

DATA VISUALIZATION

ASSIGNMENT-5

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Question:

Using the tool and data set of your choice, produce an excellent chart. You will be graded on:

- Use of typography (multiple levels of header, title, and caption)
- Well-chosen chart type
- Safe color palette
- Does not rely on color alone to convey information
- Good layout, including use of negative space

Next, modify the same graphic using Visual Encoding to emphasize something; point out the emphasis by revising your caption

Solution :

Dataset:

Here I have used layoffs dataset from kaggle <https://www.kaggle.com/datasets/theakhilb/layoffs-data-2022>

```
In [3]: df.head()
```

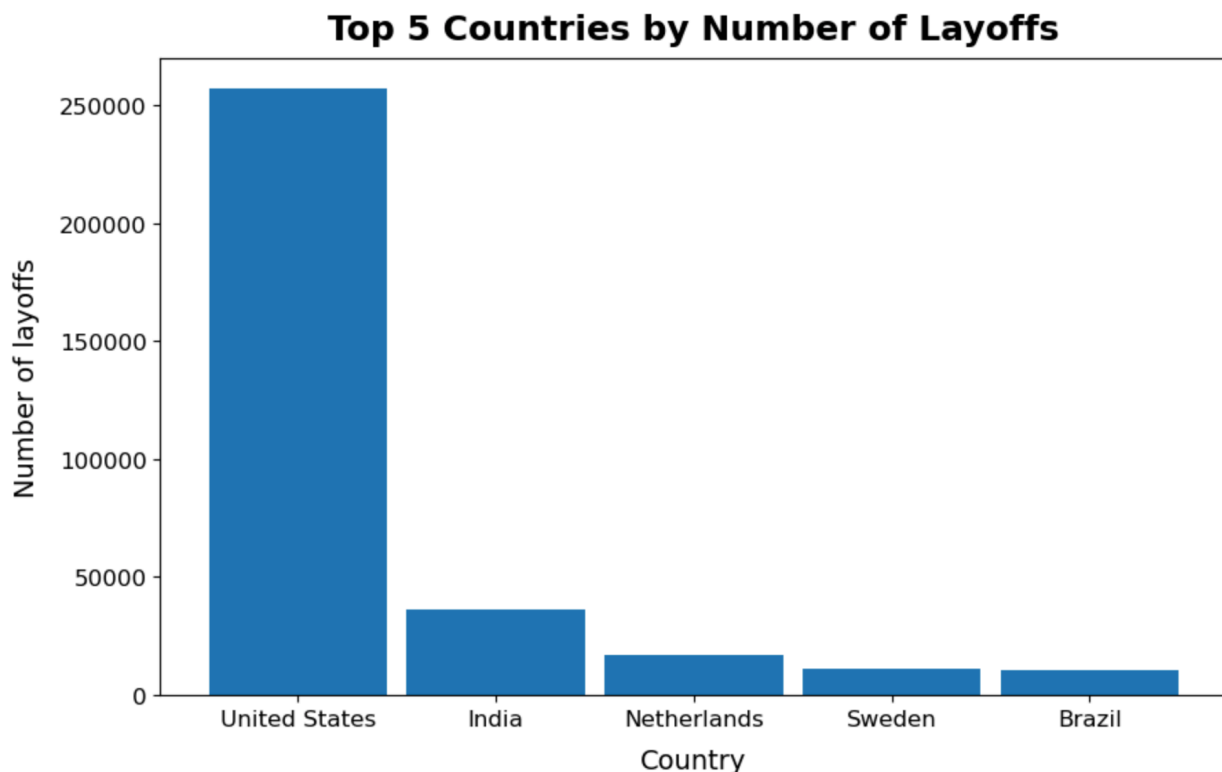
Industry	Laid_Off_Count	Date	Source	Funds_Raised	Stage	Date_Added	Country	Percentage	List_of_Employees
Transportation	600.0	2023-03-10 00:00:00	https://www.reuters.com/technology/indonesia-t...	1300.0	Post-IPO	2023-03-10 15:57:16	Indonesia	NaN	U
Finance	800.0	2023-03-09 00:00:00	https://www.stuff.co.nz/business/300826021/xer...	681.0	Post-IPO	2023-03-09 06:03:28	New Zealand	0.15	U
Food	200.0	2023-03-09 00:00:00	https://www.techinasia.com/shopee-conducts-new...	NaN	Unknown	2023-03-10 15:58:12	Indonesia	NaN	U
Food	100.0	2023-03-09 00:00:00	https://www.bloomberg.com/news/articles/2023-0...	3400.0	Series H	2023-03-10 05:21:44	United States	0.02	U
Finance	50.0	2023-03-09 00:00:00	https://thelogic.co/briefing/fintech-wave-fina...	79.0	Acquired	2023-03-10 05:17:10	Canada	NaN	U

The dataset includes information on layoffs in a variety of industries, including technology, finance, retail, and more. It can be used to explore patterns and trends in layoffs across different countries and industries.

