Capstone Project Data Analyst: Road Accident Analysis

Project description: India has the highest number of road fatalities in the world. In 2016, for which global figures are available, India accounted for more than a third of global road accident deaths. The World Health Organization says such deaths are under-reported and estimated that in 2016, the figure for India was likely twice as big as that reported by the government.

In this project, perform a detailed statistical data analysis on Road Accidents of India over a period of 2003 to 2016 years using various Python Libraries.

The relevant data supporting for the analysis is available as listed below,

DF - Analysing Accidents per Lakh Population-State-Year.

DF1 - Analysing Offender and Victim Deaths per Gender, State.

DF2 - Analysing Deaths occurred due to improper use of Safety Accessories.

DF3 - Analysing rate of accidents from the year 2003 to 2016 for each state.

DF4 - Analysing accidents/injuries/deaths occurring as per number of lanes.

DF5 - Analysing accidents/injuries/deaths occurring due to various faults/reasons.

DF6 - Analysing accidents/injuries/deaths as per the types of vehicles.

DF7 - Analysing number of accidents which take place as per time of occurrence.

and the exact names of the files for the above data description are,

df = roadAccStats13-16.csv

df1 = Details_of_road_accident_deaths_by_situation_state_2014.csv

df2 = Persons_killed_due_to_Non-use_of_Safety_Device_2016.csv

df3 = datafile.xls - total number of accidents from 2003 to 16 per state.

df4 = laneAccidents.csv

df5 = reasonOfAccident.csv

df6 = typeOfVehicle.csv

df7 = timeOfOccurence.csv

These data files are available in a Data Base folder, which will be shared with you.

With your analysis, you must answer to the below questions either in a statistical analysis or in a graphical representation using python code snippets.

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In [1]:

```
#Imporling all required libraries
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
%matplotlib inline
import seaborn as sns

import warnings
warnings.filterwarnings("ignore")

pd.set_option('display.max_columns', None)
pd.set_option('display.max_rows', None)
```

Loading all the Data sets

In [2]:

```
df=pd.read_csv("C:/Users/DELL/Desktop/Mukund/DATA SCIENCE/Capston Project/16265379/
df1=pd.read_csv("C:/Users/DELL/Desktop/Mukund/DATA SCIENCE/Capston Project/16265379
df2=pd.read_csv("C:/Users/DELL/Desktop/Mukund/DATA SCIENCE/Capston Project/16265379
df3=pd.read_excel("C:/Users/DELL/Desktop/Mukund/DATA SCIENCE/Capston Project/162653
df4=pd.read_csv("C:/Users/DELL/Desktop/Mukund/DATA SCIENCE/Capston Project/16265379
df5=pd.read_csv("C:/Users/DELL/Desktop/Mukund/DATA SCIENCE/Capston Project/16265379
df6=pd.read_csv("C:/Users/DELL/Desktop/Mukund/DATA SCIENCE/Capston Project/16265379
df7=pd.read_excel("C:/Users/DELL/Desktop/Mukund/DATA SCIENCE/Capston Project/162653
```

```
WARNING *** OLE2 inconsistency: SSCS size is 0 but SSAT size is non-zero
WARNING *** OLE2 inconsistency: SSCS size is 0 but SSAT size is non-zero
```

DataFrame DF

In [3]:

```
columns2=["State/UT-Wise Total Number of Road Accidents during - 2013","State/UT-Wi
```

In [4]:

```
df.iloc[36][columns2]
```

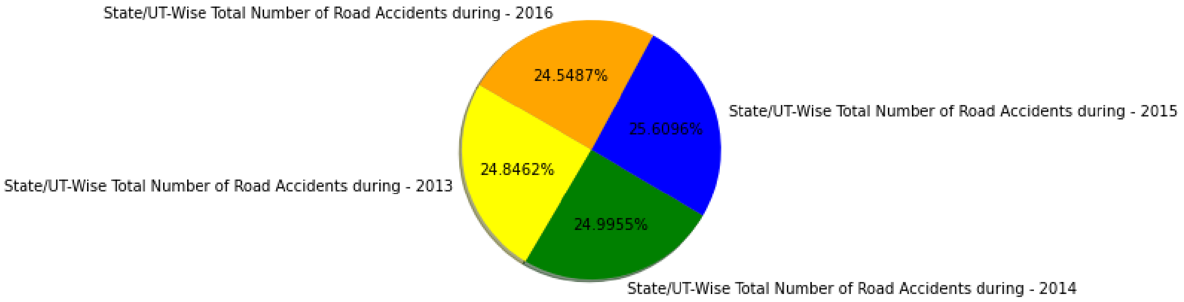
Out[4]:

```
State/UT-Wise Total Number of Road Accidents during - 2013    486476.0
State/UT-Wise Total Number of Road Accidents during - 2014      489400
State/UT-Wise Total Number of Road Accidents during - 2015      501423
State/UT-Wise Total Number of Road Accidents during - 2016      480652
Name: 36, dtype: object
```

1. The percentage of road accidents during all the years.

In [5]:

```
plt.pie(df.iloc[36][columns2],labels=columns2,autopct='%1.4f%%',startangle=150,colo
plt.show()
```



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```
ccedents']=df["State/UT-Wise Total Number of Road Accidents during -
```

In [7]:

```
df['Number of Accedents'].head()
```

Out[7]:

```
0    117068.0
1      1046.0
2     28749.0
3     37533.0
4     55504.0
Name: Number of Accedents, dtype: float64
```

2. Mean Accidents per 1L population for each year.

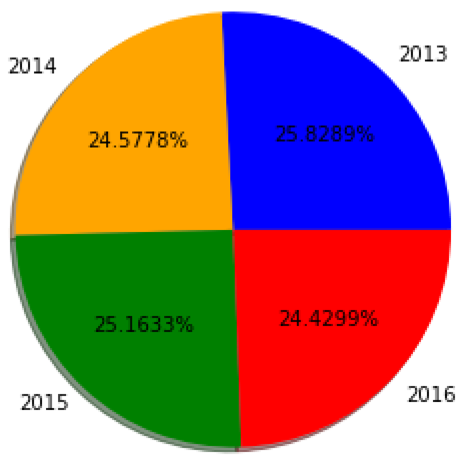
In [8]:

```
df['2013']=np.round(df['Total Number of Accidents Per Lakh Population - 2013'].mear
df['2014']=np.round(df['Total Number of Accidents Per Lakh Population - 2014'].mear
df['2015']=np.round(df['Total Number of Accidents Per Lakh Population - 2015'].mear
df['2016']=np.round(df['Total Number of Accidents Per Lakh Population - 2016'].mear

col2=['2013','2014','2015','2016']
```

In [9]:

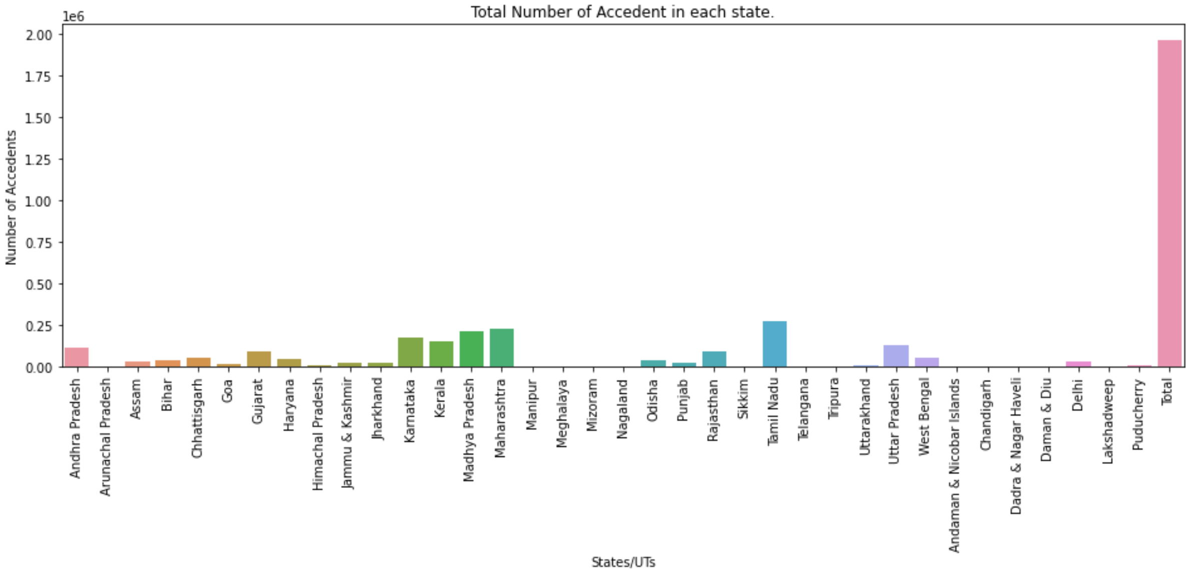
```
plt.figure(figsize=(10, 5))
plt.pie(df.iloc[36][col2],labels=col2,autopct='%1.4f%%',startangle=0,colors=['Blue'
plt.title("Mean Accidents Per 1L Population for each Year.")

plt.show()
```

Mean Accidents Per 1L Population for each Year.



In [10]:

```
plt.figure(figsize=(16,5))
sns.barplot(y=df['Number of Accedents'],x=df["States/UTs"],data=df)
locs, labels = plt.xticks()
plt.setp(labels, rotation=90)
plt.title("Total Number of Accedent in each state.")
plt.show()
```



In [11]:
```
df.head()
```

Out[11]:

	Sl. No.	States/UTs	State/UT-Wise Total Number of Road Accidents during - 2013	State/UT-Wise Total Number of Road Accidents during - 2014	State/UT-Wise Total Number of Road Accidents during - 2015	State/UT-Wise Total Number of Road Accidents during - 2016	Share of States/UTs in Total Number of Road Accidents - 2013	Share of States/UTs in Total Number of Road Accidents - 2014	Share c States/UT in Tota Numbe of Roa Accident - 201
0	1	Andhra Pradesh	43482.0	24440	24258	24888	8.9	5.0	4.
1	2	Arunachal Pradesh	308.0	205	284	249	0.1	0.0	0.
2	3	Assam	7211.0	7144	6959	7435	1.5	1.5	1.
3	4	Bihar	10200.0	9556	9555	8222	2.1	2.0	1.
4	5	Chhattisgarh	13657.0	13821	14446	13580	2.8	2.8	2.

3. The highest number of accident states and least number of accident states.

In [12]:
```
#Making a New Dataframe "df_Max_Min" from DataFrame "df" to find Minimum and Maximu
df_Max_Min=df

#Droping "36th" row from data which have "Total" counts
df_Max_Min.drop(36,axis=0,inplace=True)
df_Max_Min.tail()
```

Out[12]:

	Sl. No.	States/UTs	State/UT-Wise Total Number of Road Accidents during - 2013	State/UT-Wise Total Number of Road Accidents during - 2014	State/UT-Wise Total Number of Road Accidents during - 2015	State/UT-Wise Total Number of Road Accidents during - 2016	Share of States/UTs in Total Number of Road Accidents - 2013	Share of States/UTs in Total Number of Road Accidents - 2014	Share States/U in To Num of Ro Accide - 20
31	32	Dadra & Nagar Haveli	91.0	87	69	70	0.0	0.0	
32	33	Daman & Diu	59.0	39	70	71	0.0	0.0	
33	34	Delhi	7566.0	8623	8085	7375	1.6	1.8	
34	35	Lakshadweep	1.0	1	3	1	0.0	0.0	
35	36	Puducherry	1451.0	1111	1530	1766	0.3	0.2	

In [13]:

```
# Find the highest number of accidents state
max_accidents_state = df_Max_Min.loc[df['Number of Accedents'].idxmax(), 'States/UT
max_accidents_count = df_Max_Min['Number of Accedents'].max()


# Find the least number of accidents state
min_accidents_state = df_Max_Min.loc[df['Number of Accedents'].idxmin(), 'States/UT
min_accidents_count = df_Max_Min['Number of Accedents'].min()

# Print the results
print(f"The state with the highest number of accidents is {max_accidents_state} wit
print(f"The state with the least number of accidents is {min_accidents_state} with
```

```
The state with the highest number of accidents is Tamil Nadu with 273978.0 acciden
ts.
The state with the least number of accidents is Lakshadweep with 6.0 accidents.
```

DataFrame DF1

4. Offenders and victims who died according to gender as well the as the total deaths.

In [14]:

```
df1.head()
```

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Out[14]:

	States/UTs	Year	CrimeHead	Offenders (Driver/Pedestrian) Died_Male	Offenders (Driver/Pedestrian) Died_Female	Offenders (Driver/Pedestrian) Died_Transgender	(
0	Andhra Pradesh	2014	Truck/Lorry (Total)	445	30	0	
1	Andhra Pradesh	2014	Truck/Lorry - Normal Goods Carriers	357	25	0	
2	Andhra Pradesh	2014	Truck/Lorry - Trailer/Container Carriers	12	0	0	
3	Andhra Pradesh	2014	Truck/Lorry - Tankers	10	0	0	
4	Andhra Pradesh	2014	Truck/Lorry - Others	66	5	0	

In [15]:

```
df1.shape
```

Out[15]:

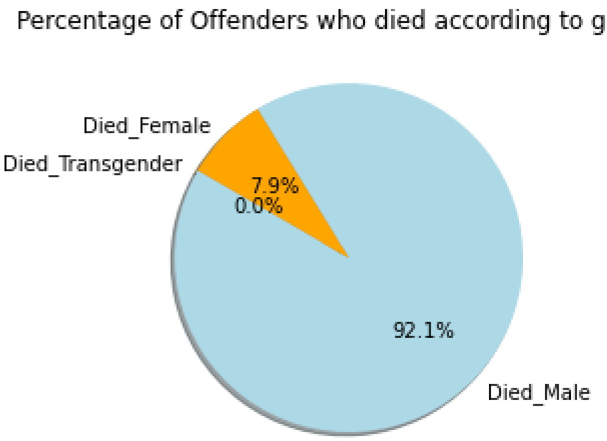
```
(1443, 11)
```

In [16]:

```
columns1=["Died_Male","Died_Female","Died_Transgender"]
List1=[np.round(df1["Offenders (Driver/Pedestrian) Died_Male"].sum()/df1["Offenders
```

In [17]:

```
plt.pie(List1,labels=columns1,autopct='%0.1f%%',startangle=150,colors=['lightBlue',
plt.title("Percentage of Offenders who died according to gender.")
plt.show()
```



In [18]:

```
columns1=["Victims Died_Male","Victims Died_Female","Victims Died_Transgender"]
List1=[np.round(df1["Victims Died_Male"].sum()/df1["Victims Died_Total"].sum()*100,
```

In [19]:

```
plt.pie(List1,labels=columns1,autopct='%0.1f%%',startangle=150,colors=['lightBlue',
plt.title("Percentage of Victim who died according to gender.")
plt.show()
```

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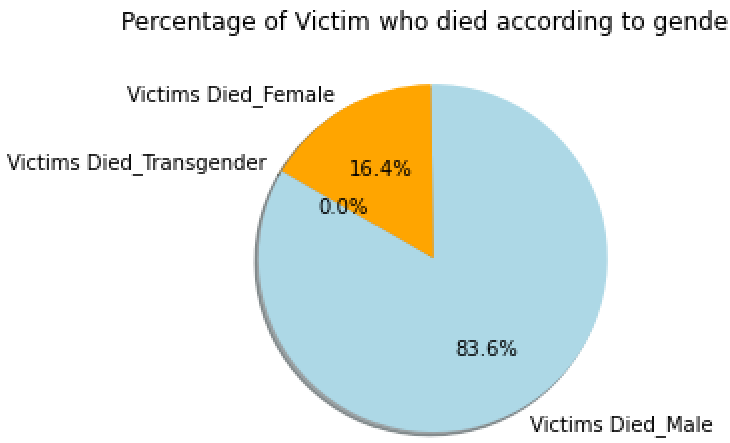
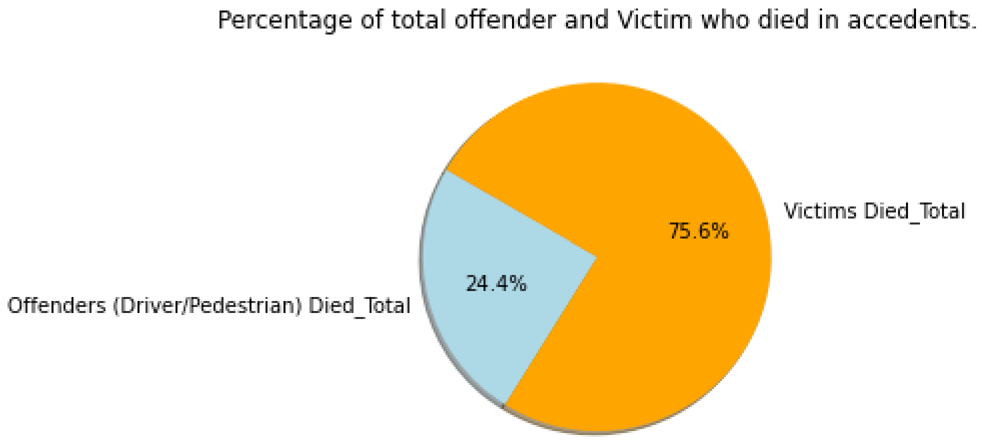


In [20]:

```
columns1=["Offenders (Driver/Pedestrian) Died_Total","Victims Died_Total"]
List1=[np.round(df1["Offenders (Driver/Pedestrian) Died_Total"].sum()/(df1["Offende
       np.round(df1["Victims Died_Total"].sum()/(df1["Offenders (Driver/Pedestrian)
```

In [21]:

```
plt.pie(List1,labels=columns1,autopct='%0.1f%%',startangle=150,colors=['lightBlue',
plt.title("Percentage of total offender and Victim who died in accedents.")
plt.show()
```



DataFrame DF2

In [22]:

```
df2.tail(2)
```

Out[22]:

	S. No.	State/ UT	Non-wearing of Helmet - Male	Non-wearing of Helmet - Female	Non-wearing of Helmet - Total	Non-wearing of seat belt - Male	Non-wearing of seat belt - Female	Non-wearing of seat belt - Total
35	36	Puducherry	16	0	16	0	0	0
36	Total	Total	8616	1519	10135	4499	1139	5638

In [23]:

```
df2=df2.iloc[0:36, :]
```

In [24]:

```
df2.tail(2)
```

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Out[24]:

	S. No.	State/ UT	Non-wearing of Helmet - Male	Non-wearing of Helmet - Female	Non-wearing of Helmet - Total	Non-wearing of seat belt - Male	Non-wearing of seat belt - Female	Non-wearing of seat belt - Total
34	35	Lakshadweep	0	0	0	0	0	0
35	36	Puducherry	16	0	16	0	0	0

In [25]:

```
columns1=["Non-wearing of Helmet - Male","Non-wearing of Helmet - Female"]
List1=[np.round(df2["Non-wearing of Helmet - Male"].sum()/df2["Non-wearing of Helme
```

In [26]:

```
List1
```

Out[26]:

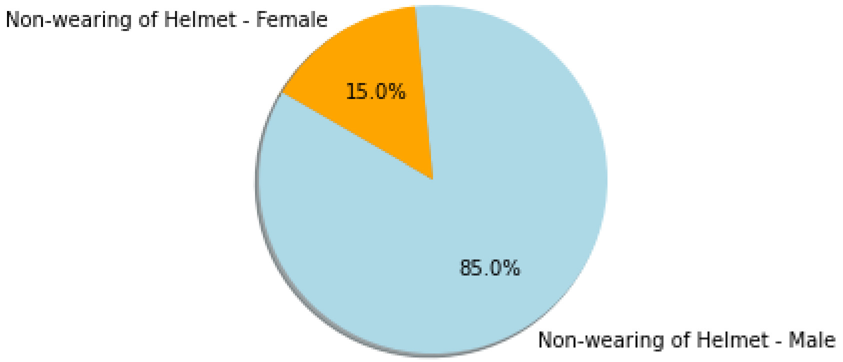
```
[85.0, 15.0]
```

5. Percentage of Deaths occurring due to non-wearing of helmets between male and female.

In [27]:

```
plt.pie(List1,labels=columns1,autopct='%0.1f%%',startangle=150,colors=['lightBlue',
plt.title("Percentage of Deaths occuring due to non-wearing of healmets between mal
plt.show()
```

Percentage of Deaths occuring due to non-wearing of healmets between male and female.



DataFrame DF3

In [28]:

```
df3.iloc[36:37, :]
```

Out[28]:

	States/Uts	2003	2004	2005	2006	2007	2008	2009	2010	201
36	All India	73589.0	79357.0	83491.0	93917.0	101161.0	106591.0	110993.0	119558.0	121618.

In [29]:

```
df3.drop("States/Uts",axis=1,inplace=True)
df3.columns
```

Out[29]:

