```
# Importing Seaborn and matplotlib packages
import seaborn as sns
import matplotlib.pyplot as plt


  # Load the car crashes dataset
  df = sns.load_dataset('car_crashes')


df.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
```

```
df.head()
```

	total	speeding	alcohol	not_distracted	no_previous	ins_premium	ins_losses	abbre
0	18.8	7.332	5.640	18.048	15.040	784.55	145.08	A
1				16.290	17.014	1053.48	133.93	A
2	18.6	6.510	5.208	15.624	17.856	899.47	110.35	A
3	22.4	4.032	5.824	21.056	21.280	827.34	142.39	A
4	12.0	4.200	3.360	10.920	10.680	878.41	165.63	C

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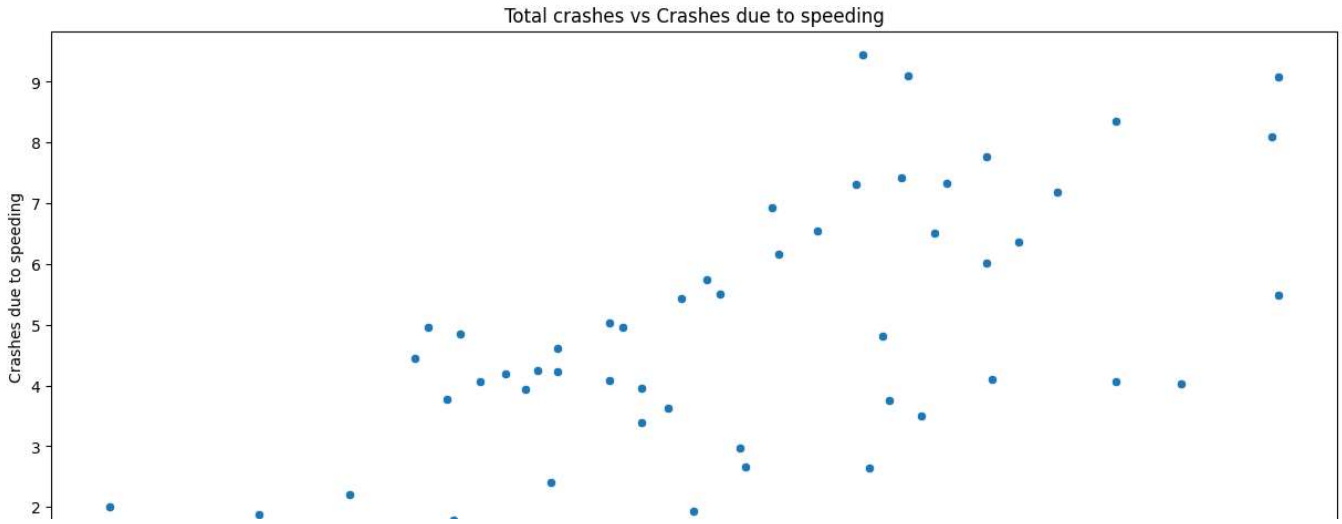
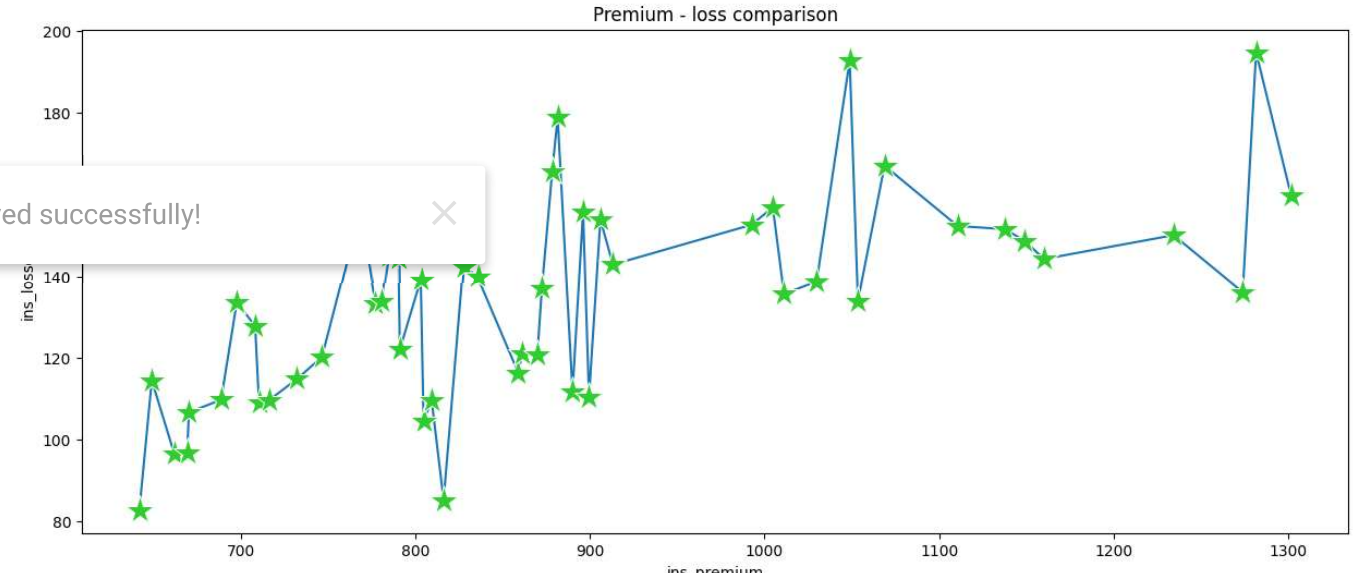
```
# Scatter plot
plt.figure(figsize=(15,6))
sns.scatterplot(x='total', y='speeding', data=df)
plt.xlabel('Total crashes')
plt.ylabel('Crashes due to speeding')
plt.title('Total crashes vs Crashes due to speeding')
plt.show()
```



