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..
sample_data
traffic-accidents-annual- (1).csv

[1] 2s
```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

0s
```
data = pd.read_csv('/content/traffic-accidents-annual- (1).csv', header=1)
data.columns
```

```
Index(['Unnamed: 0', 'Year', 'Total number of accidents', 'Fatal Accidents',
       'Non-Fatal Accidents', 'Killed', 'Injured',
       'Total number of vehicles involved'],
      dtype='object')
```

[4] 4s
```
type(data)
```

```
pandas.core.frame.DataFrame
def __init__(data=None, index: Axes | None=None, columns: Axes | None=None, dtype: Dtype |
None=None, copy: bool | None=None) -> None

/usr/local/lib/python3.10/dist-packages/pandas/core/frame.py
Two-dimensional, size-mutable, potentially heterogeneous tabular data.

Data structure also contains labeled axes (rows and columns).
Arithmetic operations align on both row and column labels. Can be
thought of as a dict-like container for Series objects. The primary
```

[5] 0s
```
data.head()
```

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```
data.head()
```

	Unnamed: 0	Year	Total number of accidents	Fatal Accidents	Non-Fatal Accidents	Killed	Injured	Total number of vehicles involved
0	Pakistan	2008-09	9496	4145	5351	4907	11037	10322
1	Pakistan	2009-10	9747	4378	5369	5280	11173	10496
2	Pakistan	2010-11	9723	4280	5443	5271	11383	10822
3	Pakistan	2011-12	9140	3966	5174	4758	10145	9986
4	Pakistan	2012-13	8988	3884	5104	4719	9710	9876

Next steps: Generate code with data View recommended plots

```
[6] data.rename(columns={'Unnamed: 0': 'location'}, inplace=True)
```

```
[7] data.isnull().sum()
```

```
location                        0
Year                            0
Total number of accidents       0
Fatal Accidents                 0
Non-Fatal Accidents             0
Killed                          0
                                0
los involved                    0
```

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sample_data

traffic-accidents-annual- (1).csv

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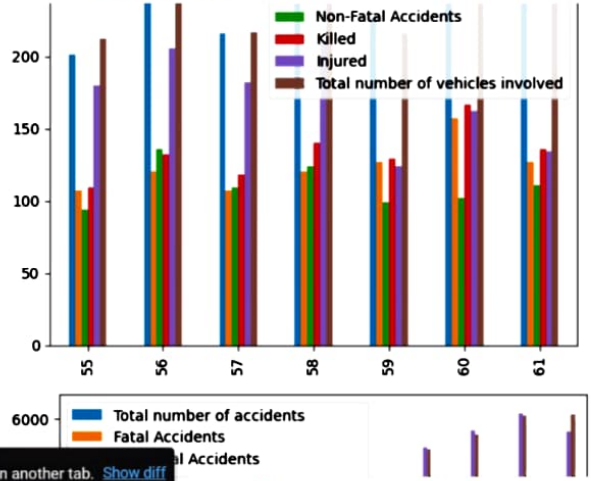
[8] data.groupby(['location'])

<pandas.core.groupby.generic.DataFrameGroupBy object at 0x7b01aaee4df0>

[9] data.groupby(['location']).plot.bar()



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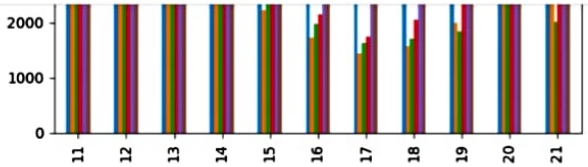
2000
1000
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12
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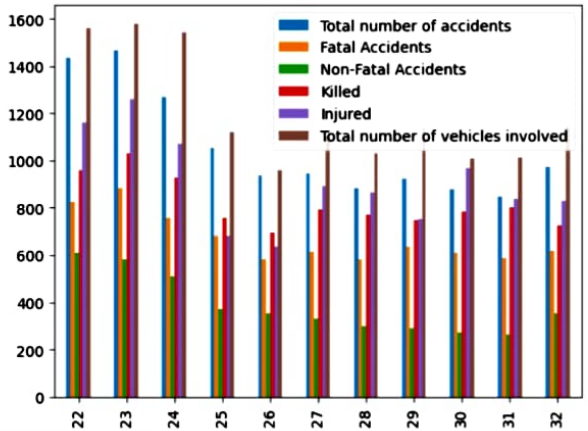
1600
1400
1200
1000
800
600
400
200
0
22
23
24
25
26
27
28
29
30
31
32
Total number of accidents
Fatal Accidents
Non-Fatal Accidents
Killed
Injured
Total number of vehicles involved