```
Index([2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014,
       2015, 2016],
      dtype='object')
```

In [30]:

```
list1=[x for x in df3.columns]
print(list1)
DataFrameDF3=pd.DataFrame(df3.iloc[36:37, :].T)
DataFrameDF3.head(3)
```

```
[2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 201
6]
```

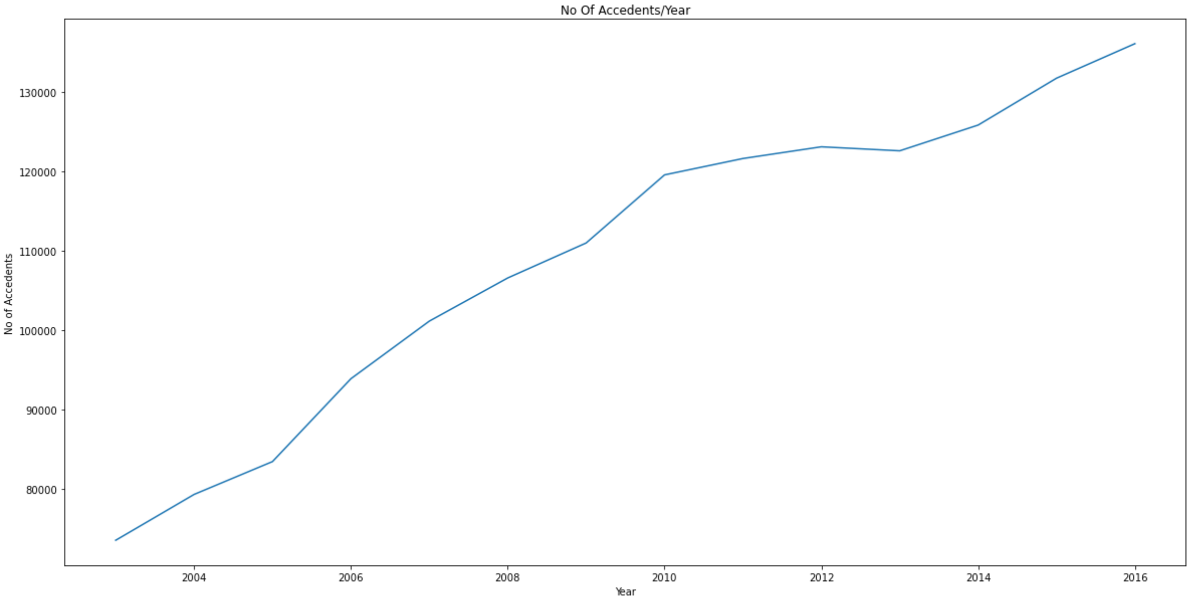
Out[30]:

	36
2003	73589.0
2004	79357.0
2005	83491.0

6. The number of accidents happening per state from the year 2003 to 2016.

In [31]:

```
plt.figure(figsize=(20,10))
plt.plot(DataFrameDF3)
plt.xlabel("Year")
plt.ylabel("No of Accedents")
plt.title("No Of Accedents/Year")
plt.show()
```



DataFrame DF4

In [32]:

```
df4.head()
```

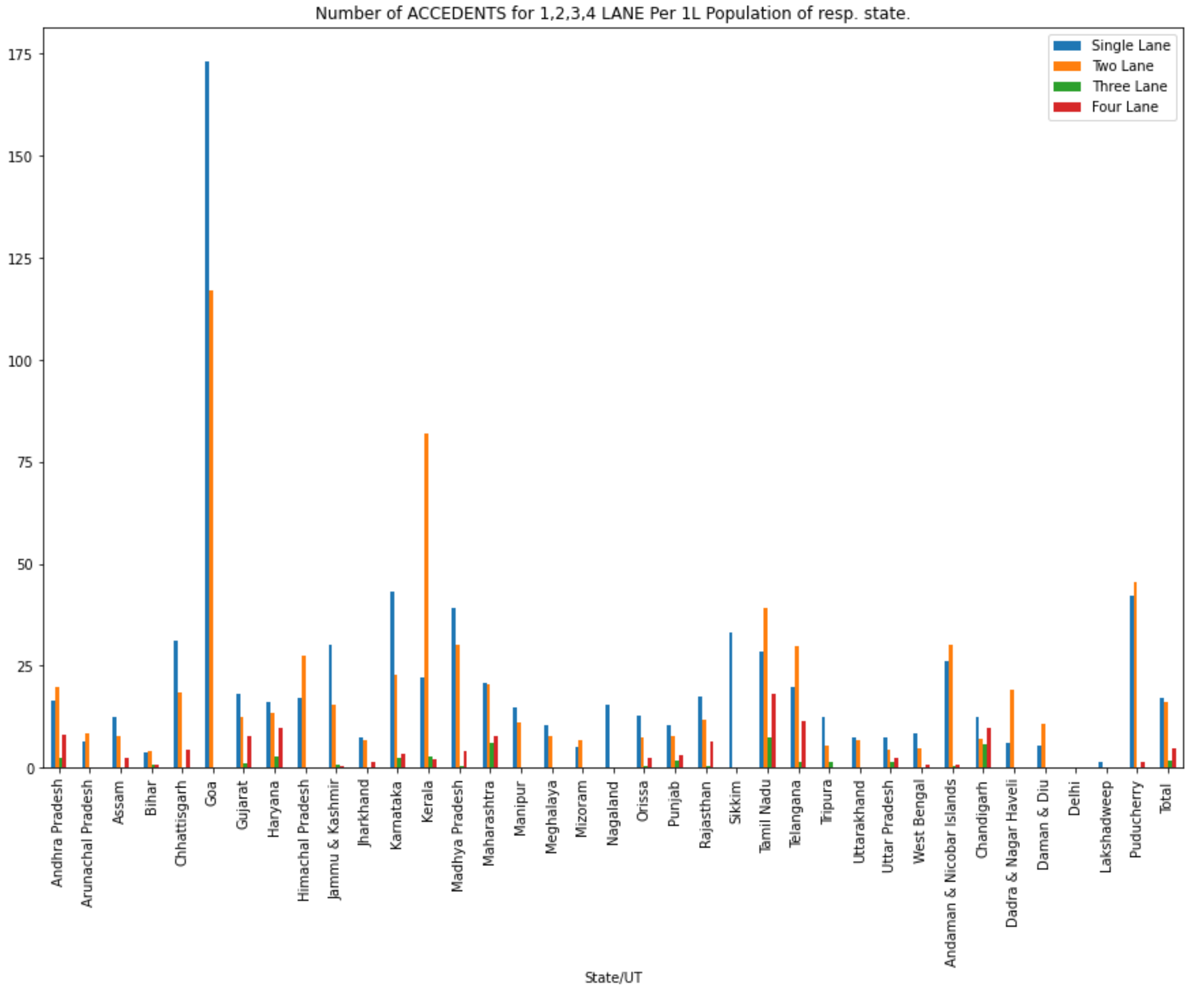
Out[32]:

	S.No	State/UT	Single Lane - Accident - 2014	Single Lane - Accident - 2014 per 1L people	Single Lane - Killed - 2014	Single Lane - Killed - 2014 per 1L people	Single Lane - Injured - 2014	Single Lane - Injured - 2014 per 1L people	Two Lanes - Accident - 2014	T Lane Accide - 20 per peo
0	1	Andhra Pradesh	8634.0	16.473750	2958.0	5.643891	13541.0	25.836350	10327.0	19.7040
1	2	Arunachal Pradesh	90.0	6.504173	60.0	4.336115	152.0	10.984826	115.0	8.3108
2	3	Assam	3888.0	12.459312	1217.0	3.899944	3195.0	10.238555	2432.0	7.7934
3	4	Bihar	3731.0	3.584073	1815.0	1.743525	2475.0	2.377534	4156.0	3.9923
4	5	Chhattisgarh	7961.0	31.164370	2244.0	8.784430	7762.0	30.385359	4696.0	18.3831

7. Number of ACCIDENTS for 1,2,3,4 LANE per 1L population of resp. state.

In [33]:

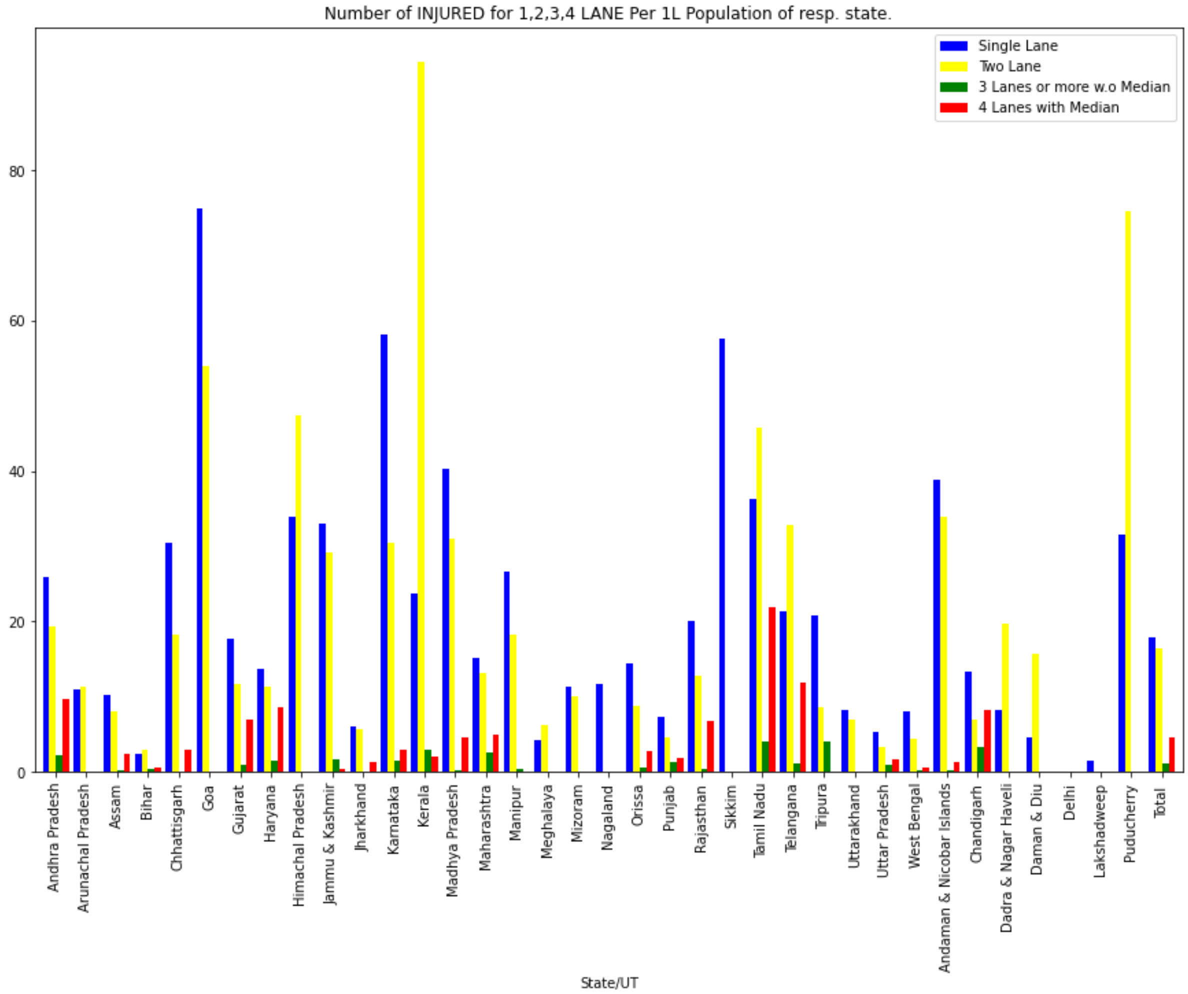
```
df4.plot(x="State/UT", y=["Single Lane - Accident - 2014 per 1L people",
                           "Two Lanes - Accident - 2014 per 1L people",
                           "3 Lanes or more w.o Median - Accident - 2014 per 1L peop
                           "4 Lanes with Median - Accident - 2014 per 1L people"],
        kind="bar", figsize=(15, 10))
plt.legend(["Single Lane","Two Lane","Three Lane","Four Lane"])
plt.title("Number of ACCEDENTS for 1,2,3,4 LANE Per 1L Population of resp. state.")

# Display plot
plt.show()
```



8. Number of people INJURED for 1,2,3,4 type of lane per 1L population of resp. State.

In [34]:

```
df4.plot(x="State/UT", y=["Single Lane - Injured - 2014 per 1L people",
                          "Two Lanes - Injured - 2014 per 1L people",
                          "3 Lanes or more w.o Median - Injured - 2014 per 1L peopl
                          "4 Lanes with Median - Injured - 2014 per 1L people"],
         color = ['blue', 'yellow', 'green', 'red'],
         width = 0.85,
         kind="bar", figsize=(15, 10))
plt.legend(["Single Lane","Two Lane","3 Lanes or more w.o Median","4 Lanes with Mec
plt.title("Number of INJURED for 1,2,3,4 LANE Per 1L Population of resp. state.")
# Display plot
plt.show()
```



9. Number of people KILLED for 1,2,3,4 LANES per 1L population of resp. States.

In [35]:

```
df4.plot(x="State/UT", y=["Single Lane - Killed - 2014 per 1L people",
                          "Two Lanes - Killed - 2014 per 1L people",
                          "3 Lanes or more w.o Median - Killed - 2014 per 1L people
                          "4 Lanes with Median - Killed - 2014 per 1L people"],
         color = ['blue', 'yellow', 'green', 'red'],
         width = 0.80,
         kind="bar",
         figsize=(18, 8))
plt.legend(["Single Lane","Two Lane","3 Lanes or more w.o Median","4 Lanes with Med
plt.title("Number of KILLED for 1,2,3,4 LANE Per 1L Population of resp. state.")

# Display plot
plt.show()
```

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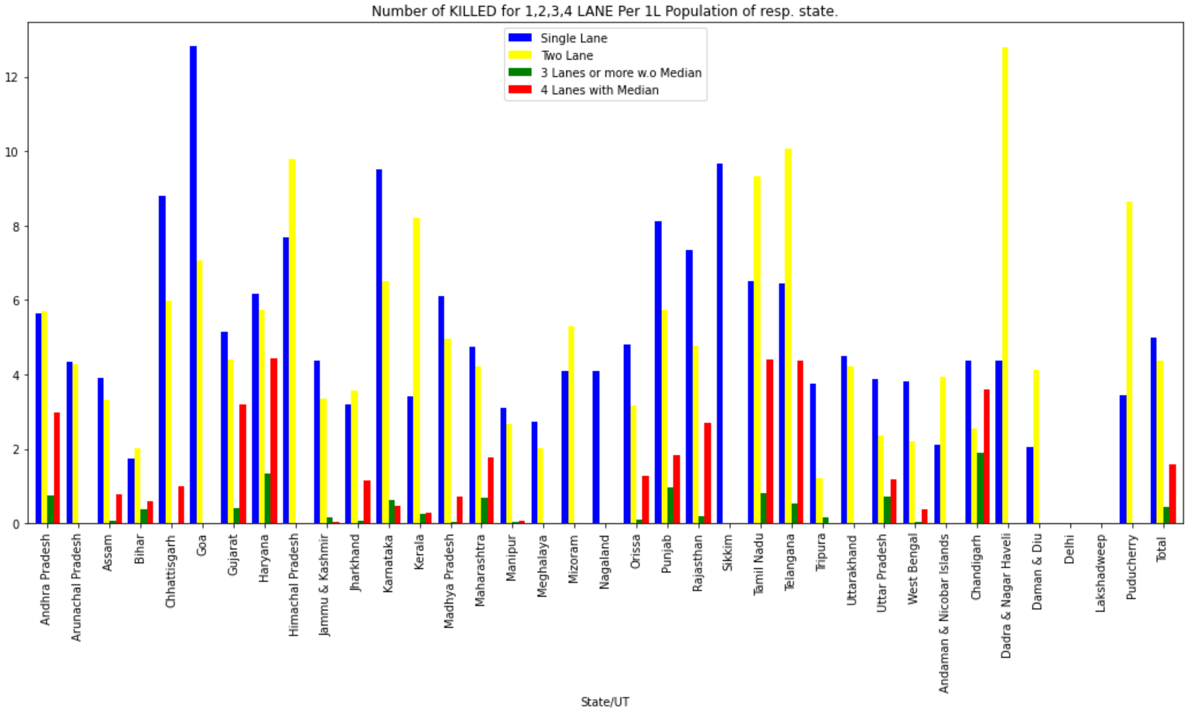
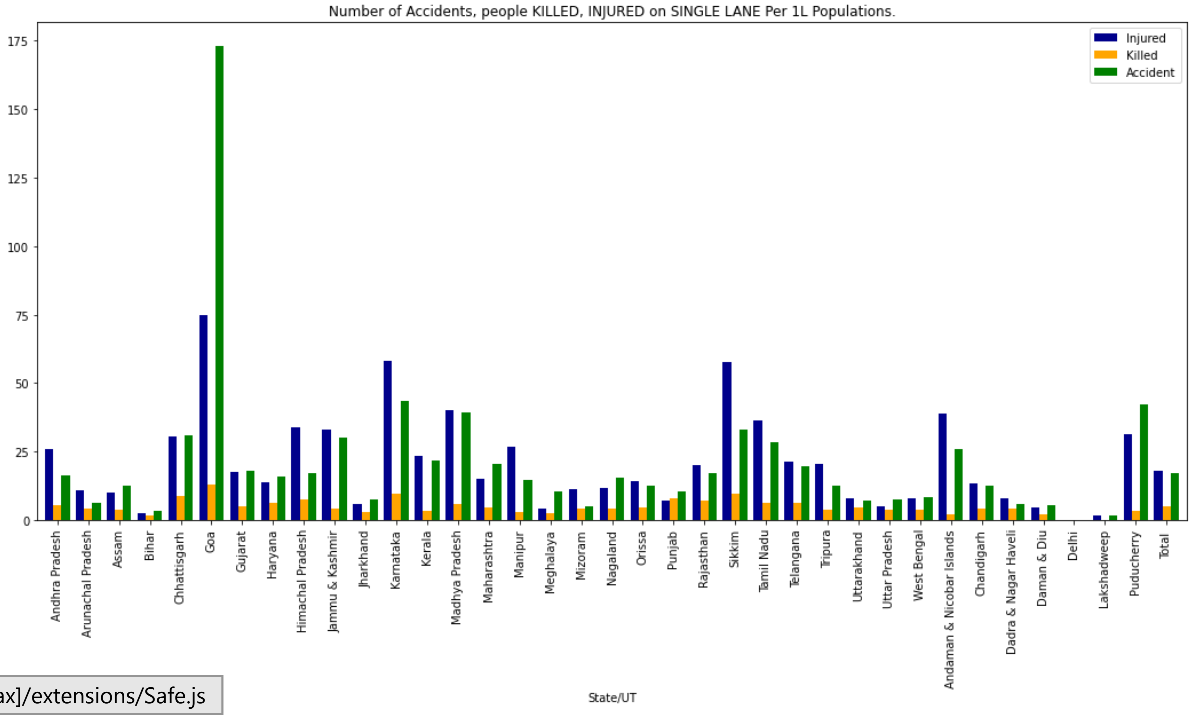


10. Number of Accidents, people KILLED, INJURED on SINGLE LANE per 1L population.

In [36]:
```
df4.plot(x="State/UT", y=["Single Lane - Injured - 2014 per 1L people",
                          "Single Lane - Killed - 2014 per 1L people",
                          "Single Lane - Accident - 2014 per 1L people"],

         color = ['darkblue', 'orange', 'green'],
         width = 0.80,
         kind="bar",
         figsize=(18, 8))
plt.legend(["Injured","Killed","Accident"])
plt.title("Number of Accidents, people KILLED, INJURED on SINGLE LANE Per 1L Popula

