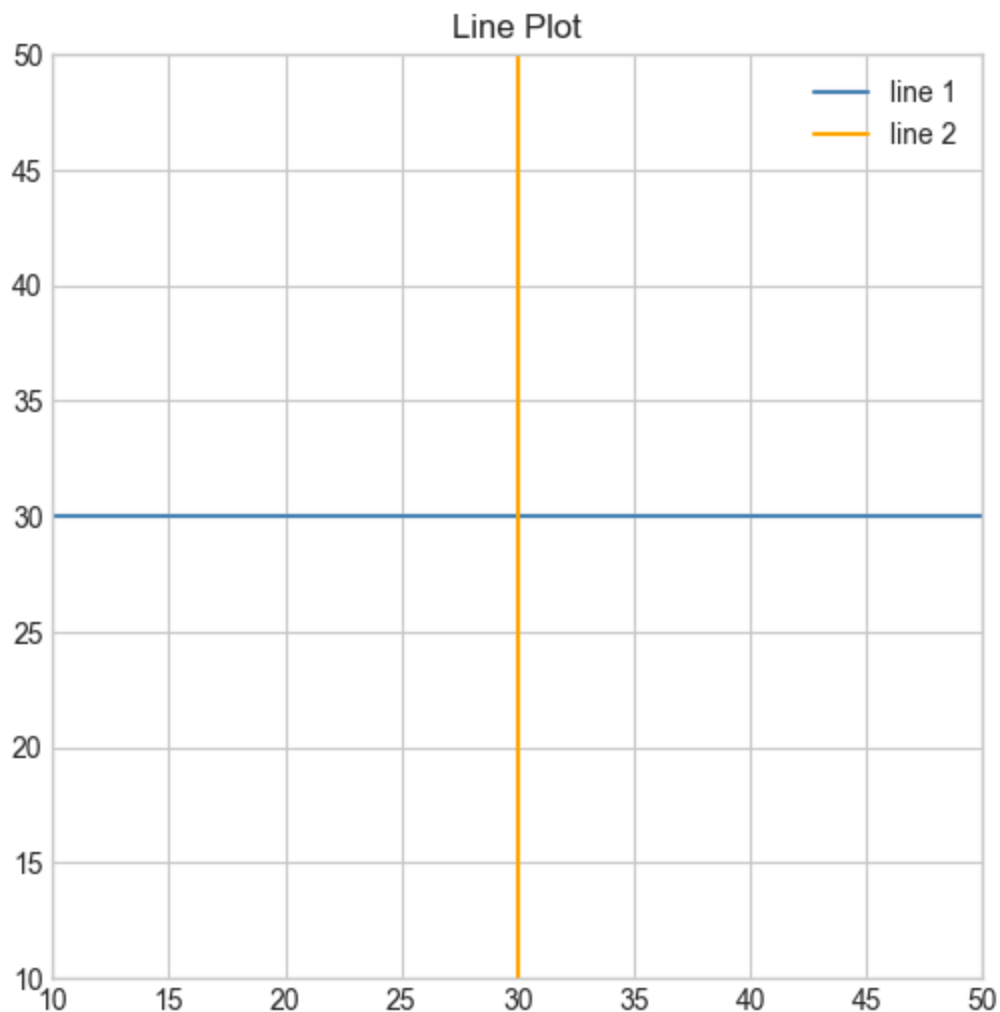


Practical 16:

```
In [15]: import matplotlib.pyplot as plt
import numpy as np
```

```
In [16]: plt.figure(figsize=(6, 6))
plt.axhline(y=30, color='steelblue', label='line 1')
plt.axvline(x=30, color='orange', label='line 2')
plt.xlim(10, 50)
plt.ylim(10, 50)
plt.legend()
plt.title("Line Plot")
plt.grid(True)
plt.show()
```



```
In [17]: import matplotlib.pyplot as plt
import numpy as np

plt.figure(figsize=(8, 6))
colors = ['red', 'green', 'yellow', 'blue']
```