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..
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[10] data.columns

```
Index(['location', 'Year', 'Total number of accidents', 'Fatal Accidents',
       'Non-Fatal Accidents', 'Killed', 'Injured',
       'Total number of vehicles involved'],
      dtype='object')
```

[11] plt.figure(figsize=(20, 12))
accidents_plot = sns.barplot(x='location', y='Total number of accidents', hue='Year', data=data, palette='pastel')
accidents_plot.set_xticklabels(accidents_plot.get_xticklabels(), rotation=0, ha="center")

```
<ipython-input-11-d477870040d3>:3: UserWarning: FixedFormatter should only be used together with FixedLocator
  accidents_plot.set_xticklabels(accidents_plot.get_xticklabels(), rotation=0, ha="center")
[Text(0, 0, 'Pakistan'),
 Text(1, 0, 'Punjab'),
 Text(2, 0, 'Sindh'),
 Text(3, 0, 'Khyber Pakhtunkhwa'),
 Text(4, 0, 'Balochistan'),
 Text(5, 0, 'Islamabad')]
```

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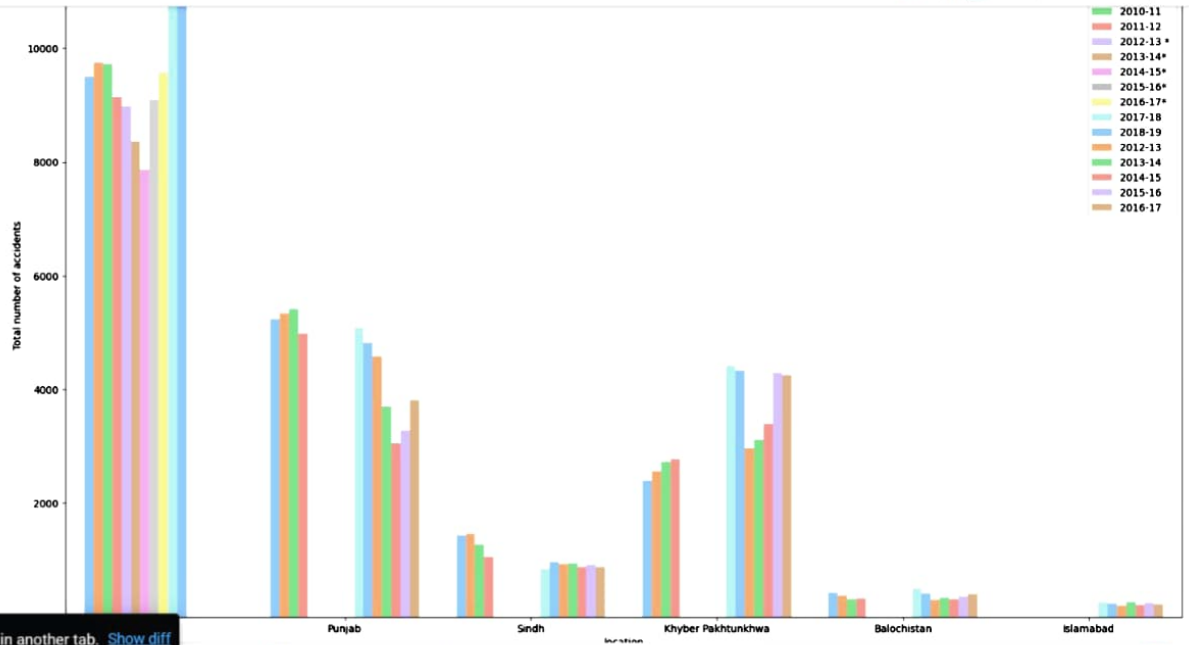
[11] 2s

..

sample_data

traffic-accidents-annual- (1).csv



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```
accidents_plot = sns.barplot(x='Killed', y='Total number of accidents', hue='Year', data=data, palette='pastel')
accidents_plot.set_xticklabels(accidents_plot.get_xticklabels(), rotation=90, ha="center")
```