# Display plot
plt.show()
```



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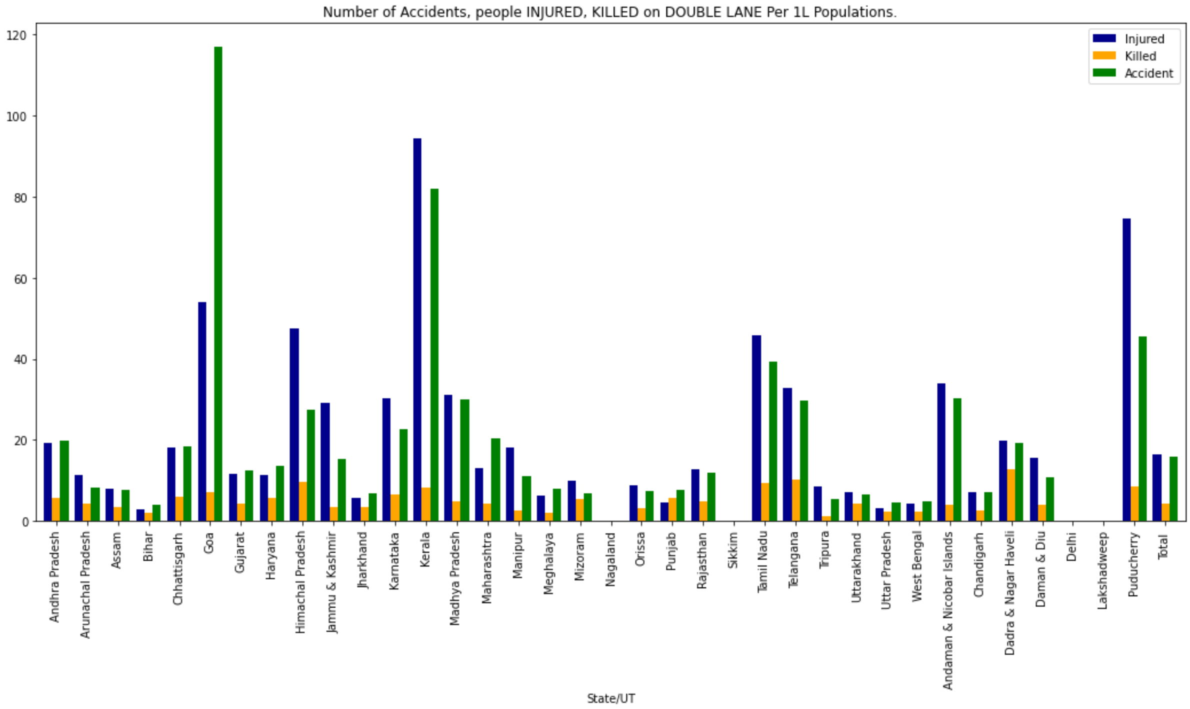
11. Number of accidents, people INJURED, KILLED on DOUBLE LANE per 1L population.

In [37]:
```
df4.plot(x="State/UT", y=["Two Lanes - Injured - 2014 per 1L people",
                          "Two Lanes - Killed - 2014 per 1L people",
                          "Two Lanes - Accident - 2014 per 1L people"],

         color = ['darkblue', 'orange', 'green'],
         width = 0.80,
         kind="bar",
         figsize=(18, 8))
plt.legend(["Injured","Killed","Accident"])
plt.title("Number of Accidents, people INJURED, KILLED on DOUBLE LANE Per 1L Popula

# Display plot
plt.show()
```



12. Number of accidents, people INJURED, KILLED on THREE LANE per 1L population.

In [38]:
```
df4.plot(x="State/UT", y=["3 Lanes or more w.o Median - Injured - 2014 per 1L peopl
                          "3 Lanes or more w.o Median - Killed - 2014 per 1L people
                          "3 Lanes or more w.o Median - Accident - 2014 per 1L peop

         color = ['darkblue', 'orange', 'green'],
         width = 0.80,
         kind="bar",
         figsize=(18, 8))
plt.legend(["Injured","Killed","Accident"])
plt.title("Number of Accidents, people INJURED, KILLED on THREE LANE Per 1L Populat


# Display plot
plt.show()
```

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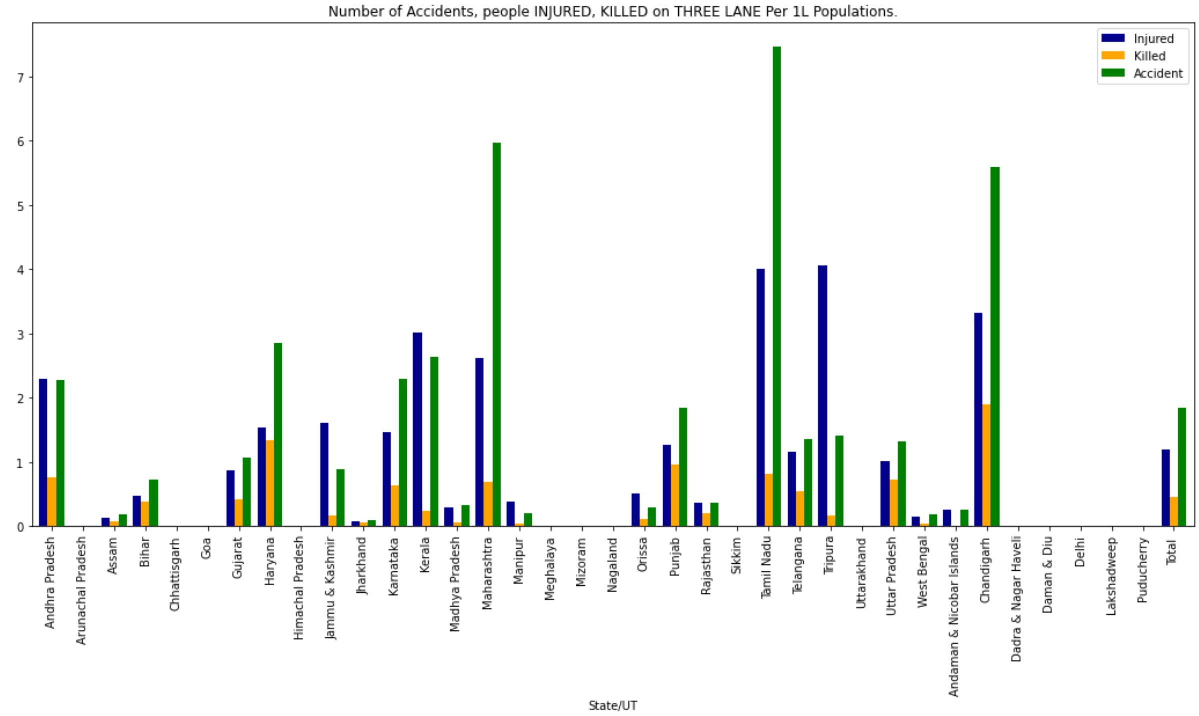
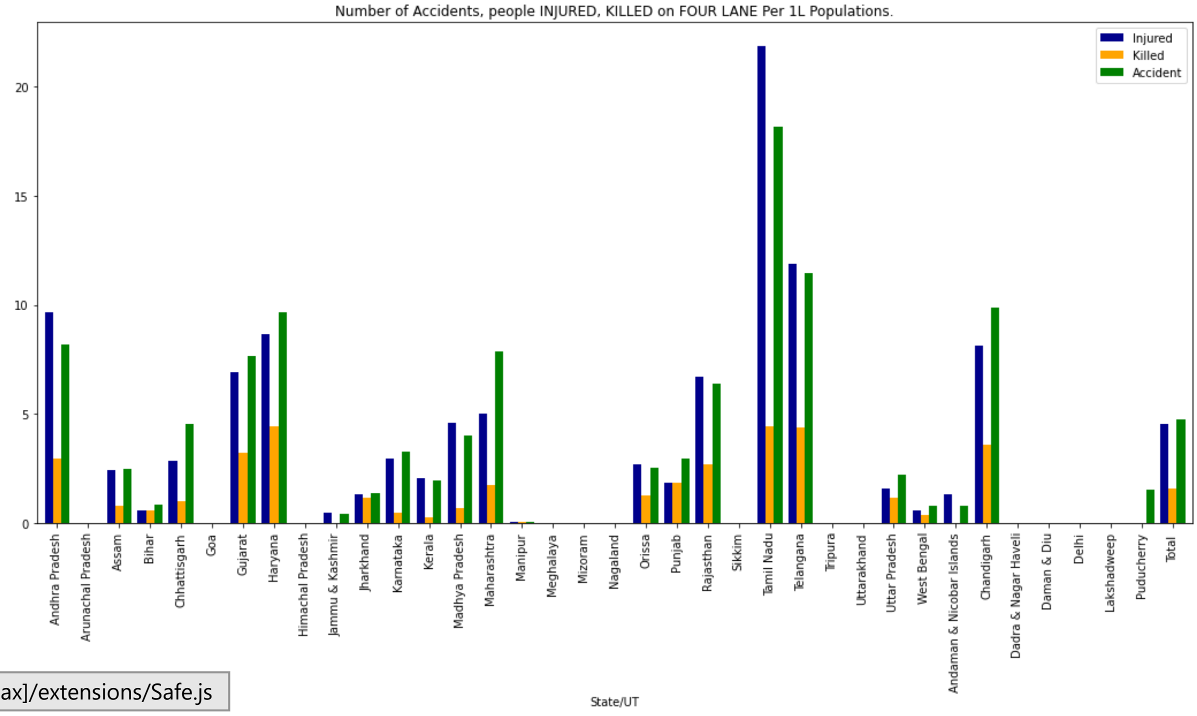


13. Number of accidents, people INJURED, KILLED on FOUR LANE per 1L population.

In [39]:
```
df4.plot(x="State/UT", y=["4 Lanes with Median - Injured - 2014 per 1L people",
                          "4 Lanes with Median - Killed - 2014 per 1L people",
                          "4 Lanes with Median - Accident - 2014 per 1L people"],

         color = ['darkblue', 'orange', 'green'],
         width = 0.80,
         kind="bar",
         figsize=(18, 8))
plt.legend(["Injured","Killed","Accident"])
plt.title("Number of Accidents, people INJURED, KILLED on FOUR LANE Per 1L Populati

# Display plot
plt.show()
```



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14. Total Number of INJURED, KILLED, ROAD ACCIDENTS irrespective of lanes per 1L population of resp. State.

In [40]:

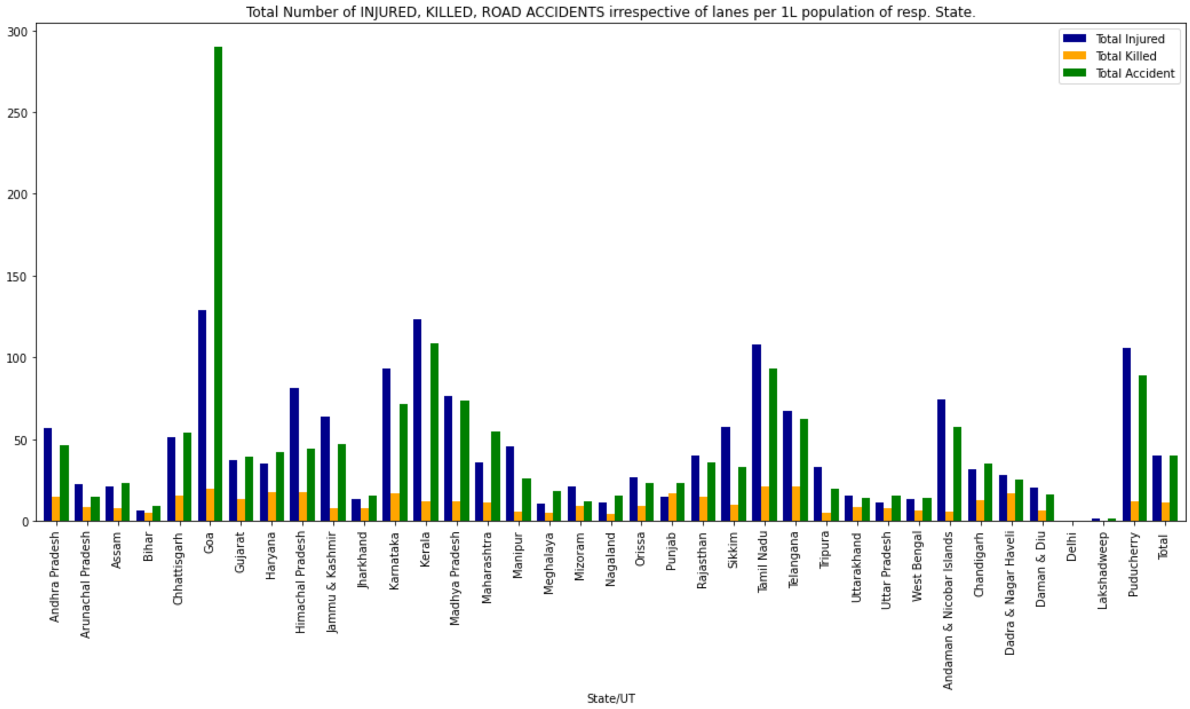
```
df4["Total Injured"]=df4[["Single Lane - Injured - 2014 per 1L people","Two Lanes -
df4["Total Killed"]=df4[["Single Lane - Killed - 2014 per 1L people","Two Lanes - K
df4["Total Accident"]=df4[["Single Lane - Accident - 2014 per 1L people","Two Lanes
```

In [41]:

```
df4.plot(x="State/UT", y=["Total Injured",
                          "Total Killed",
                          "Total Accident"],

         color = ['darkblue', 'orange', 'green'],
         width = 0.80,
         kind="bar",
         figsize=(18, 8))
plt.legend(["Total Injured","Total Killed","Total Accident"])
plt.title("Total Number of INJURED, KILLED, ROAD ACCIDENTS irrespective of lanes pe

# Display plot
plt.show()
```



DataFrame DF5

In [42]:

```
df5.columns
```

```
Out[42]: Index(['Sl. No', 'States/UTs',
               'Fault of Driver-Total No. of Road Accidents - 2014',
               'Fault of Driver-Total No. of Road Accidents - 2014 per 1L people',
               'Fault of Driver-Number of Persons-Killed - 2014',
               'Fault of Driver-Number of Persons-Killed - 2014 per 1L people',
               'Fault of Driver-Number of Persons-Injured - 2014',
               'Fault of Driver-Number of Persons-Injured - 2014 per 1L people',
               'Fault of Driver of other vehicles-Total No. of Road Accidents - 2014',
               'Fault of Driver of other vehicles-Total No. of Road Accidents - 2014 per 1
         L people',
               'Fault of Driver of other vehicles-Number of Persons-Killed - 2014',
               'Fault of Driver of other vehicles-Number of Persons-Killed - 2014 per 1L p
         eople',
               'Fault of Driver of other vehicles-Number of Persons-Injured - 2014',
               'Fault of Driver of other vehicles-Number of Persons-Injured - 2014 per 1L
         people',
               'Fault of Pedestrian-Total No. of Road Accidents - 2014',
               'Fault of Pedestrian-Total No. of Road Accidents - 2014 per 1L people',
               'Fault of Pedestrian-Number of Persons-Killed - 2014',
               'Fault of Pedestrian-Number of Persons-Killed - 2014 per 1L people',
               'Fault of Pedestrian-Number of Persons-Injured - 2014',
               'Fault of Pedestrian-Number of Persons-Injured - 2014 per 1L people',
               'Defect in Condition of Motor Vehicle-Total No. of Road Accidents - 2014',
               'Defect in Condition of Motor Vehicle-Total No. of Road Accidents - 2014 pe
         r 1L people',
               'Defect in Condition of Motor Vehicle-Number of Persons-Killed - 2014',
               'Defect in Condition of Motor Vehicle-Number of Persons-Killed - 2014 per 1
         L people',
               'Defect in Condition of Motor Vehicle-Number of Persons-Injured - 2014',
               'Defect in Condition of Motor Vehicle-Number of Persons-Injured - 2014 per
         1L people',
               'Defect in Road Condition-Total No. of Road Accidents - 2014',
               'Defect in Road Condition-Total No. of Road Accidents - 2014 per 1L peopl
         e',
               'Defect in Road Condition-Number of Persons-Killed - 2014',
               'Defect in Road Condition-Number of Persons-Killed - 2014 per 1L people',
               'Defect in Road Condition-Number of Persons-Injured - 2014',
               'Defect in Road Condition-Number of Persons-Injured - 2014 per 1L people',
               'Weather Condition-Total No. of Road Accidents - 2014',
               'Weather Condition-Total No. of Road Accidents - 2014 per 1L people',
               'Weather Condition-Number of Persons-Killed - 2014',
               'Weather Condition-Number of Persons-Killed - 2014 per 1L people',
               'Weather Condition-Number of Persons-Injured - 2014',
               'Weather Condition-Number of Persons-Injured - 2014 per 1L people',
               'Fault of Passenger-Total No. of Road Accidents - 2014',
               'Fault of Passenger-Total No. of Road Accidents - 2014 per 1L people',
               'Fault of Passenger-Number of Persons-Killed - 2014',
               'Fault of Passenger-Number of Persons-Killed - 2014 per 1L people',
               'Fault of Passenger-Number of Persons-Injured - 2014',
               'Fault of Passenger-Number of Persons-Injured - 2014 per 1L people',
               'Poor light-Total No. of Road Accidents - 2014',
               'Poor light-Total No. of Road Accidents - 2014 per 1L people',
               'Poor light-Number of Persons-Killed - 2014',
               'Poor light-Number of Persons-Killed - 2014 per 1L people',
               'Poor light-Number of Persons-Injured - 2014',
               'Poor light-Number of Persons-Injured - 2014 per 1L people',
               'Falling of boulders-Total No. of Road Accidents - 2014',
               'Falling of boulders-Total No. of Road Accidents - 2014 per 1L people',
               'Falling of boulders-Number of Persons-Killed - 2014',
               'Falling of boulders-Number of Persons-Killed - 2014 per 1L people',
               'Falling of boulders-Number of Persons-Injured - 2014',
               'Falling of boulders-Number of Persons-Injured - 2014 per 1L people',
Loading [MathJax]/extensions/Safe.js auses/causes not known-Total No. of Road Accidents - 2014',
               'Other causes/causes not known-Total No. of Road Accidents - 2014 per 1L pe
        ople',
               'Other causes/causes not known-Number of Persons-Killed - 2014',
               'Other causes/causes not known-Number of Persons-Killed - 2014 per 1L peopl
        e',
               'Other causes/causes not known-Number of Persons-Injured - 2014',
               'Other causes/causes not known-Number of Persons-Injured - 2014 per 1L peop
        le',
               'Population'],
              dtype='object')
```

15. Number of people KILLED for each different REASON per 1L population of that state.

In [43]:

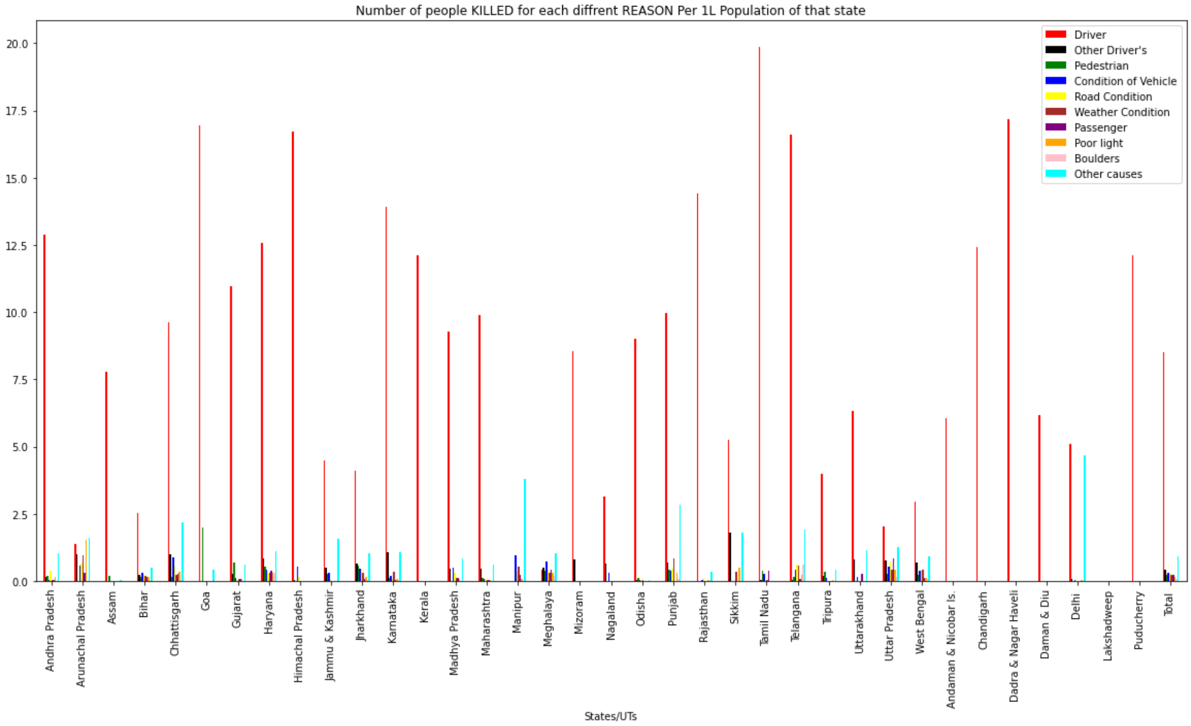
```
df5.plot(x="States/UTs", y=["Fault of Driver-Number of Persons-Killed - 2014 per 1L
"Fault of Driver of other vehicles-Number of Persons-Killed - 2014 per 1L people",
"Fault of Pedestrian-Number of Persons-Killed - 2014 per 1L people",
"Defect in Condition of Motor Vehicle-Number of Persons-Killed - 2014 per 1L people
"Defect in Road Condition-Number of Persons-Killed - 2014 per 1L people",
"Weather Condition-Number of Persons-Killed - 2014 per 1L people",
"Fault of Passenger-Number of Persons-Killed - 2014 per 1L people",
"Poor light-Number of Persons-Killed - 2014 per 1L people",
"Falling of boulders-Number of Persons-Killed - 2014 per 1L people",
"Other causes/causes not known-Number of Persons-Killed - 2014 per 1L people"],

color = ['red', 'black', 'green', 'blue','yellow', 'brown', 'purple', 'orange', 'pi
kind="bar",
figsize=(20, 10))

plt.legend(["Driver", "Other Driver's", "Pedestrian",
            "Condition of Vehicle", "Road Condition",
            "Weather Condition", "Passenger", "Poor light",
            "Boulders", "Other causes"])

plt.title("Number of people KILLED for each diffrent REASON Per 1L Population of th