Inference:-
The above scatterplot compares Total car crashes with the crashes due to speeding,
The plot has a positive correlation. When there are more number of crashes, there are more r

```
# Line plot
plt.figure(figsize=(15, 6))
sns.lineplot(x='ins_premium', y ='ins_losses', data=df, marker='*', markerfacecolor='limegre
plt.xlabel('ins_premium')
plt.ylabel('ins_losses')
plt.title('Premium - loss comparison')
plt.show()
```



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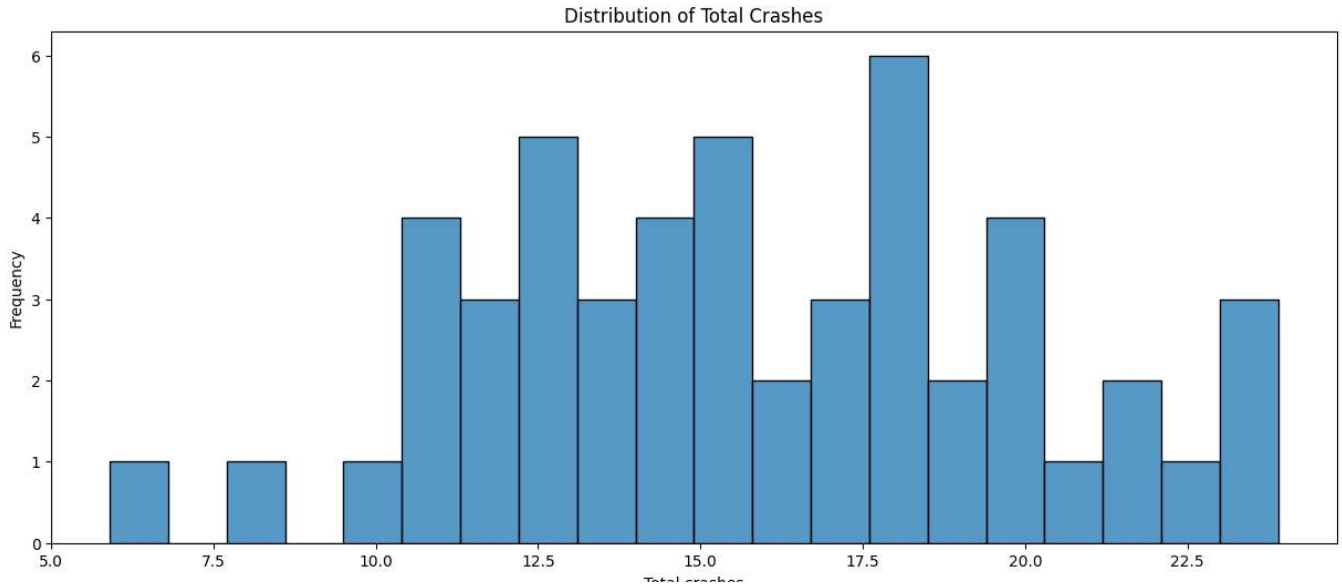
Inference:-
The above lineplot compares the insurance premium and insurance loss over the car crashes,
From the plot it is clear that the maximum loss occurred for a insurance premium is 1300 and

```
# Histplot
plt.figure(figsize=(15, 6))
sns.histplot(df["total"], bins=20)
```

```
plt.title("Distribution of Total Crashes")
plt.xlabel("Total crashes")
plt.ylabel("Frequency")
plt.show()
```



