

Tech Layoffs Analysis 2020 - 2024

```
In [2]: # importing the pandas lib
import pandas as pd

# Read the Excel file
data = pd.read_excel('tech_layoffs.xlsx')

# Display the first 10 datas
data.head(10)
```

Out[2]:

| | # | Company | Location_HQ | Country | Continent | Laid_Off | Date_layoffs | Percentage | Co |
|---|----|----------------|------------------------|---------|---------------|----------|--------------|------------|----|
| 0 | 3 | ShareChat | Bengaluru | India | Asia | 200 | 2023-12-20 | 15.0 | |
| 1 | 4 | InSightec | Haifa | Israel | Asia | 100 | 2023-12-19 | 20.0 | |
| 2 | 6 | Enphase Energy | San Francisco Bay Area | USA | North America | 350 | 2023-12-18 | 10.0 | |
| 3 | 7 | Udaan | Bengaluru | India | Asia | 100 | 2023-12-18 | 10.0 | |
| 4 | 14 | Cruise | San Francisco Bay Area | USA | North America | 900 | 2023-12-14 | 24.0 | |
| 5 | 16 | Bolt | San Francisco Bay Area | USA | North America | 130 | 2023-12-14 | 29.0 | |
| 6 | 20 | Invitae | San Francisco Bay Area | USA | North America | 235 | 2023-12-13 | 15.0 | |
| 7 | 21 | Etsy | New York City | USA | North America | 225 | 2023-12-13 | 11.0 | |
| 8 | 27 | Chipper Cash | San Francisco Bay Area | USA | North America | 15 | 2023-12-11 | 33.0 | |
| 9 | 31 | Zulily | Seattle | USA | North America | 839 | 2023-12-08 | 100.0 | |

```
In [3]: print('Basic Statistics for Per entage Column: ')

# Basic Statistics for Per entage Column
data['Percentage'].describe()
```

Out[3]:

```
Basic Statistics for Per entage Column:
count      1418.000000
mean         21.901584
std         20.661776
min           0.044980
25%         10.000000
50%         15.000000
75%         27.000000
max         100.000000
Name: Percentage, dtype: float64
```

```
In [49]: # Getting the unique number of companies
unique_companies = data['Company'].nunique()

# Display
print('Number of Unique Number of Companies: ',unique_companies)
```

Number of Unique Number of Companies: 1128

```
In [20]: # Top 5 Companies who have maximum number of layoffs
top_country = data['Country'].value_counts().head(5)

# Display
top_country
```

```
Out[20]: Country
USA      905
India    101
Canada   79
Israel   52
Germany  51
Name: count, dtype: int64
```

```
In [50]: # Getting the Average Percentage
average_percentage = data['Percentage'].mean()

# Display
print('Average Percentage: ',average_percentage)
```

Average Percentage: 21.90158431069137

```
In [51]: # Getting the Unique Industries no of Companies related to that Industry
unique_industries = data['Industry'].value_counts()

# Display
unique_industries
```

```
Out[51]:
```

| | |
|----------------|-----|
| Industry | |
| Finance | 200 |
| Retail | 117 |
| Healthcare | 104 |
| Transportation | 92 |
| Food | 90 |
| Marketing | 84 |
| Other | 80 |
| Consumer | 66 |
| Real Estate | 57 |
| Security | 54 |
| Crypto | 52 |
| Education | 51 |
| Data | 48 |
| Media | 47 |
| HR | 39 |
| Travel | 37 |
| Logistics | 30 |
| Sales | 27 |
| Recruiting | 24 |
| Support | 22 |
| Product | 22 |
| Infrastructure | 20 |
| Fitness | 17 |
| Construction | 9 |
| Legal | 7 |
| Hardware | 7 |
| Aerospace | 5 |
| Energy | 5 |
| Manufacturing | 3 |
| AI | 2 |

```
Name: count, dtype: int64
```

```
In [22]: # Layoffs Across the Continents
continent_highest_layoffs = data['Continent'].value_counts()

# Display
continent_highest_layoffs
```

```
Out[22]:
```

| | |
|---------------|-----|
| Continent | |
| North America | 986 |
| Asia | 196 |
| Europe | 143 |
| South America | 53 |
| Australia | 29 |
| Africa | 11 |

```
Name: count, dtype: int64
```