# Display plot
plt.show()
```



16. Number of people INJURED for each reason per 1L people of that state.

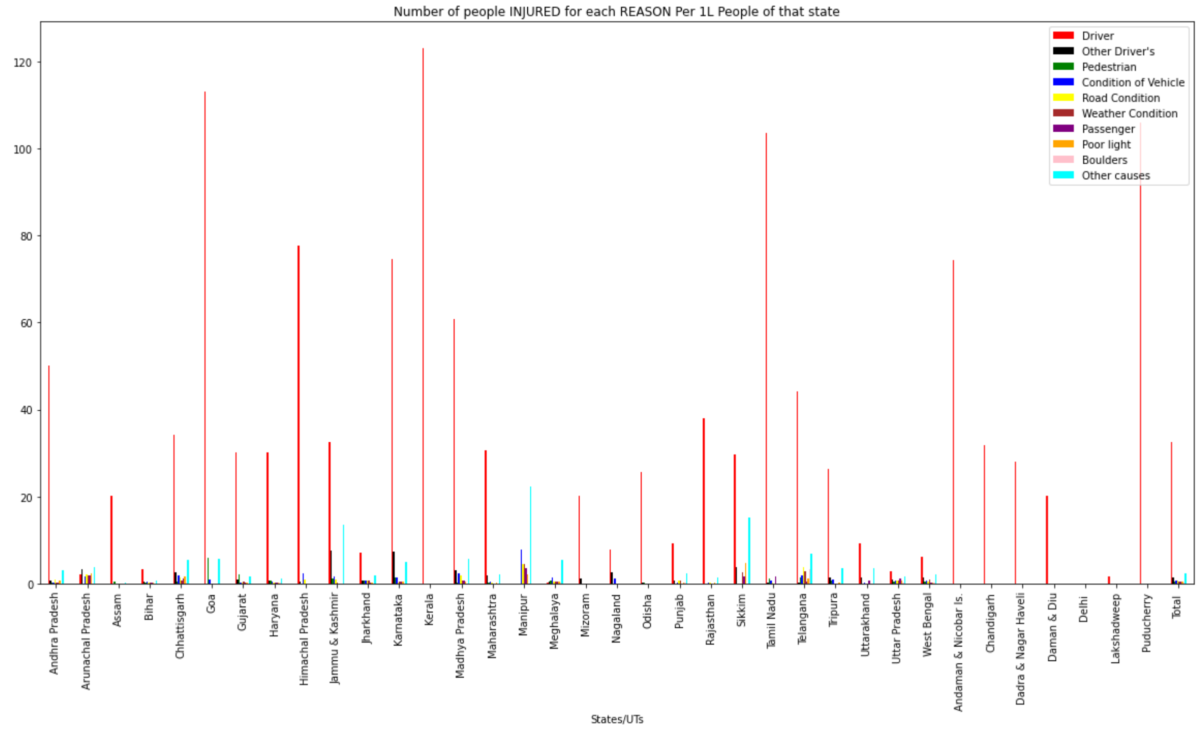
In [44]:

```
df5.plot(x="States/UTs", y=["Fault of Driver-Number of Persons-Injured - 2014 per 1
"Fault of Driver of other vehicles-Number of Persons-Injured - 2014 per 1L people",
"Fault of Pedestrian-Number of Persons-Injured - 2014 per 1L people",
"Defect in Condition of Motor Vehicle-Number of Persons-Injured - 2014 per 1L peopl
"Defect in Road Condition-Number of Persons-Injured - 2014 per 1L people",
"Weather Condition-Number of Persons-Injured - 2014 per 1L people",
"Fault of Passenger-Number of Persons-Injured - 2014 per 1L people",
"Poor light-Number of Persons-Injured - 2014 per 1L people",
"Falling of boulders-Number of Persons-Injured - 2014 per 1L people",
"Other causes/causes not known-Number of Persons-Injured - 2014 per 1L people"],
color = ['red', 'black', 'green', 'blue','yellow', 'brown', 'purple', 'orange', 'pi
kind="bar",
figsize=(20, 10))

plt.legend(["Driver", "Other Driver's", "Pedestrian",
            "Condition of Vehicle", "Road Condition",
            "Weather Condition", "Passenger", "Poor light",
            "Boulders", "Other causes"], loc="upper right")

plt.title("Number of people INJURED for each REASON Per 1L People of that state")

# Display plot
plt.show()
```



17. Number of ACCIDENTS for each reason per 1L people of that state.

In [45]:

```
df5.plot(x="States/UTs", y=[
"Fault of Driver-Total No. of Road Accidents - 2014 per 1L people",
"Fault of Driver of other vehicles-Total No. of Road Accidents - 2014 per 1L people
"Fault of Pedestrian-Total No. of Road Accidents - 2014 per 1L people",
"Defect in Condition of Motor Vehicle-Total No. of Road Accidents - 2014 per 1L peo
"Defect in Road Condition-Total No. of Road Accidents - 2014 per 1L people",
"Weather Condition-Total No. of Road Accidents - 2014 per 1L people",
```

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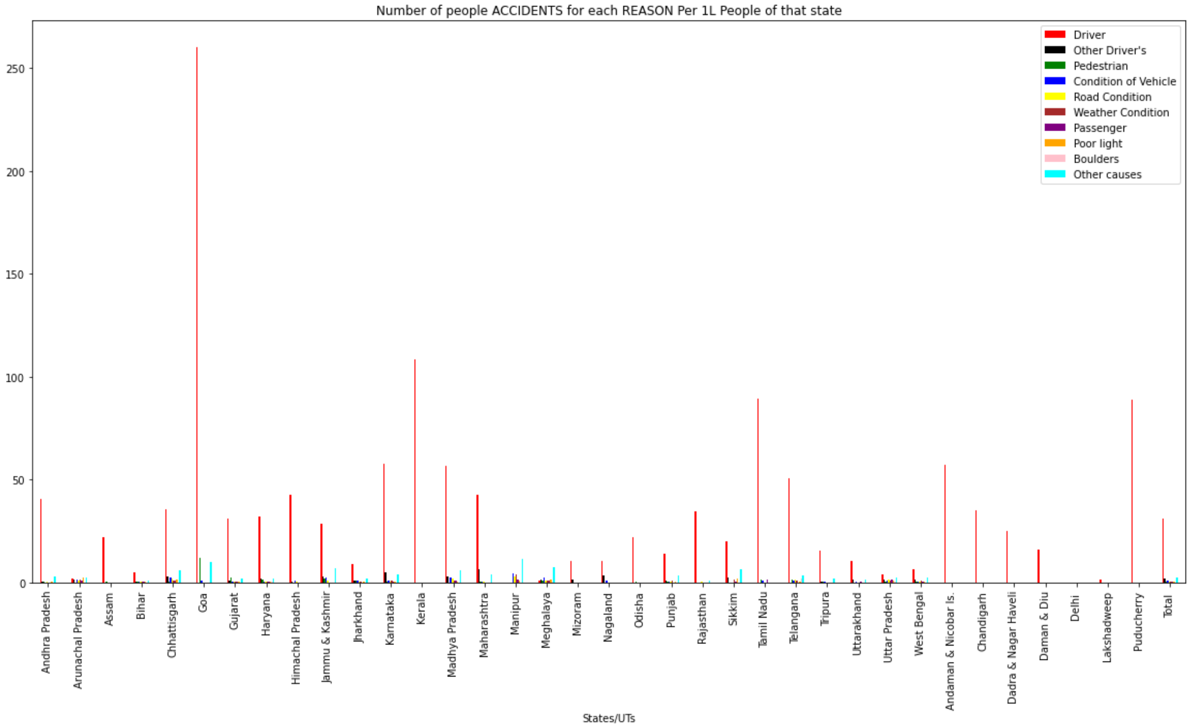
```
"Fault of Passenger-Total No. of Road Accidents - 2014 per 1L people",
"Poor light-Total No. of Road Accidents - 2014 per 1L people",
"Falling of boulders-Total No. of Road Accidents - 2014 per 1L people",
"Other causes/causes not known-Total No. of Road Accidents - 2014 per 1L people"],

color = ['red', 'black', 'green', 'blue','yellow', 'brown', 'purple', 'orange', 'pi
kind="bar",
figsize=(20, 10))

plt.legend(["Driver", "Other Driver's", "Pedestrian",
            "Condition of Vehicle", "Road Condition",
            "Weather Condition", "Passenger", "Poor light",
            "Boulders", "Other causes"], loc="upper right")

plt.title("Number of people ACCIDENTS for each REASON Per 1L People of that state")

# Display plot
plt.show()
```



18. Total number of ROAD ACCIDENTS, INJURIES, DEATHS due to FAULT OF THE DRIVER per 1L population of that state.

In [46]:

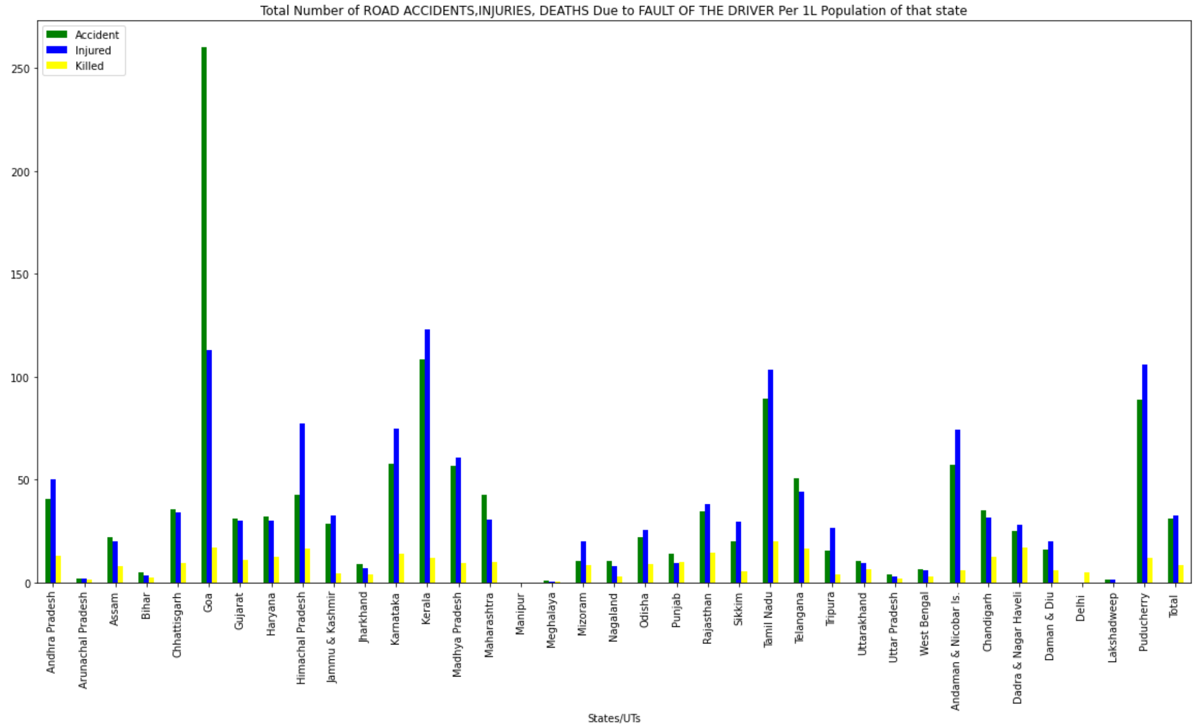
```
df5.plot(x="States/UTs", y=[
'Fault of Driver-Total No. of Road Accidents - 2014 per 1L people',
'Fault of Driver-Number of Persons-Injured - 2014 per 1L people',
'Fault of Driver-Number of Persons-Killed - 2014 per 1L people'],

color = ['green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(["Accident","Injured","Killed"],loc='upper left')

plt.title("Total Number of ROAD ACCIDENTS,INJURIES, DEATHS Due to FAULT OF THE DRIV

# Display plot
plt.show()
```



19. Total number of ROAD ACCIDENTS, INJURIES, DEATHS due to the FAULT OF DRIVER'S FROM OTHER VEHICLES per 1L people of that state.

In [47]:

```
df5.plot(x="States/UTs", y=[
'Fault of Driver of other vehicles-Total No. of Road Accidents - 2014 per 1L people
'Fault of Driver of other vehicles-Number of Persons-Injured - 2014 per 1L people',
'Fault of Driver of other vehicles-Number of Persons-Killed - 2014 per 1L people'
],

color = ['green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(["Accident","Injured","Killed"],loc='upper left')

plt.title("Total Number of ROAD ACCIDENTS,INJURIES, DEATHS Due to FAULT OF THE DRIV

# Display plot
plt.show()
```

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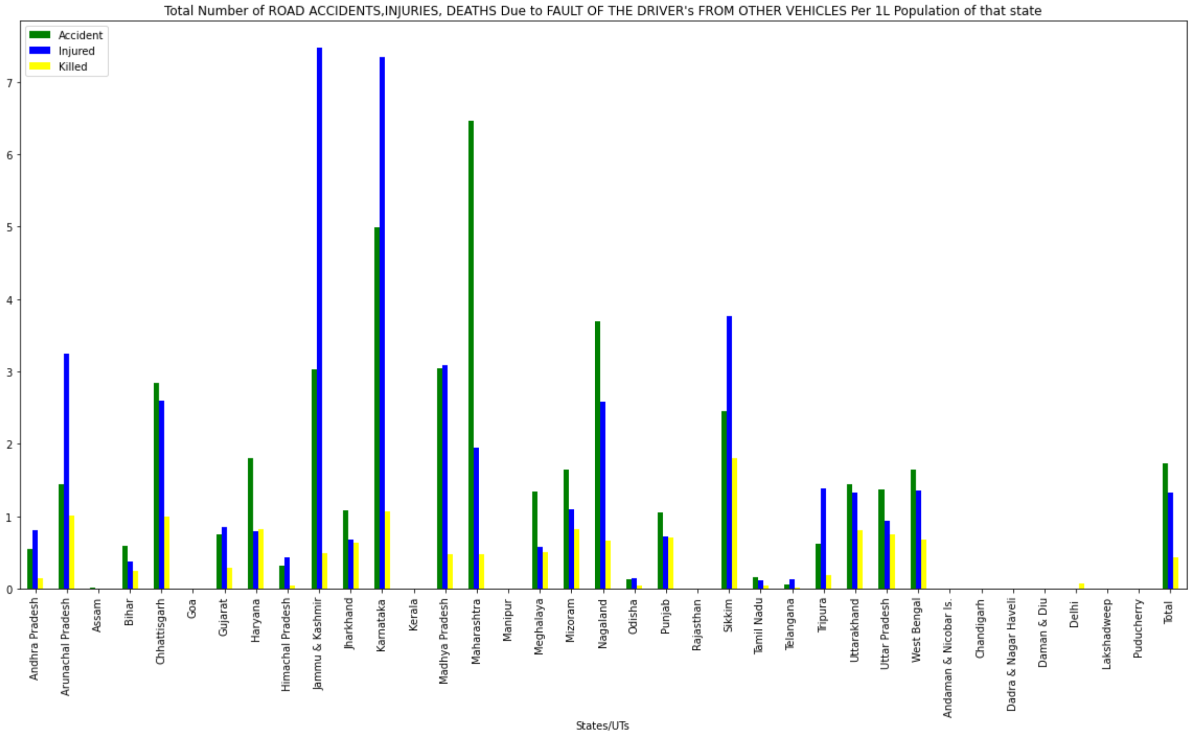

20. Total number of ROAD ACCIDENTS, INJURIES, DEATHS due to the FAULT OF PEDESTRIANS per 1L people of that state

In [48]:

```
df5.plot(x="States/UTs", y=[
'Fault of Pedestrian-Total No. of Road Accidents - 2014 per 1L people',
'Fault of Pedestrian-Number of Persons-Injured - 2014 per 1L people',
'Fault of Pedestrian-Number of Persons-Killed - 2014 per 1L people'
],

color = ['green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(["Accident","Injured","Killed"],loc='upper left')

plt.title("Total Number of ROAD ACCIDENTS,INJURIES, DEATHS Due to FAULT OF Pedestri

# Display plot
plt.show()
```

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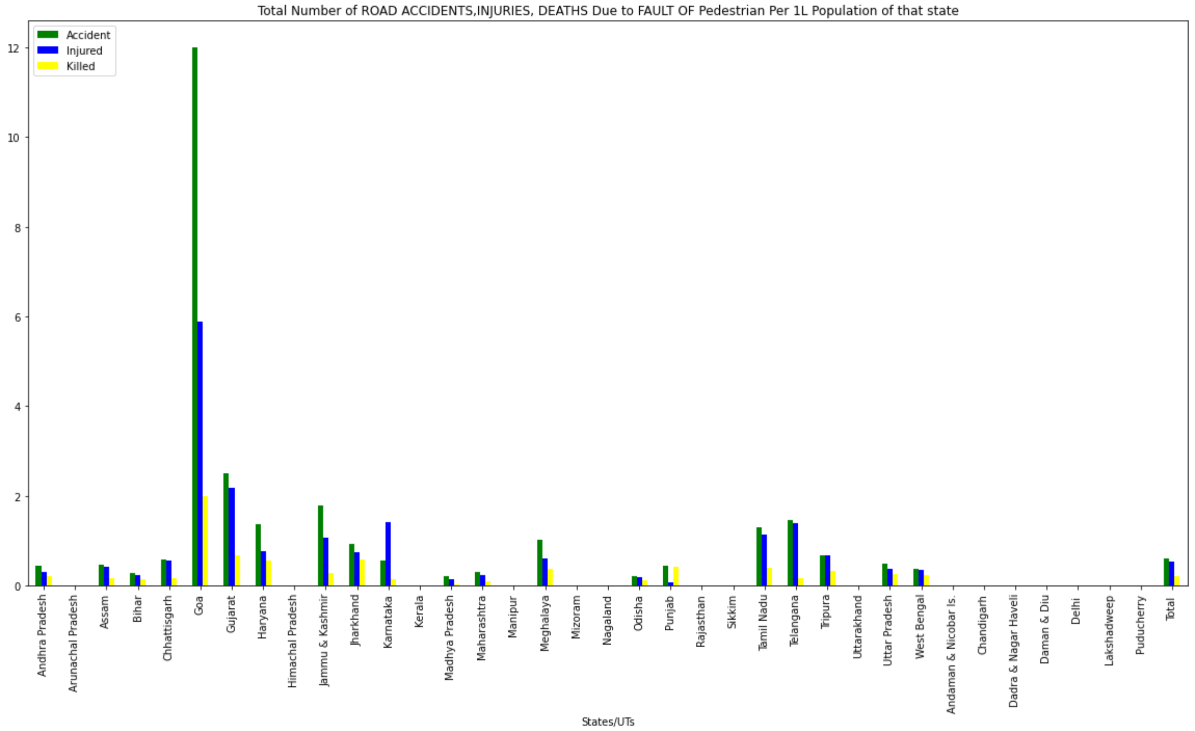


21. Total number of ROAD ACCIDENTS, INJURIES, DEATHS due to the DEFECTS IN THE VEHICLE per 1L people of that state.

In [49]:

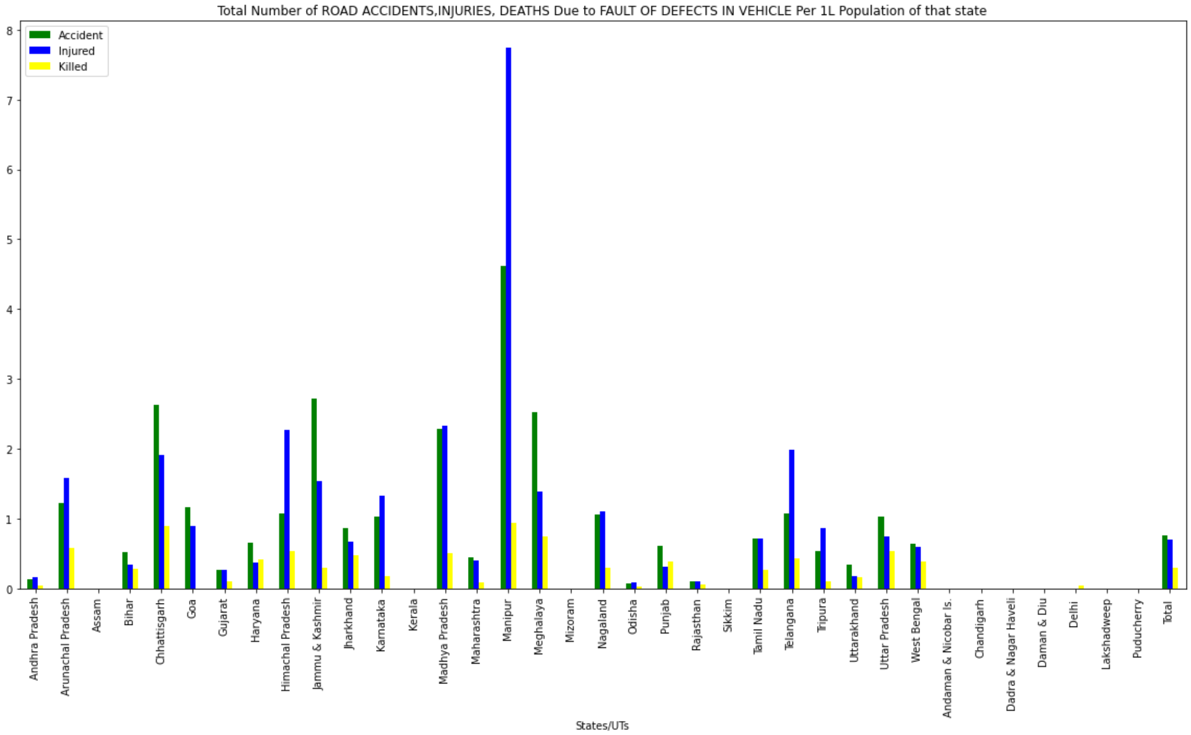
```
df5.plot(x="States/UTs", y=[
'Defect in Condition of Motor Vehicle-Total No. of Road Accidents - 2014 per 1L peo
'Defect in Condition of Motor Vehicle-Number of Persons-Injured - 2014 per 1L peopl
'Defect in Condition of Motor Vehicle-Number of Persons-Killed - 2014 per 1L people
],

color = ['green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(["Accident","Injured","Killed"],loc='upper left')

plt.title("Total Number of ROAD ACCIDENTS,INJURIES, DEATHS Due to FAULT OF DEFECTS