Inference :-
The histogram for the distribution of the total number of crashes shows a righ
with most ststes having a lower of crashes, clustered around 5 to 10 crashes a

```
# Kernel density plot
plt.figure(figsize=(15, 6))
sns.kdeplot(df["not_distracted"], fill = True,color='red',cbar=True)
plt.title("Distribution of Not distracted crashes")
plt.xlabel("Not distracted crashes")
plt.ylabel("Density")
```

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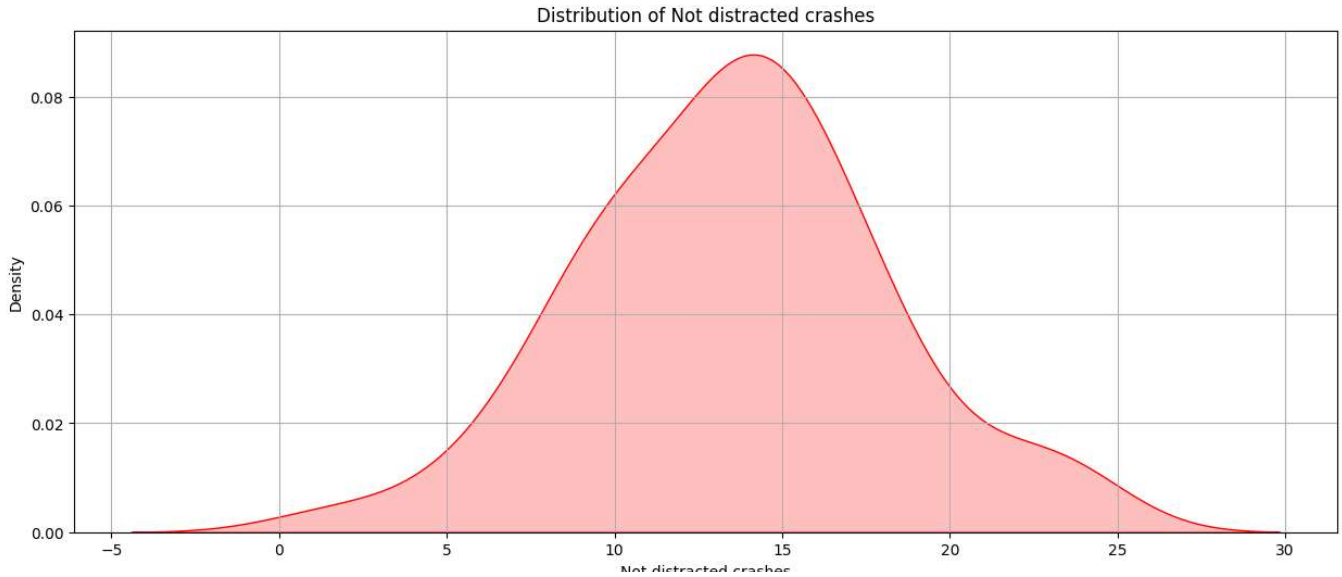
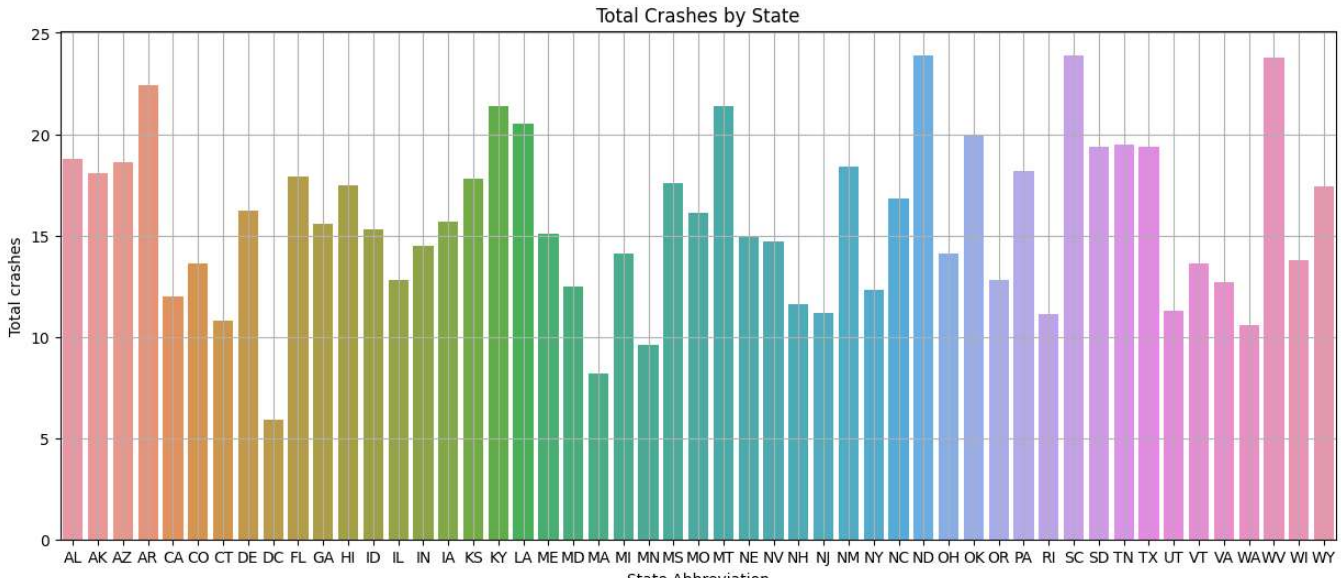