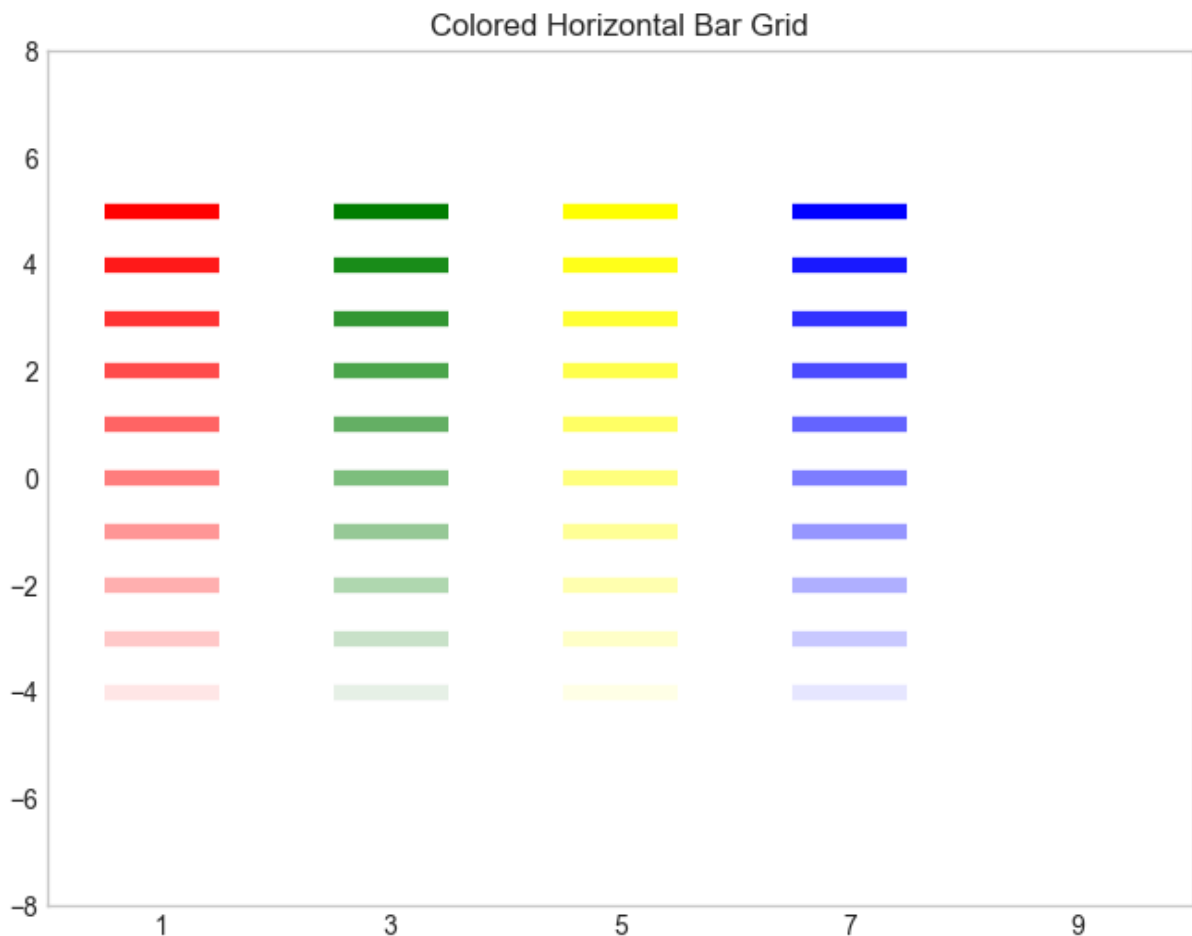
```

x_positions = [1, 3, 5, 7, 9]

# Loop to draw horizontal lines in a grid with varying alpha (transparency)
for i, color in enumerate(colors):
    for j in range(10):
        alpha = 1 - j * 0.1 # Gradually fading
        plt.hlines(y=5 - j, xmin=x_positions[i] - 0.5, xmax=x_positions[i] + 0.5,
                    color=color, linewidth=6, alpha=alpha)

plt.xlim(0, 10)
plt.ylim(-8, 8)
plt.xticks(x_positions)
plt.title("Colored Horizontal Bar Grid")
plt.grid(False)
plt.show()

```



```