```
<ipython-input-12-48f0bdc2b4b1>:3: UserWarning: FixedFormatter should only be used together with FixedLocator
  accidents_plot.set_xticklabels(accidents_plot.get_xticklabels(), rotation=90, ha="center")
[Text(0, 0, '109'),
 Text(1, 0, '118'),
 Text(2, 0, '129'),
 Text(3, 0, '132'),
 Text(4, 0, '136'),
 Text(5, 0, '140'),
 Text(6, 0, '161'),
 Text(7, 0, '163'),
 Text(8, 0, '167'),
 Text(9, 0, '178'),
 Text(10, 0, '191'),
 Text(11, 0, '207'),
 Text(12, 0, '245'),
 Text(13, 0, '247'),
 Text(14, 0, '248'),
 Text(15, 0, '313'),
 Text(16, 0, '321'),
 Text(17, 0, '330'),
 Text(18, 0, '696'),
 Text(19, 0, '725'),
 Text(20, 0, '749'),
 Text(21, 0, '756'),
 Text(22, 0, '771'),
 Text(23, 0, '786'),
 Text(24, 0, '791'),
 Text(25, 0, '802'),
 Text(26, 0, '921'),
 Text(27, 0, '927'),
```

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traffic-accidents-annual- (1).csv

```
Text(60, 0, '5948')]
```

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[13] `data[['location']].value_counts()`

```
location
Balochistan          11
Khyber Pakhtunkhwa   11
Pakistan             11
Punjab               11
Sindh                11
Islamabad             7
Name: count, dtype: int64
```

[14] `islamabad_accidents = data.loc[data['location'] == 'Islamabad']`
`islamabad_accidents.columns`

```
Index(['location', 'Year', 'Total number of accidents', 'Fatal Accidents',
       'Non-Fatal Accidents', 'Killed', 'Injured',
       'Total number of vehicles involved'],
      dtype='object')
```

`sns.barplot(x='Year', y='Total number of accidents', hue='Killed', data=islamabad_accidents)`
`plt.title('Islamabad Accidents 2012 to 2019')`

```
Text(0.5, 1.0, 'Islamabad Accidents 2012 to 2019')
```

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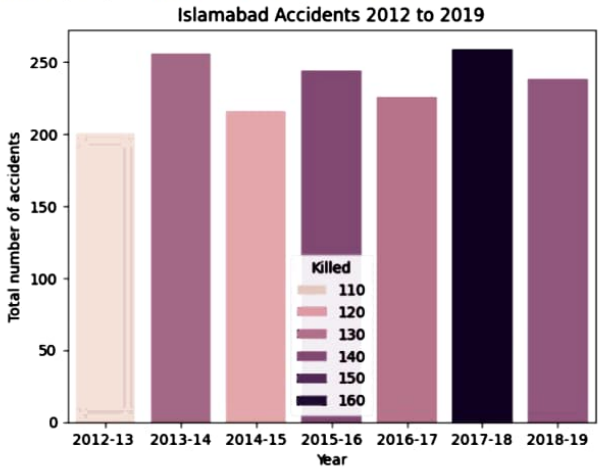
```
Text(0.5, 1.0, 'Islamabad Accidents 2012 to 2019')
```




```
[16] islamabad_accidents_info = islamabad_accidents['Killed'].describe()
     islamabad_accidents_info
```

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..
sample_data
traffic-accidents-annual- (1).csv

[16]
```
count      7.000000
mean     133.000000
std       18.402898
min      109.000000
25%      123.500000
50%      132.000000
75%      138.000000
max      167.000000
Name: Killed, dtype: float64
```

[17]
```
islamabad_accidents_info.loc['total killed'] =  islamabad_accidents['Killed'].sum()
islamabad_accidents_info
```

```
count            7.000000
mean           133.000000
std             18.402898
min            109.000000
25%            123.500000
50%            132.000000
75%            138.000000
max            167.000000
total killed   931.000000
Name: Killed, dtype: float64
```

```
islamabad_accidents_info.loc['count': 'std']
```

```
count      7.000000
mean     133.000000
std       18.402898
Name: Killed, dtype: float64
```

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