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 Insdustry
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
```

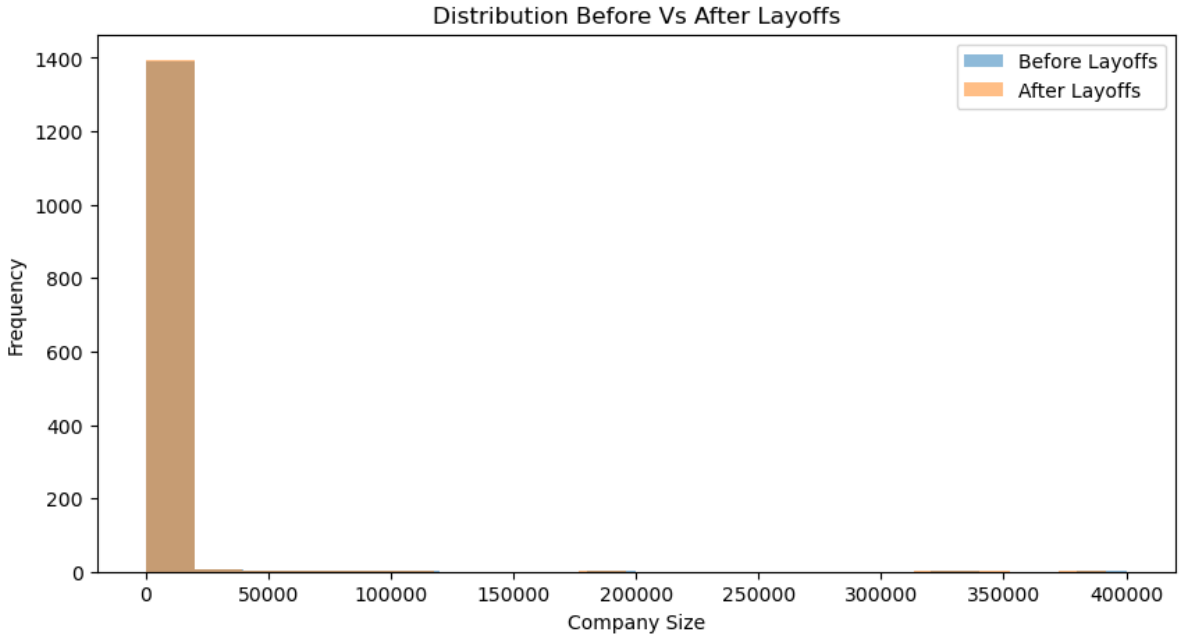
Out[22]:
```
Continent
North America    986
Asia             196
Europe           143
South America     53
Australia         29
Africa            11
Name: count, dtype: int64
```

Tech Layoffs Chart

