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

#Load the dataset
url = "https://raw.githubusercontent.com/mwaskom/seaborn-data/master/car_crashes.csv"
car_crashes = pd.read_csv(url)

# Data Visualization and Inferences
#Histogram of 'total' car crashes
plt.figure(figsize=(8, 6))
sns.histplot(car_crashes['total'], bins=15, kde=True)
plt.title("Histogram of Total Car Crashes")
plt.xlabel("Total Car Crashes")
plt.ylabel("Frequency")
plt.show()
# Inference: The histogram shows that the majority of states have a
relatively low total number of car crashes.
```
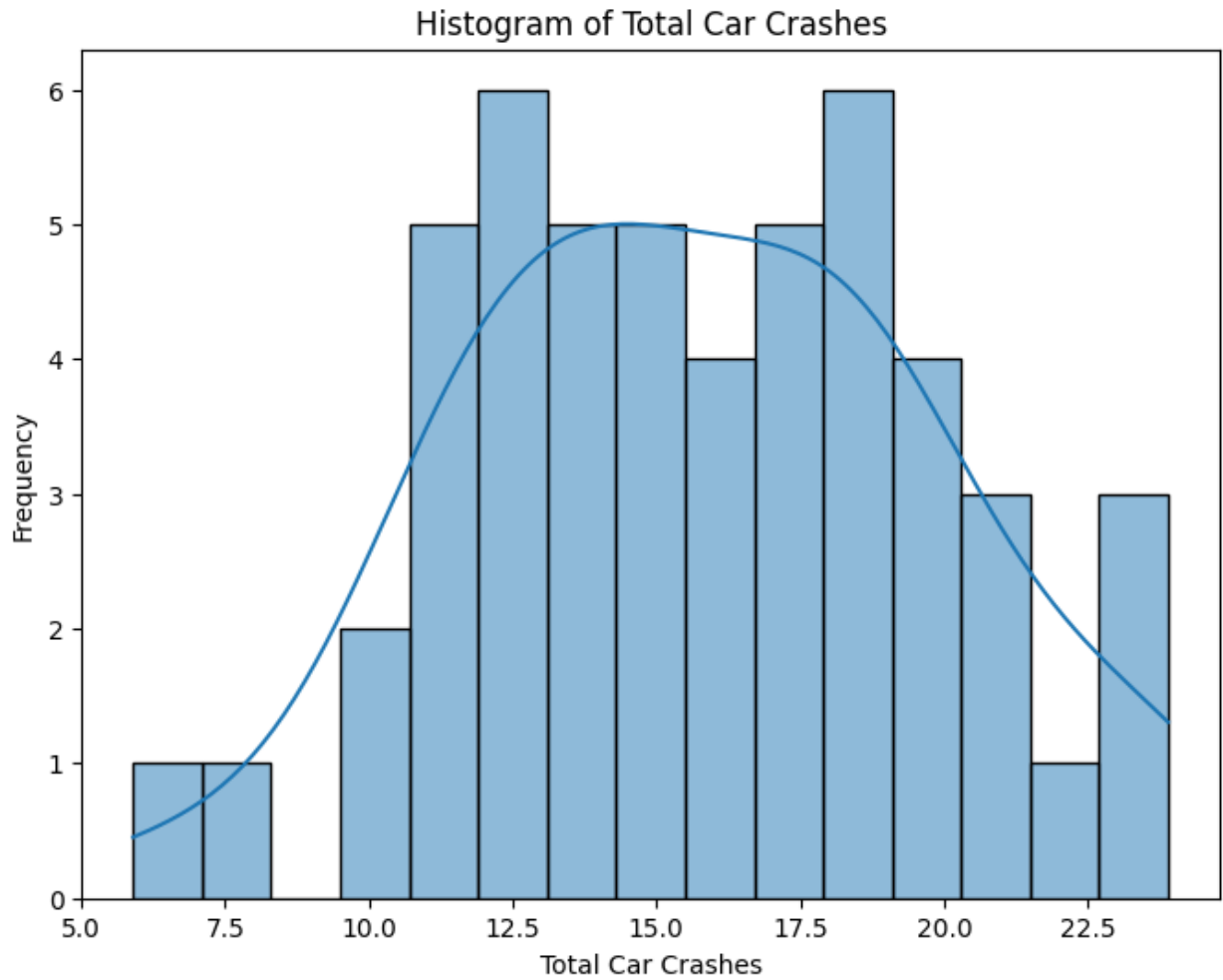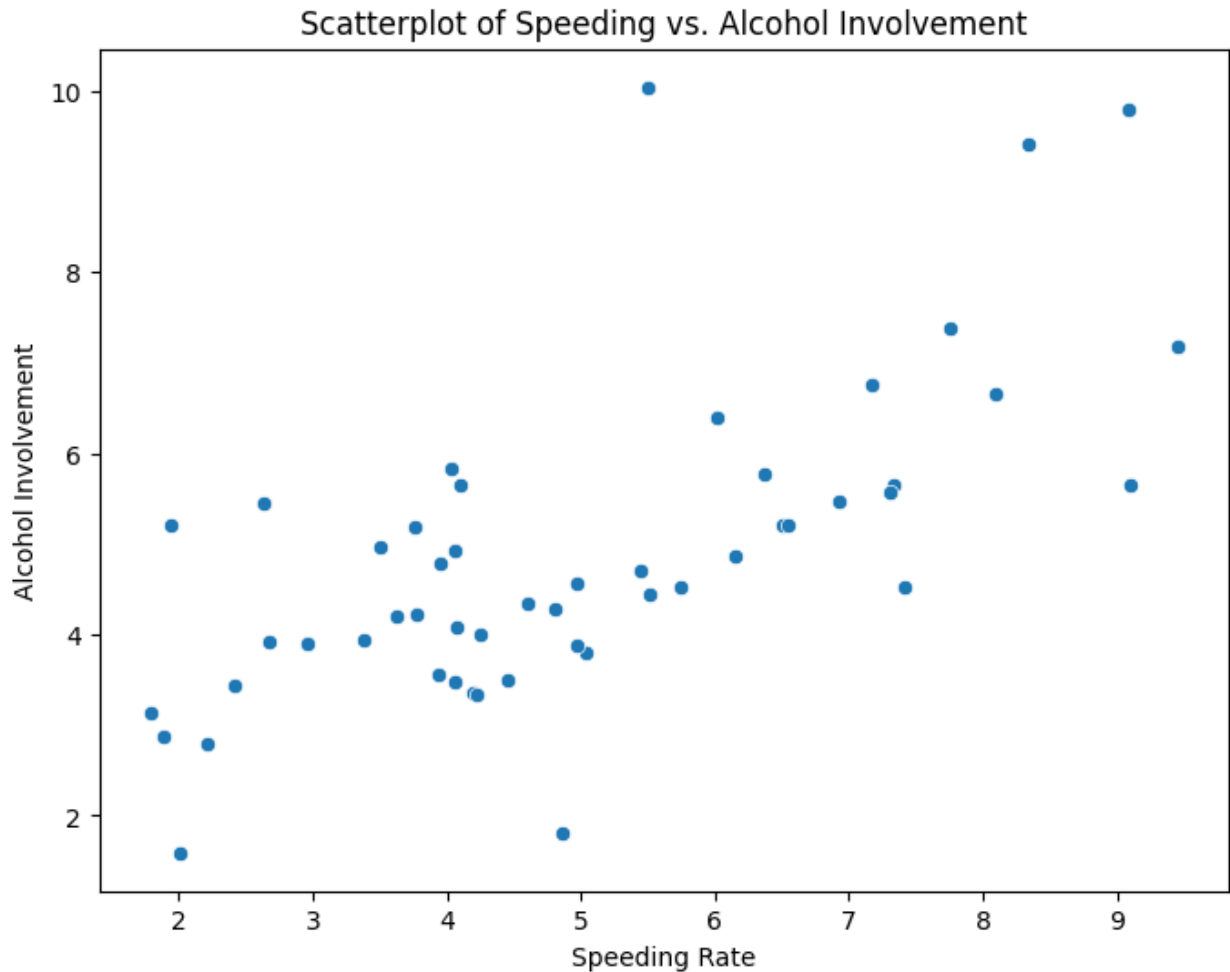
Histogram of Total Car Crashes

```python
# 2. Boxplot of 'alcohol' vs. 'total' car crashes
plt.figure(figsize=(8, 6))
sns.boxplot(x='alcohol', y='total', data=car_crashes)
plt.title("Boxplot of Alcohol vs. Total Car Crashes")
plt.xlabel("Alcohol Consumption")
plt.ylabel("Total Car Crashes")
plt.xticks(rotation=45)
plt.show()
# Inference: The boxplot indicates that states with higher alcohol
consumption tend to have a higher median total number of car crashes.