# Display plot
plt.show()
```



22. Total number of ROAD ACCIDENTS, INJURIES, DEATHS due to DEFECTS IN THE ROAD CONDITION per 1L people of that state.

In [50]:

```
df5.plot(x="States/UTs", y=[
'Defect in Road Condition-Total No. of Road Accidents - 2014 per 1L people',
'Defect in Road Condition-Number of Persons-Injured - 2014 per 1L people',
'Defect in Road Condition-Number of Persons-Killed - 2014 per 1L people',
],

color = ['green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(["Accident","Injured","Killed"],loc='upper left')

plt.title("Total Number of ROAD ACCIDENTS,INJURIES, DEATHS Due to DEFECT IN ROAD CO

# Display plot
plt.show()
```

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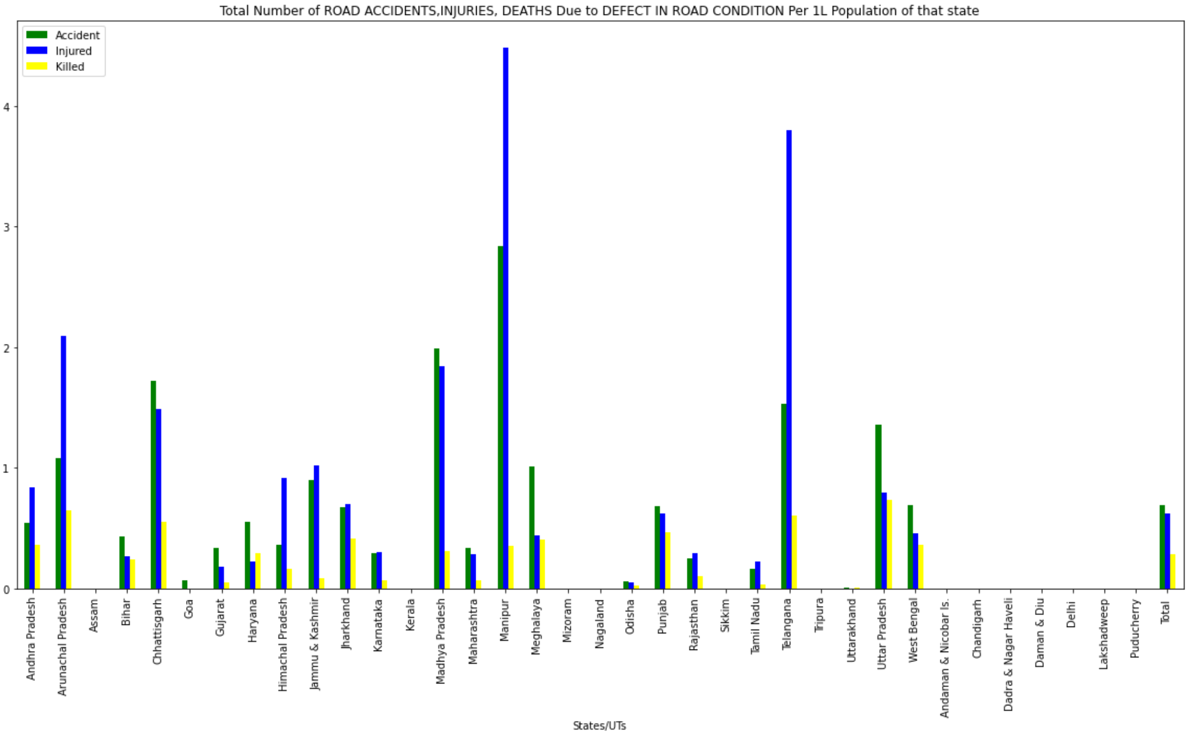


In [51]:

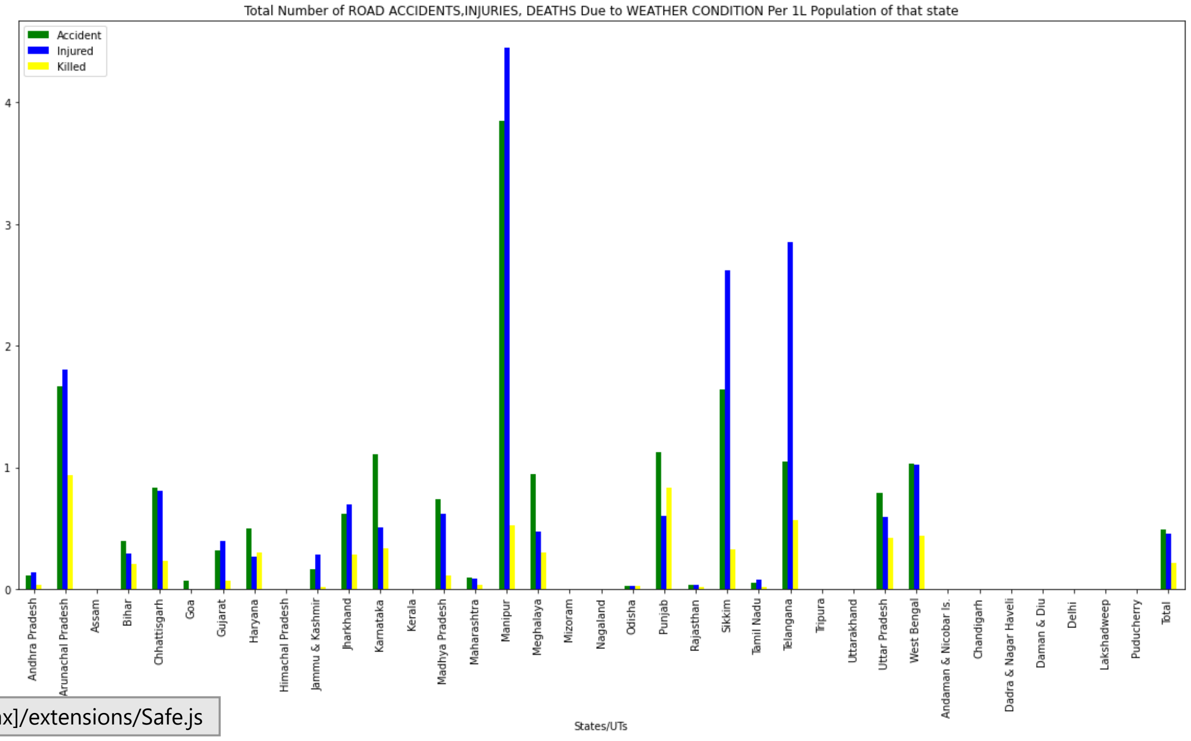
```
df5.plot(x="States/UTs", y=[
'Weather Condition-Total No. of Road Accidents - 2014 per 1L people',
'Weather Condition-Number of Persons-Injured - 2014 per 1L people',
'Weather Condition-Number of Persons-Killed - 2014 per 1L people',
],

color = ['green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(["Accident","Injured","Killed"],loc='upper left')

plt.title("Total Number of ROAD ACCIDENTS,INJURIES, DEATHS Due to WEATHER CONDITION

# Display plot
plt.show()
```



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In [52]:

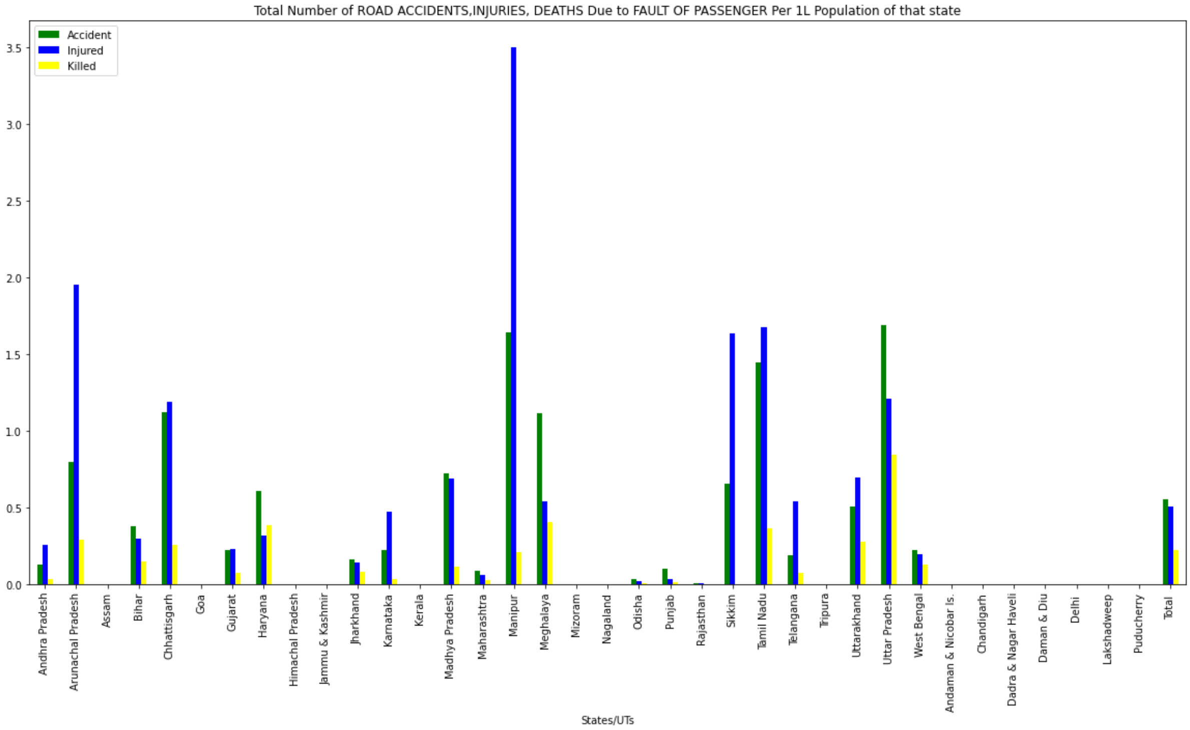
```
df5.plot(x="States/UTs", y=[
'Fault of Passenger-Total No. of Road Accidents - 2014 per 1L people',
'Fault of Passenger-Number of Persons-Injured - 2014 per 1L people',
'Fault of Passenger-Number of Persons-Killed - 2014 per 1L people',
],

color = ['green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(["Accident","Injured","Killed"],loc='upper left')

plt.title("Total Number of ROAD ACCIDENTS,INJURIES, DEATHS Due to FAULT OF PASSENGE

# Display plot
plt.show()
```



In [53]:

```
df5.plot(x="States/UTs", y=[
'Poor light-Total No. of Road Accidents - 2014 per 1L people',
'Poor light-Number of Persons-Injured - 2014 per 1L people',
'Poor light-Number of Persons-Killed - 2014 per 1L people',
],

color = ['green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(["Accident","Injured","Killed"],loc='upper left')

plt.title("Total Number of ROAD ACCIDENTS,INJURIES, DEATHS Due to POOR LIGHT Per 1L

# Display plot
plt.show()
```

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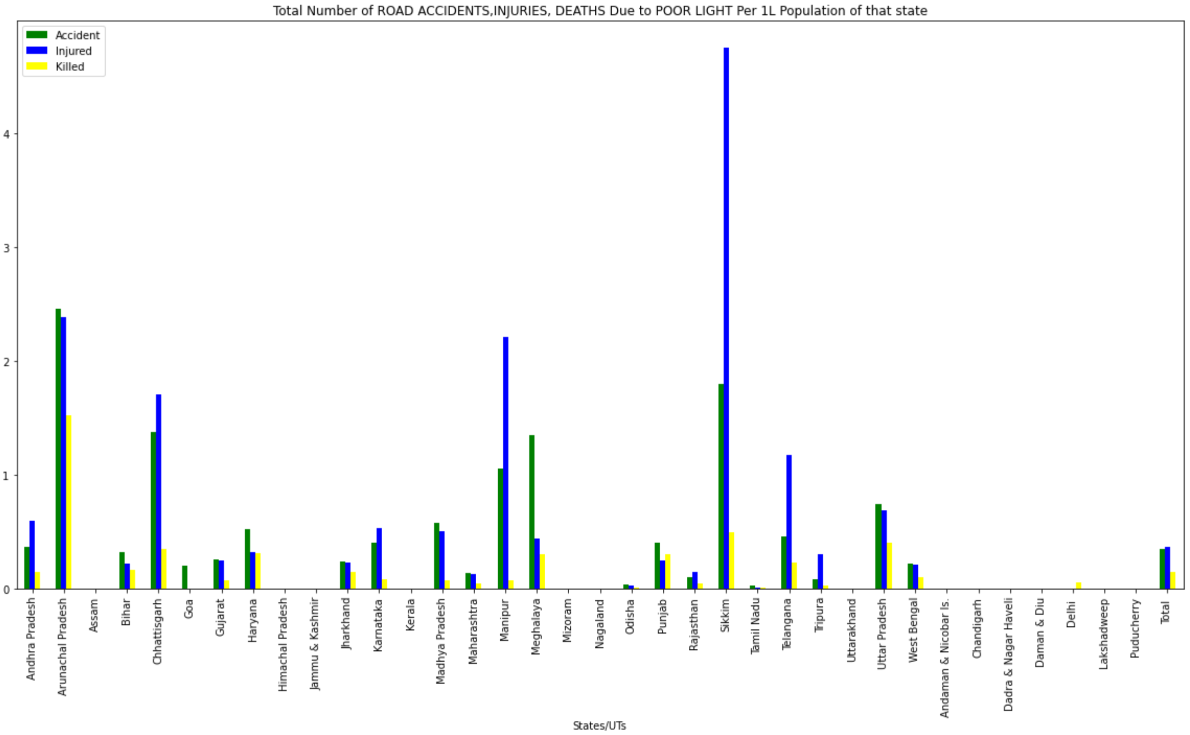


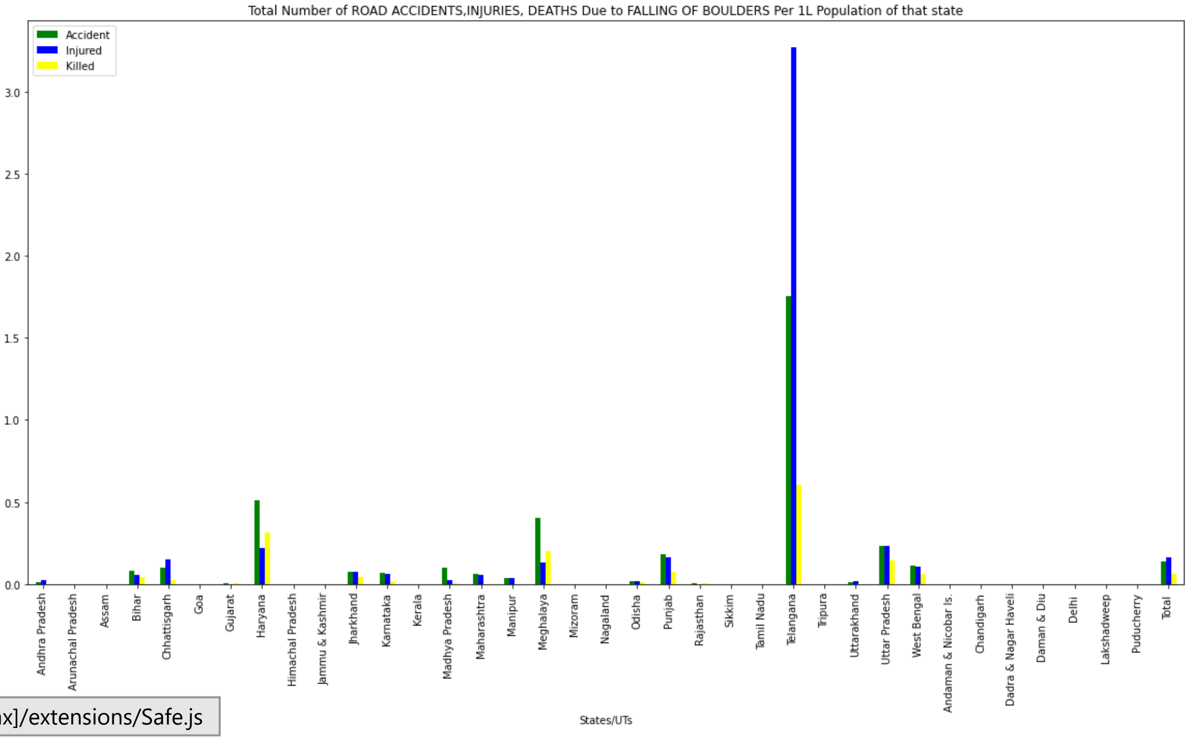
```
In [54]: df5.plot(x="States/UTs", y=[
         'Falling of boulders-Total No. of Road Accidents - 2014 per 1L people',
         'Falling of boulders-Number of Persons-Injured - 2014 per 1L people',
         'Falling of boulders-Number of Persons-Killed - 2014 per 1L people',
         ],

         color = ['green', 'blue','yellow'],
         kind="bar",
         figsize=(20, 10))

         plt.legend(["Accident","Injured","Killed"],loc='upper left')

         plt.title("Total Number of ROAD ACCIDENTS,INJURIES, DEATHS Due to FALLING OF BOULDE