I have used, Matplotlib, panda, Jupyter notebook to generate below visualizations.

Bar Chart :

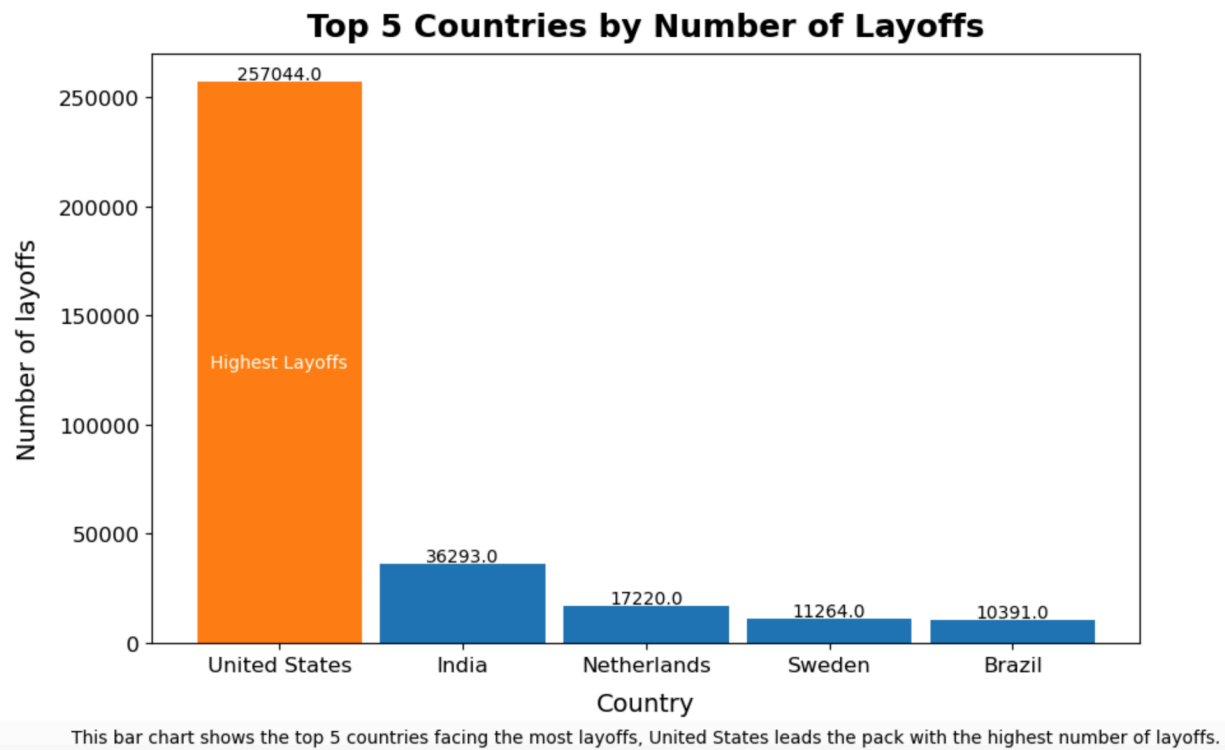
- The below Bar chart shows us the top 5 countries by the number of layoffs. In the below Bar chart I have used the 1.33 golden rule to set the font sizes of the title, label, ylabel, xticks and yticks, and have added padding to the axis label, y axis label and the title.
- I have also added the required width (0.9) to remove the extra whitespaces while plotting
- Caption - This bar chart shows the top 5 countries facing the most layoffs, United States leads the pack with the highest number of layoffs.