Inference :-
The above kernel density plot shows the density levels of not distracted crashes of the data
The maximum density 0.09 is obtained for 13 not distracted crashes and there is high density

```
# Bar plot
plt.figure(figsize=(15, 6))
sns.barplot(x="abbrev", y="total", data=df, orient='v')
plt.title("Total Crashes by State")
plt.xlabel("State Abbreviation")
plt.ylabel("Total crashes")
plt.grid()
plt.show()
```



Inference :-
The barplot shows the total number of accidents by state, North Dakota, South Carolina &
r of accidents followed by Arkansas.

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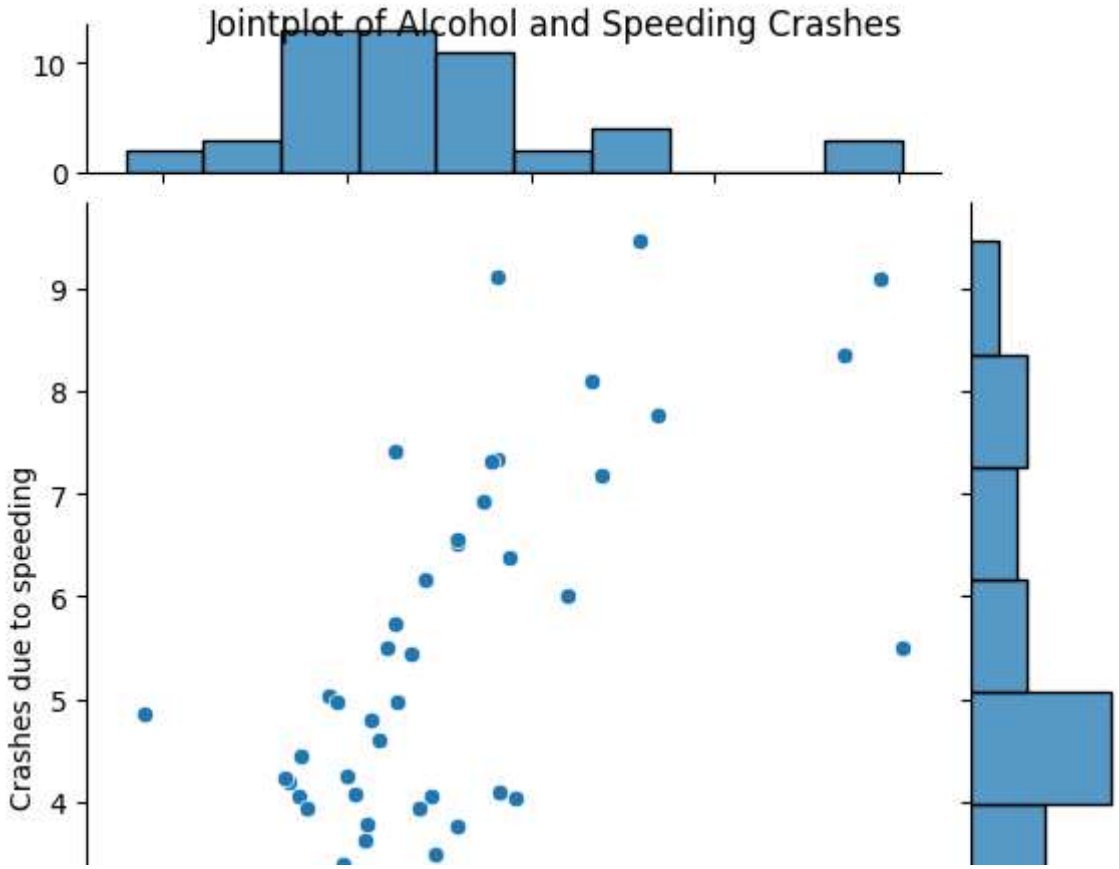
```
# Jointplot
plt.figure(figsize=(15, 15))
sns.jointplot(x="alcohol", y="speeding", data=df, kind="scatter",marginal_ticks=True)
plt.suptitle("Jointplot of Alcohol and Speeding Crashes")
plt.xlabel("Crashes due to alcohol")
plt.ylabel("Crashes due to speeding")
plt.show()
```

```
<Figure size 1500x1500 with 0 Axes>
```




```
Inference :-
The jointplot visually represents the relationship between alcohol and speeding crashes.
It shows that as alcohol-related accidents increase, speeding-related accidents also tend to
```

```
# Boxplot
plt.figure(figsize=(10, 10))
```

