

Name : sk.shareef

```
In [2]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

```
In [10]: sns.get_dataset_names()
```

```
Out[10]: ['anagrams',
'anscombe',
'attention',
'brain_networks',
'car_crashes',
'diamonds',
'dots',
'dowjones',
'exercise',
'flights',
'fmri',
'geyser',
'glue',
'healthexp',
'iris',
'mpg',
'penguins',
'planets',
'seaice',
'taxis',
'tips',
'titanic']
```

```
In [4]: dataset= sns.load_dataset('car_crashes')
```

```
In [14]: dataset.head()
```

Out[14]:

	total	speeding	alcohol	not_distracted	no_previous	ins_premium	ins_losses	abbrev
0	18.8	7.332	5.640	18.048	15.040	784.55	145.08	AL
1	18.1	7.421	4.525	16.290	17.014	1053.48	133.93	AK
2	18.6	6.510	5.208	15.624	17.856	899.47	110.35	AZ
3	22.4	4.032	5.824	21.056	21.280	827.34	142.39	AR
4	12.0	4.200	3.360	10.920	10.680	878.41	165.63	CA

```
In [15]: #getting the information of the dataset
dataset.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 51 entries, 0 to 50
Data columns (total 8 columns):
#   Column                Non-Null Count  Dtype
---  -
0   total                  51 non-null    float64
1   speeding               51 non-null    float64
2   alcohol                51 non-null    float64
3   not_distracted         51 non-null    float64
4   no_previous             51 non-null    float64
5   ins_premium             51 non-null    float64
6   ins_losses              51 non-null    float64
7   abbrev                  51 non-null    object
dtypes: float64(7), object(1)
memory usage: 3.3+ KB
```

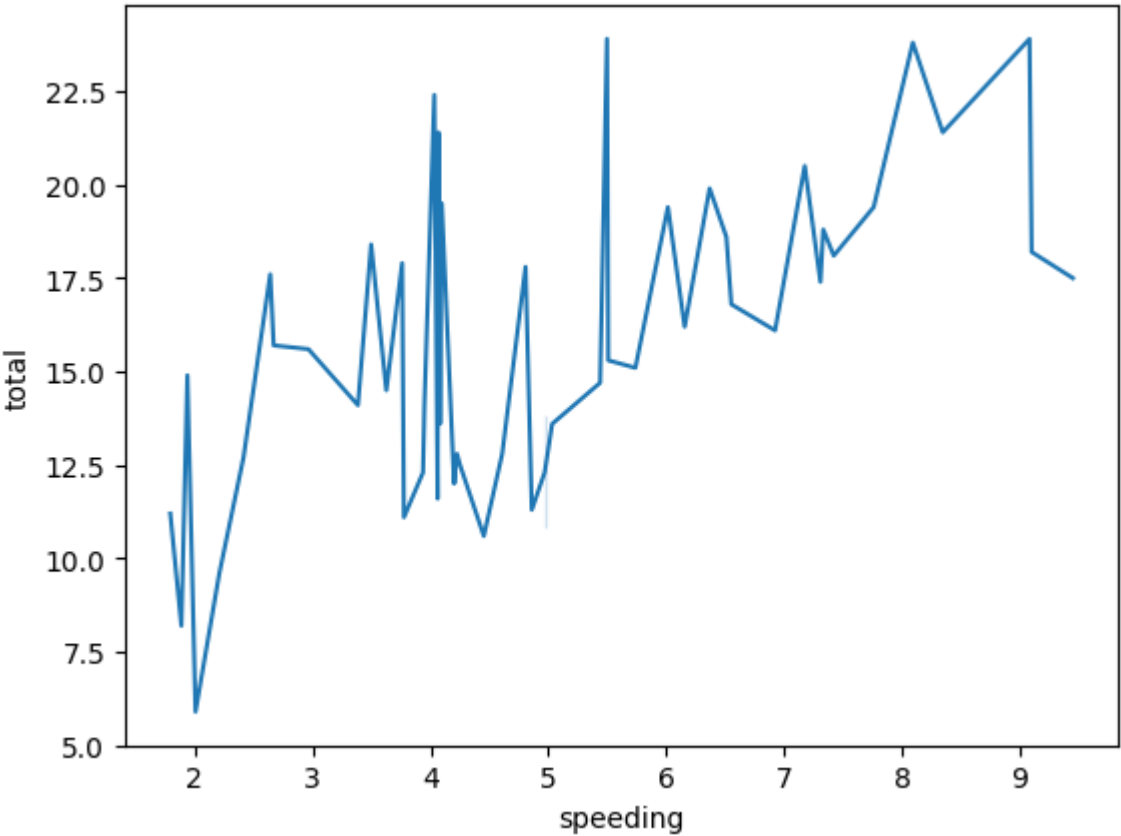
```
In [16]: #getting the shape
dataset.shape
```

Out[16]: (51, 8)