Tech Layoffs Chart

Plotting the Charts and Graphs using Mathplotlib

```
In [17]: # Import of Matplotlib to Plot the Graphs
import matplotlib.pyplot as plt

plt.figure(figsize=(10,5))

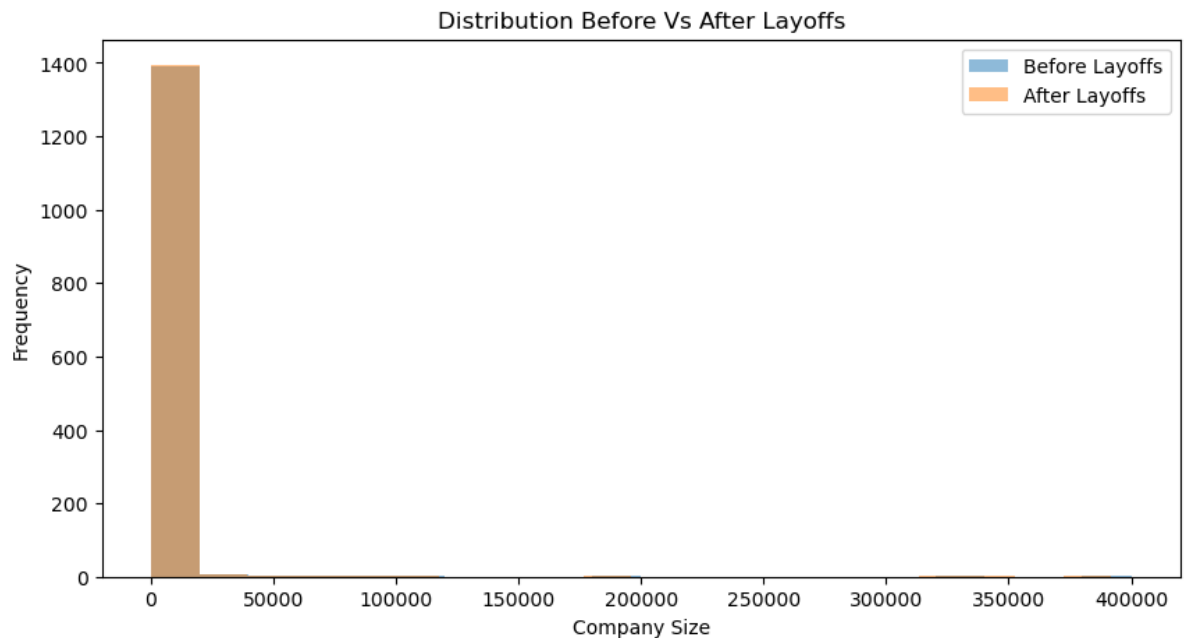
plt.hist(data['Company_Size_before_Layoffs'], bins=20, alpha=0.5, label='Be'
```

```
plt.hist(data['Company_Size_after_layoffs'], bins=20, alpha=0.5, label='After Layoffs')

plt.xlabel('Company Size')
plt.ylabel('Frequency')

plt.title('Distribution Before Vs After Layoffs')

plt.legend()
plt.show()
```



```
In [19]: layoffs_2023 = data[data['Year'] == 2023].shape[0]
         layoffs_2024 = data[data['Year'] == 2024].shape[0]