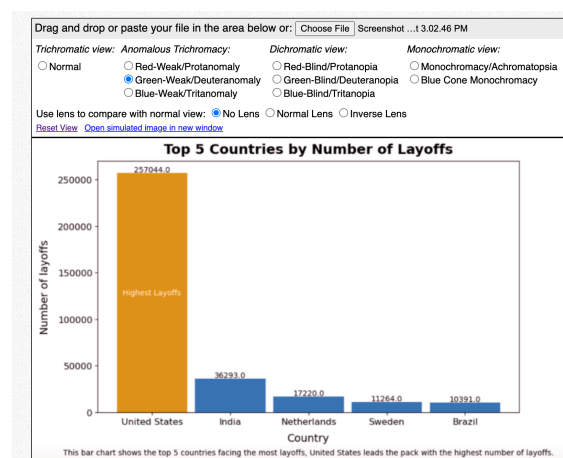
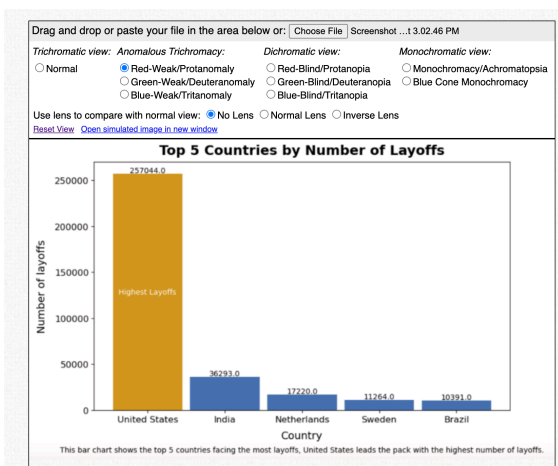
This bar chart shows the top 5 countries facing the most layoffs.

Visual Encoding :

- To visually emphasize the above chart, I have highlighted the country with the highest layoffs with orange and have also added the layoff count above the bar chart. Not just this, but I have also added a text that says “highest layoffs” inside the United States bar chart.
- Caption - This bar chart shows the top 5 countries facing the most layoffs, United States leads the pack with the highest number of layoffs.



- From the website <https://www.color-blindness.com/coblis-color-blindness-simulator/> I have also checked the visualization for different types of color blindness, and this visualization is working very well.



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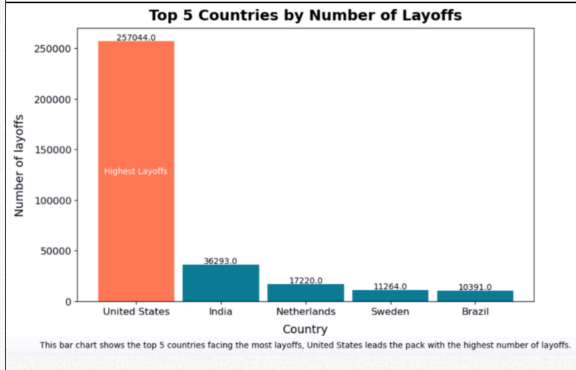
Trichromatic view: Anomalous Trichromacy: ☐ Normal ☐ Red-Weak/Protanomaly ☐ Green-Weak/Deuteranomaly ☒ Blue-Weak/Tritanomaly

Dichromatic view: ☐ Red-Blind/Protanopia ☐ Green-Blind/Deuteranopia ☐ Blue-Blind/Tritanopia

