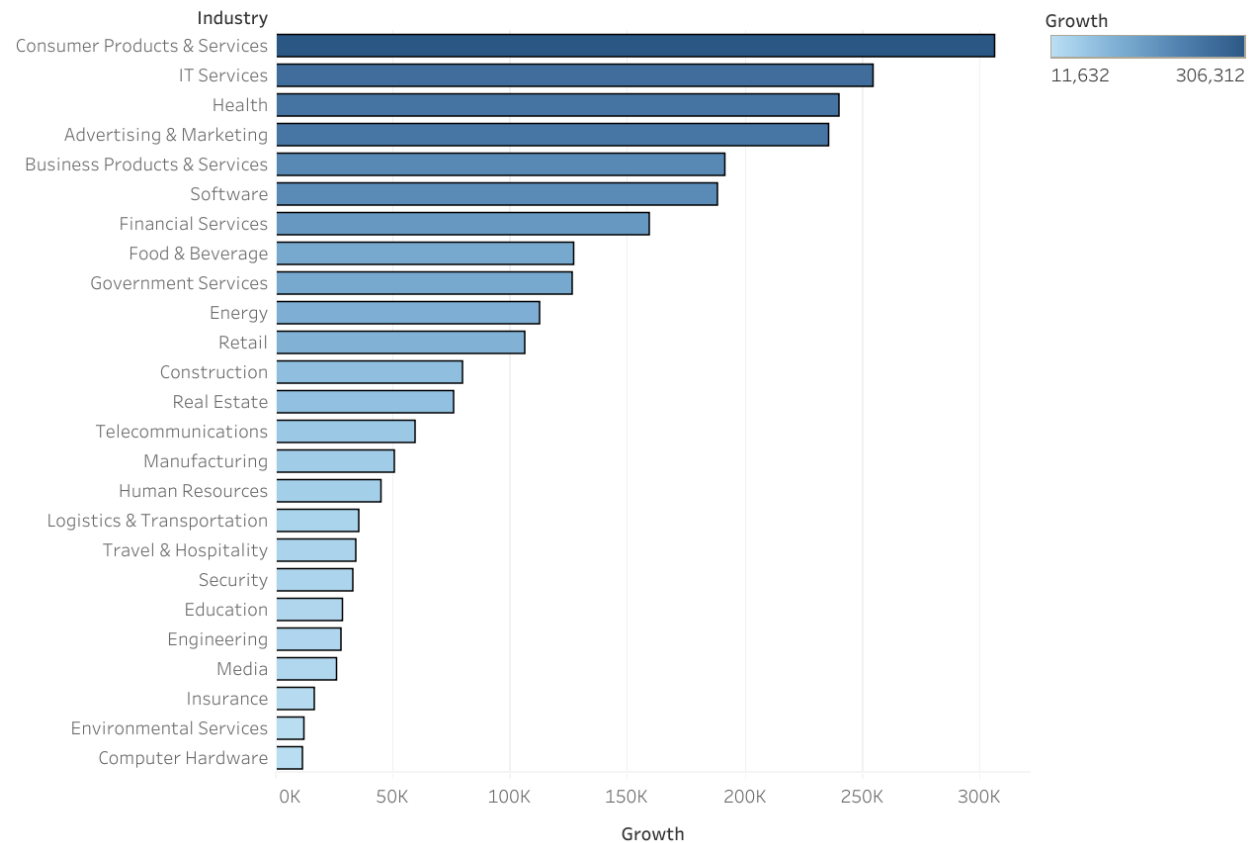


### Question 1.

Consumer Products & Services, IT Services, Health, Advertising & Marketing, and Business Products & Services are the top 5 industries that saw the most growth.

#### Growth



### Question 2.

To address this question, I considered the box plot to show the distribution of the number of years that companies appear on the list and provided the five number summary.