         # Display plot
         plt.show()
```



In [55]:

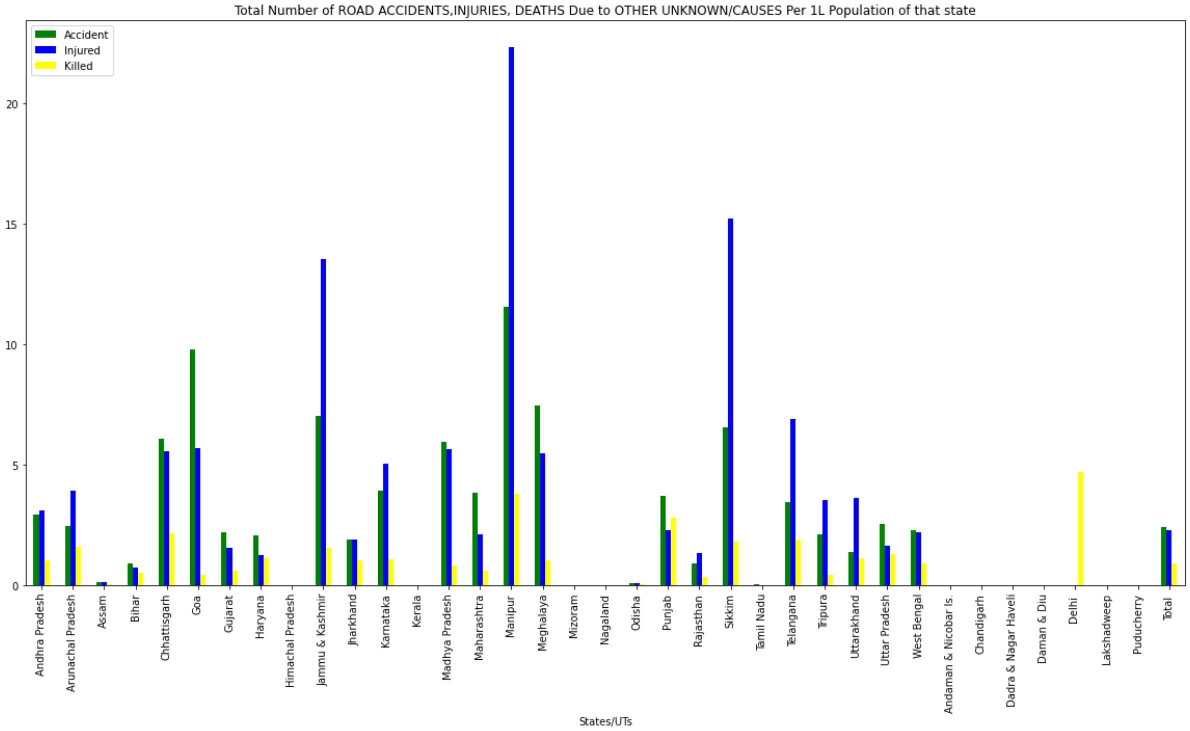
```
df5.plot(x="States/UTs", y=[
'Other causes/causes not known-Total No. of Road Accidents - 2014 per 1L people',
'Other causes/causes not known-Number of Persons-Injured - 2014 per 1L people',
'Other causes/causes not known-Number of Persons-Killed - 2014 per 1L people',
],

color = ['green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(["Accident","Injured","Killed"],loc='upper left')

plt.title("Total Number of ROAD ACCIDENTS,INJURIES, DEATHS Due to OTHER UNKNOWN/CAU

# Display plot
plt.show()
```



In [56]:

```
df5["Total Accidents"] = df5[['Fault of Driver-Total No. of Road Accidents - 2014 p
'Fault of Driver of other vehicles-Total No. of Road Accidents - 2014 per 1L people
'Fault of Pedestrian-Total No. of Road Accidents - 2014 per 1L people',
'Defect in Condition of Motor Vehicle-Total No. of Road Accidents - 2014 per 1L peo
'Defect in Road Condition-Total No. of Road Accidents - 2014 per 1L people',
'Weather Condition-Total No. of Road Accidents - 2014 per 1L people',
'Fault of Passenger-Total No. of Road Accidents - 2014 per 1L people',
'Poor light-Total No. of Road Accidents - 2014 per 1L people',
'Falling of boulders-Total No. of Road Accidents - 2014 per 1L people',
'Other causes/causes not known-Total No. of Road Accidents - 2014 per 1L people']].

df5["Total Killed"]=df5[[
'Fault of Driver-Number of Persons-Killed - 2014 per 1L people',
'Fault of Driver of other vehicles-Number of Persons-Killed - 2014 per 1L people',
'Fault of Pedestrian-Number of Persons-Killed - 2014 per 1L people',
'Defect in Condition of Motor Vehicle-Number of Persons-Killed - 2014 per 1L people
'Defect in Road Condition-Number of Persons-Killed - 2014 per 1L people',
'Weather Condition-Number of Persons-Killed - 2014 per 1L people',
'Fault of Passenger-Number of Persons-Killed - 2014 per 1L people',
'Poor light-Number of Persons-Killed - 2014 per 1L people',
'Falling of boulders-Number of Persons-Killed - 2014 per 1L people',
Loading [MathJax]/extensions/Safe.js auses not known-Number of Persons-Killed - 2014 per 1L people'
]].sum(axis=1)
```

```
df5["Total Injured"]=df5[[
'Fault of Driver-Number of Persons-Injured - 2014 per 1L people',
'Fault of Driver of other vehicles-Number of Persons-Injured - 2014 per 1L people',
'Fault of Pedestrian-Number of Persons-Injured - 2014 per 1L people',
'Defect in Condition of Motor Vehicle-Number of Persons-Injured - 2014 per 1L peopl
'Defect in Road Condition-Number of Persons-Injured - 2014 per 1L people',
'Weather Condition-Number of Persons-Injured - 2014 per 1L people',
'Fault of Passenger-Number of Persons-Injured - 2014 per 1L people',
'Poor light-Number of Persons-Injured - 2014 per 1L people',
'Falling of boulders-Number of Persons-Injured - 2014 per 1L people',
'Other causes/causes not known-Number of Persons-Injured - 2014 per 1L people']].su
```

In [57]:

```
df5.head()
```

Out[57]:

	Sl. No	States/UTs	Fault of Driver-Total No. of Road Accidents - 2014	Fault of Driver-Total No. of Road Accidents - 2014 per 1L people	Fault of Driver-Number of Persons-Killed - 2014	Fault of Driver-Number of Persons-Killed - 2014 per 1L people	Fault of Driver-Number of Persons-Injured - 2014	Fault of Driver-Number of Persons-Injured - 2014 per 1L people	Fault of Driver of other vehicles-Total No. of Road Accidents - 2014	D v T Ac
0	1	Andhra Pradesh	21359.0	40.753165	6743	12.865705	26287.0	50.155834	288.0	0
1	2	Arunachal Pradesh	30.0	2.168058	19	1.373103	30.0	2.168058	20.0	1
2	3	Assam	6895.0	22.095410	2429	7.783865	6281.0	20.127813	2.0	0
3	4	Bihar	5008.0	4.810784	2646	2.541800	3374.0	3.241131	608.0	0
4	5	Chhattisgarh	9108.0	35.654451	2458	9.622161	8710.0	34.096428	726.0	2

In [58]:

```
df5.plot(x="States/UTs", y=[
'Total Accidents',
'Total Injured',
'Total Killed'],

color = ['green', 'blue','red'],
kind="bar",
figsize=(20, 10))

plt.legend(["Accident","Injured","Killed"],loc='upper center')

plt.title("Total Number of ROAD ACCIDENTS,INJURIES, DEATHS In general for each stat

# Display plot
plt.show()
```

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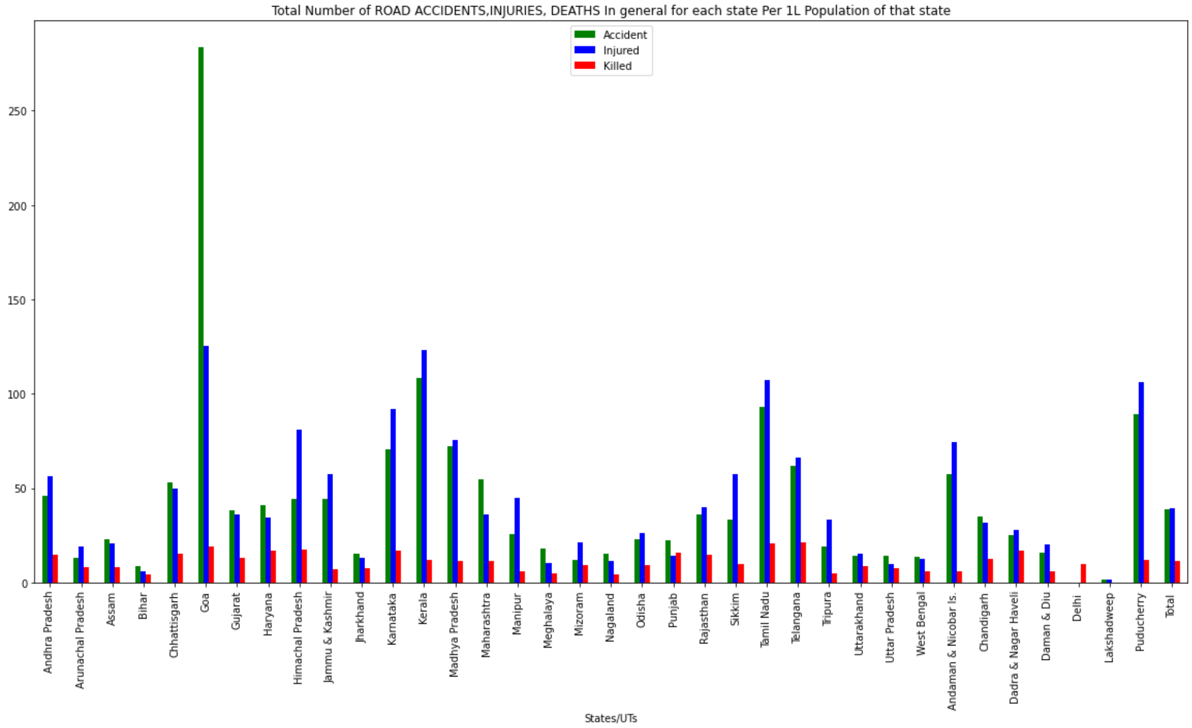

DataFrame DF6

24. Number of Total Accidents for each vehicle type per 1L people of that state.

In [59]:

```
df6.plot(x="States/UTs", y=[
'Two-Wheelers - Number of Road Accidents - Total - 2014 per 1L people',
'Auto-Rickshaws - Number of Road Accidents - Total - 2014 per 1L people',
'Cars, Jeeps,Taxis - Number of Road Accidents - Total - 2014 per 1L people',
'Buses - Number of Road Accidents - Total - 2014 per 1L people',
'Trucks, Tempos,MAVs,Tractors - Number of Road Accidents - Total - 2014 per 1L peop
'Other Motor Vehicles - Number of Road Accidents - Total - 2014 per 1L people',
'Other Vehicles/Objects - Number of Road Accidents - Total - 2014 per 1L people',
],

color = ['red','black','green', 'blue','yellow','brown','purple'],
kind="bar",
figsize=(20, 10))

plt.legend(['Two-Wheelers','Auto-Rickshaws','Cars, Jeeps,Taxis','Buses','Trucks, Te
'Other Vehicles/Objects',],loc='upper right')

plt.title("Number of Total ACCIDENTS for each vehical type Per 1L People of that st

# Display plot
plt.show()
```

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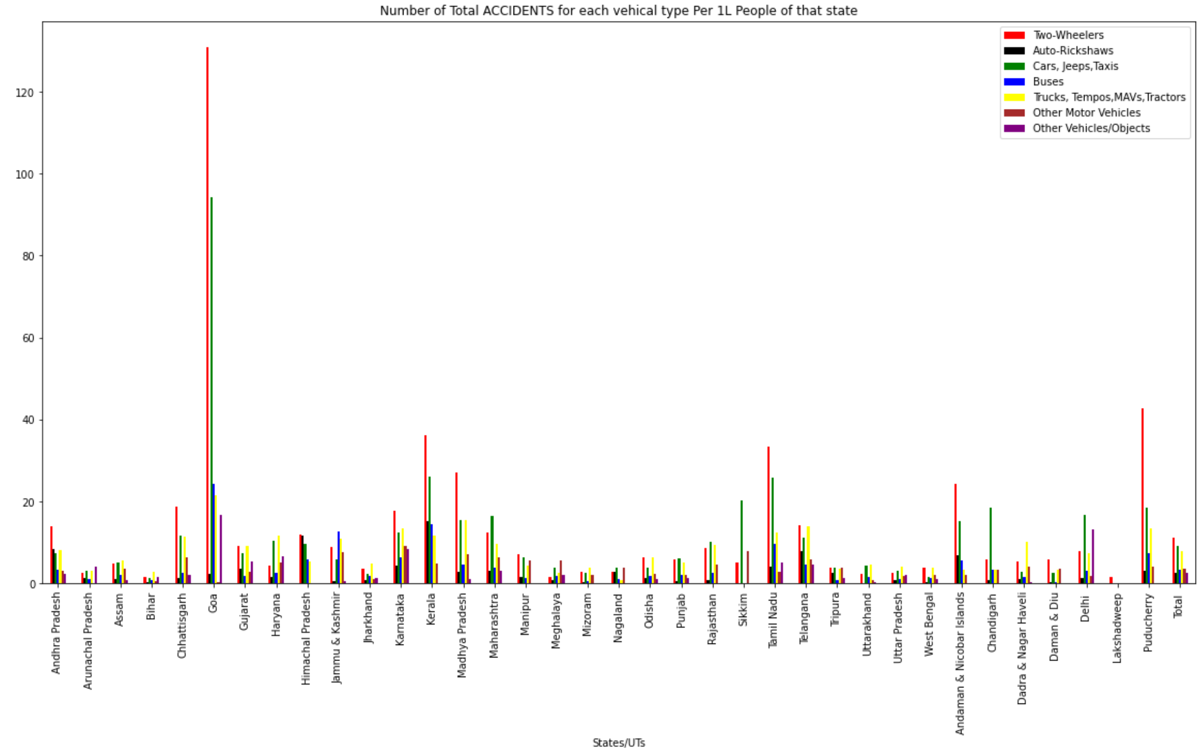


In [60]:

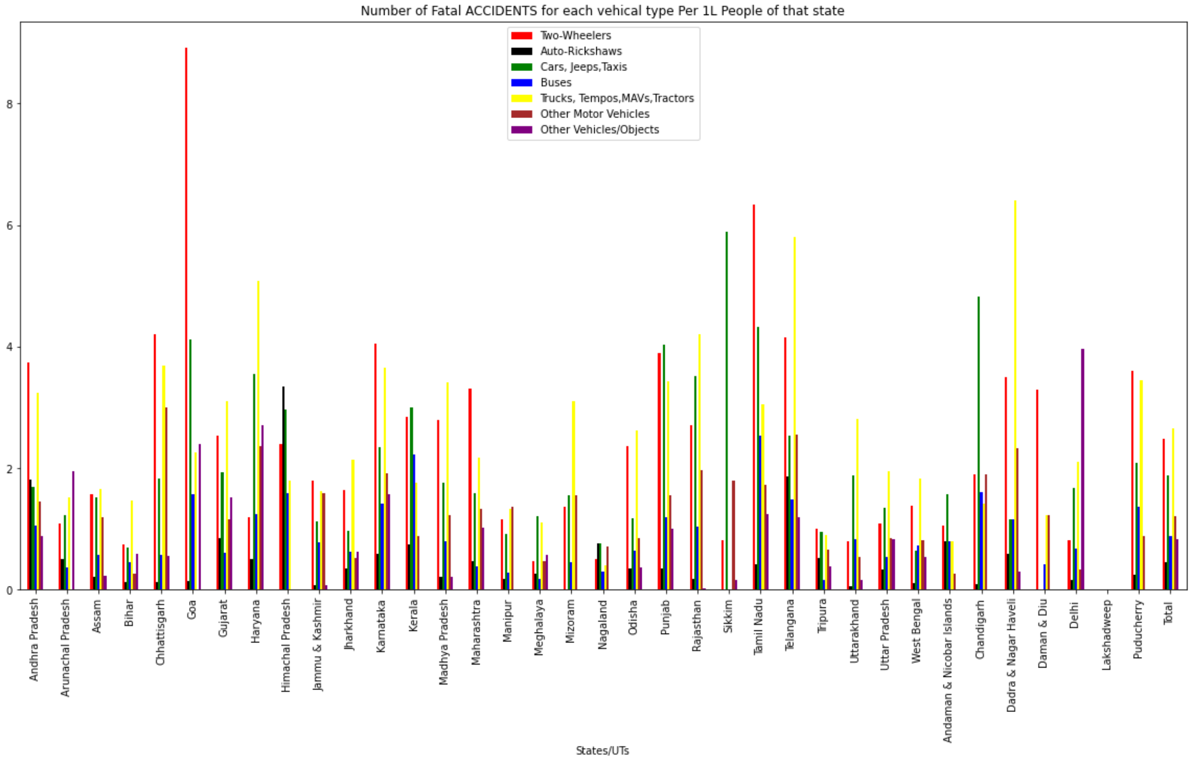
```
df6.plot(x="States/UTs", y=[
'Two-Wheelers - Number of Road Accidents - Fatal - 2014 per 1L people',
'Auto-Rickshaws - Number of Road Accidents - Fatal - 2014 per 1L people',
'Cars, Jeeps,Taxis - Number of Road Accidents - Fatal - 2014 per 1L people',
'Buses - Number of Road Accidents - Fatal - 2014 per 1L people',
'Trucks, Tempos,MAVs,Tractors - Number of Road Accidents - Fatal - 2014 per 1L peop
'Other Motor Vehicles - Number of Road Accidents - Fatal - 2014 per 1L people',
'Other Vehicles/Objects - Number of Road Accidents - Fatal - 2014 per 1L people',
],

color = ['red','black','green', 'blue','yellow','brown','purple'],
kind="bar",
figsize=(20, 10))

plt.legend(['Two-Wheelers','Auto-Rickshaws','Cars, Jeeps,Taxis','Buses','Trucks, Te
'Other Vehicles/Objects',],loc='upper center')

plt.title("Number of Fatal ACCIDENTS for each vehical type Per 1L People of that st

# Display plot
plt.show()
```



25. Number of Persons Killed for each vehicle type per 1L people of that state.

In [61]:
```
df6.plot(x="States/UTs", y=[
'Two-Wheelers - Number of Persons - Killed - 2014 per 1L people',
'Auto-Rickshaws - Number of Persons - Killed - 2014 per 1L people',
'Cars, Jeeps,Taxis - Number of Persons - Killed - 2014 per 1L people',
'Buses - Number of Persons - Killed - 2014 per 1L people',
'Trucks, Tempos,MAVs,Tractors - Number of Persons - Killed - 2014 per 1L people',
'Other Motor Vehicles - Number of Persons - Killed - 2014 per 1L people',
'Other Vehicles/Objects - Number of Persons - Killed - 2014 per 1L people',
],

color = ['red','black','green', 'blue','yellow','brown','purple'],
kind="bar",
figsize=(20, 10))

plt.legend(['Two-Wheelers','Auto-Rickshaws','Cars, Jeeps,Taxis','Buses','Trucks, Te
'Other Vehicles/Objects',],loc='upper center')

plt.title("NUMBER OF PERSONS Killed for each vehical type Per 1L People of that sta