```
In [20]: # plotting Lineplot
sns.lineplot(data=dataset, y='total', x='speeding')
```

C:\Users\hp\AppData\Local\Programs\Python\Python310\lib\site-packages\seaborn_oldcore.py:1498: FutureWarning: is_categorical_dtype is deprecated and will be removed in a future version. Use isinstance(dtype, CategoricalDtype) instead
if pd.api.types.is_categorical_dtype(vector):
C:\Users\hp\AppData\Local\Programs\Python\Python310\lib\site-packages\seaborn_oldcore.py:1498: FutureWarning: is_categorical_dtype is deprecated and will be removed in a future version. Use isinstance(dtype, CategoricalDtype) instead
if pd.api.types.is_categorical_dtype(vector):
C:\Users\hp\AppData\Local\Programs\Python\Python310\lib\site-packages\seaborn_oldcore.py:1119: FutureWarning: use_inf_as_na option is deprecated and will be removed in a future version. Convert inf values to NaN before operating in stead.
with pd.option_context('mode.use_inf_as_na', True):
C:\Users\hp\AppData\Local\Programs\Python\Python310\lib\site-packages\seaborn_oldcore.py:1119: FutureWarning: use_inf_as_na option is deprecated and will be removed in a future version. Convert inf values to NaN before operating in stead.
with pd.option_context('mode.use_inf_as_na', True):

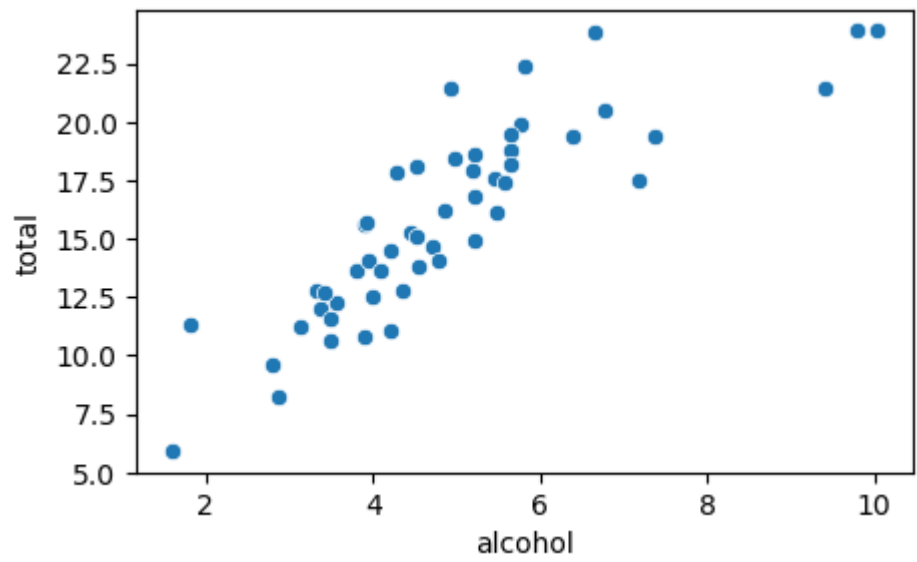
Out[20]: <AxesSubplot: xlabel='speeding', ylabel='total'>



Inference: · total -> Number of drivers involved in fatal collisions per billion miles (5.900–23.900)
speeding -> Percentage Of Drivers Involved In Fatal Collisions Who Were Speeding (1.792–9.450)

this is a line plot between the speeding dircvers and total no of drivers involved in collosion we can clearly see that as speeding increases the no.of collesions increases drastically

```
In [10]: #scatter plot
plt.figure(figsize=(5, 3))
sns.scatterplot(data=dataset, y='total', x='alcohol')
plt.show()
```



In []: Inference:

The scatter plot of the 'total' and 'alcohol' columns in the car_crashes data reveals a positive correlation between these variables. This suggests that as the total number of car crashes increases, there tends to be a corresponding rise in the number of incidents involving alcohol. However, it's important to note that while this correlation exists, it doesn't imply causation. Other factors may contribute to this relationship, and further analysis would be needed to establish any causal links. Additionally, the presence of a few outliers indicates that there are instances where the number of alcohol-related incidents deviates significantly from the general trend. This scatter plot provides a valuable visual representation of the relationship, offering insights into potential areas of concern for traffic safety and alcohol-related incidents.