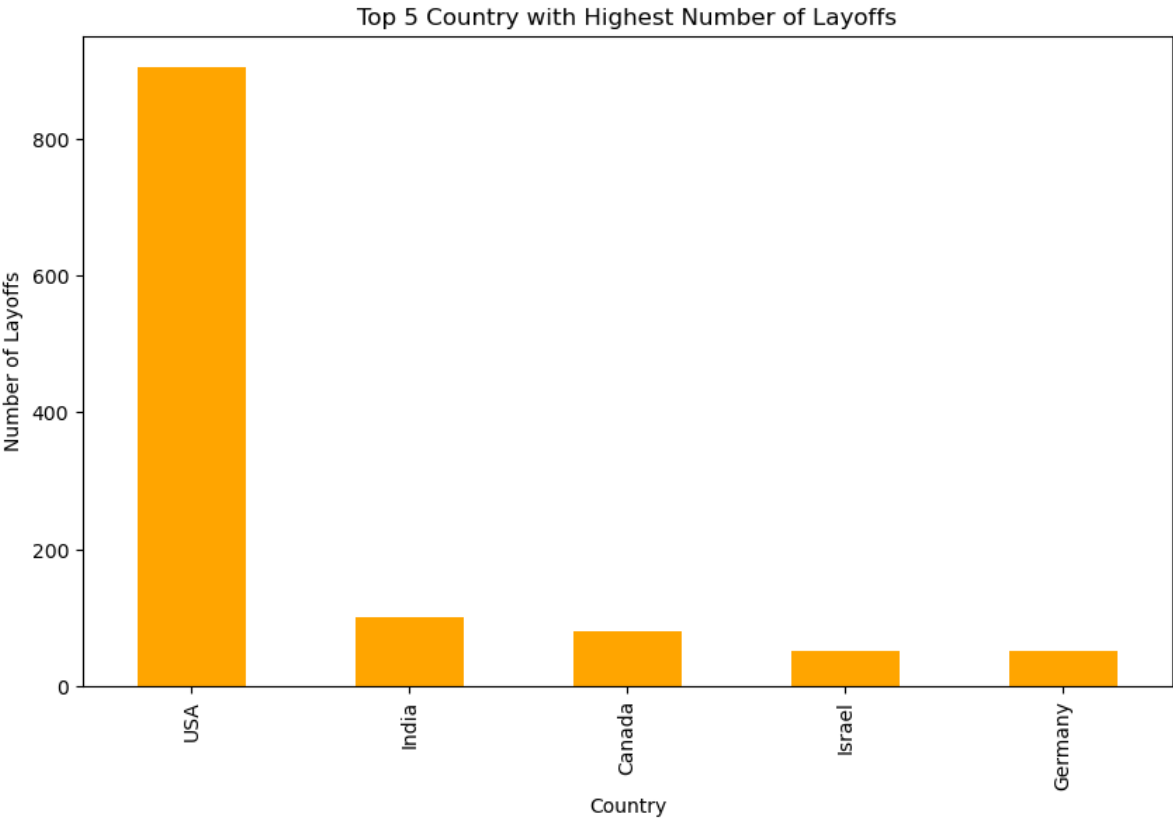
         print ('Layoffs of 2023: ', layoffs_2023)
         print ('Layoffs of 2024: ', layoffs_2024)
```

```
Layoffs of 2023:  476
Layoffs of 2024:   16
```

```
In [21]: top_country.plot(kind='bar', figsize=(10, 6), color='orange')

         plt.title('Top 5 Country with Highest Number of Layoffs')
         plt.xlabel('Country')
         plt.ylabel('Number of Layoffs')

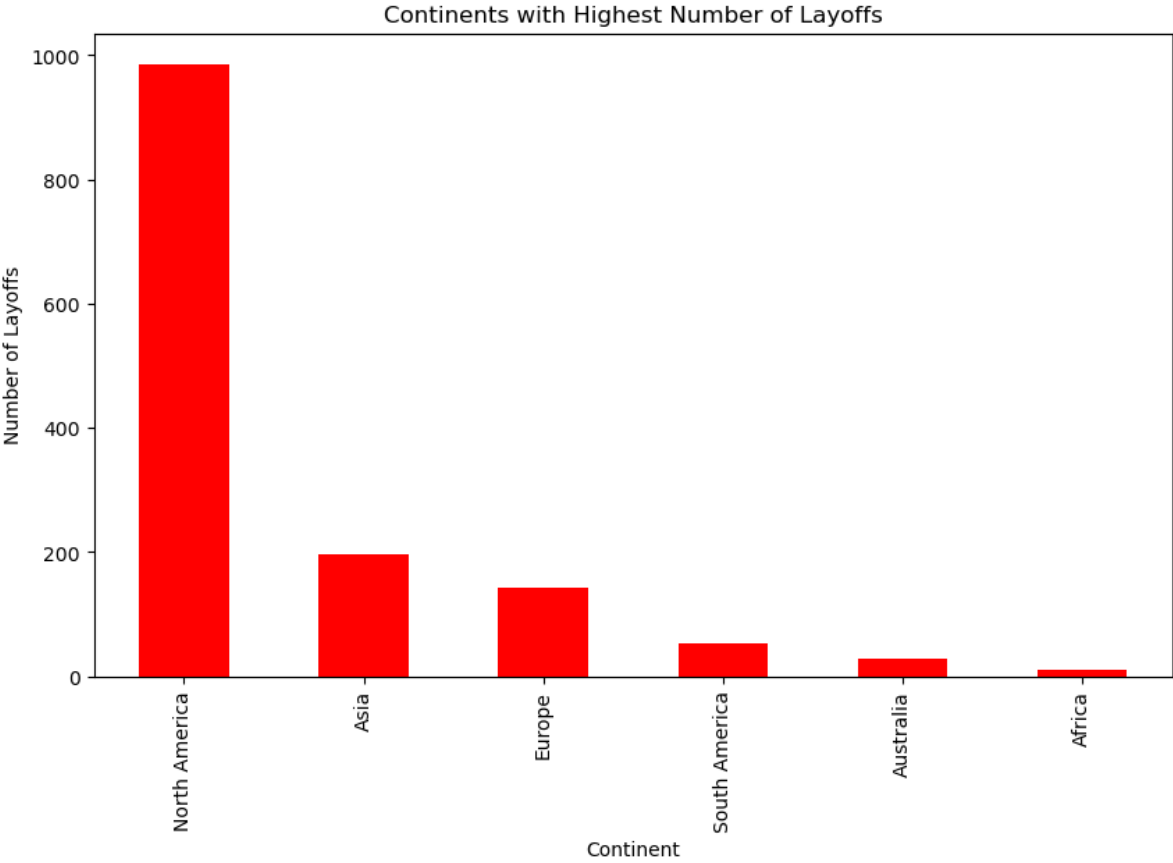
         plt.show()
```



```
In [26]: continent_highest_layoffs.plot(kind='bar', figsize=(10, 6), color='red')
plt.title('Continents with Highest Number of Layoffs')

plt.xlabel('Continent')
plt.ylabel('Number of Layoffs')

plt.show()
```

