change

FROM Industry\_Layoffs ;

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-- To Show how layoffs in each industry changed compared to the previous year.

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SUM(total\_laid\_off) AS yearly\_layoffs

FROM layoffs

WHERE total\_laid\_off IS NOT NULL

GROUP BY industry, year

)

SELECT industry,

year,

yearly\_layoffs,

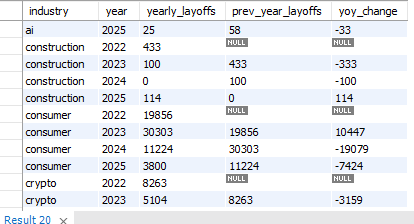
LAG(yearly\_layoffs) OVER(PARTITION BY industry ORDER BY year) AS

prev\_year\_layoffs,

(yearly\_layoffs - LAG(yearly\_layoffs) OVER (PARTITION BY industry

ORDER BY year)) AS yoy\_change

FROM Industry\_Layoffs ;



* 1. **Workforce Reduction vs. Funding**
* Companies were ranked based on **layoffs relative to workforce size and funding**.
* Some firms with **high funding had major layoffs**, highlighting **cost-cutting measures and operational adjustments**.

-- To Find Percentage of Workforce Laid Off vs. Funding Raised

-- To Rank companies based on their layoffs relative to workforce size by considering

their fundings too

SELECT company,

industry,

total\_laid\_off,

percentage\_laid\_off,

funds\_raised,

RANK() OVER(ORDER BY percentage\_laid\_off DESC) AS layoff\_rank,

RANK() OVER(ORDER BY funds\_raised DESC) AS funding\_rank

FROM layoffs

WHERE total\_laid\_off IS NOT NULL AND percentage\_laid\_off IS NOT NULL

ORDER BY layoff\_rank;

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* 1. **Layoffs Across Multiple Locations**
* Some companies **laid off employees in multiple locations**, indicating:
  + **Global restructuring**.
  + **Market-based workforce adjustments**.
  + **Cost-cutting strategies affecting different regions**.

-- To Identify Companies with Layoffs Across Multiple Locations (Using Self-join)

SELECT DISTINCT l1.company,

l1.location AS location\_1,

l2.location AS location\_2

FROM layoffs l1

JOIN layoffs l2 ON l1.company = l2.company AND l1.location <> l2.location;

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**Conclusion**

This analysis clearly explains employee reductions, which helps stakeholders make data-driven decisions about employment policies, investments, and business strategies.