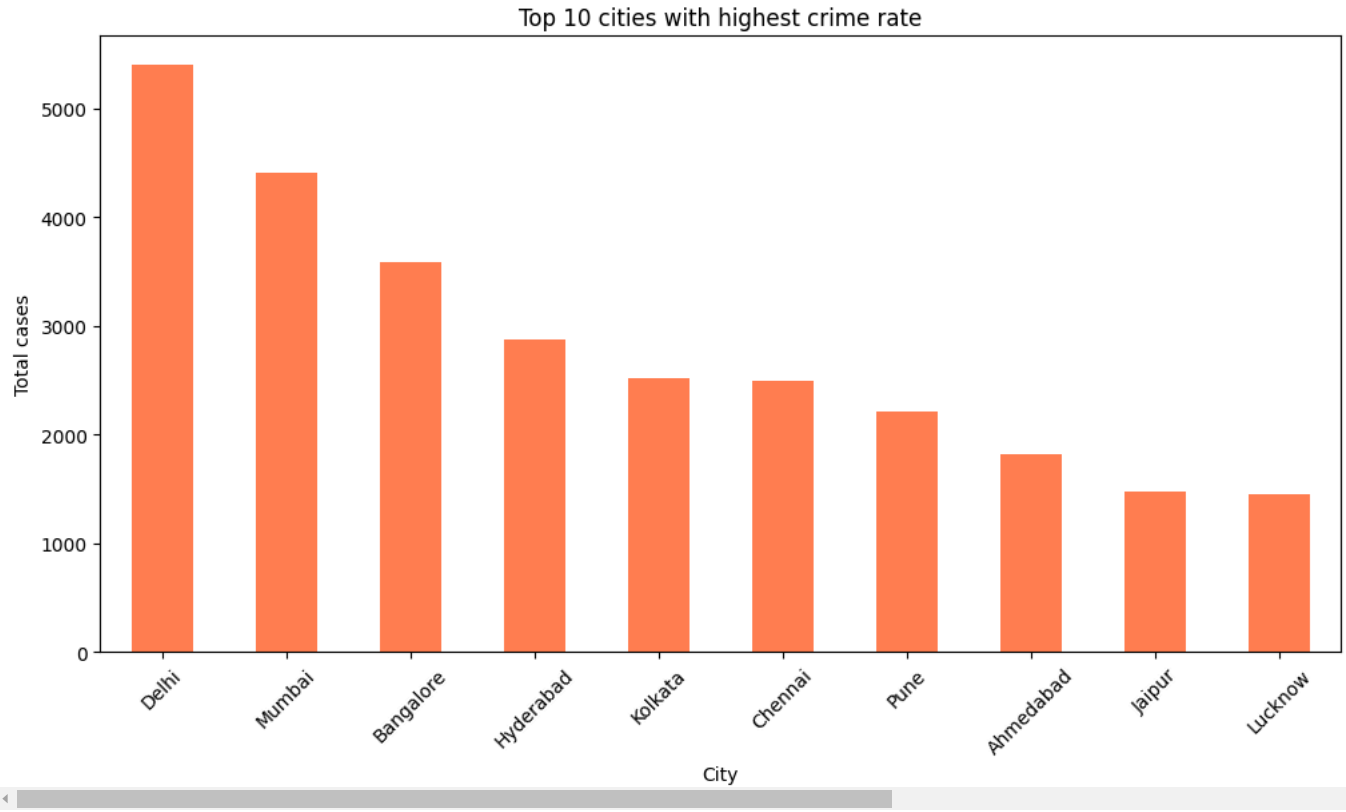
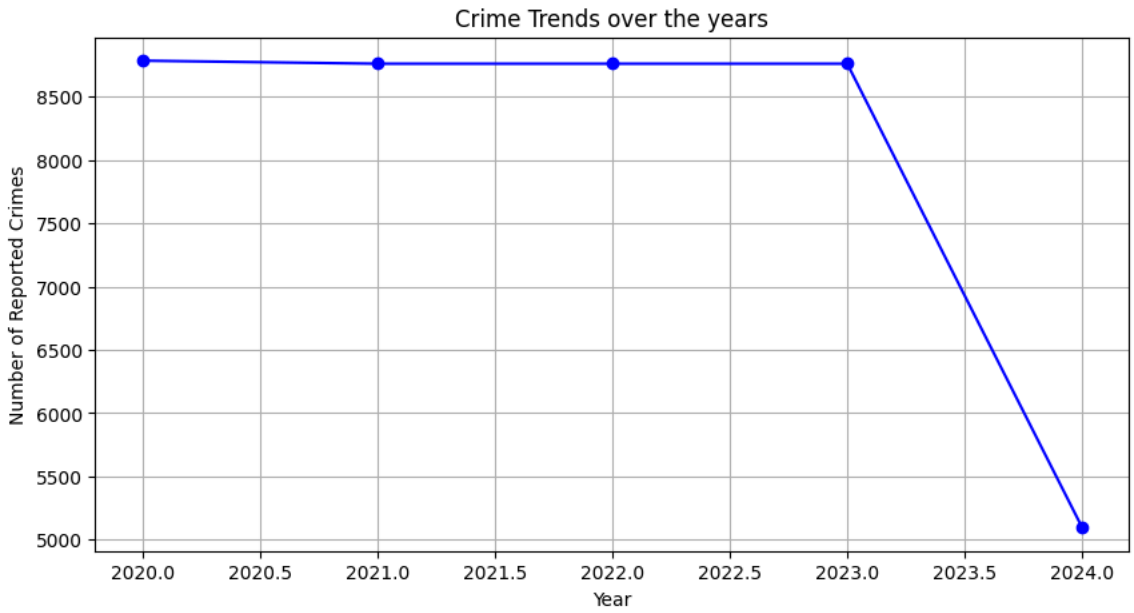
```
##crime rate analysis in india
import pandas as pd
df=pd.read_csv("crime_dataset_india.csv")
df.head()
```

	Report Number	Date Reported	Date of Occurrence	Time of Occurrence	City	Crime Code	Crime Description	Victim Age	Victim Gender	Weapon Used	Crime Domain	Police Deployed	Case Closed	Date Case Closed
0	1	02-01-2020 00:00	01-01-2020 00:00	01-01-2020 01:11	Ahmedabad	576	IDENTITY THEFT	16	M	Blunt Object	Violent Crime	13	No	NaN
1	2	01-01-2020 19:00	01-01-2020 01:00	01-01-2020 06:26	Chennai	128	HOMICIDE	37	M	Poison	Other Crime	9	No	NaN
2	3	02-01-2020 05:00	01-01-2020 02:00	01-01-2020 14:30	Ludhiana	271	KIDNAPPING	48	F	Blunt Object	Other Crime	15	No	NaN
		01-01-												29-04-

```
##crime rates by cities
crime_by_city=df["City"].value_counts().head(10)