```

Boxplot of Alcohol vs. Total Car Crashes
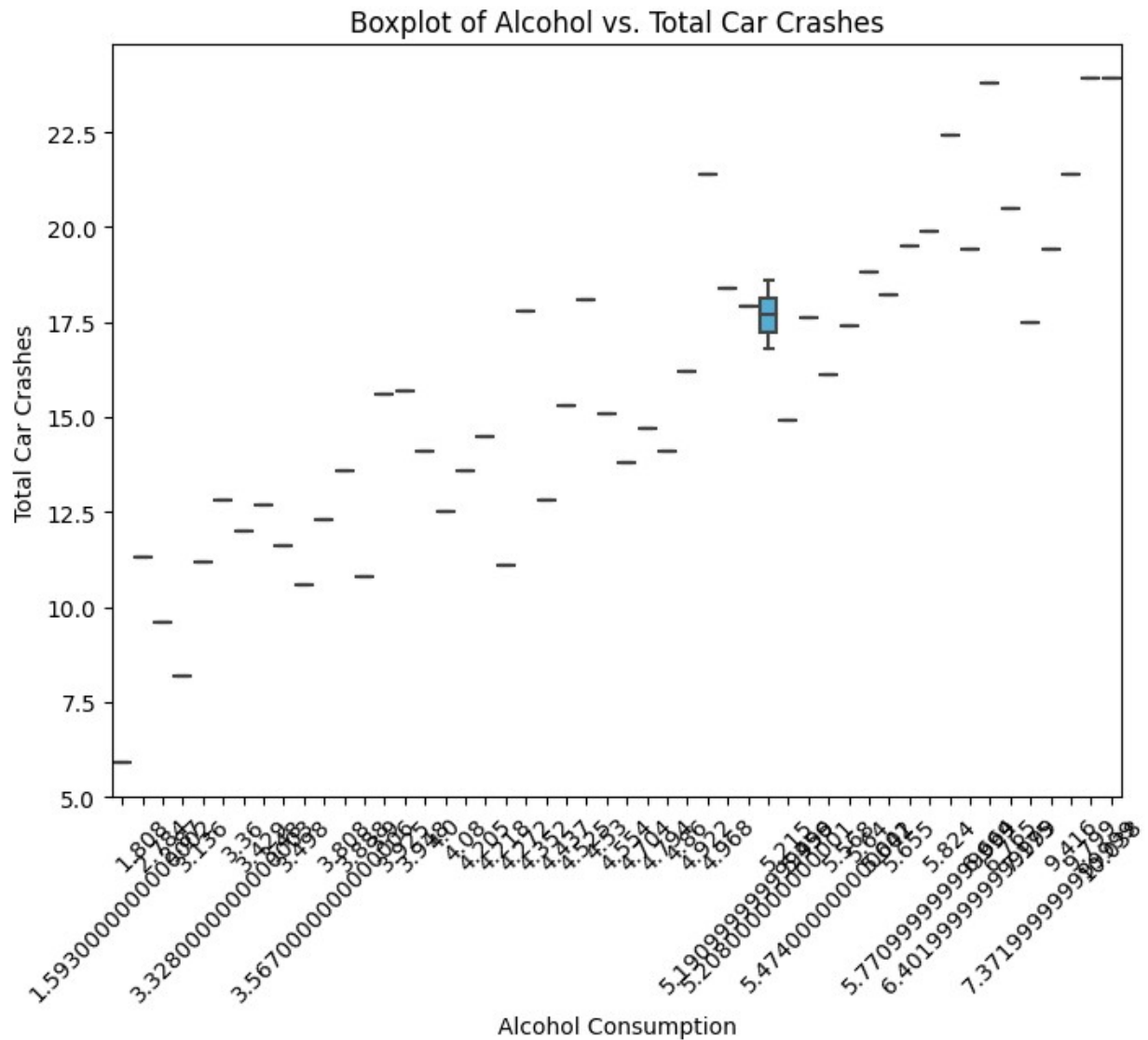

```python
# 3. Scatterplot of 'speeding' vs. 'alcohol'
plt.figure(figsize=(8, 6))
sns.scatterplot(x='speeding', y='alcohol', data=car_crashes)
plt.title("Scatterplot of Speeding vs. Alcohol Involvement")
plt.xlabel("Speeding Rate")
plt.ylabel("Alcohol Involvement")
plt.show()
# Inference: The scatterplot shows that there is a positive
correlation between speeding and alcohol involvement in car crashes.