```
In [30]: #dist plot
sns.distplot(dataset['total'])
```

C:\Users\hp\AppData\Local\Temp\ipykernel_17484\2994018954.py:2: UserWarning:

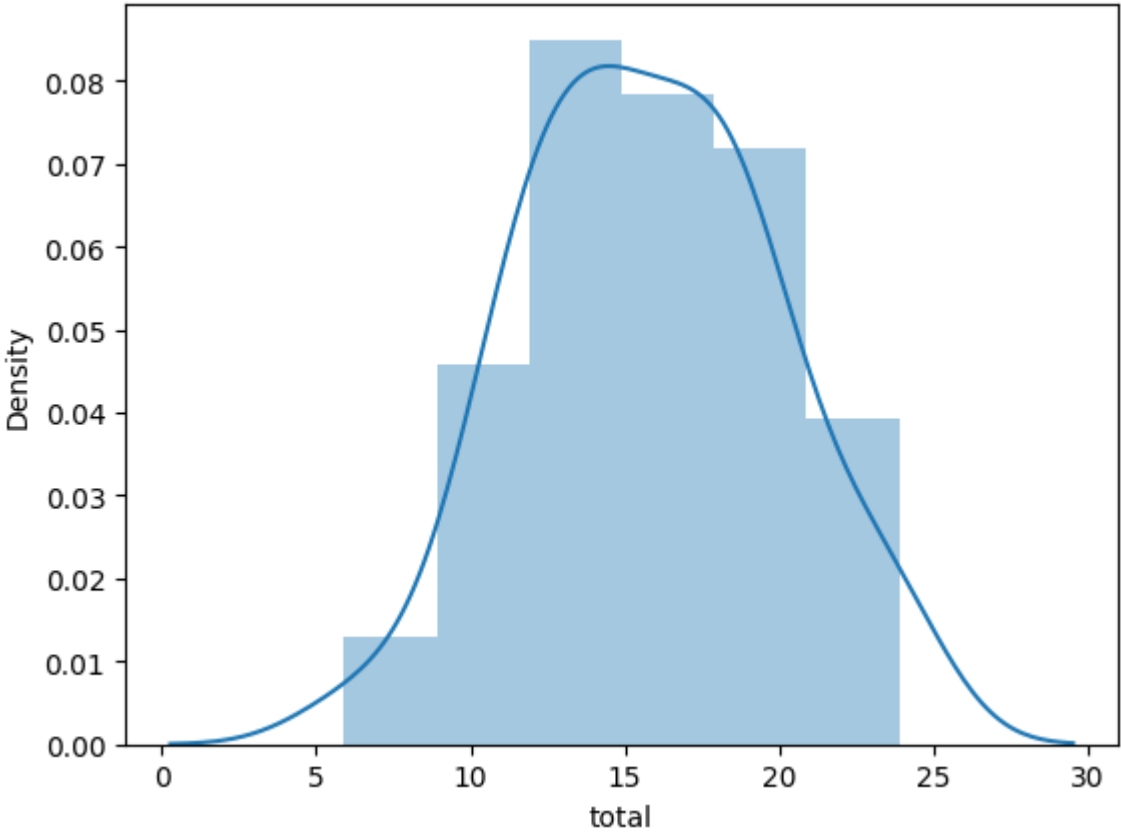
`distplot` is a deprecated function and will be removed in seaborn v0.14.0.

Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function for histograms).

For a guide to updating your code to use the new functions, please see <https://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751> (<https://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751>)

```
sns.distplot(dataset['total'])
C:\Users\hp\AppData\Local\Programs\Python\Python310\lib\site-packages\seaborn\_oldcore.py:1498: FutureWarning: is_categorical_dtype is deprecated and will be removed in a future version. Use isinstance(dtype, CategoricalDtype) instead
    if pd.api.types.is_categorical_dtype(vector):
C:\Users\hp\AppData\Local\Programs\Python\Python310\lib\site-packages\seaborn\_oldcore.py:1119: FutureWarning: use_inf_as_na option is deprecated and will be removed in a future version. Convert inf values to NaN before operating instead.
    with pd.option_context('mode.use_inf_as_na', True):
```

Out[30]: <AxesSubplot: xlabel='total', ylabel='Density'>



In []: Inference:

This plot illustrates the distribution of total car crashes. It appears to be indicating that there are more instances of lower crash counts. The majority of suggesting that most areas experience a relatively low number of car crashes. counts, which are represented by the tail on the right side of the distribution the frequency and severity of car accidents in the dataset.