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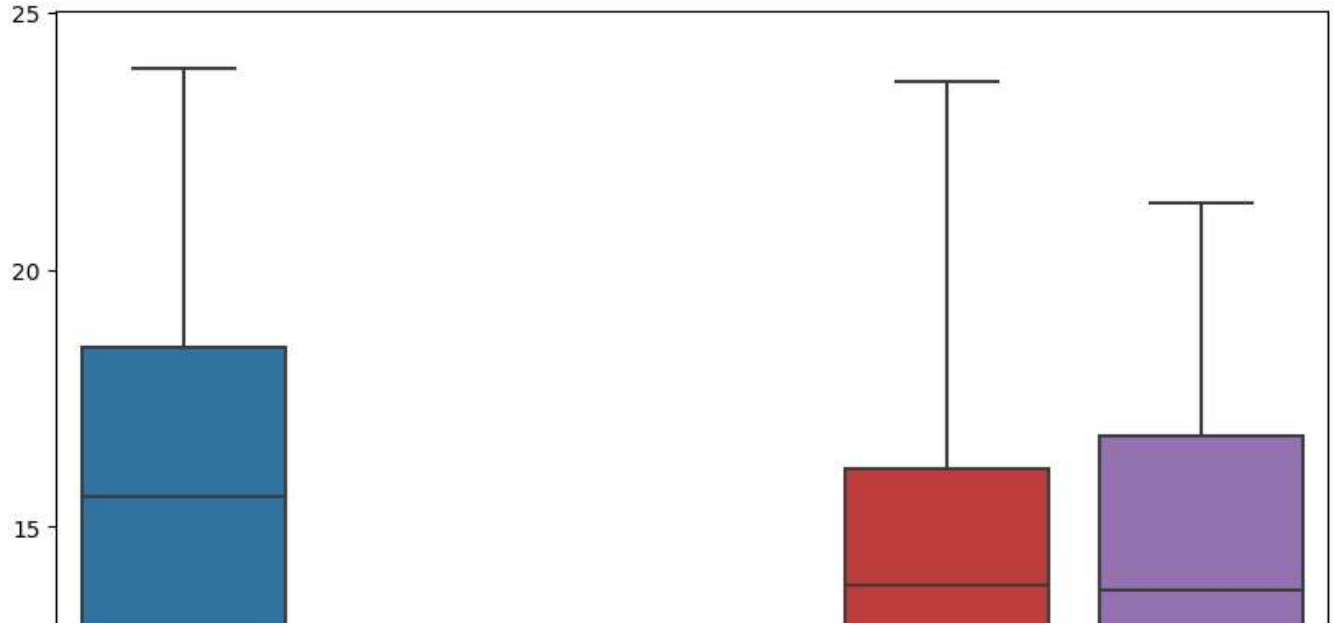