```

Scatterplot of Speeding vs. Alcohol Involvement

```python
# 4. Barplot of 'abbrev' vs. 'total' car crashes (for each state)
plt.figure(figsize=(12, 6))
sns.barplot(x='abbrev', y='total', data=car_crashes, errorbar=None)
plt.title("Barplot of Total Car Crashes by State")
plt.xlabel("State Abbreviation")
plt.ylabel("Total Car Crashes")
plt.xticks(rotation=90)
plt.show()
# Inference: The barplot displays the total number of car crashes for
each state. Some states have significantly higher car crash rates than
others.
```
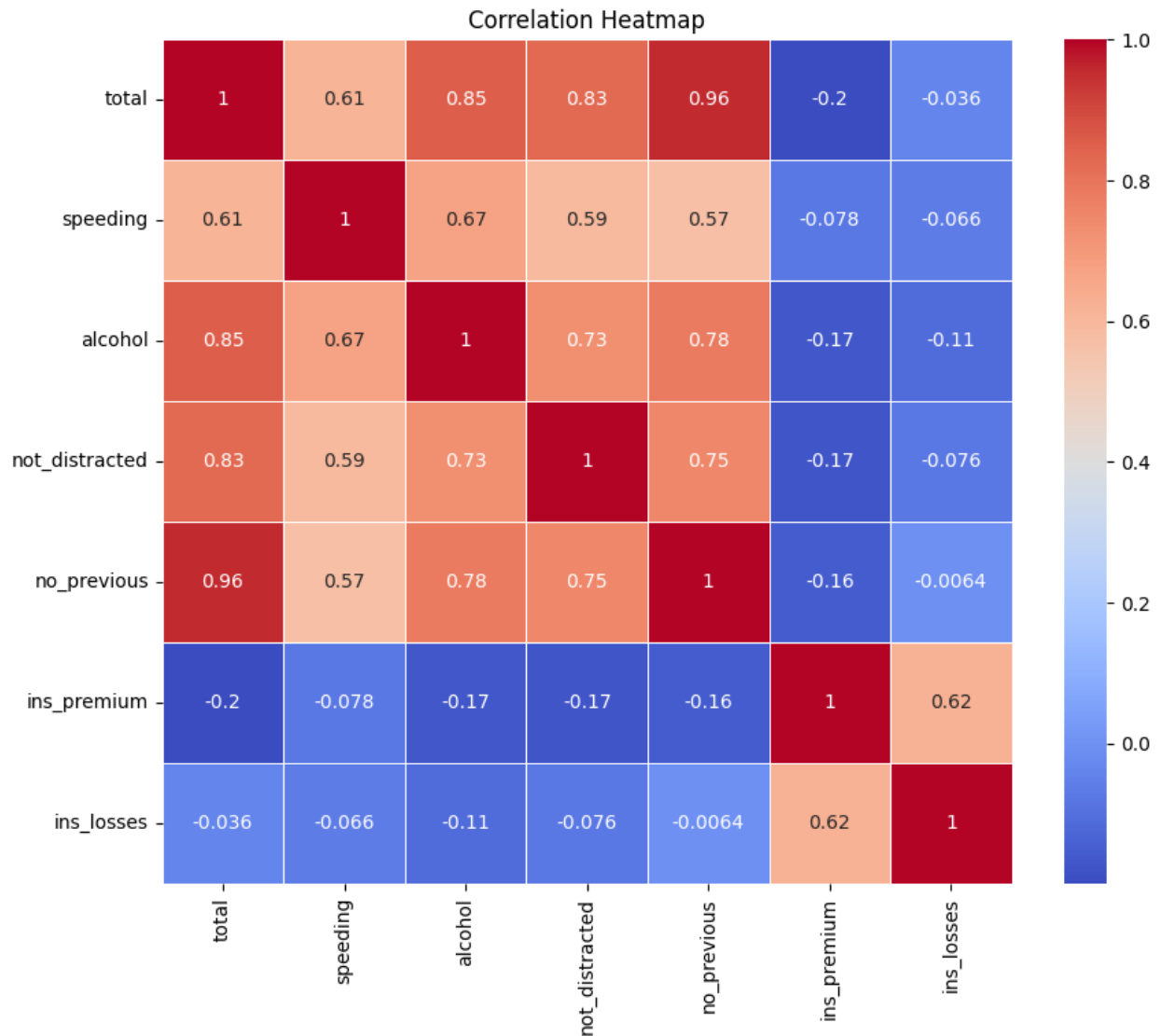
Barplot of Total Car Crashes by State
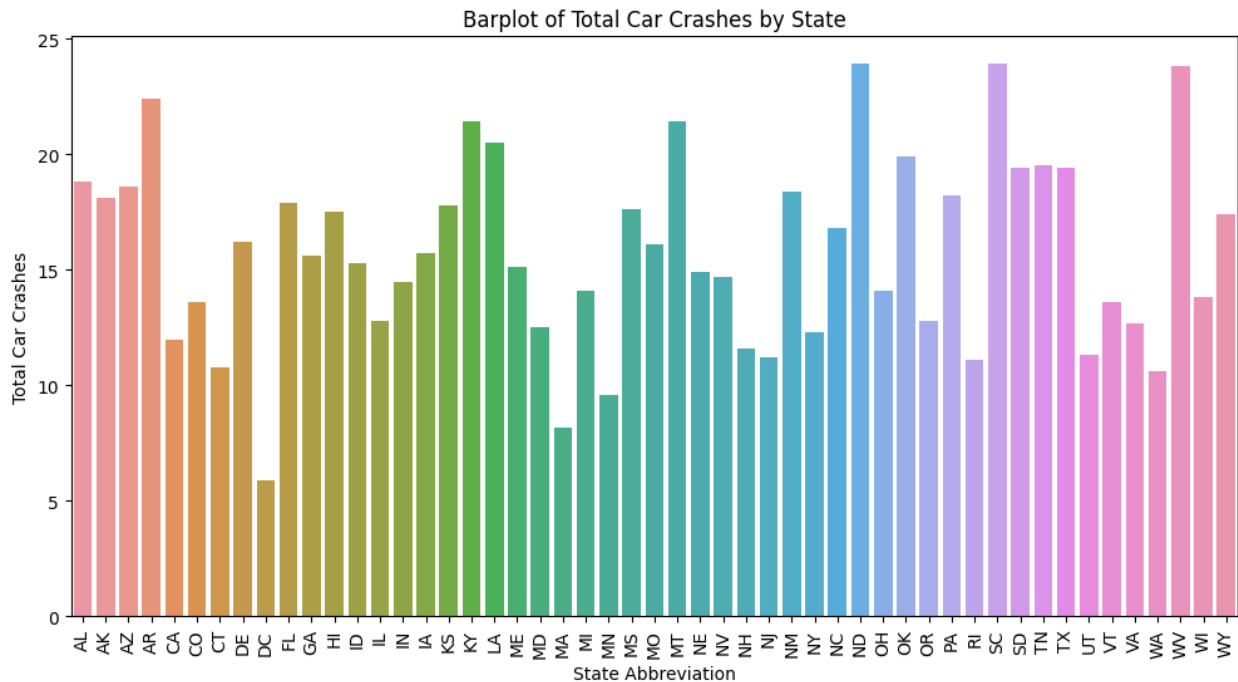
```python
# 5. Correlation heatmap
numeric_columns = car_crashes.select_dtypes(include=['number'])
correlation_matrix = numeric_columns.corr()
plt.figure(figsize=(10, 8))
sns.heatmap(correlation_matrix, annot=True, cmap="coolwarm",
linewidths=0.5)
plt.title("Correlation Heatmap")
plt.show()
# Inference: The heatmap visualizes the correlation between numerical
variables. For example, 'alcohol' and 'total' have a positive