Ploting the Chats 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
```

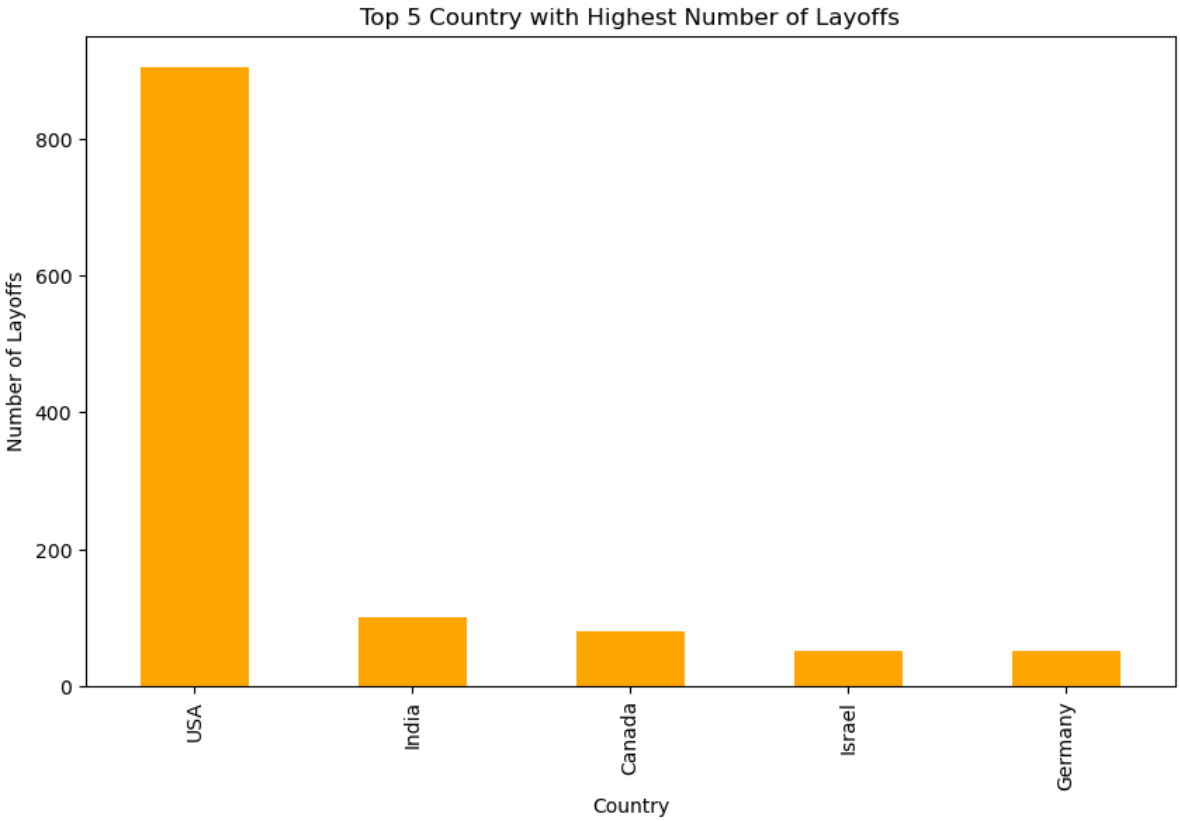
```
plt.hist(data['Company_Size_after_layoffs'], bins=20, alpha=0.5, label='Afte

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

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

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