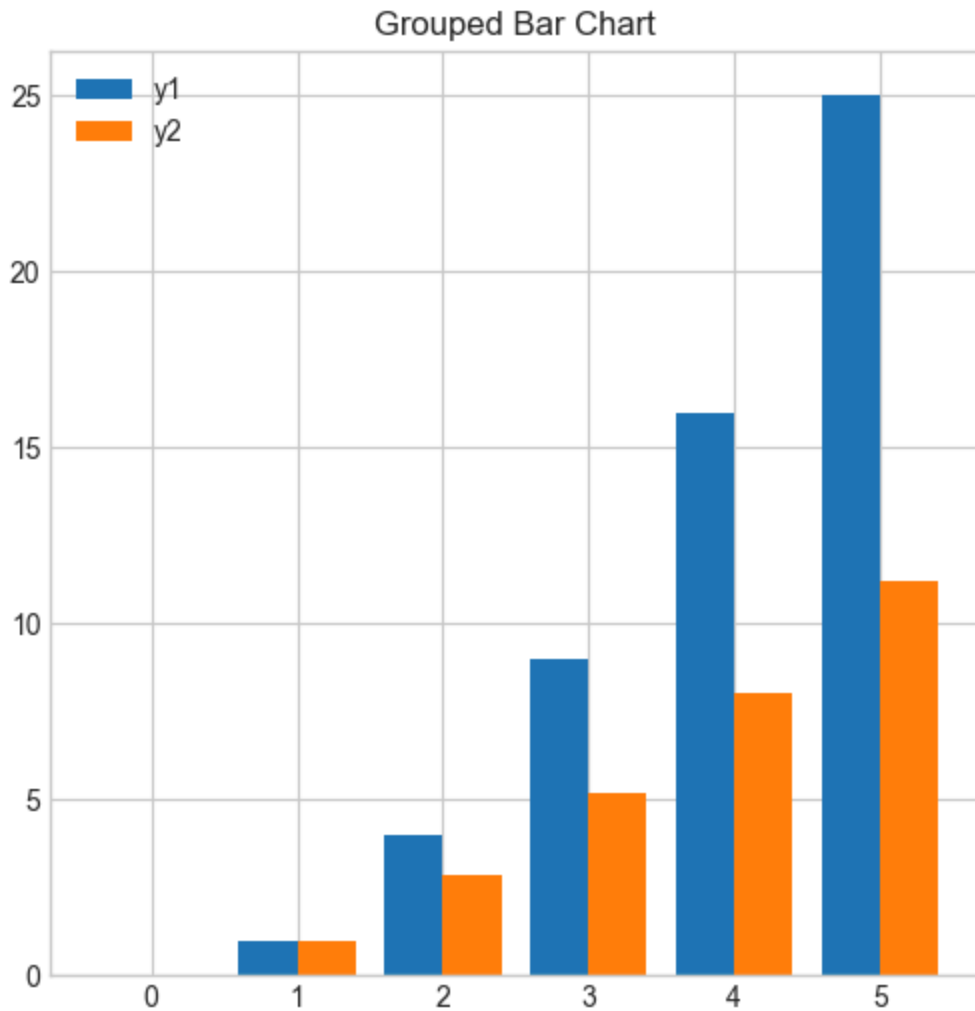
In [18]: import numpy as np
import matplotlib.pyplot as plt

x = np.arange(6)
y1 = x ** 2
y2 = x ** 1.5

plt.figure(figsize=(6, 6))
plt.bar(x - 0.2, y1, width=0.4, label='y1')
plt.bar(x + 0.2, y2, width=0.4, label='y2')
plt.title("Grouped Bar Chart")

```

```
plt.legend()
plt.grid(True)
plt.show()
```



```
In [19]: import matplotlib.pyplot as plt
import numpy as np

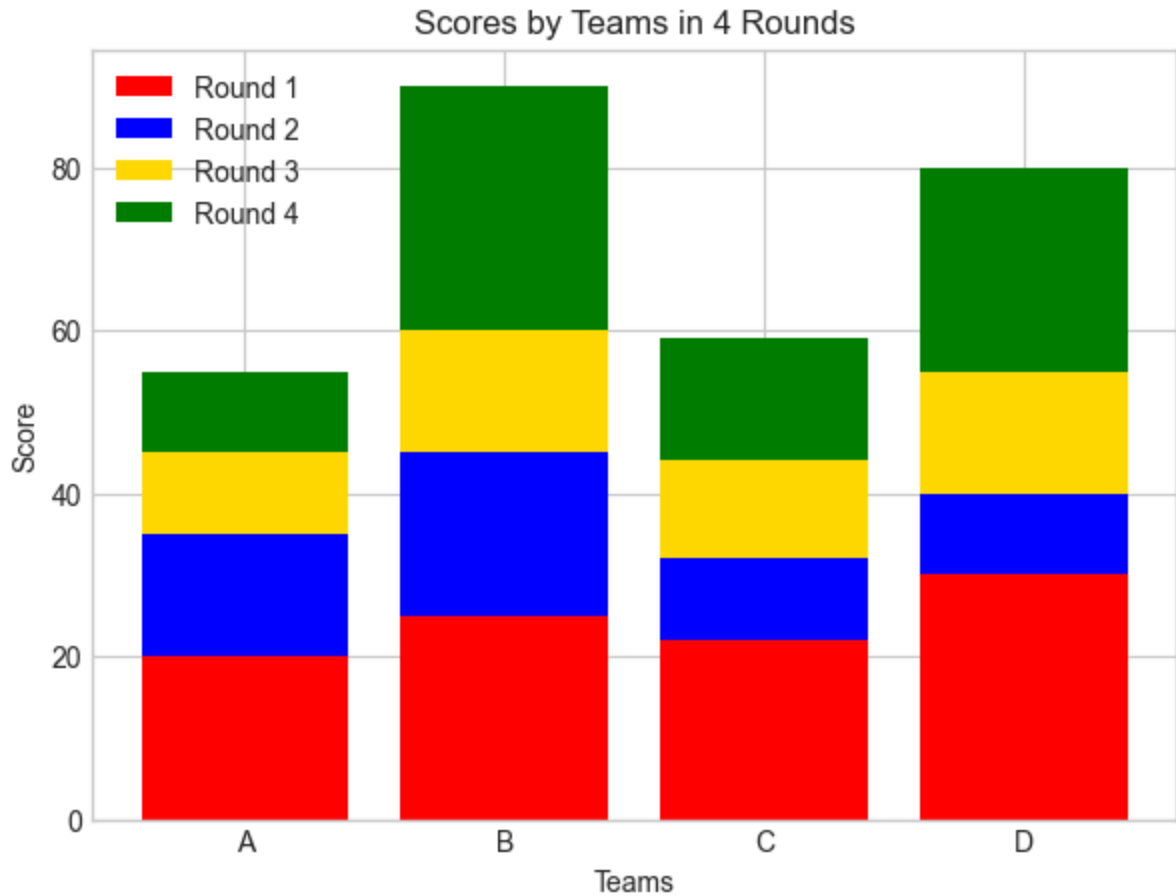
labels = ['A', 'B', 'C', 'D']
round1 = [20, 25, 22, 30]
round2 = [15, 20, 10, 10]
round3 = [10, 15, 12, 15]