#### Distribution of the number of Years



1. Upper Whisker: 8
2. Upper Hinge: 4
3. Median: 2
4. Lower Hinge: 1
5. Lower Whisker: 1

#### Analysis of results:

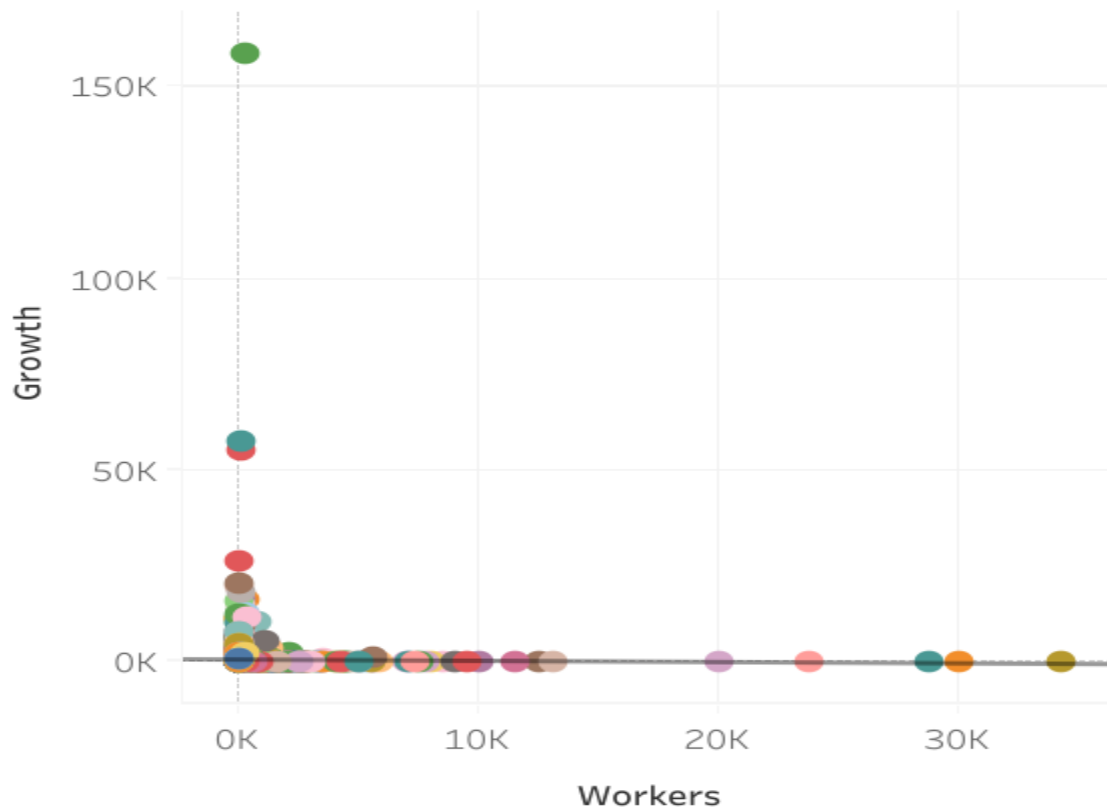
1. Upper Whisker: 8 - This represents the maximum number of years a company appeared on the list, which is 8.
2. Upper Hinge: 4 - The upper hinge (or upper quartile) indicates the 75th percentile of the data. This means that 75% of the companies appeared on the list for 4 years or fewer.
3. Median: 2 - The median represents the middle value when the data is arranged in ascending order. A median value of 2 means that half of the companies appeared on the list for 2 years or fewer.
4. Lower Hinge: 1 - The lower hinge (or lower quartile) indicates the 25th percentile of the data. This means that 25% of the companies appeared on the list for only 1 year.
5. Lower Whisker: 1 - This represents the minimum number of years a company appeared on the list, which is also 1.

#### Conclusion:

Yes. Companies that have been on the list longer have a higher chance of appearing again on this list. Most companies on the list appear on it for a relatively short period. The median is only 2 years, and 75% of companies appeared for 4 years or fewer. There is a wide range in the number of years companies appear on the list, with some companies managing to stay on it for up to 8 years. The lower quartile (25% of companies) appeared on the list for only 1 year, indicating that many companies make the list once but may not have sustained growth to appear again. The upper quartile (75% of companies) appeared on the list for 4 years or fewer, suggesting that it can be challenging for companies to maintain rapid growth over an extended period.

### Question 3.

## Relationship between the number of workers and growth



### Trend Lines Model

A linear trend model is computed for sum of Growth given sum of Workers.

Model formula: (Workers + intercept )

Number of modelled observations: 5000

Number of filtered observations: 0

Model degrees of freedom: 2

Residual degrees of freedom (DF): 4998

SSE (sum squared error): 3.87968e+10

MSE (mean squared error): 7.76247e+06

R-Squared: 0.0001575

Standard error: 2786.12

p-value (significance): 0.374936

#### Analysis of results.

The p-value for the Workers coefficient is 0.374936, which is greater than the significance level of 0.05. This suggests that there is no statistically significant relationship between the number of employees and growth based on this linear model.

The coefficient estimate for Workers is -0.032539. This means that, according to the model, for each additional employee, the growth decreases by approximately 0.032539 units. However, this coefficient is not statistically significant.

The R-squared value is very low (0.0001575), indicating that the linear model does not explain much of the variation in growth based on the number of employees. In other words, the number of employees does not appear to be a good predictor of growth according to this model.

The intercept is 523.24, representing the estimated growth for a company with zero employees. This value may not have practical significance because companies typically have employees, and it's unlikely for a company with zero employees to be on the list.

