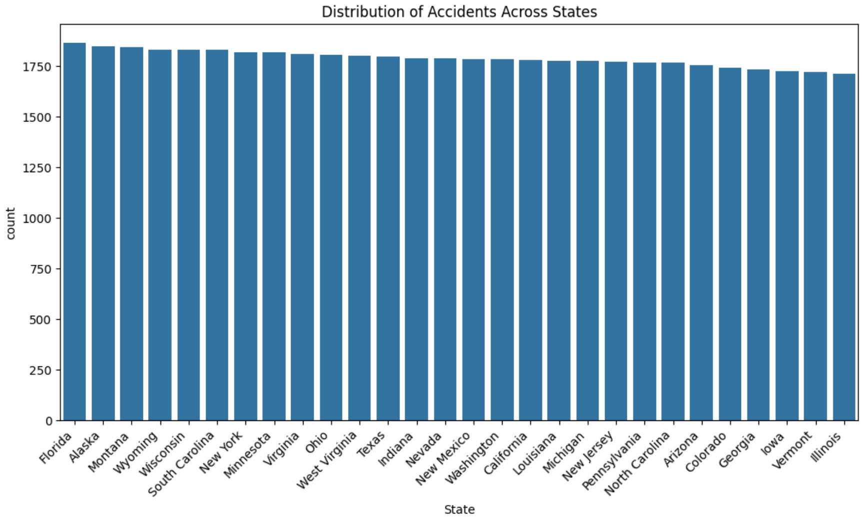
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

# Load data from the CSV file
file_path = "/content/drive/MyDrive/accidents.csv"
accident_data = pd.read_csv(file_path, parse_dates=["AccidentDate"])

# Display basic information about the dataset
print(accident_data.info())

# Display summary statistics for numerical columns
print(accident_data.describe())
```

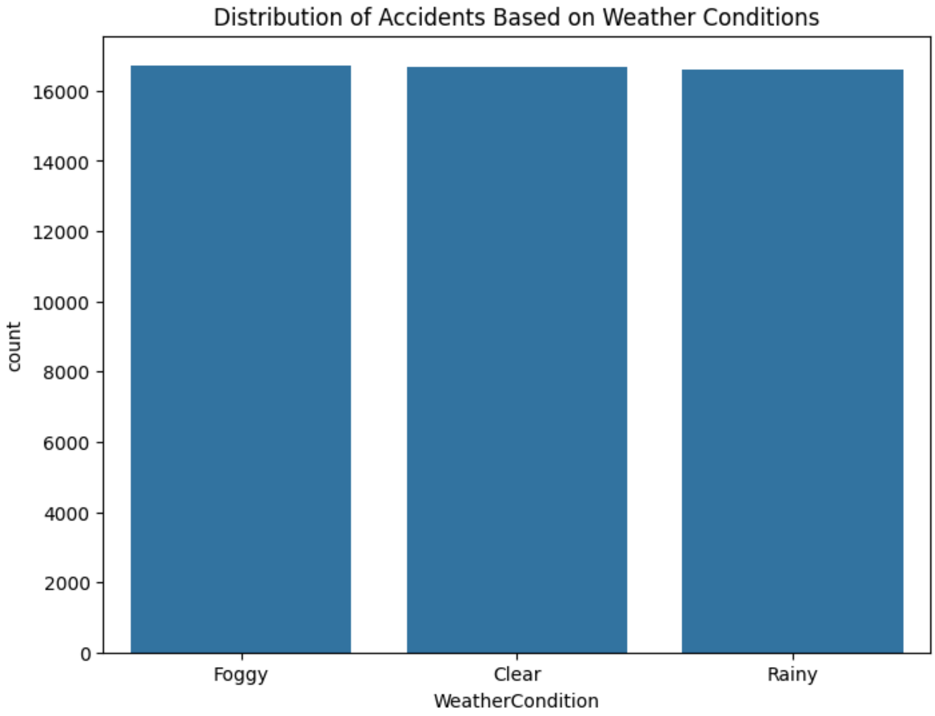
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 50000 entries, 0 to 49999
Data columns (total 7 columns):
 #   Column            Non-Null Count  Dtype 
---  ------            --------------  ----- 
 0   AccidentDate      50000 non-null  object
 1   Timing            50000 non-null  object
 2   State             50000 non-null  object
 3   WeatherCondition  50000 non-null  object
 4   RoadCondition     50000 non-null  object
 5   Deaths            50000 non-null  int64 
 6   Reason            50000 non-null  object
dtypes: int64(1), object(6)
memory usage: 2.7+ MB
None
             Deaths
count  50000.000000
mean       4.983040
std        3.160581
min        0.000000
25%        2.000000
50%        5.000000
75%        8.000000
max       10.000000
```

```
from google.colab import drive
drive.mount('/content/drive')
```