round4 = [10, 30, 15, 25]

x = np.arange(len(labels))

plt.figure(figsize=(7, 5))
plt.bar(x, round1, color='red', label='Round 1')
plt.bar(x, round2, bottom=round1, color='blue', label='Round 2')
plt.bar(x, round3, bottom=np.array(round1) + np.array(round2), color='gold',
label='Round 3')
plt.bar(x, round4, bottom=np.array(round1) + np.array(round2) + np.array(round3),
color='purple', label='Round 4')

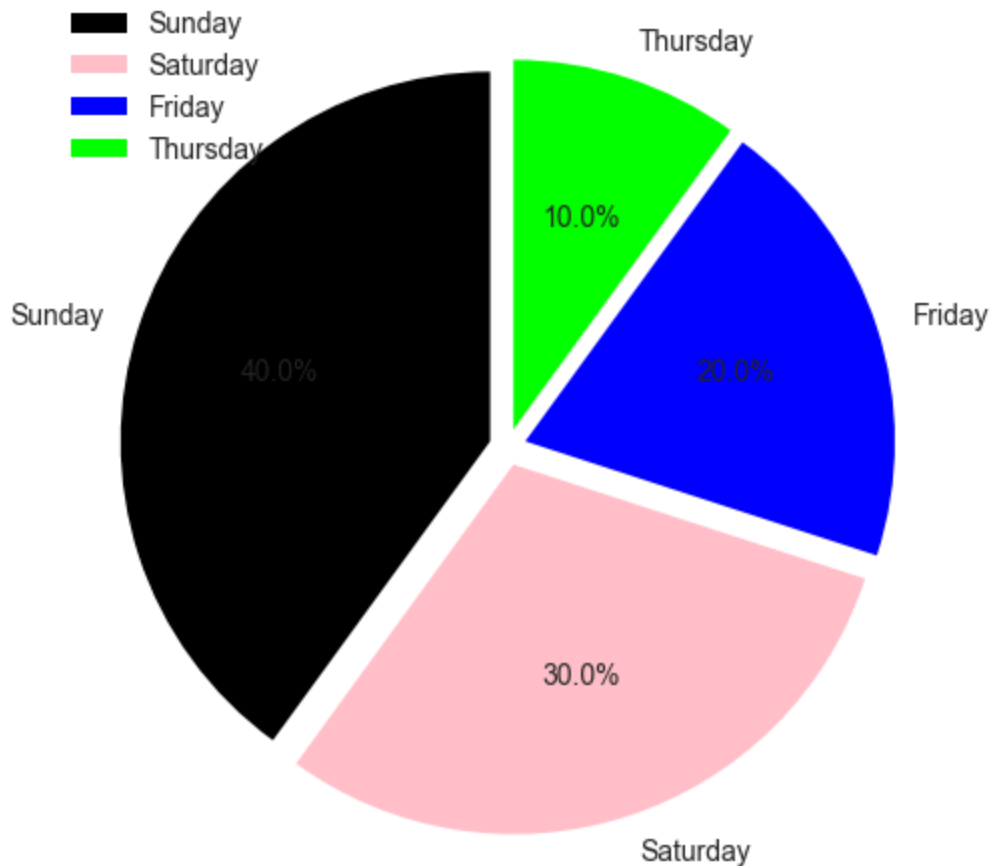
plt.xticks(x, labels)
plt.ylabel("Score")
plt.xlabel("Teams")