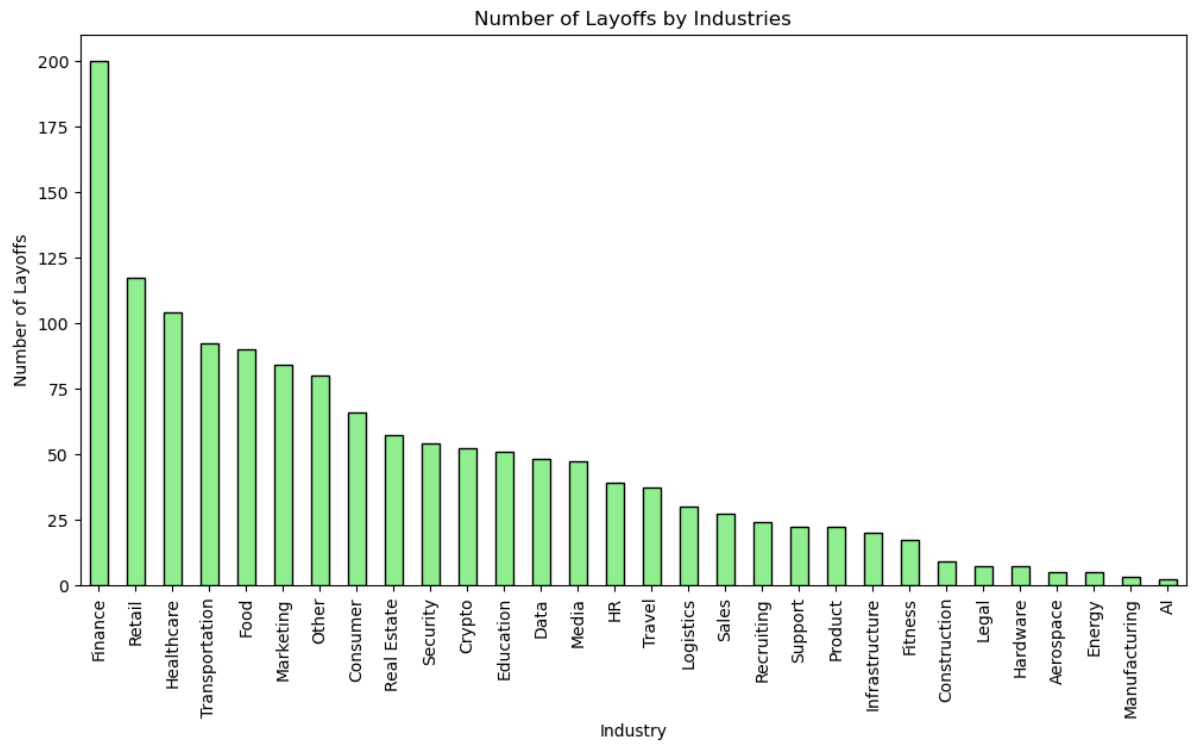


```
In [52]: unique_industries.plot(kind='bar', figsize=(12, 6), color='lightgreen', edgecolor='black')

plt.title('Number of Layoffs by Industries')

plt.xlabel('Industry')
plt.ylabel('Number of Layoffs')

plt.show()
```