```
In [9]: #bar plot
res = sns.barplot(x='abbrev' , y='alcohol', data=dataset , palette="rocket" )
plt.show()
```

C:\Users\hp\AppData\Local\Programs\Python\Python310\lib\site-packages\seaborn_oldcore.py:1498: FutureWarning: is_categorical_dtype is deprecated and will be removed in a future version. Use isinstance(dtype, CategoricalDtype) instead

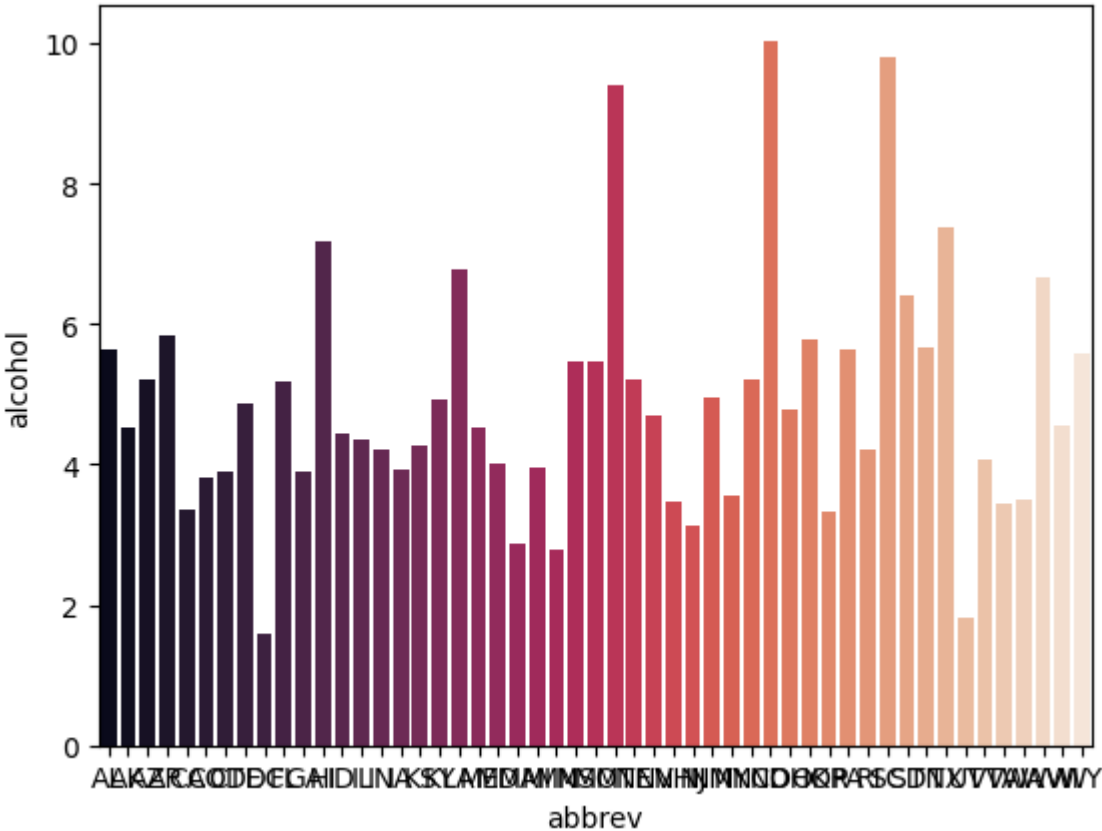
if pd.api.types.is_categorical_dtype(vector):

C:\Users\hp\AppData\Local\Programs\Python\Python310\lib\site-packages\seaborn_oldcore.py:1498: FutureWarning: is_categorical_dtype is deprecated and will be removed in a future version. Use isinstance(dtype, CategoricalDtype) instead

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if pd.api.types.is_categorical_dtype(vector):



In []: inference:

This bar plot displays the average alcohol involvement in car crashes for each state. The vertical bars provide a visual comparison of the alcohol-related incidence across different regions. From the plot, it can be observed that some regions have notably higher average alcohol involvement than others. This information can be crucial for identifying areas where stricter measures should be implemented to reduce the risks associated with alcohol-related accidents.