# Display plot
plt.show()
```

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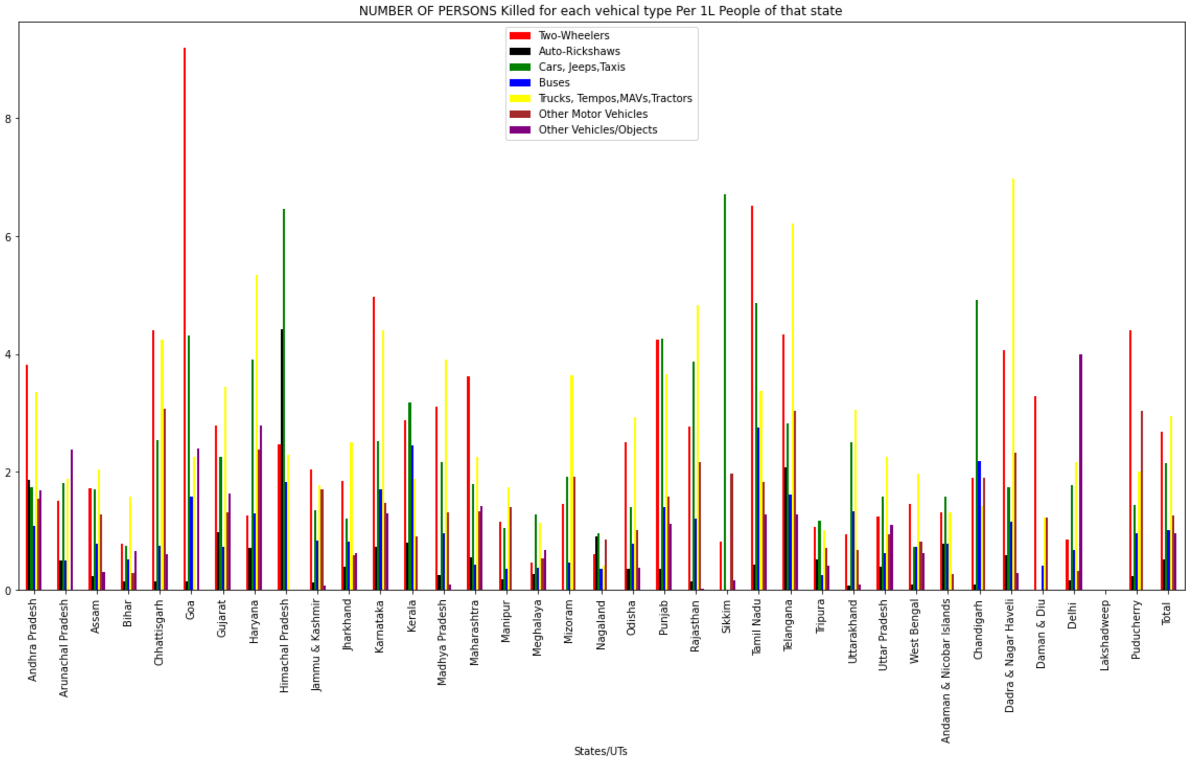


In [62]:

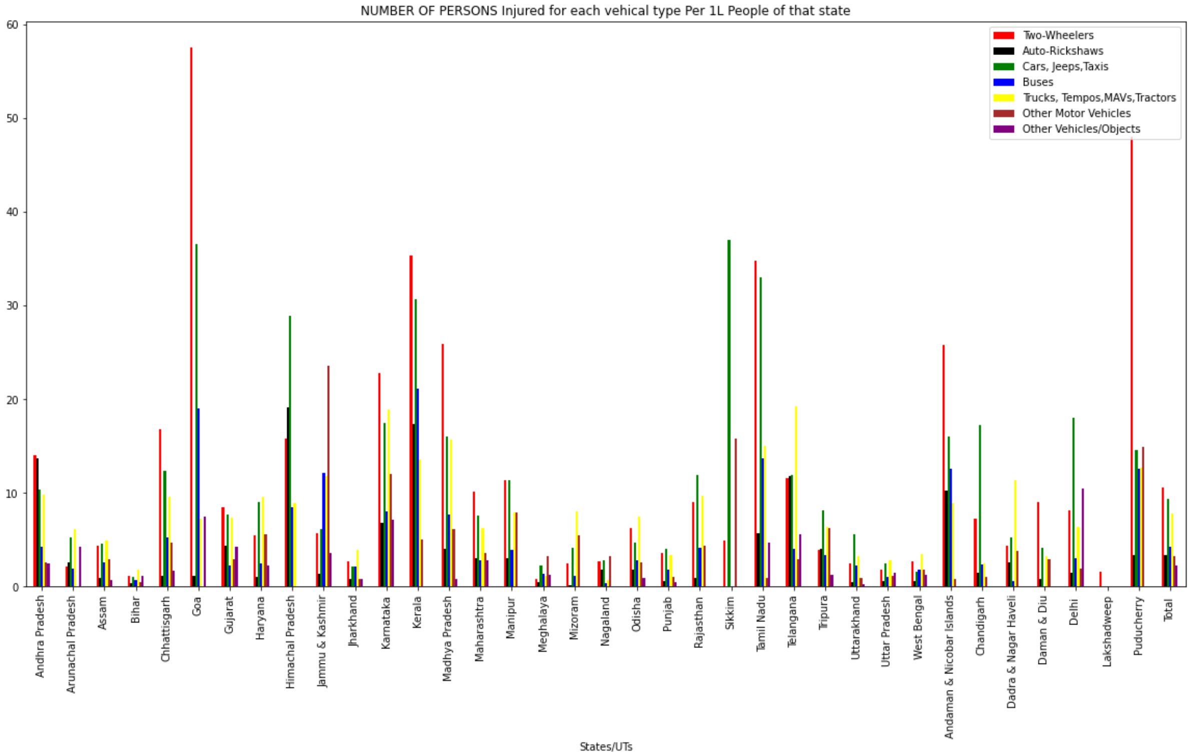
```
df6.plot(x="States/UTs", y=[
'Two-Wheelers - Number of Persons - Injured - 2014 per 1L people',
'Auto-Rickshaws - Number of Persons - Injured - 2014 per 1L people',
'Cars, Jeeps,Taxis - Number of Persons - Injured - 2014 per 1L people',
'Buses - Number of Persons - Injured - 2014 per 1L people',
'Trucks, Tempos,MAVs,Tractors - Number of Persons - Injured - 2014 per 1L people',
'Other Motor Vehicles - Number of Persons - Injured - 2014 per 1L people',
'Other Vehicles/Objects - Number of Persons - Injured - 2014 per 1L people',
],

color = ['red','black','green', 'blue','yellow','brown','purple'],
kind="bar",
figsize=(20, 10))

plt.legend(['Two-Wheelers','Auto-Rickshaws','Cars, Jeeps,Taxis','Buses','Trucks, Te
'Other Vehicles/Objects',],loc='upper right')

plt.title("NUMBER OF PERSONS Injured for each vehical type Per 1L People of that st

# Display plot
plt.show()
```



In [63]:
```
df6.plot(x="States/UTs", y=[
'Two-Wheelers - Number of Persons - Injured - 2014 per 1L people',
'Two-Wheelers - Number of Persons - Killed - 2014 per 1L people',
'Two-Wheelers - Number of Road Accidents - Total - 2014 per 1L people',
'Two-Wheelers - Number of Road Accidents - Fatal - 2014 per 1L people',
],

color = ['red','green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(['Injured','Killed','Total Accidents','Fatal Accidents'],loc='upper righ

plt.title("Number of persons Injured,Killed; Road Accidents Total and Fatal for 2 W

# Display plot
plt.show()
```

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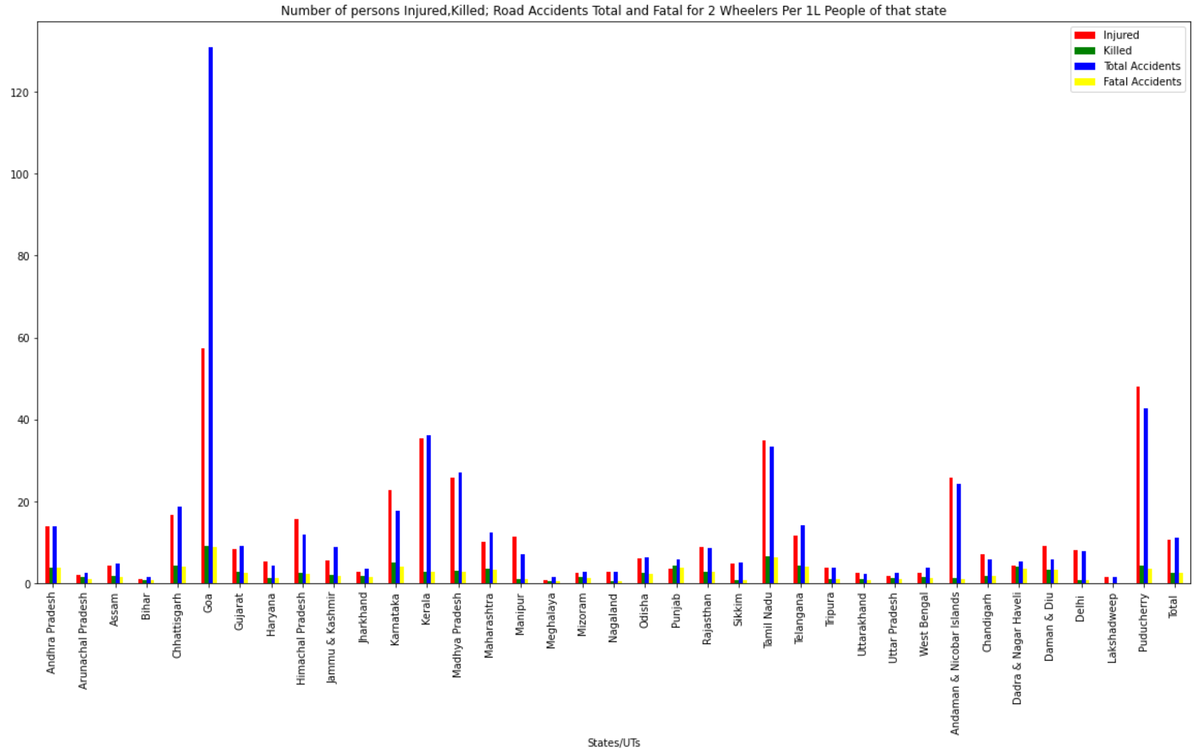


In [64]:

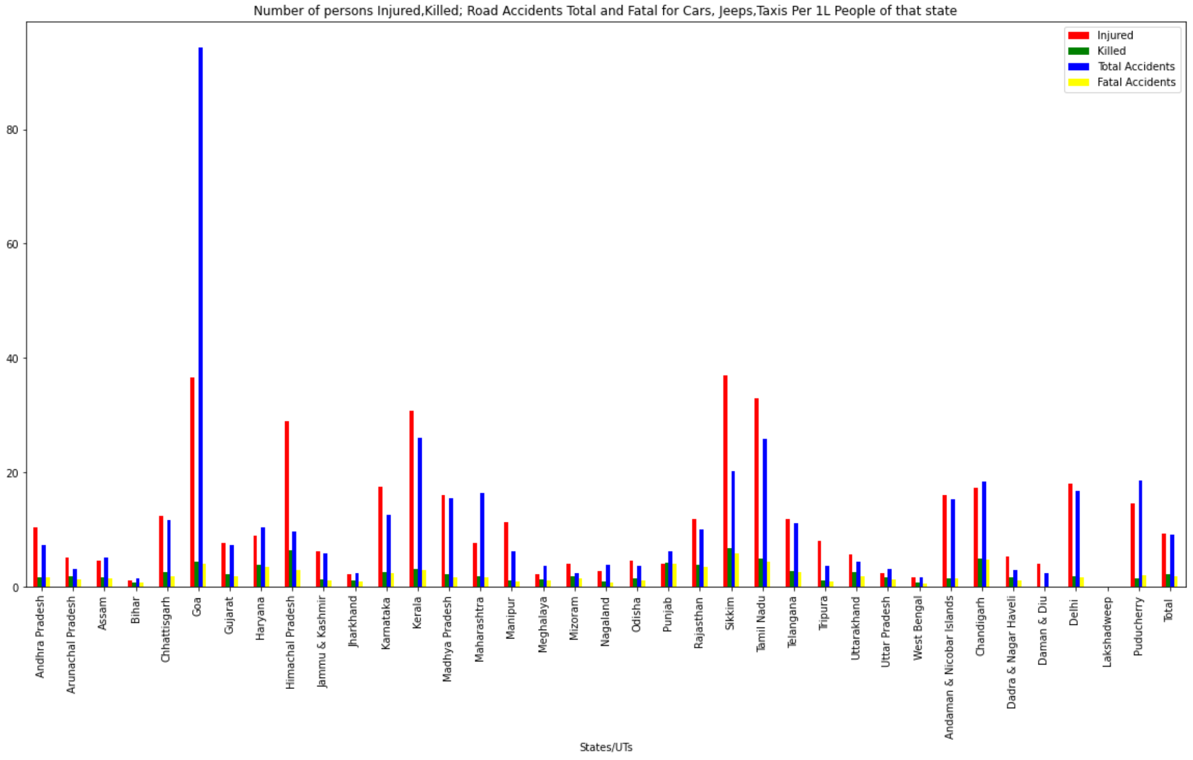
```
df6.plot(x="States/UTs", y=[
'Cars, Jeeps,Taxis - Number of Persons - Injured - 2014 per 1L people',
'Cars, Jeeps,Taxis - Number of Persons - Killed - 2014 per 1L people',
'Cars, Jeeps,Taxis - Number of Road Accidents - Total - 2014 per 1L people',
'Cars, Jeeps,Taxis - Number of Road Accidents - Fatal - 2014 per 1L people',
],

color = ['red','green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(['Injured','Killed','Total Accidents','Fatal Accidents'],loc='upper righ

plt.title("Number of persons Injured,Killed; Road Accidents Total and Fatal for Car

# Display plot
plt.show()
```



In [65]:

```
df6.plot(x="States/UTs", y=[
'Buses - Number of Persons - Injured - 2014 per 1L people',
'Buses - Number of Persons - Killed - 2014 per 1L people',
'Buses - Number of Road Accidents - Total - 2014 per 1L people',
'Buses - Number of Road Accidents - Fatal - 2014 per 1L people',

],

color = ['red','green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(['Injured','Killed','Total Accidents','Fatal Accidents'],loc='upper righ

plt.title("Number of persons Injured,Killed; Road Accidents Total and Fatal for Bus

# Display plot
plt.show()
```

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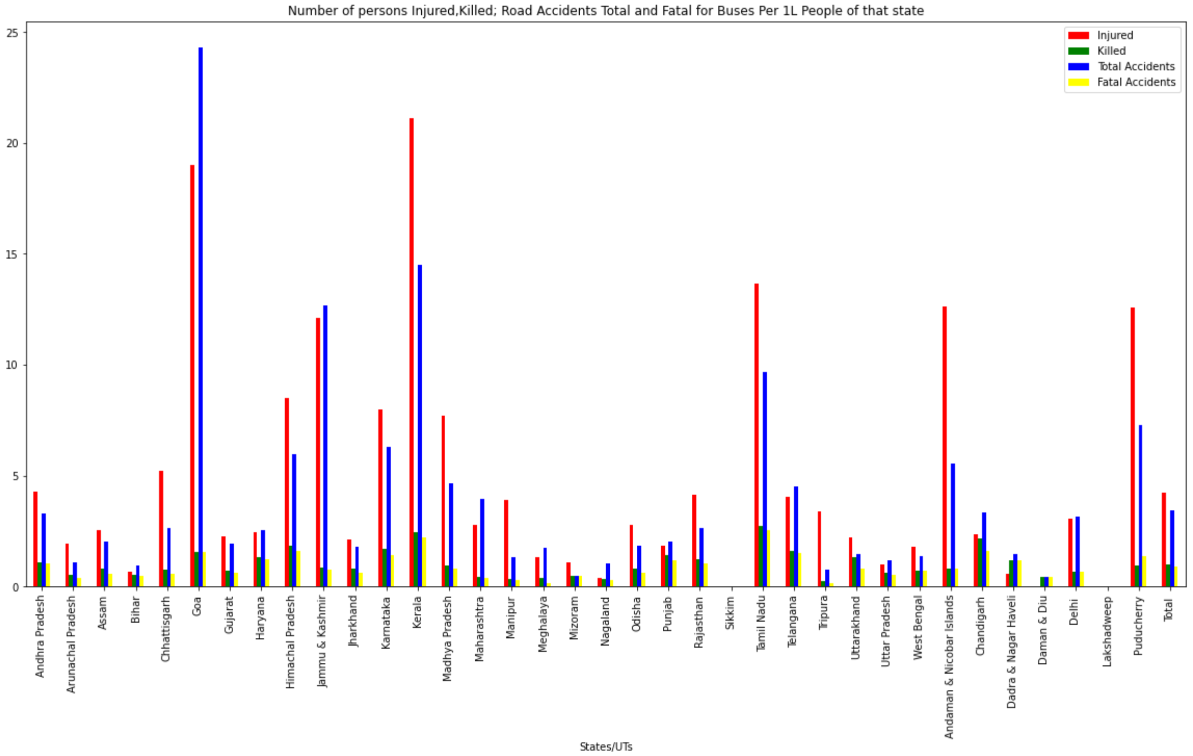
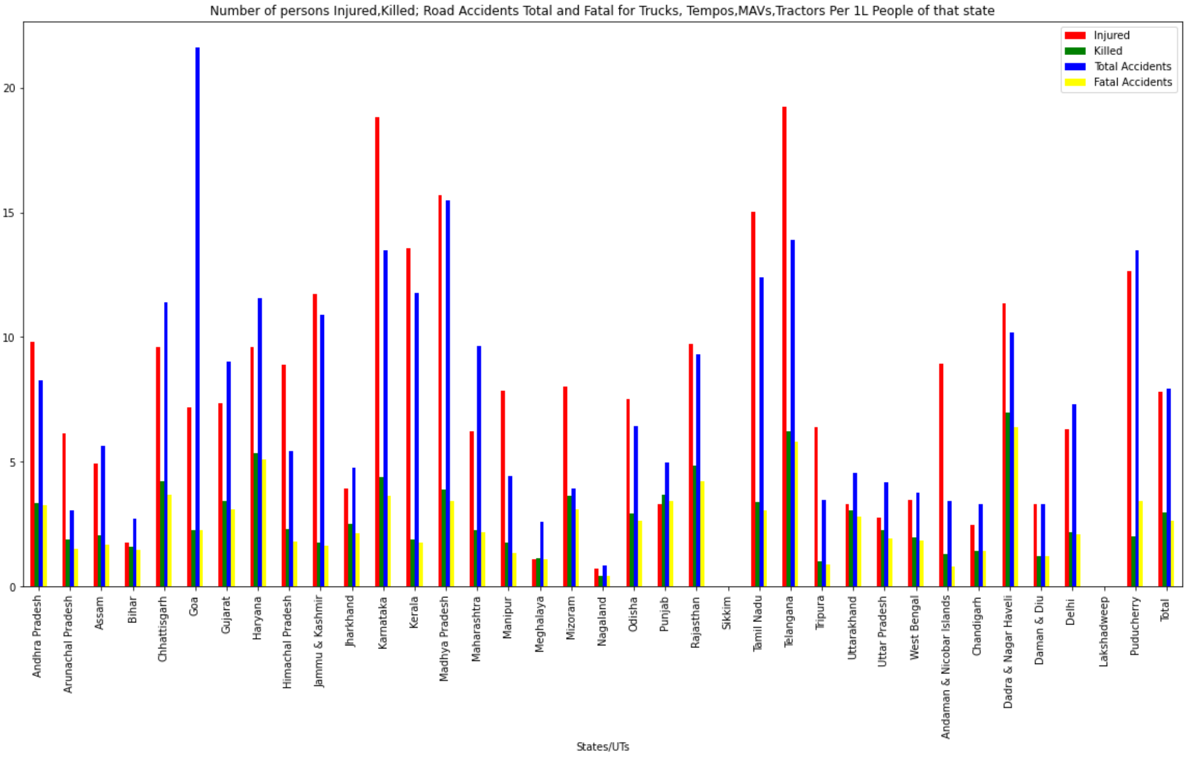


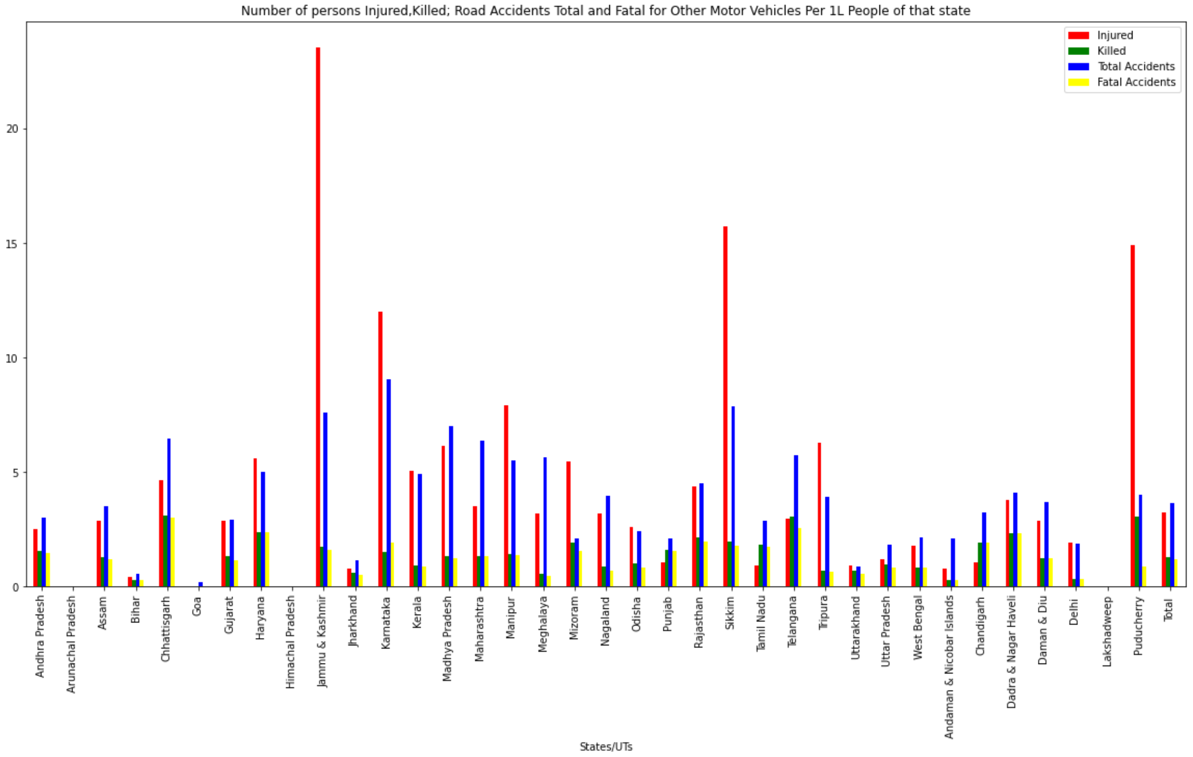
In [66]:

```
df6.plot(x="States/UTs", y=[
'Trucks, Tempos,MAVs,Tractors - Number of Persons - Injured - 2014 per 1L people',
'Trucks, Tempos,MAVs,Tractors - Number of Persons - Killed - 2014 per 1L people',
'Trucks, Tempos,MAVs,Tractors - Number of Road Accidents - Total - 2014 per 1L peop
'Trucks, Tempos,MAVs,Tractors - Number of Road Accidents - Fatal - 2014 per 1L peop
],

color = ['red','green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(['Injured','Killed','Total Accidents','Fatal Accidents'],loc='upper righ

plt.title("Number of persons Injured,Killed; Road Accidents Total and Fatal for Tru