#### Conclusion.

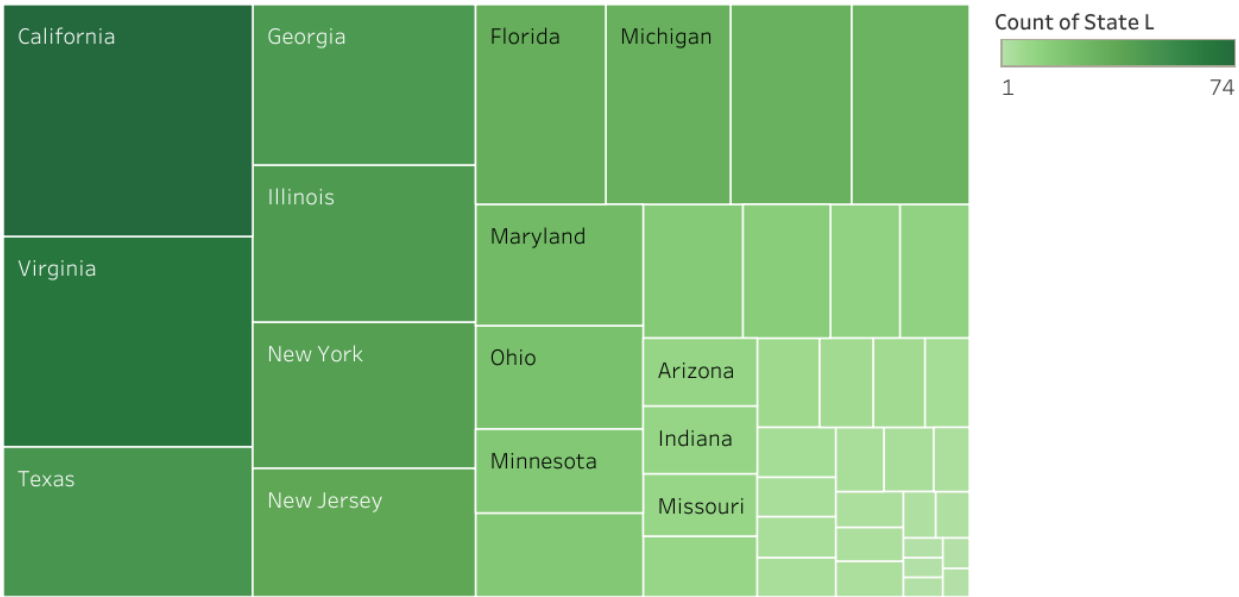
There is no statistically significant linear relationship between the number of employees and the growth of companies over the four-year period. The p-value for the Workers coefficient is greater than 0.05, indicating that the number of employees is not a significant predictor of growth in this context.

However, it's important to note that this analysis is based on a linear model, and the relationship between variables in real-world data can be more complex. There may be other factors not considered in this analysis that influence a company's growth.

#### Question 4.

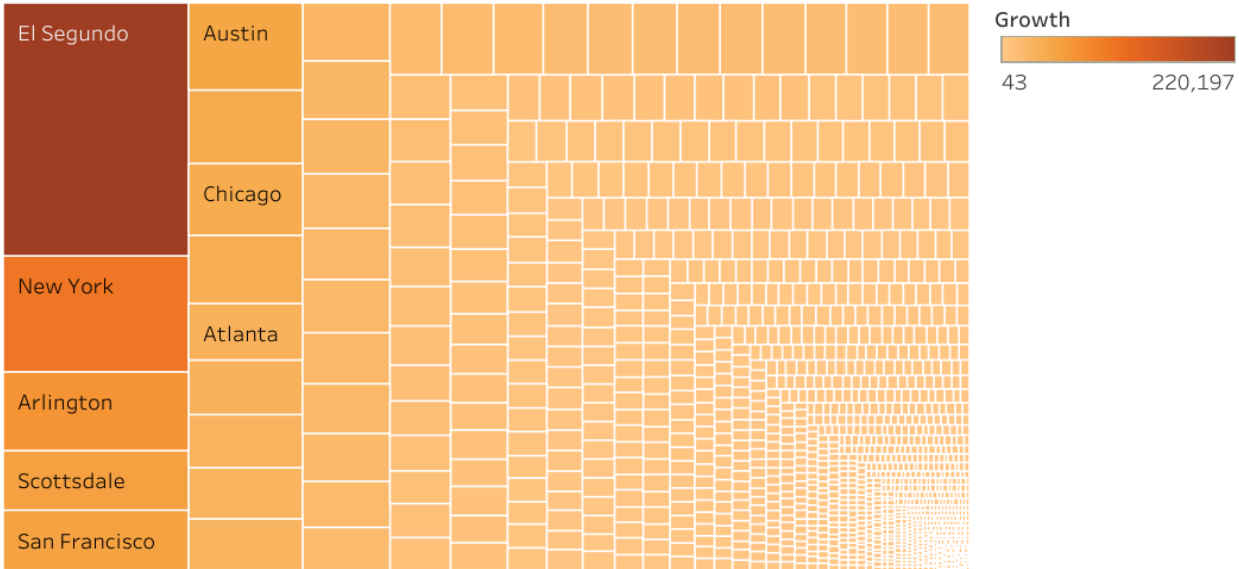
California has the highest number of IT companies (74).

Number of IT Companies per State



Question 5.

Growth per City



El Segundo, New York, Arlington, Scottsdale, and San Francisco are the top 5 companies that had the most growth.