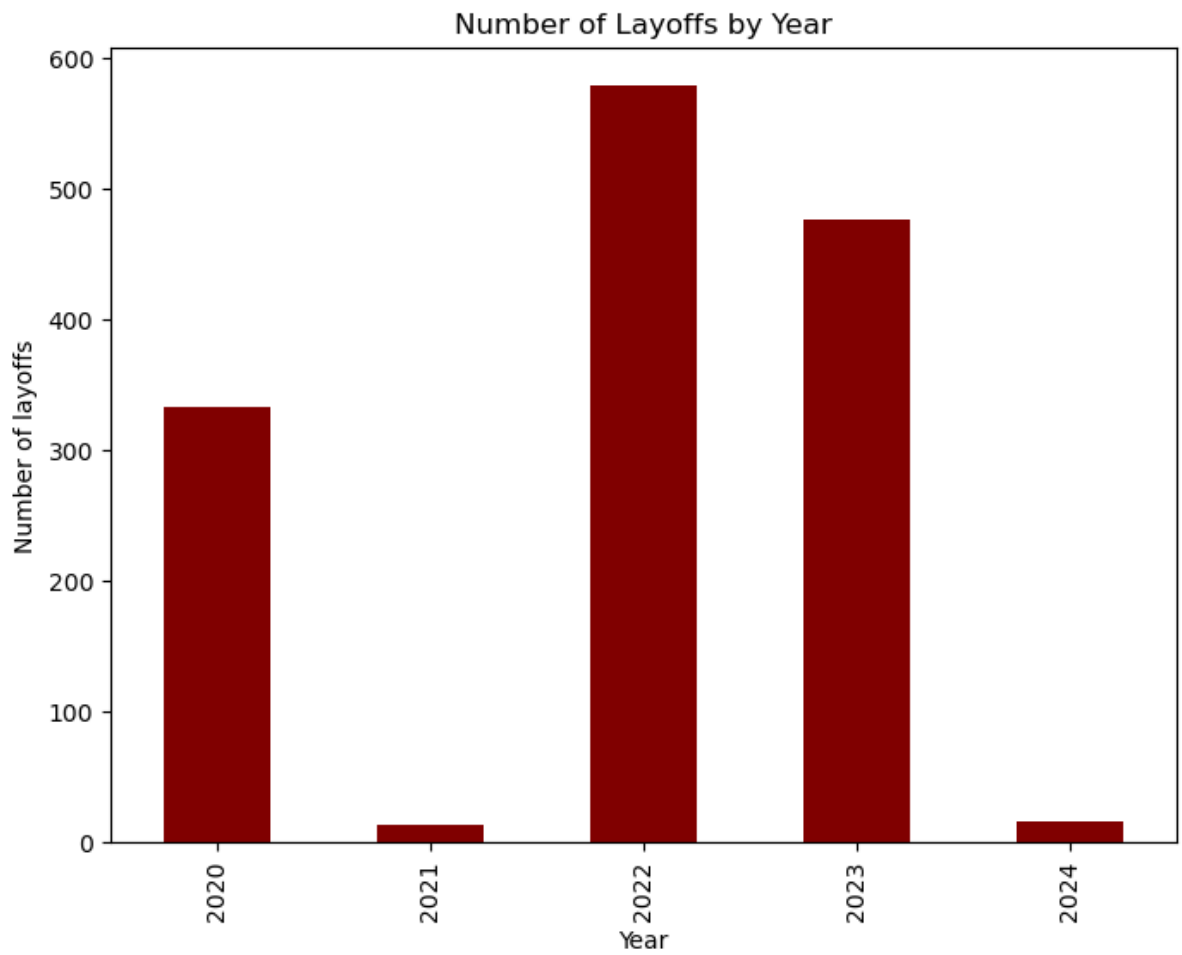
```
In [38]: layoffs_by_year = data['Year'].value_counts().sort_index()

layoffs_by_year.plot(kind='bar', figsize=(8, 6), color='maroon')

plt.title('Number of Layoffs by Year')

plt.xlabel('Year')
plt.ylabel('Number of layoffs')

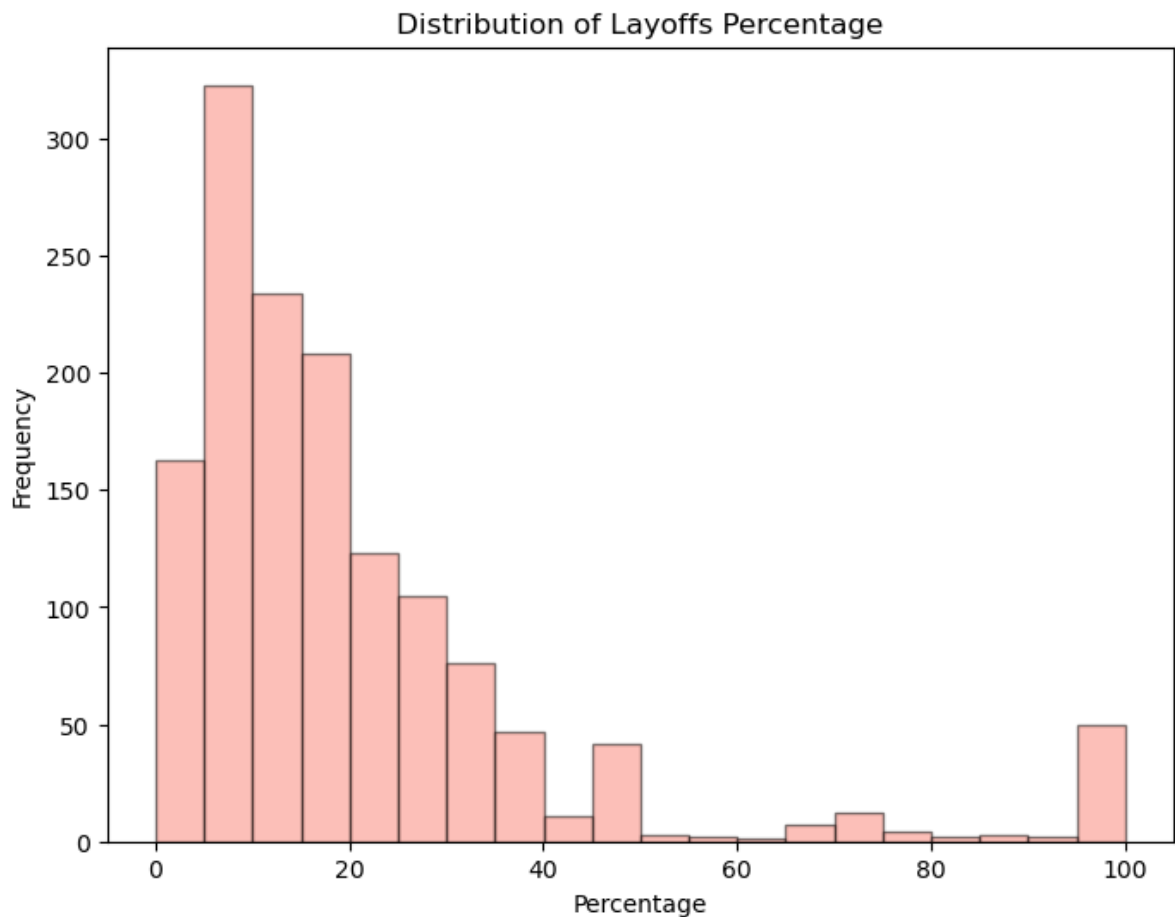
plt.show()
```



```
In [40]: plt.figure(figsize=(8,6))
data['Percentage'].plot(kind='hist', bins=20, alpha=0.5, color='salmon', edgecolor='black')

plt.title('Distribution of Layoffs Percentage')
plt.xlabel('Percentage')
plt.ylabel('Frequency')

plt.show()
```



```
In [43]: location_wise_layoffs = data['Location_HQ'].value_counts().head(10)
```

```
location_wise_layoffs
```

```
Out[43]: Location_HQ
San Francisco Bay Area    388
New York City             160
Bengaluru                 64
Boston                   60
Los Angeles               51
Seattle                  51
Tel Aviv                  47
London                   45
Toronto                   42
Berlin                    42
Name: count, dtype: int64
```

```
In [48]: location_wise_layoffs.plot(kind='bar', figsize=(12, 6), color='skyblue', edgecolor='black')

plt.title('Layoffs Accross Locations (Top 10)')

plt.xlabel('Location')
plt.ylabel('Number of Layoffs')

plt.show()
```