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

# If using CSV file, uncomment below:
# df = pd.read_csv("accident_data.csv")

data = {
    "AccidentDate": ["04-02-2013", "23-02-2005", "08-10-2014", "14-01-2015", "17-01-2006"],
    "Timing": ["Morning", "Night", "Afternoon", "Night", "Afternoon"],
    "State": ["Alaska", "Arizona", "California", "Colorado", "Georgia"],
    "WeatherCondition": ["Rainy", "Clear", "Clear", "Rainy", "Clear"],
    "RoadCondition": ["Under Construction", "Under Construction", "Fine", "Rough", "Fine"],
    "Deaths": [10, 3, 6, 8, 2],
    "Reason": ["Drunk Driving", "Weather Conditions", "Poor Visibility", "Road Conditions",
               "Speeding"]
}
df = pd.DataFrame(data)

df["AccidentDate"] = pd.to_datetime(df["AccidentDate"], dayfirst=True)

df["Year"] = df["AccidentDate"].dt.year
df["Month"] = df["AccidentDate"].dt.month
df["Day"] = df["AccidentDate"].dt.day
df["Quarter"] = df["AccidentDate"].dt.quarter

def severity_level(deaths):
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if deaths <= 3:  
    return "Low"  
  
elif deaths <= 7:  
    return "Medium"  
  
else:  
    return "High"  
  
df["Severity"] = df["Deaths"].apply(severity_level)  
  
sns.set(style="whitegrid")  
plt.figure(figsize=(20, 15))  
  
plt.subplot(3, 2, 1)  
state_counts = df["State"].value_counts()  
sns.barplot(x=state_counts.index, y=state_counts.values)  
plt.title("State by Accident Count")  
plt.xticks(rotation=45)  
  
plt.subplot(3, 2, 2)  
daily_counts = df["Day"].value_counts().sort_index()  
plt.plot(daily_counts.index, daily_counts.values, marker="o")  
plt.title("Daily Accident Trend")  
plt.xlabel("Day")  
plt.ylabel("Count")  
  
plt.subplot(3, 2, 3)  
monthly_counts = df["Month"].value_counts().sort_index()
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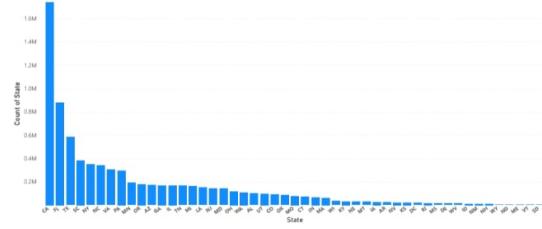
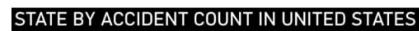
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plt.plot(monthly_counts.index, monthly_counts.values, marker="o")
plt.title("Monthly Accident Trend")
plt.xlabel("Month")

plt.subplot(3, 2, 4)
quarterly_counts = df["Quarter"].value_counts().sort_index()
plt.plot(quarterly_counts.index, quarterly_counts.values, marker="o")
plt.title("Quarterly Accident Trend")
plt.xlabel("Quarter")

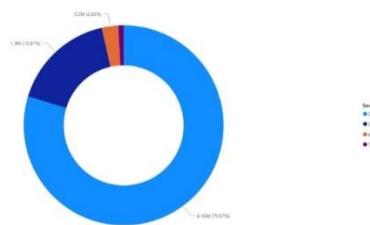
plt.subplot(3, 2, 5)
weather_counts = df["WeatherCondition"].value_counts()
plt.pie(weather_counts.values, labels=weather_counts.index, autopct='%.1f%%')
centre_circle = plt.Circle((0,0),0.70,fc='white')
plt.gca().add_artist(centre_circle)
plt.title("Accident by Weather")

plt.subplot(3, 2, 6)
severity_counts = df["Severity"].value_counts()
plt.pie(severity_counts.values, labels=severity_counts.index, autopct='%.1f%%')
centre_circle = plt.Circle((0,0),0.70,fc='white')
plt.gca().add_artist(centre_circle)
plt.title("Accident by Severity")

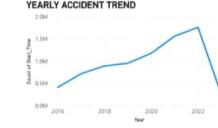
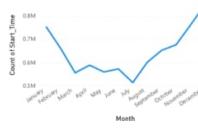
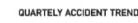
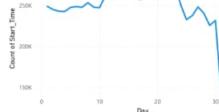
plt.tight_layout()
plt.show()
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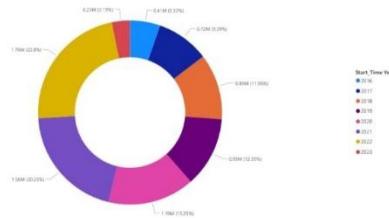
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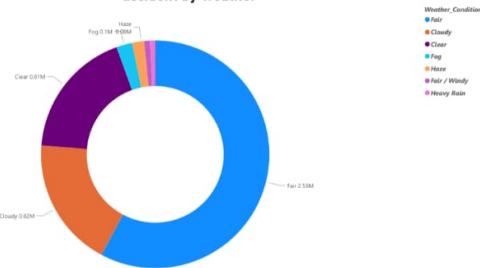
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