correlation, as indicated by the warmer color.
```

Correlation Heatmap

	total	speeding	alcohol	not_distracted	no_previous	ins_premium	ins_losses
total	1	0.61	0.85	0.83	0.96	-0.2	-0.036
speeding	0.61	1	0.67	0.59	0.57	-0.078	-0.066
alcohol	0.85	0.67	1	0.73	0.78	-0.17	-0.11
not_distracted	0.83	0.59	0.73	1	0.75	-0.17	-0.076
no_previous	0.96	0.57	0.78	0.75	1	-0.16	-0.0064
ins_premium	-0.2	-0.078	-0.17	-0.17	-0.16	1	0.62
ins_losses	-0.036	-0.066	-0.11	-0.076	-0.0064	0.62	1

```
# 6. Pairplot
sns.pairplot(car_crashes)
plt.suptitle("Pairplot of Car Crashes Data", y=1.02)
plt.show()
# Inference: The pairplot provides scatterplots for all numeric
variables, showing relationships between them, as explained in the
previous response.
```

```
C:\Users\ABC\AppData\Local\Programs\Python\Python39\lib\site-packages\
seaborn\axisgrid.py:118: UserWarning: The figure layout has changed to
tight
  self._figure.tight_layout(*args, **kwargs)
```

Pairplot of Car Crashes Data