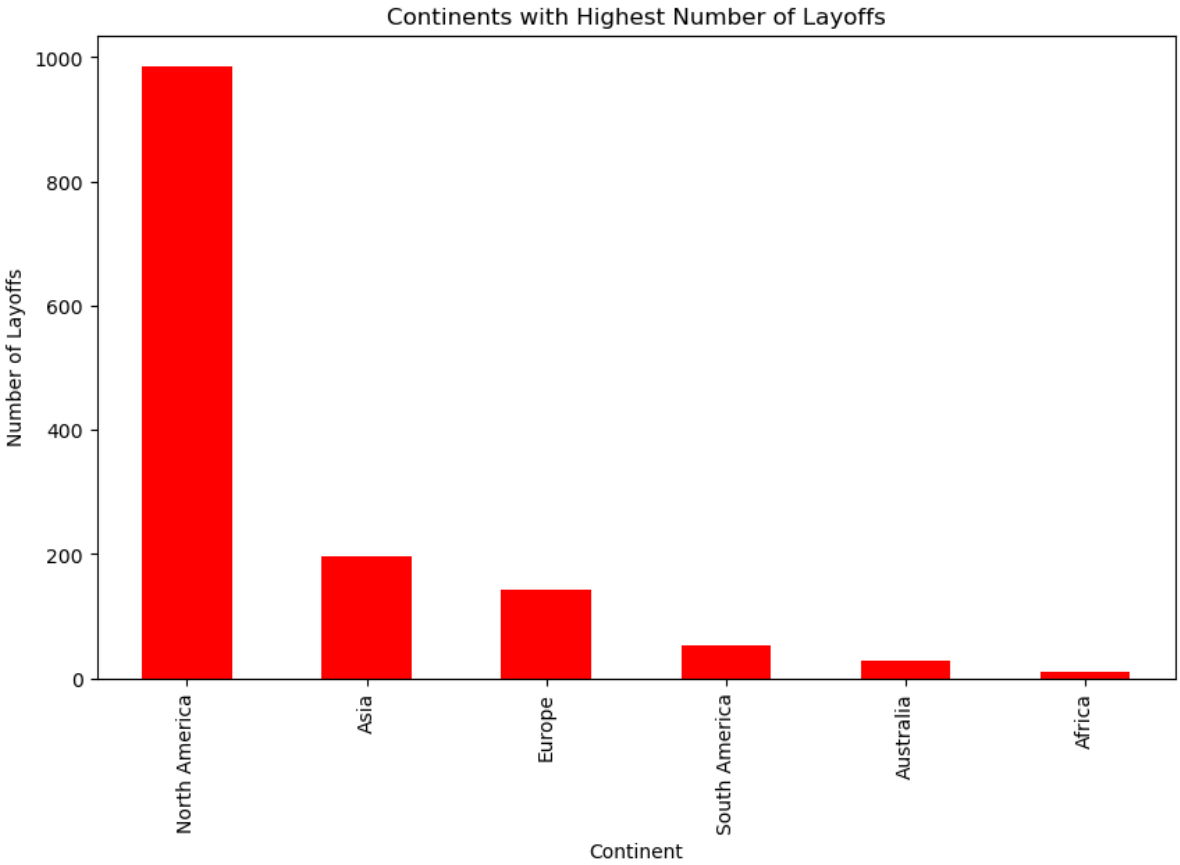
In [19]:
```
layoffs_2023 = data[data['Year'] == 2023].shape[0]
layoffs_2024 = data[data['Year'] == 2024].shape[0]

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

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

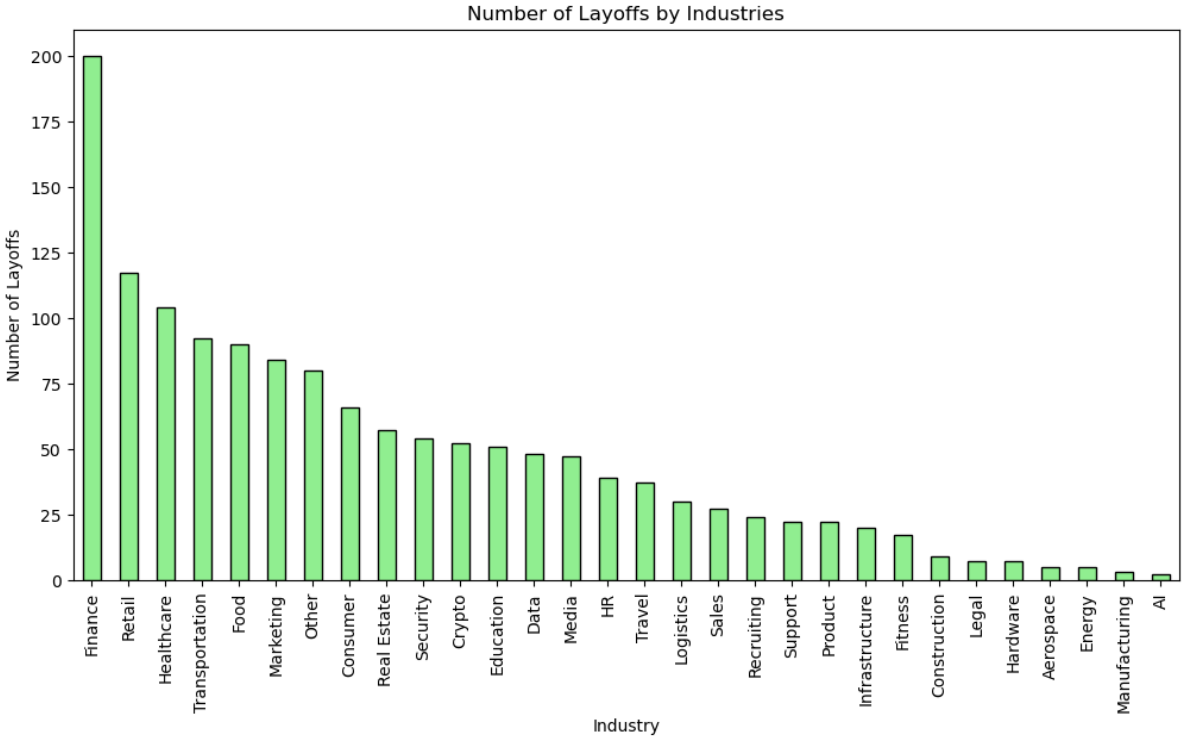
In [21]:
```
top_country.plot(kind='bar', figsize=(10, 6), color='orange')

