**Enhancing road safety with AI-driven traffic accident analysis and prediction**

**SOURCE CODE:**

**Import pandas as pd**

**Import random**

**Import matplotlib.pyplot as plt**

**Import seaborn as sns**

**# Generate dummy data**

**States = [‘Maharashtra’, ‘Tamil Nadu’, ‘Karnataka’, ‘Delhi’, ‘Uttar Pradesh’]**

**Vehicle\_types = [‘Car’, ‘Bike’, ‘Truck’, ‘Bus’, ‘Pedestrian’]**

**Weather = [‘Clear’, ‘Rainy’, ‘Foggy’, ‘Night’]**

**Hours = list(range(0, 24))**

**Data = {**

**‘State’: [random.choice(states) for \_ in range(200)],**

**‘Vehicle\_Type’: [random.choice(vehicle\_types) for \_ in range(200)],**

**‘Weather’: [random.choice(weather) for \_ in range(200)],**

**‘Hour’: [random.choice(hours) for \_ in range(200)],**

**‘Injury\_Severity’: [random.choice([‘Minor’, ‘Serious’, ‘Fatal’]) for \_ in range(200)]**

**}**

**# Create DataFrame**

**Df = pd.DataFrame(data)**

**# Analysis: Number of accidents by state**

**Plt.figure(figsize=(10,5))**

**Sns.countplot(data=df, x=’State’, order=df[‘State’].value\_counts().index)**

**Plt.title(‘Accidents by State’)**

**Plt.xticks(rotation=45)**

**Plt.show()**

**# Analysis: Accidents by hour**

**Plt.figure(figsize=(10,5))**

**Sns.histplot(df[‘Hour’], bins=24, kde=False)**

**Plt.title(‘Accidents by Hour’)**

**Plt.xlabel(‘Hour of Day’)**

**Plt.ylabel(‘Number of Accidents’)**

**Plt.show()**

**# Crosstab of severity by vehicle type**

**Severity\_by\_vehicle = pd.crosstab(df[‘Vehicle\_Type’], df[‘Injury\_Severity’])**

**Print(severity\_by\_vehicle)**

**OUTPUT:**