Inference :-
The boxplot of the dataset shows that there are few outliers for number of crashes due to al

```
# Heatmap
correlation_matrix = df.corr()
plt.figure(figsize=(10, 6))
sns.heatmap(correlation_matrix, annot=True, cmap="plasma")
plt.title("Correlation Between Crash Attributes")
plt.show()
```

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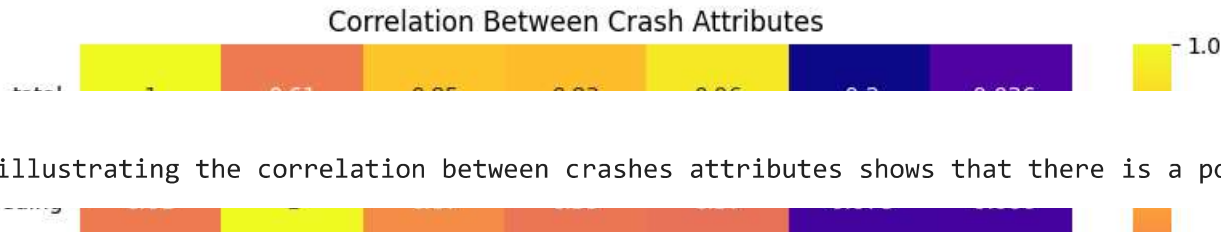
```
<ipython-input-16-fe33545d4ce3>:2: FutureWarning: The default value of numeric_only in D
  correlation_matrix = df.corr()
```



Inference :-
The heatmap illustrating the correlation between crashes attributes shows that there is a pc

```
# Stacked barchart
f, ax = plt.subplots(figsize=(10, 15))

# Plot the total crashes
sns.set_color_codes("pastel")
sns.barplot(x="total", y="abbrev", data=df ,label="Total", color="b")

# Plot the crashes who are not involved in previous crashes
sns.set_color_codes("muted")
sns.barplot(x="no_previous", y="abbrev", data=df, label="No-previous", color="b")
plt.title("Total Crashes and crashes which have no previous crashes")
ax.legend(ncol=2, loc="upper right", frameon=True)
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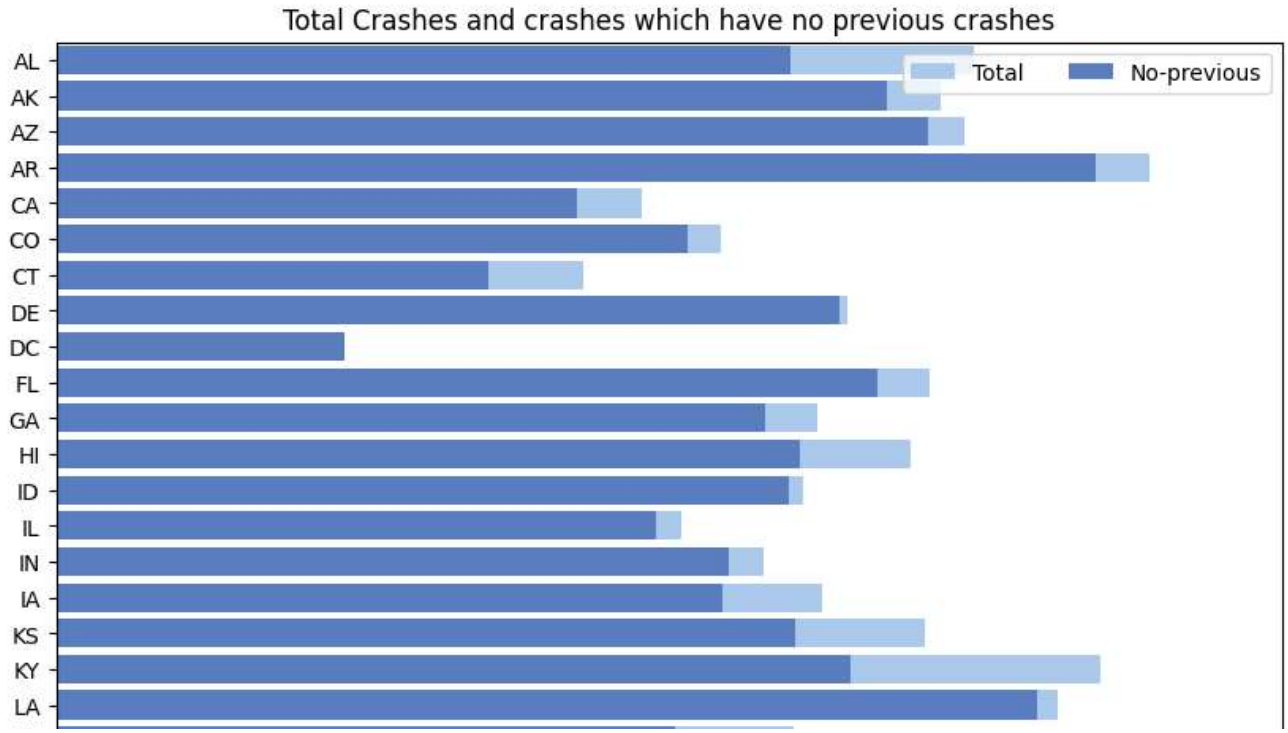
```
<matplotlib.legend.Legend at 0x79bb81a5abf0>
```



Inference :-
The plot contains the bars of both 'total number of crashes' and crashes with 'no previous c
It is clear that the 'total number of crashes' is directly proportional to 'no previous cras
more crashes that occur are having no previous crash history.