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

plt.show()
```



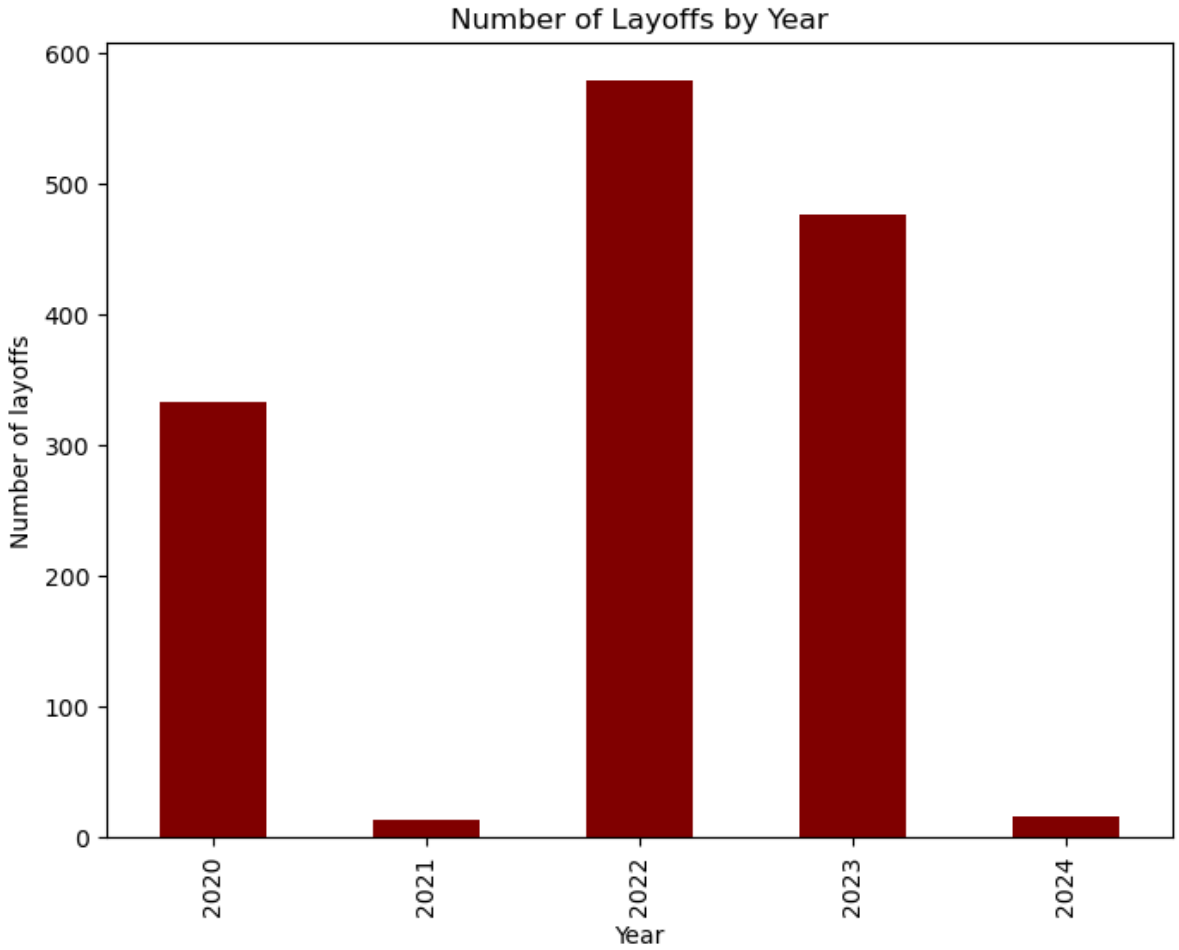
In [26]:
```
continent_highest_layoffs.plot(kind='bar', figsize=(10, 6), color='red')
plt.title('Continents with Highest Number of Layoffs')

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

plt.show()
```