plt.title("Scores by Teams in 4 Rounds")
```

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



```
In [20]: plt.figure(figsize=(6, 6))  
  
labels = ['Sunday', 'Saturday', 'Friday', 'Thursday']  
sizes = [40, 30, 20, 10]  
colors = ['black', 'pink', 'blue', 'lime']  
explode = (0.05, 0.05, 0.05, 0.05)  
  
plt.pie(sizes, labels=labels, colors=colors, explode=explode, startangle=90,  
plt.title("Restaurant Sales analysis 2024", color='red', fontsize=16)  
plt.legend(loc='best')  
plt.show()
```

Restaurant Sales analysis 2024

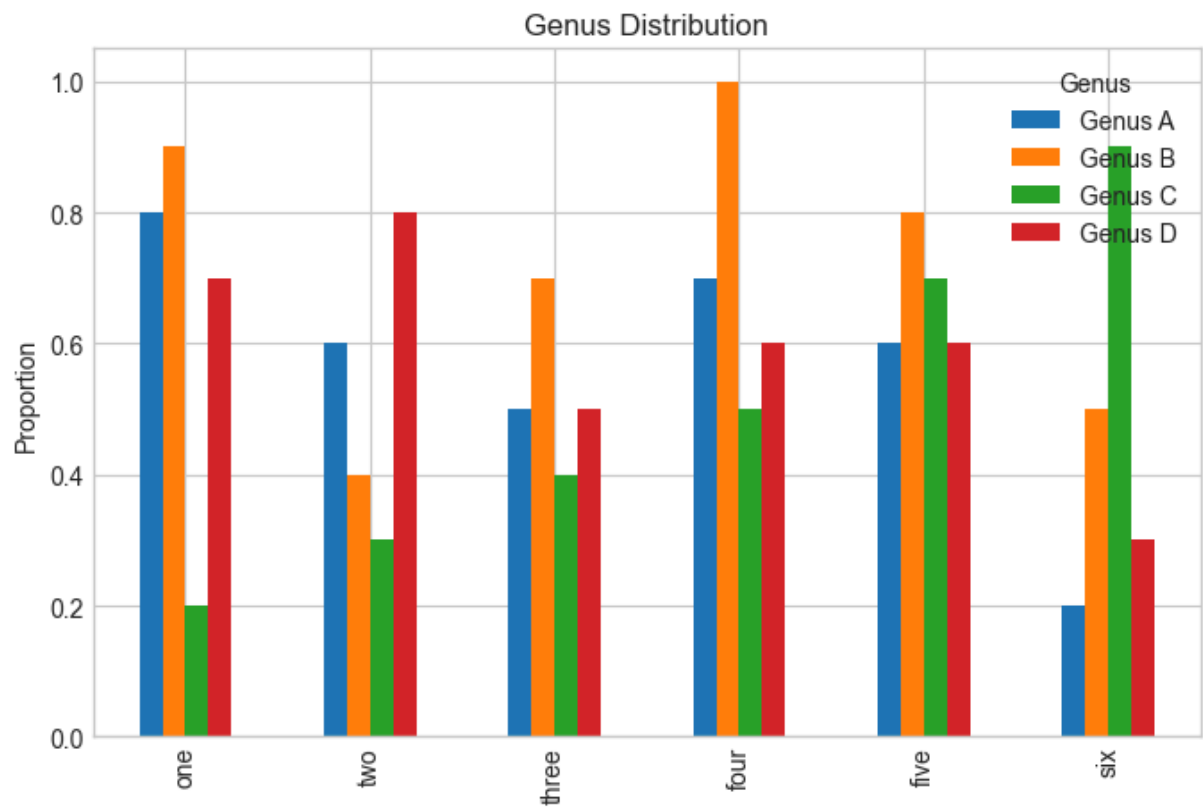


Practical 17:

```
In [21]: import pandas as pd
import matplotlib.pyplot as plt

data = {
    'Genus A': [0.8, 0.6, 0.5, 0.7, 0.6, 0.2],
    'Genus B': [0.9, 0.4, 0.7, 1.0, 0.8, 0.5],
    'Genus C': [0.2, 0.3, 0.4, 0.5, 0.7, 0.9],
    'Genus D': [0.7, 0.8, 0.5, 0.6, 0.6, 0.3]
}

df = pd.DataFrame(data, index=['one', 'two', 'three', 'four', 'five', 'six'])
df.plot(kind='bar', figsize=(8, 5))
plt.title("Genus Distribution")
plt.ylabel("Proportion")
plt.legend(title="Genus")
plt.show()
```



In []: