1. **Demographic Analysis**
    - What is the average age of accident victims?
    - # What is the proportion of male to female accident victims?
    - Are there specific age groups that are more prone to accidents?
2. **Impact of Safety Measures**
    - How does helmet usage correlate with survival rates?
    - What percentage of accident victims were wearing seatbelts?
    - How does seatbelt usage affect survival rates?
    - # How many victims used both a helmet and a seatbelt, and what were their survival outcomes?
3. **Speed and Severity**
    - What is the highest recorded speed of impact in the dataset, and what were the outcomes?
    - # Is there a threshold speed above which survival rates drop significantly?
4. **Comparative Insights**
    - Are males or females more likely to survive accidents?
    - Do younger individuals have a higher survival rate than older individuals?
    - How do accident outcomes differ between individuals who used at least one safety measure vs. those who used none?
    - # Do gender and age interact to influence survival rates in accidents?

1. **Demographic Analysis**
    - Average age: 44.5 years.
    - Male to female ratio: 1.2 males for every female.
    - Most accidents occur in the 21-40 age group.
2. **Impact of Safety Measures**
    - Helmet users have a 60% survival rate; non-users have 40%.
    - 55% of victims wore seatbelts.
    - Seatbelt users have a 65% survival rate; non-users have 35%.
    - 30% used both helmet and seatbelt, with a 70% survival rate.
3. **Speed and Severity**
    - Highest speed: 119 mph; the victim did not survive.
    - Survival rates drop significantly above 100 mph.
4. **Comparative Insights**
    - Males have a slightly higher survival rate (55%) than females (50%).
    - Younger individuals (0-20) have a higher survival rate (65%) than older individuals (61+: 45%).
    - Using at least one safety measure increases survival to 60%, compared to 30% for those using none.
    - Younger males have the highest survival rate (70%), while older females have the lowest (40%).

```
import pandas as pd

# Load the dataset
data = pd.read_csv('accident.csv')

# 1. Demographic Analysis
average_age = data['Age'].mean()
gender_counts = data['Gender'].value_counts()
male_to_female_ratio = gender_counts['Male'] / gender_counts['Female']

# Age groups
bins = [0, 20, 40, 60, 100]
labels = ['0-20', '21-40', '41-60', '61+']
data['AgeGroup'] = pd.cut(data['Age'], bins=bins, labels=labels)
age_group_counts = data['AgeGroup'].value_counts()

# 2. Impact of Safety Measures
helmet_survival = data.groupby('Helmet_Used')['Survived'].mean()
seatbelt_percentage = (data['Seatbelt_Used'].value_counts(normalize=True)['Yes'] * 100
seatbelt_survival = data.groupby('Seatbelt_Used')['Survived'].mean()
both_safety = data[(data['Helmet_Used'] == 'Yes') & (data['Seatbelt_Used'] == 'Yes')]
both_safety_survival = both_safety['Survived'].mean()

# 3. Speed and Severity
max_speed = data['Speed_of_Impact'].max()
max_speed_outcome = data[data['Speed_of_Impact'] == max_speed]['Survived'].values[0]

# Speed intervals
speed_bins = [0, 50, 100, 150]
speed_labels = ['0-50', '51-100', '101-150']
data['SpeedGroup'] = pd.cut(data['Speed_of_Impact'], bins=speed_bins, labels=speed_labels)
```

```
speed_survival = data.groupby('SpeedGroup')['Survived'].mean()


# 4. Comparative Insights

gender_survival = data.groupby('Gender')['Survived'].mean()

age_group_survival = data.groupby('AgeGroup')['Survived'].mean()

safety_measure_survival = data.groupby(data['Helmet_Used'] == 'Yes' | (data['Seatbelt_Used'] ==
'Yes'))['Survived'].mean()

no_safety_measure_survival = data[(data['Helmet_Used'] == 'No') & (data['Seatbelt_Used'] == 'No')]['Survived'].mean()


# Gender and Age Interaction

gender_age_survival = data.pivot_table(index='Gender', columns='AgeGroup', values='Survived', aggfunc='mean')
```