```
# Swarm plot
plt.figure(figsize=(15, 6))
sns.swarmplot(df.iloc[:,5:7])
plt.title("Distribution of Insurance premiums and insurance losses")
plt.ylabel("Amounts")
```

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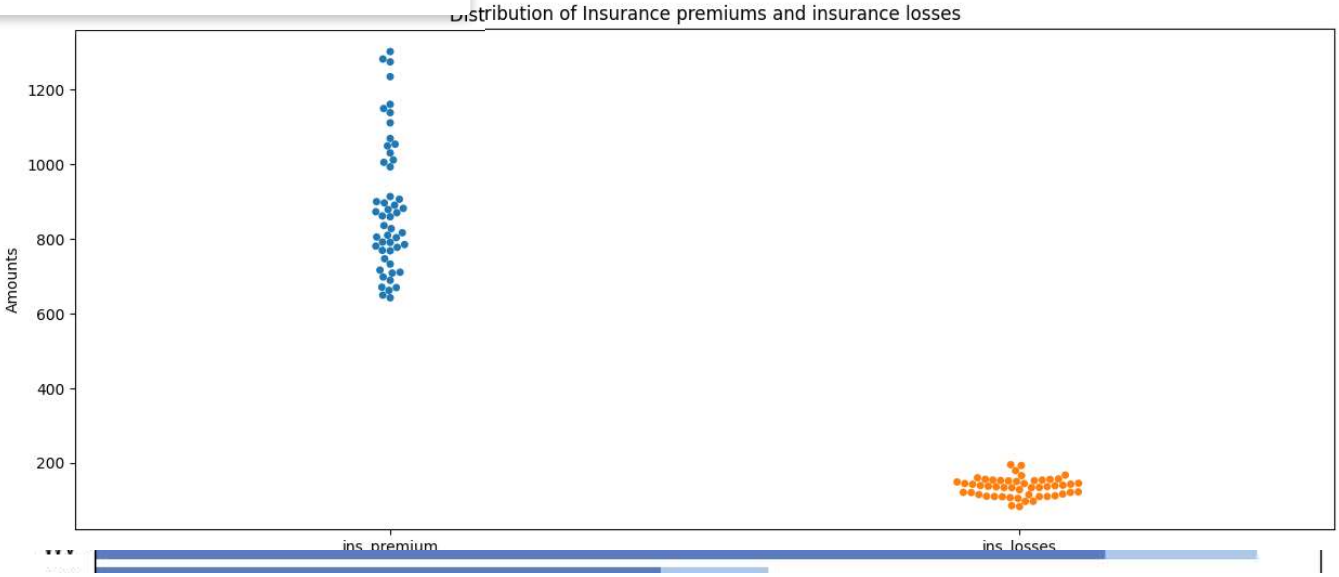

Inference :-
The above swarm plot shows the distribution of ins_premium and ins_losses of t

```
the range of losses is from 0 to 200 while premium range from 600 to 1200.
The graph summarizes that the losses are very small compared to the premium.
```