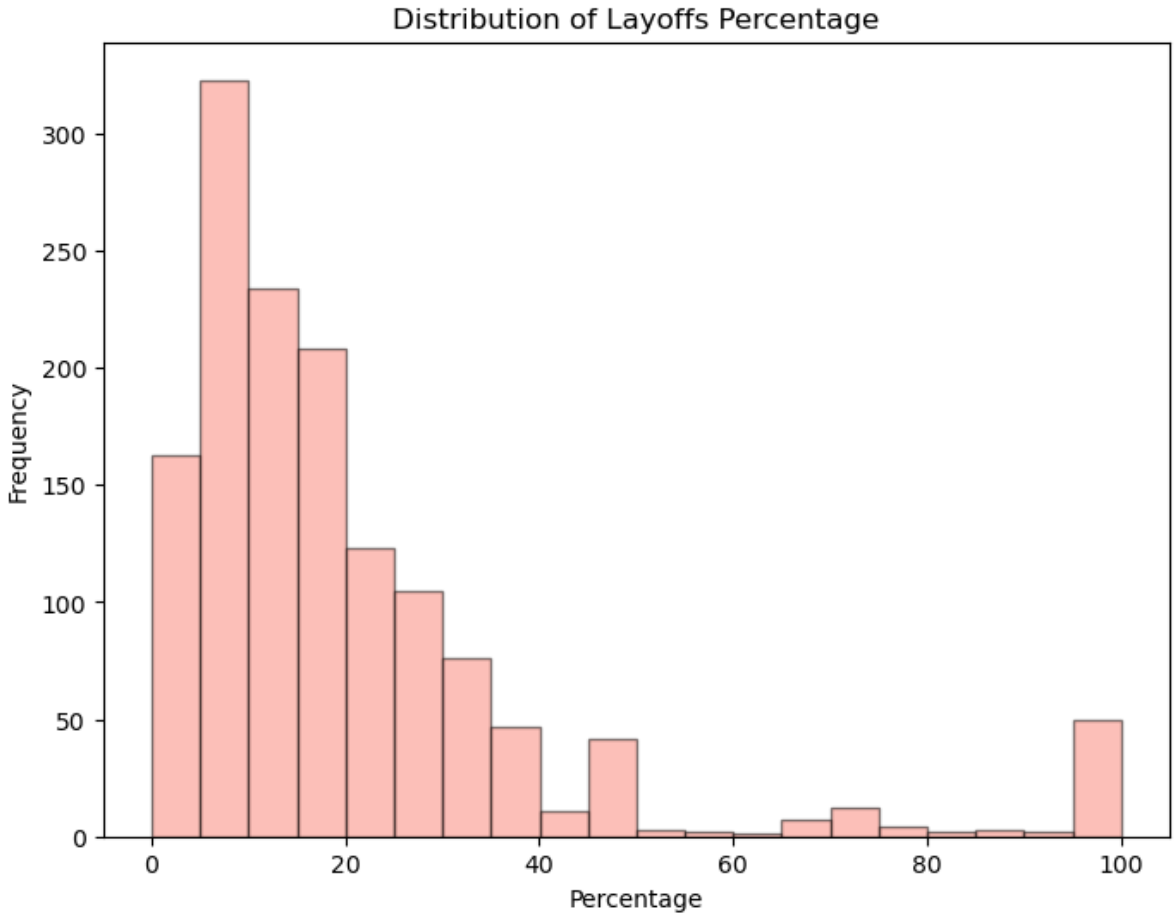
In [52]:
```
unique_industries.plot(kind='bar', figsize=(12, 6), color='lightgreen', edge

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()
```



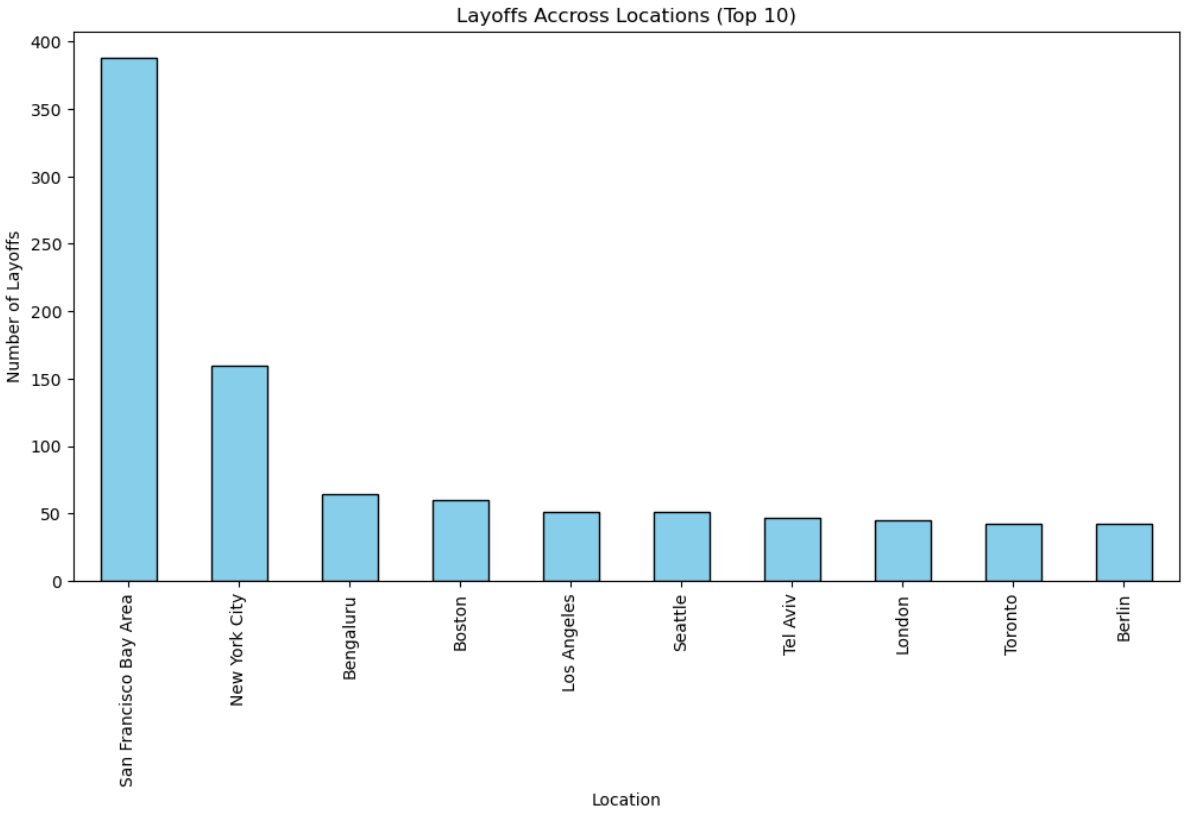
In [40]:
```
plt.figure(figsize=(8,6))
data['Percentage'].plot(kind='hist', bins=20, alpha=0.5, color='salmon', edg


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', edg

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

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

plt.show()
```


Layoffs Accross Locations (Top 10)
Number of Layoffs
0
50
100
150
200
250
300
350
400
San Francisco Bay Area
New York City
Bengaluru
Boston
Los Angeles
Seattle
Tel Aviv
London
Toronto
Berlin
Location