Monochromatic view: ☐ Monochromacy/Achromatopsia ☐ Blue Cone Monochromacy

Use lens to compare with normal view: ☒ No Lens ☐ Normal Lens ☐ Inverse Lens

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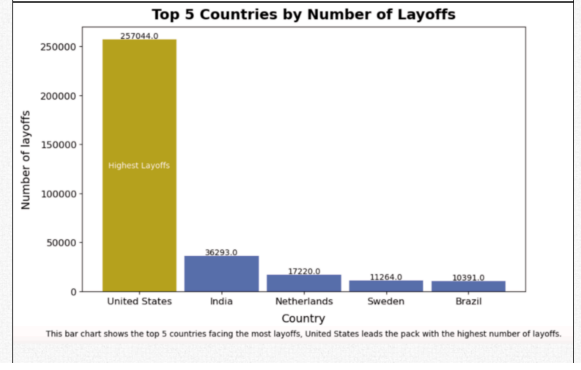
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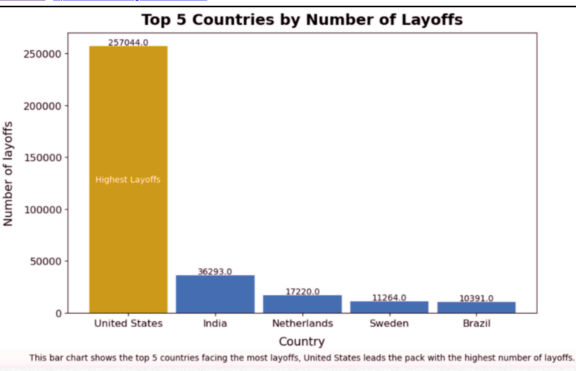
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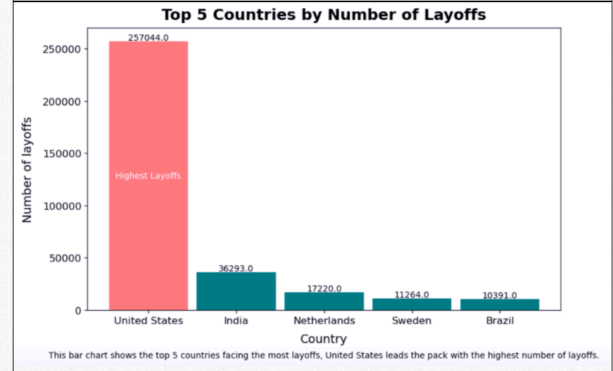
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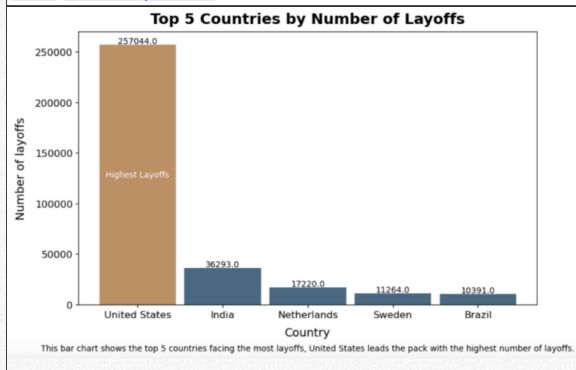
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Python Code #1:

```
import pandas as pd
import matplotlib.pyplot as plt

# Load the layoffs dataset
df = pd.read_csv('/Users/spartan/Desktop/layoffs_data.csv')
# Group the data by country and sum up the number of layoffs
grouped = df.groupby('Country')['Laid_Off_Count'].sum().reset_index()
# Sort the data by the number of layoffs in descending order and select the top 5 countries
top_countries = grouped.sort_values('Laid_Off_Count', ascending=False).head(5)
plt.figure(figsize=(10, 6))
# ticks size
plt.xticks(fontsize=12)
plt.yticks(fontsize=12)
# Create a bar chart showing the top countries by number of layoffs
plt.bar(top_countries['Country'],
top_countries['Laid_Off_Count'],color=['#1F77B4'],width=0.9)
plt.xlabel('Country',fontsize=14,labelpad=10)
plt.ylabel('Number of layoffs',fontsize=14,labelpad=10)
plt.title('Top 5 Countries by Number of Layoffs',fontsize=18,
fontweight='bold',pad=10)
plt.text(0.5, -0.16, "This bar chart shows the top 5 countries facing the most layoffs.", ha='center', va='center', transform=plt.gca().transAxes)
plt.show()
```

Python Code #2:

```
plt.figure(figsize=(10, 6))

# Create a bar chart showing the top 10 countries by number of layoffs
plt.bar(top_countries['Country'], top_countries['Laid_Off_Count'],
color=['#FF7F0E'] + ['#1F77B4'] * 4,width=0.9)
# Add text labels to the first three bars
for i in range(len(top_countries)):
    plt.text(x=i, y=top_countries.iloc[i]['Laid_Off_Count']+1000,
s=top_countries.iloc[i]['Laid_Off_Count'], ha='center', fontsize=10)
```

```
#ticks size
plt.xticks(fontsize=12)
plt.yticks(fontsize=12)
plt.text(x=0, y=top_countries.iloc[0]['Laid_Off_Count']/2, s="Highest Layoffs",
ha='center', va='center', fontsize=10,color='white')
plt.xlabel('Country',fontsize=14,labelpad=10)
plt.ylabel('Number of layoffs',fontsize=14,labelpad=10)
plt.title('Top 5 Countries by Number of Layoffs',fontsize=18,
fontweight='bold',pad=10)
plt.text(0.5, -0.16, "This bar chart shows the top 5 countries facing the most
layoffs, United States leads the pack with the highest number of layoffs.",
ha='center', va='center', transform=plt.gca().transAxes)
plt.show()
```

THE END