```
In [18]: #countplot

sns.countplot(x='total', data = dataset)
```

C:\Users\hp\AppData\Local\Programs\Python\Python310\lib\site-packages\seaborn_oldcore.py:1498: FutureWarning: is_categorical_dtype is deprecated and will be removed in a future version. Use isinstance(dtype, CategoricalDtype) instead

if pd.api.types.is_categorical_dtype(vector):

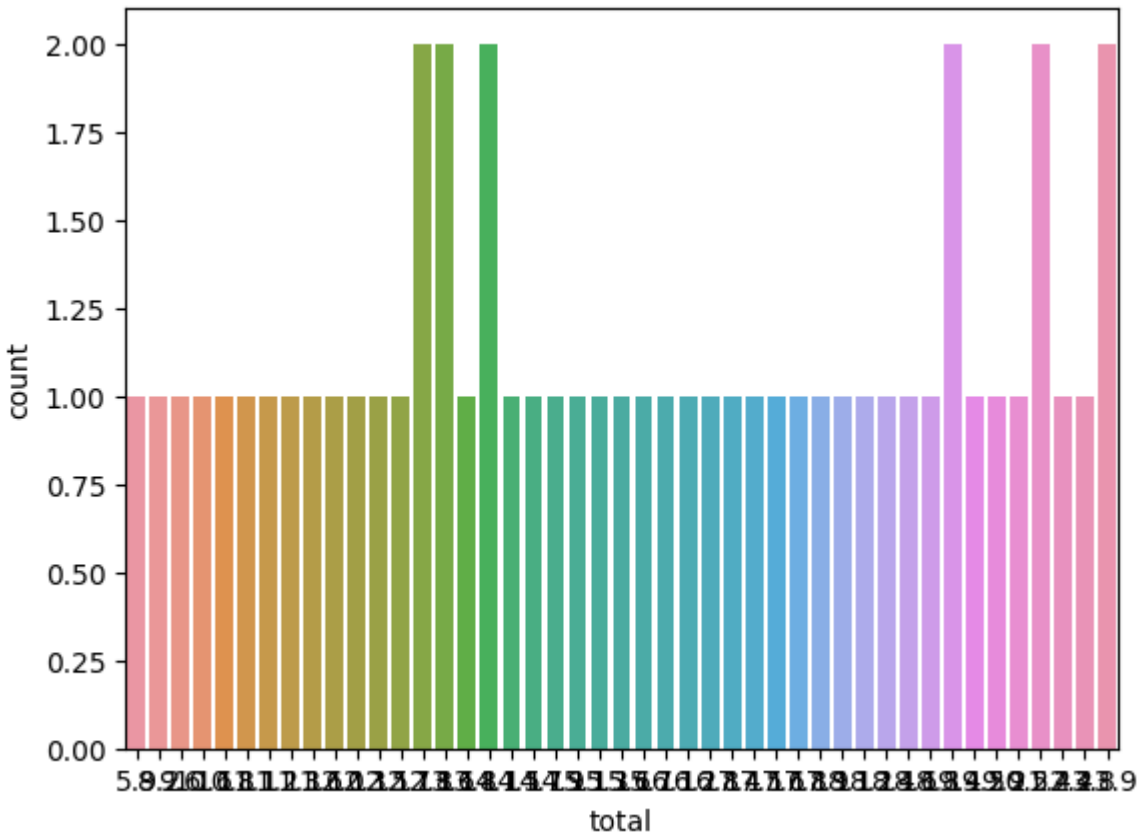
C:\Users\hp\AppData\Local\Programs\Python\Python310\lib\site-packages\seaborn_oldcore.py:1498: FutureWarning: is_categorical_dtype is deprecated and will be removed in a future version. Use isinstance(dtype, CategoricalDtype) instead

if pd.api.types.is_categorical_dtype(vector):

C:\Users\hp\AppData\Local\Programs\Python\Python310\lib\site-packages\seaborn_oldcore.py:1498: FutureWarning: is_categorical_dtype is deprecated and will be removed in a future version. Use isinstance(dtype, CategoricalDtype) instead

if pd.api.types.is_categorical_dtype(vector):

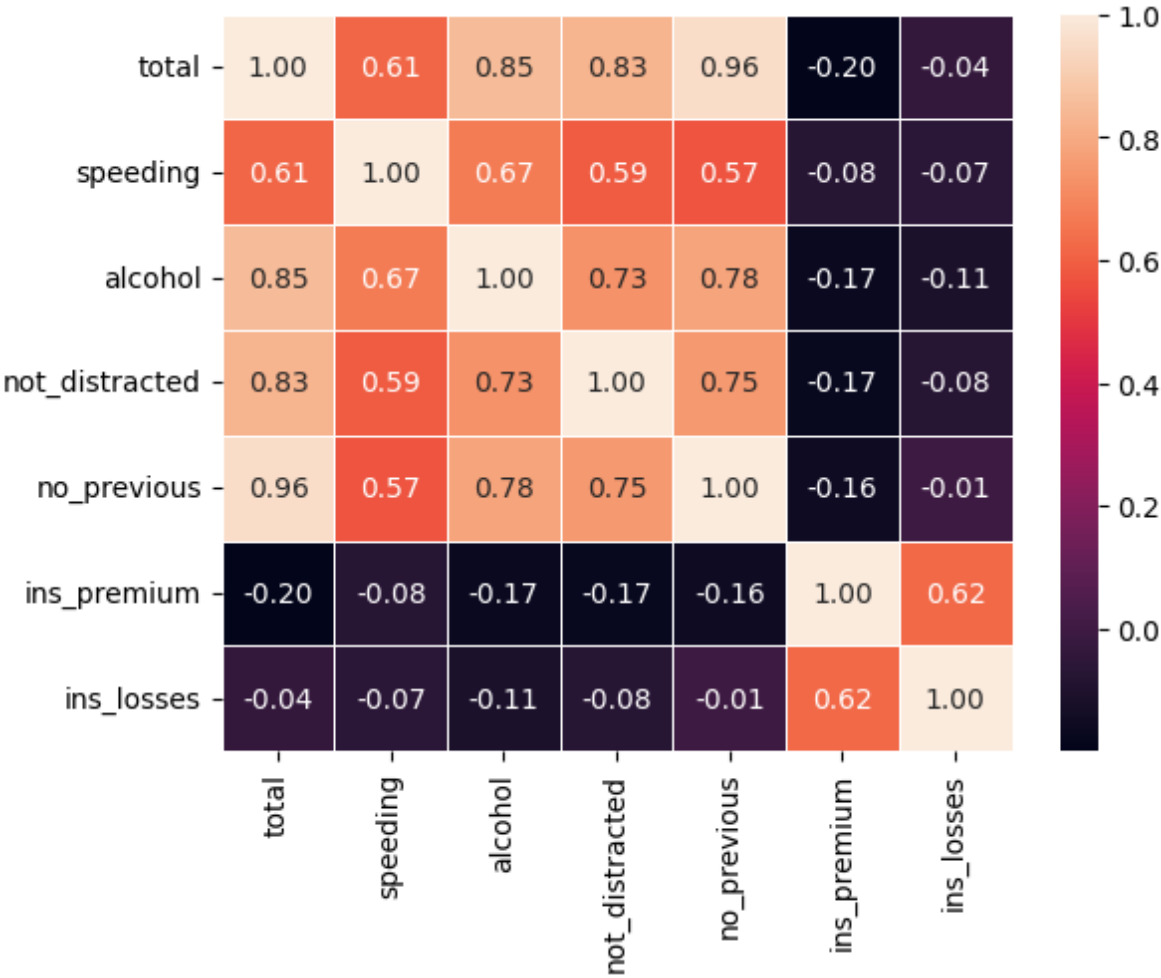
```
Out[18]: <AxesSubplot: xlabel='total', ylabel='count'>
```



inference: This count plot offers insight into the distribution of total car crash occurrences. It displays the frequency of different total crash counts in the dataset. From the plot, it can be observed that the majority of instances involve a relatively low number of car crashes. However, there are also instances of higher crash counts, although they are less frequent. This information is crucial for understanding the distribution and frequency of car accidents in the dataset, which may have implications for safety measures and policy decisions.

```
In [24]: #co-relation Heatmap
numeric_data = dataset.select_dtypes(include=['float64', 'int64'])
sns.heatmap(numeric_data.corr(), cbar=True, annot=True, fmt=".2f", linewidths=0.5)
```

Out[24]: <AxesSubplot: >



In []: inference:
here the lighter colors indicate that they are positively corelated i.e th
are directly proportional , whereas the darker colors indicates that they a
corelated i.e they are inversly propotional.