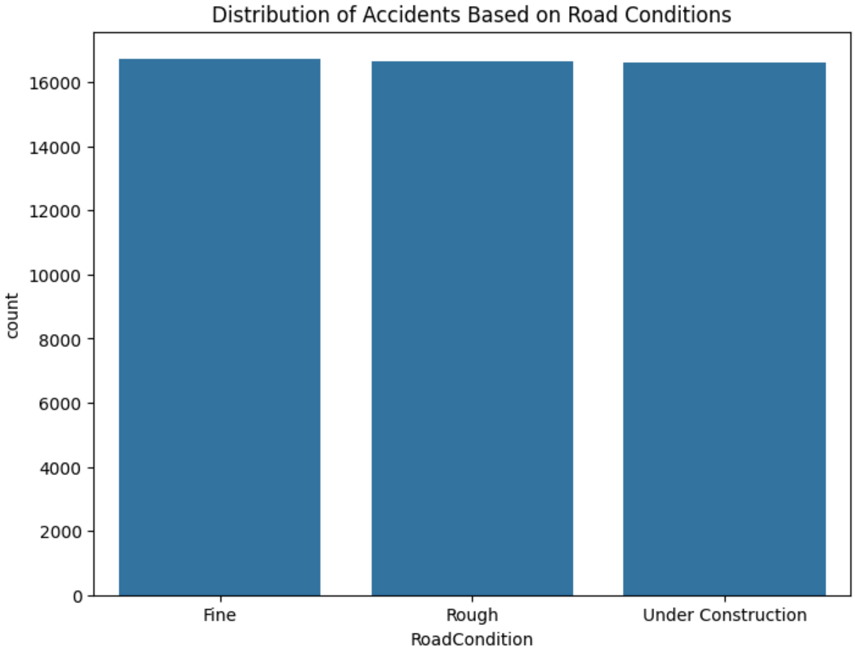
```
# Explore the distribution of accidents across different states
plt.figure(figsize=(12, 6))
sns.countplot(x="State", data=accident_data, order=accident_data['State'].value_counts().index)
plt.title("Distribution of Accidents Across States")
plt.xticks(rotation=45, ha="right")
plt.show()
```



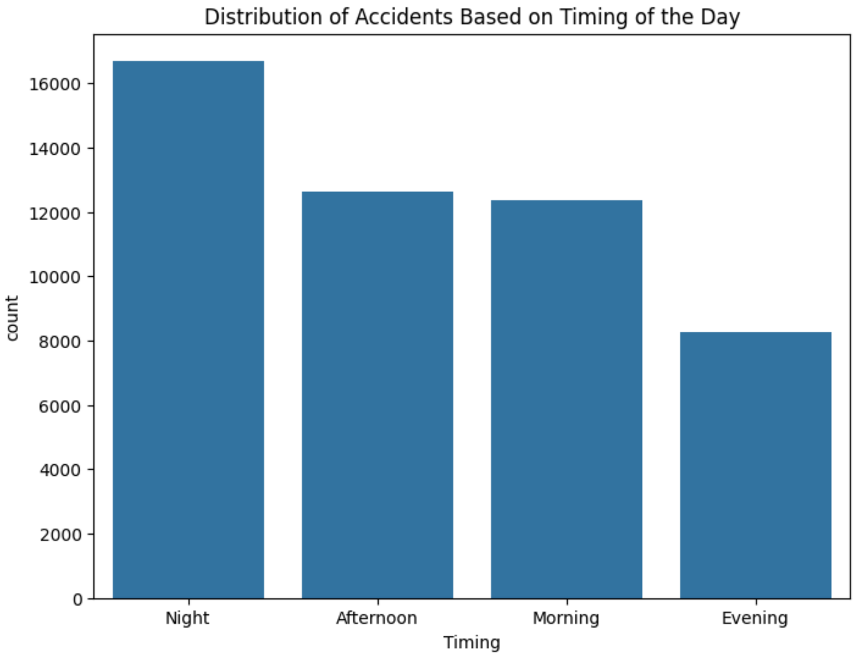
```
# Explore the distribution of accidents based on weather conditions
plt.figure(figsize=(8, 6))
sns.countplot(x="WeatherCondition", data=accident_data, order=accident_data['WeatherCondition'].value_counts().index)
plt.title("Distribution of Accidents Based on Weather Conditions")
plt.show()
```