# Display plot
plt.show()
```



In [67]:

```
df6.plot(x="States/UTs", y=[
'Other Motor Vehicles - Number of Persons - Injured - 2014 per 1L people',
'Other Motor Vehicles - Number of Persons - Killed - 2014 per 1L people',
'Other Motor Vehicles - Number of Road Accidents - Total - 2014 per 1L people',
'Other Motor Vehicles - Number of Road Accidents - Fatal - 2014 per 1L people',

],

color = ['red','green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(['Injured','Killed','Total Accidents','Fatal Accidents'],loc='upper righ

plt.title("Number of persons Injured,Killed; Road Accidents Total and Fatal for Oth

# Display plot
plt.show()
```


Number of persons Injured,Killed; Road Accidents Total and Fatal for Other Motor Vehicles Per 1L People of that state

```
In [68]: df6.plot(x="States/UTs", y=[
'Other Vehicles/Objects - Number of Persons - Injured - 2014 per 1L people',
'Other Vehicles/Objects - Number of Persons - Killed - 2014 per 1L people',
'Other Vehicles/Objects - Number of Road Accidents - Total - 2014 per 1L people',
'Other Vehicles/Objects - Number of Road Accidents - Fatal - 2014 per 1L people',
],

color = ['red','green', 'blue','yellow'],
kind="bar",
figsize=(20, 10))

plt.legend(['Injured','Killed','Total Accidents','Fatal Accidents'],loc='upper righ

plt.title("Number of persons Injured,Killed; Road Accidents Total and Fatal for Oth

# Display plot
plt.show()
```

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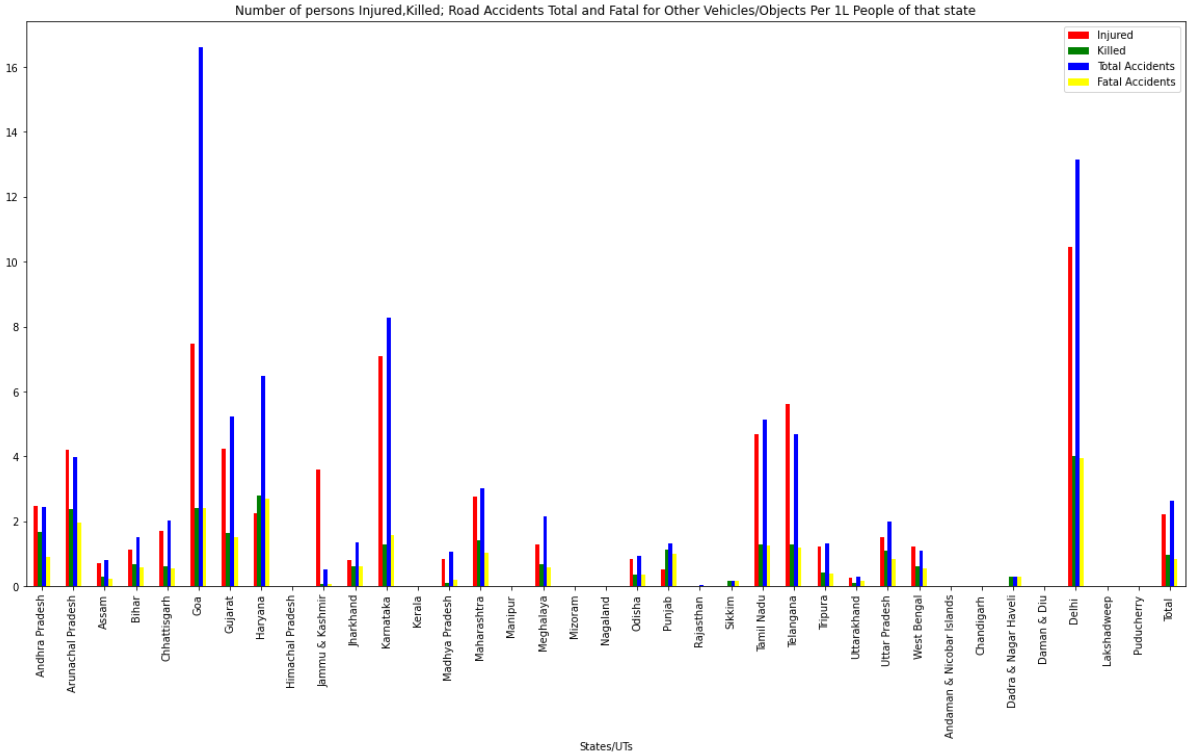

26. Total accidents, fatal accidents, killed and injured for each state per 1L people of that state.

In [69]:

```
df6["Total Injured"]=df6[['Two-Wheelers - Number of Persons - Injured - 2014 per 1L
'Auto-Rickshaws - Number of Persons - Injured - 2014 per 1L people',
'Cars, Jeeps,Taxis - Number of Persons - Injured - 2014 per 1L people',
'Buses - Number of Persons - Injured - 2014 per 1L people',
'Trucks, Tempos,MAVs,Tractors - Number of Persons - Injured - 2014 per 1L people',
'Other Motor Vehicles - Number of Persons - Injured - 2014 per 1L people',
'Other Vehicles/Objects - Number of Persons - Injured - 2014 per 1L people',]].sum(


df6["Total Killed"]=df6[['Two-Wheelers - Number of Persons - Killed - 2014 per 1L p
'Auto-Rickshaws - Number of Persons - Killed - 2014 per 1L people',
'Cars, Jeeps,Taxis - Number of Persons - Killed - 2014 per 1L people',
'Buses - Number of Persons - Killed - 2014 per 1L people',
'Trucks, Tempos,MAVs,Tractors - Number of Persons - Killed - 2014 per 1L people',
'Other Motor Vehicles - Number of Persons - Killed - 2014 per 1L people',
'Other Vehicles/Objects - Number of Persons - Killed - 2014 per 1L people',]].sum(a

df6["Total Total Accidents"]=df6[['Two-Wheelers - Number of Road Accidents - Total
'Auto-Rickshaws - Number of Road Accidents - Total - 2014 per 1L people',
'Cars, Jeeps,Taxis - Number of Road Accidents - Total - 2014 per 1L people',
'Buses - Number of Road Accidents - Total - 2014 per 1L people',
'Trucks, Tempos,MAVs,Tractors - Number of Road Accidents - Total - 2014 per 1L peop
'Other Motor Vehicles - Number of Road Accidents - Total - 2014 per 1L people',
'Other Vehicles/Objects - Number of Road Accidents - Total - 2014 per 1L people',]]

df6["Total Fatal Accidents"]=df6[['Two-Wheelers - Number of Road Accidents - Fatal
'Auto-Rickshaws - Number of Road Accidents - Fatal - 2014 per 1L people',
'Cars, Jeeps,Taxis - Number of Road Accidents - Fatal - 2014 per 1L people',
'Buses - Number of Road Accidents - Fatal - 2014 per 1L people',
'Trucks, Tempos,MAVs,Tractors - Number of Road Accidents - Fatal - 2014 per 1L peop
'Other Motor Vehicles - Number of Road Accidents - Fatal - 2014 per 1L people',
'Other Vehicles/Objects - Number of Road Accidents - Fatal - 2014 per 1L people',]]
```

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```
tes/UTs", y=[
"Total Injured","Total Killed","Total Total Accidents","Total Fatal Accidents"
```

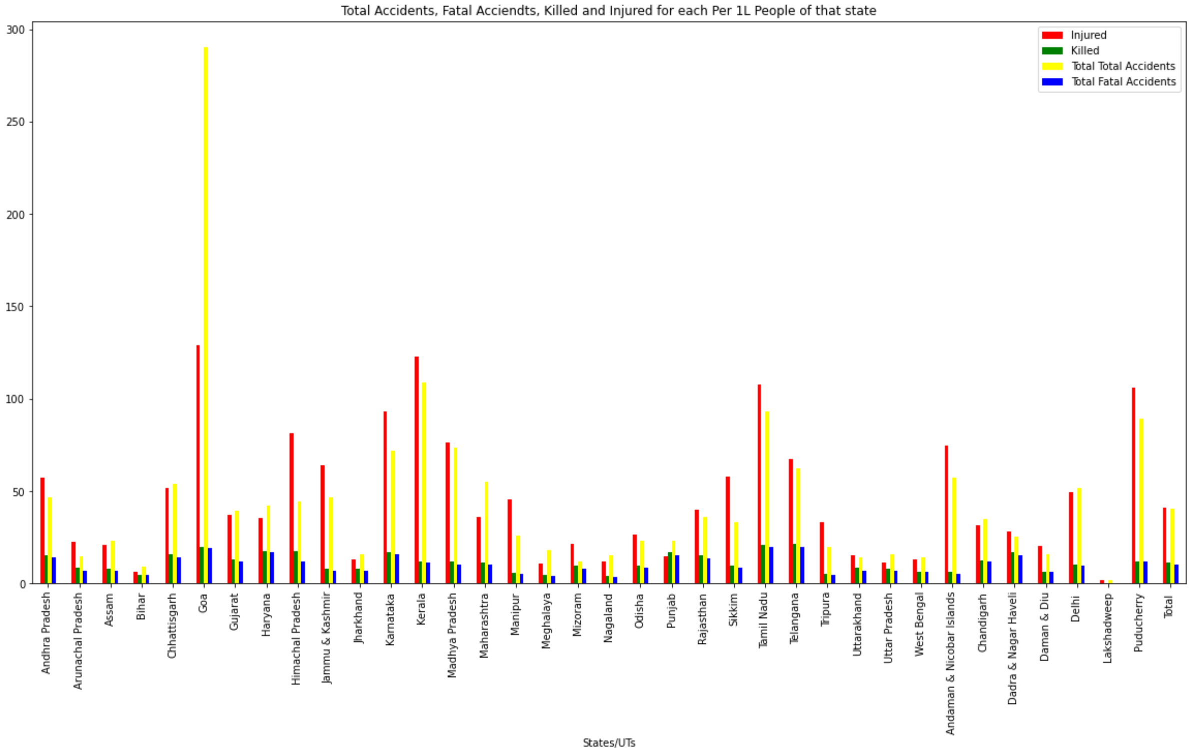
```
],

color = ['red','green', 'yellow','blue'],
kind="bar",
figsize=(20, 10))

plt.legend(['Injured','Killed','Total Total Accidents','Total Fatal Accidents'],loc

plt.title("Total Accidents, Fatal Acciendts, Killed and Injured for each Per 1L Peo

# Display plot
plt.show()
```


Total Accidents, Fatal Acciendts, Killed and Injured for each Per 1L People of that state

In [ ]:

DataFrame DF7

In [71]:

```
df7.head()
```

Out[71]:

	S. No.	States/Uts	06-900hrs - Day - 2014	09-1200hrs - Day - 2014	12-1500hrs - Day - 2014	15-1800hrs - Day - 2014	18-2100hrs - Night - 2014	21-2400hrs - Night - 2014	00-300hrs - Night - 2014	03-600hrs - Night - 2014	Acci -
0	1	Andhra Pradesh	2548	3448	3491	3606	4058	2989	2031	2269	2
1	2	Arunachal Pradesh	43	30	28	20	16	23	19	26	
2	3	Assam	1034	1633	1092	1456	979	416	308	226	
3	4	Bihar	1433	1661	1484	1485	1092	823	677	901	
4	5	Chhattisgarh	1677	2316	2064	2550	2256	1394	755	809	1

In [72]:

```
df7.columns = ["S. No.", "States/Uts", "06-900hrs - Day - 2014", "09-1200hrs - Day
               "12-1500hrs - Day - 2014", "15-1800hrs - Day - 2014", "18-2100hrs -
               "21-2400hrs - Night - 2014", "00-300hrs - Night - 2014", "03-600hrs
               "Total Accidents - 2014", "06-900hrs - (Day) - 2016", "09-1200hrs -
               "12-1500hrs - (Day) - 2016", "15-1800hrs - (Day) - 2016", "18-2100hr
               "21-2400hrs - (Night) - 2016", "00-300hrs - (Night) - 2016", "03-60
               "Total Accidents - 2016"]
```

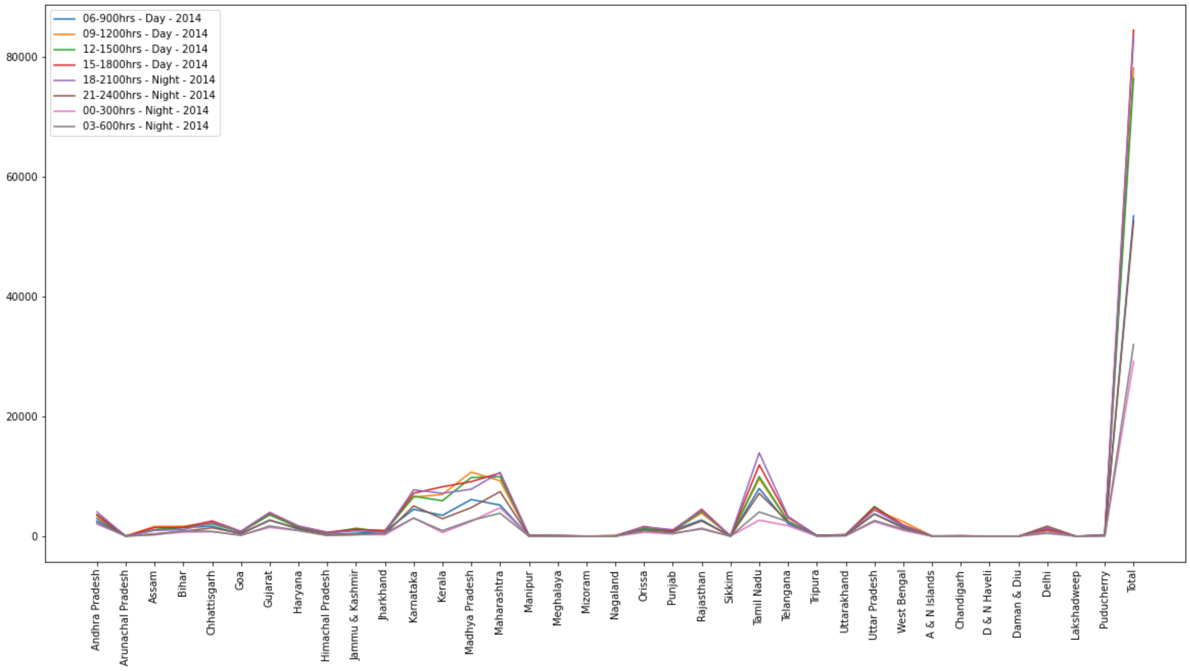
27. Number of Accidents happening in DAY and NIGHT TIME for 2014 and 2016.

In [73]:

```
plt.figure(figsize=(20,10))
plt.plot(df7[["06-900hrs - Day - 2014", "09-1200hrs - Day - 2014",
               "12-1500hrs - Day - 2014", "15-1800hrs - Day - 2014","18-2100hrs - N
               "21-2400hrs - Night - 2014", "00-300hrs - Night - 2014", "03-600hrs
        )
plt.legend(["06-900hrs - Day - 2014", "09-1200hrs - Day - 2014",
               "12-1500hrs - Day - 2014", "15-1800hrs - Day - 2014","18-2100hrs - N
               "21-2400hrs - Night - 2014", "00-300hrs - Night - 2014", "03-600hrs
plt.xticks([0,1,2,3,4,5,6,7,8,9,10,11 ,12 ,13 ,14 ,15 ,16 ,17 ,18 ,19 ,20 ,21 ,22 ,

          ["Andhra Pradesh", "Arunachal Pradesh", "Assam", "Bihar", "Chhattisgarh",
"Kerala", "Madhya Pradesh", "Maharashtra", "Manipur", "Meghalaya", "Mizoram", "Naga
"Tripura", "Uttarakhand", "Uttar Pradesh", "West Bengal", "A & N Islands", "Chandig
locs, labels = plt.xticks()
plt.setp(labels, rotation=90)

plt.show()
```



In [74]:

```
DayNightSum=pd.DataFrame((
    df7[["06-900hrs - Day - 2014",
         "09-1200hrs - Day - 2014",
         "12-1500hrs - Day - 2014",
         "15-1800hrs - Day - 2014",
         "06-900hrs - (Day) - 2016",
         "09-1200hrs - (Day) - 2016",
         "12-1500hrs - (Day) - 2016",
         "15-1800hrs - (Day) - 2016",]].sum(axis=1),

    df7[["18-2100hrs - Night - 2014",
        "21-2400hrs - Night - 2014",
        "00-300hrs - Night - 2014",
        "03-600hrs - Night - 2014",
        "18-2100hrs - (Night) - 2016",
        "21-2400hrs - (Night) - 2016",
        "00-300hrs - (Night) - 2016",
        "03-600hrs - (Night) - 2016"]].sum(axis=1)))
DayNightData=pd.DataFrame(DayNightSum.T)
DayNightData["States/Uts"]=df7["States/Uts"]
DayNightData.columns=["Day Time","Night Time","States/Uts"]
```

In [75]:

```
DayNightData.head(3)
```

Out[75]:

	Day Time	Night Time	States/Uts
0	27281	22047	Andhra Pradesh
1	279	175	Arunachal Pradesh
2	10008	4571	Assam

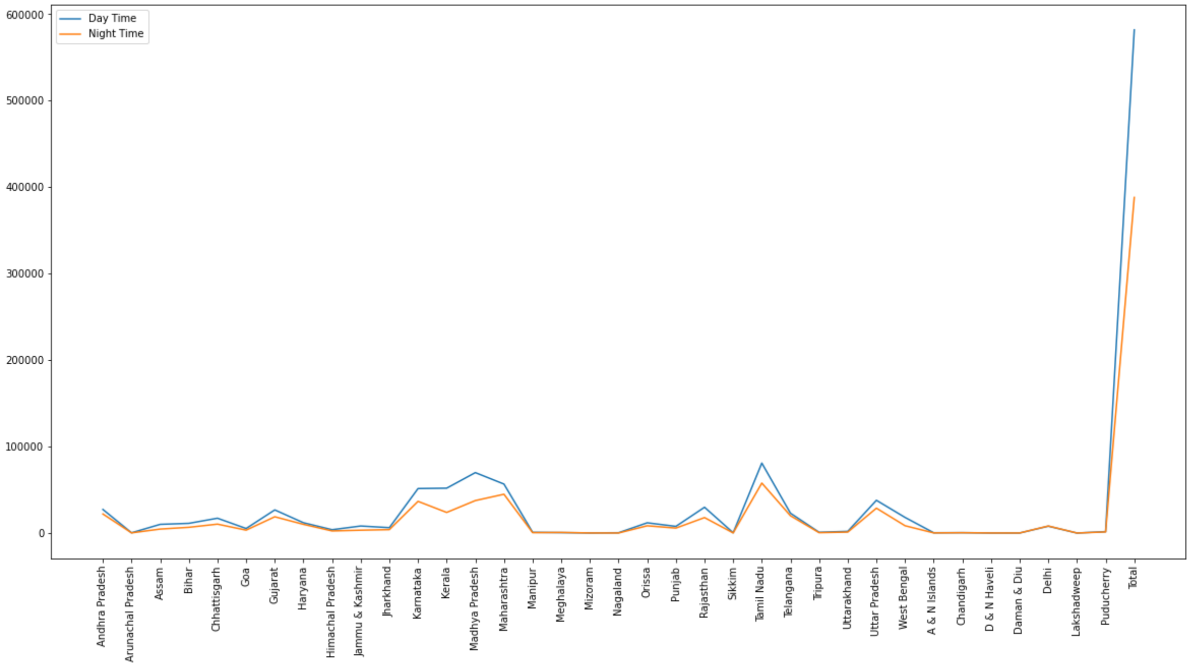
27. Number of Accidents happening in DAY and NIGHT TIME for 2014 and 2016.

In [76]:

```
plt.figure(figsize=(20,10))
plt.plot(DayNightData[["Day Time","Night Time"]])
plt.legend(["Day Time","Night Time"])

plt.xticks([0,1,2,3,4,5,6,7,8,9,10,11 ,12 ,13 ,14 ,15 ,16 ,17 ,18 ,19 ,20 ,21 ,22 ,
          ["Andhra Pradesh", "Arunachal Pradesh", "Assam", "Bihar", "Chhattisgarh",
"Kerala", "Madhya Pradesh", "Maharashtra", "Manipur", "Meghalaya", "Mizoram", "Naga
"Tripura", "Uttarakhand", "Uttar Pradesh", "West Bengal", "A & N Islands", "Chandig
locs, labels = plt.xticks()
plt.setp(labels, rotation=90)

plt.show()
```



In [ ]:

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