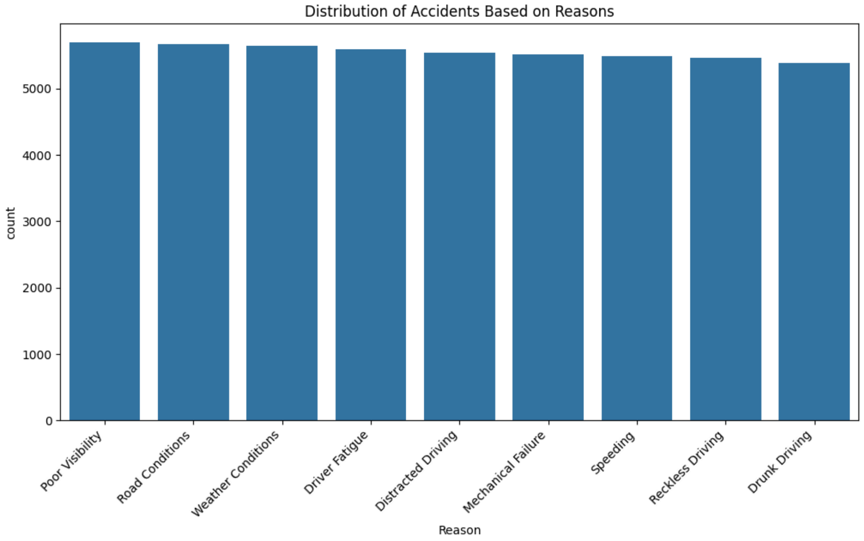
```
# Explore the distribution of accidents based on road conditions
plt.figure(figsize=(8, 6))
sns.countplot(x="RoadCondition", data=accident_data, order=accident_data['RoadCondition'].value_counts().index)
plt.title("Distribution of Accidents Based on Road Conditions")
plt.show()
```



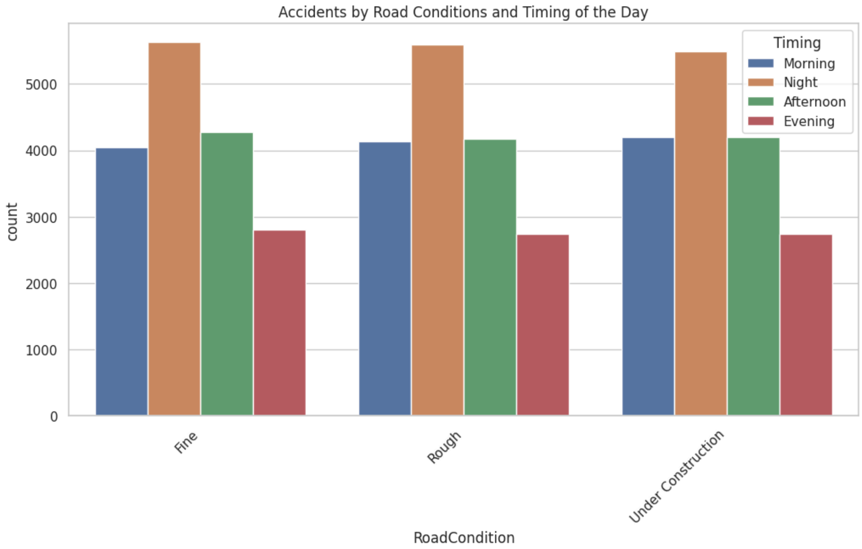
```
# Explore the distribution of accidents based on the timing of the day
plt.figure(figsize=(8, 6))
sns.countplot(x="Timing", data=accident_data, order=accident_data['Timing'].value_counts().index)
plt.title("Distribution of Accidents Based on Timing of the Day")
plt.show()
```



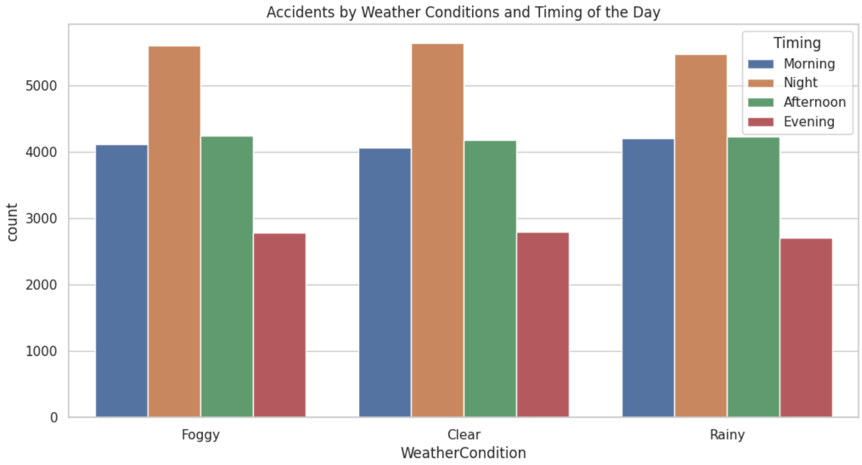
```
# Explore the reasons for accidents
plt.figure(figsize=(12, 6))
sns.countplot(x="Reason", data=accident_data, order=accident_data['Reason'].value_counts().index)
plt.title("Distribution of Accidents Based on Reasons")
plt.xticks(rotation=45, ha="right")
plt.show()
```



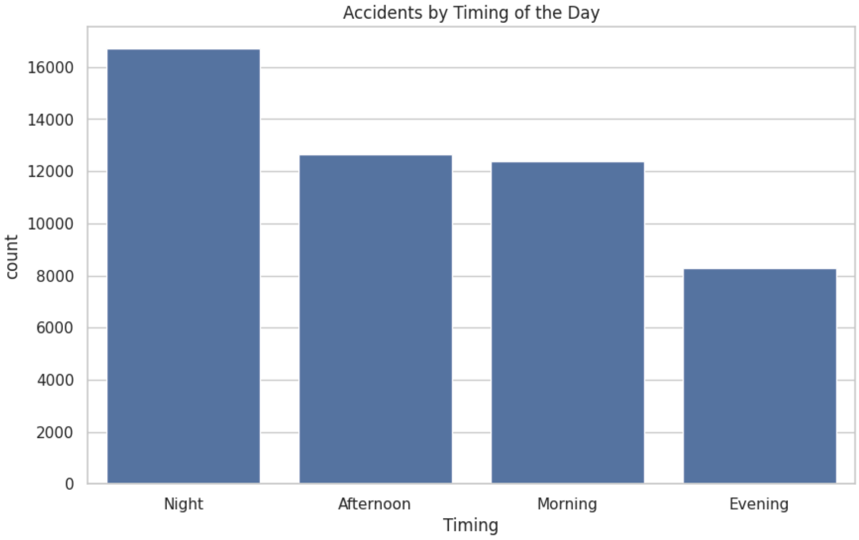
```
import matplotlib.pyplot as plt
import seaborn as sns

# Set the style for seaborn plots
sns.set(style="whitegrid")

# Explore patterns related to road conditions
plt.figure(figsize=(12, 6))
sns.countplot(x="RoadCondition", hue="Timing", data=accident_data, order=accident_data['RoadCondition'].value_counts().index)
plt.title("Accidents by Road Conditions and Timing of the Day")
plt.xticks(rotation=45, ha="right")
plt.show()
```



```
# Explore patterns related to weather conditions
plt.figure(figsize=(12, 6))
sns.countplot(x="WeatherCondition", hue="Timing", data=accident_data, order=accident_data['WeatherCondition'].value_counts().index)
plt.title("Accidents by Weather Conditions and Timing of the Day")
plt.show()
```

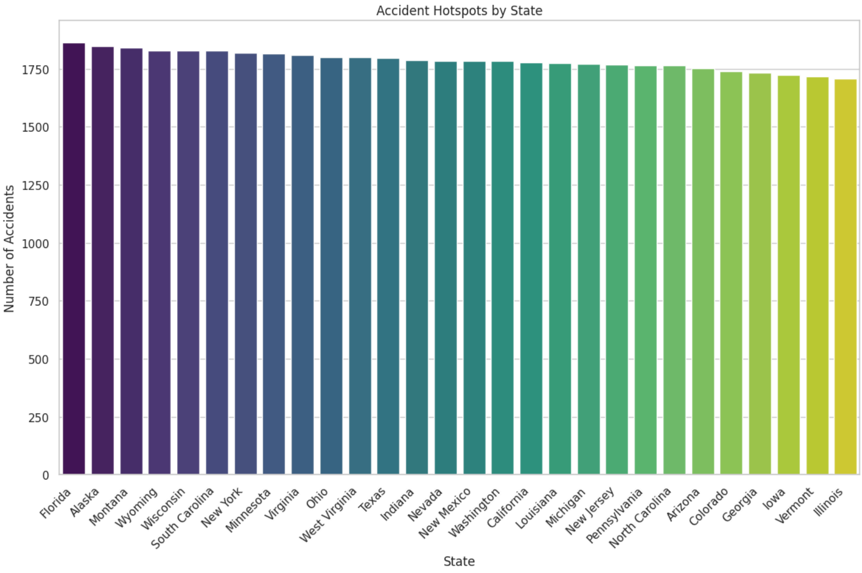


```
# Explore patterns related to time of day
plt.figure(figsize=(10, 6))
sns.countplot(x="Timing", data=accident_data, order=accident_data['Timing'].value_counts().index)
plt.title("Accidents by Timing of the Day")
plt.show()
```



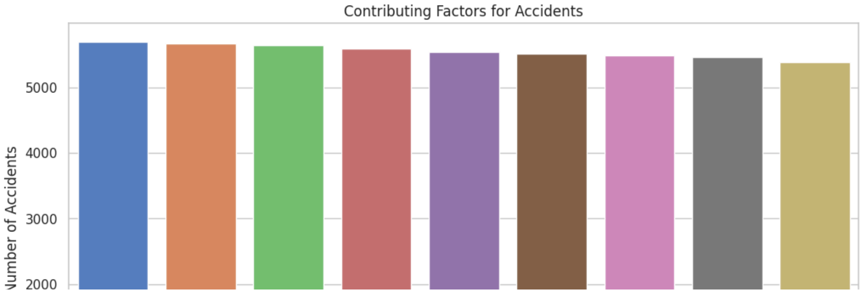
```
# Set the style for seaborn plots
sns.set(style="whitegrid")

# Visualize accident hotspots (States with higher accident frequencies)
plt.figure(figsize=(14, 8))
state_accidents = accident_data['State'].value_counts()
sns.barplot(x=state_accidents.index, y=state_accidents.values, palette="viridis")
plt.title("Accident Hotspots by State")
plt.xlabel("State")
plt.ylabel("Number of Accidents")
plt.xticks(rotation=45, ha="right")
plt.show()
```

```
<ipython-input-12-2dc3496a77a6>:7: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.

  sns.barplot(x=state_accidents.index, y=state_accidents.values, palette="viridis")
```



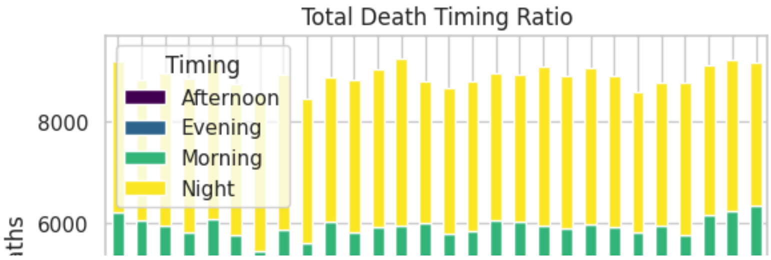
```
# Visualize contributing factors (Reasons for accidents)
plt.figure(figsize=(12, 6))
reasons_accidents = accident_data['Reason'].value_counts()
sns.barplot(x=reasons_accidents.index, y=reasons_accidents.values, palette="muted")
plt.title("Contributing Factors for Accidents")
plt.xlabel("Reason")
plt.ylabel("Number of Accidents")
plt.xticks(rotation=45, ha="right")
plt.show()
```

```
<ipython-input-13-0fc9178ea33c>:4: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.

  sns.barplot(x=reasons_accidents.index, y=reasons_accidents.values, palette="muted")
```



```
import matplotlib.pyplot as plt
import seaborn as sns

# Set the style for seaborn plots
sns.set(style="whitegrid")

# Group the data by state and timing, and calculate the total number of deaths
state_timing_deaths = accident_data.groupby(['State', 'Timing'])['Deaths'].sum().reset_index()

# Pivot the table to get a format suitable for plotting
state_timing_deaths_pivot = state_timing_deaths.pivot(index='State', columns='Timing', values='Deaths').fillna(0)

# Create a bar plot for state-wise total death timing ratio
plt.figure(figsize=(40, 8))
state_timing_deaths_pivot.plot(kind='bar', stacked=True, colormap="viridis")
plt.title("Total Death Timing Ratio")
plt.xlabel("State")
plt.ylabel("Total Deaths")
plt.xticks(rotation=45, ha="right")
plt.legend(title="Timing")
plt.show()
```

```
<Figure size 4000x800 with 0 Axes>
```


Total Death Timing Ratio
Timing
Afternoon
Evening
Morning
Night
aths