import matplotlib.pyplot as plt
plt.figure(figsize=(12,6))
crime_by_city.plot(kind="bar",color="coral")
plt.title("Top 10 cities with highest crime rate")
plt.xlabel("City")
plt.ylabel("Total cases")
plt.xticks(rotation=45)
plt.show()
```



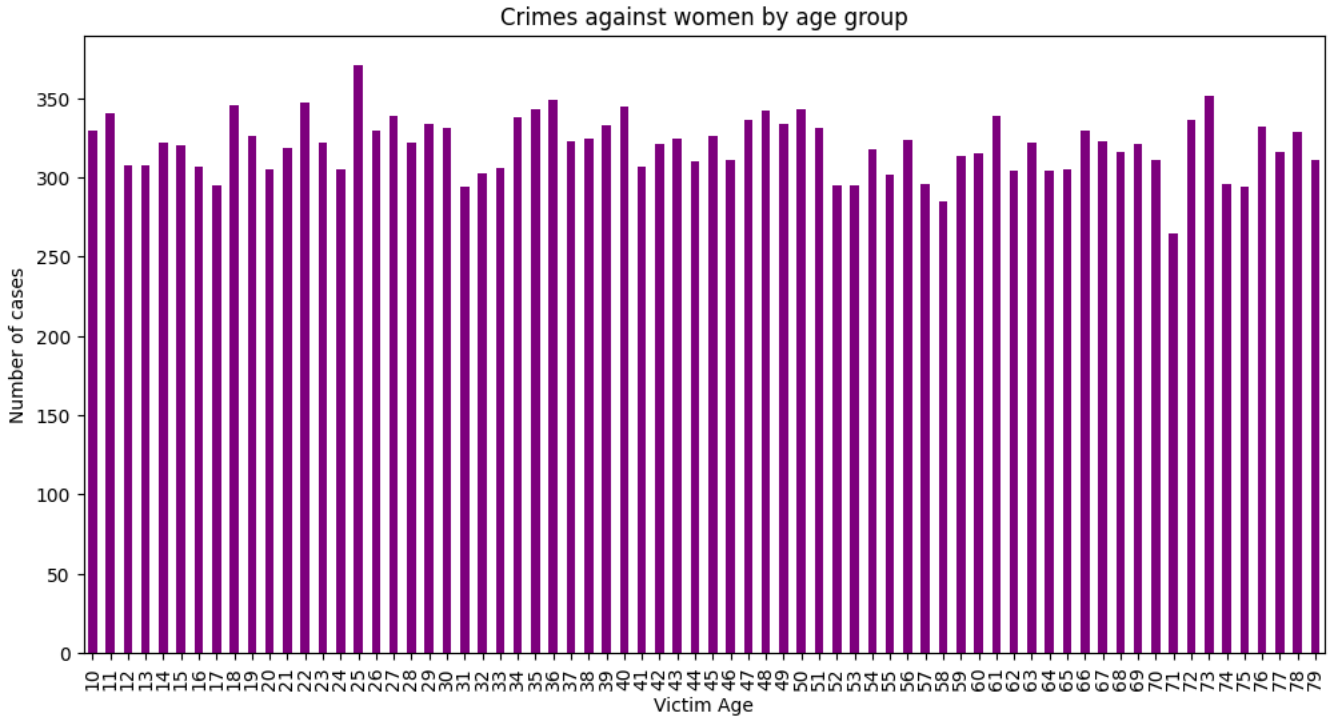

```
df["Date of Occurrence"]= pd.to_datetime(df["Date of Occurrence"])
crime_by_date=df.groupby(df["Date of Occurrence"].dt.year)["Report Number"].count()
plt.figure(figsize=(10,5))
crime_by_date.plot(kind="line",marker="o",color="blue")
plt.title("Crime Trends over the years")
plt.xlabel("Year")
plt.ylabel("Number of Reported Crimes")
plt.grid()
plt.show()
```




```
crime_against_women= df[df["Victim Gender"] =="F"]
total_women_crimes=crime_against_women.shape[0]
print("Total Crimes Against Women:", total_women_crimes)
```

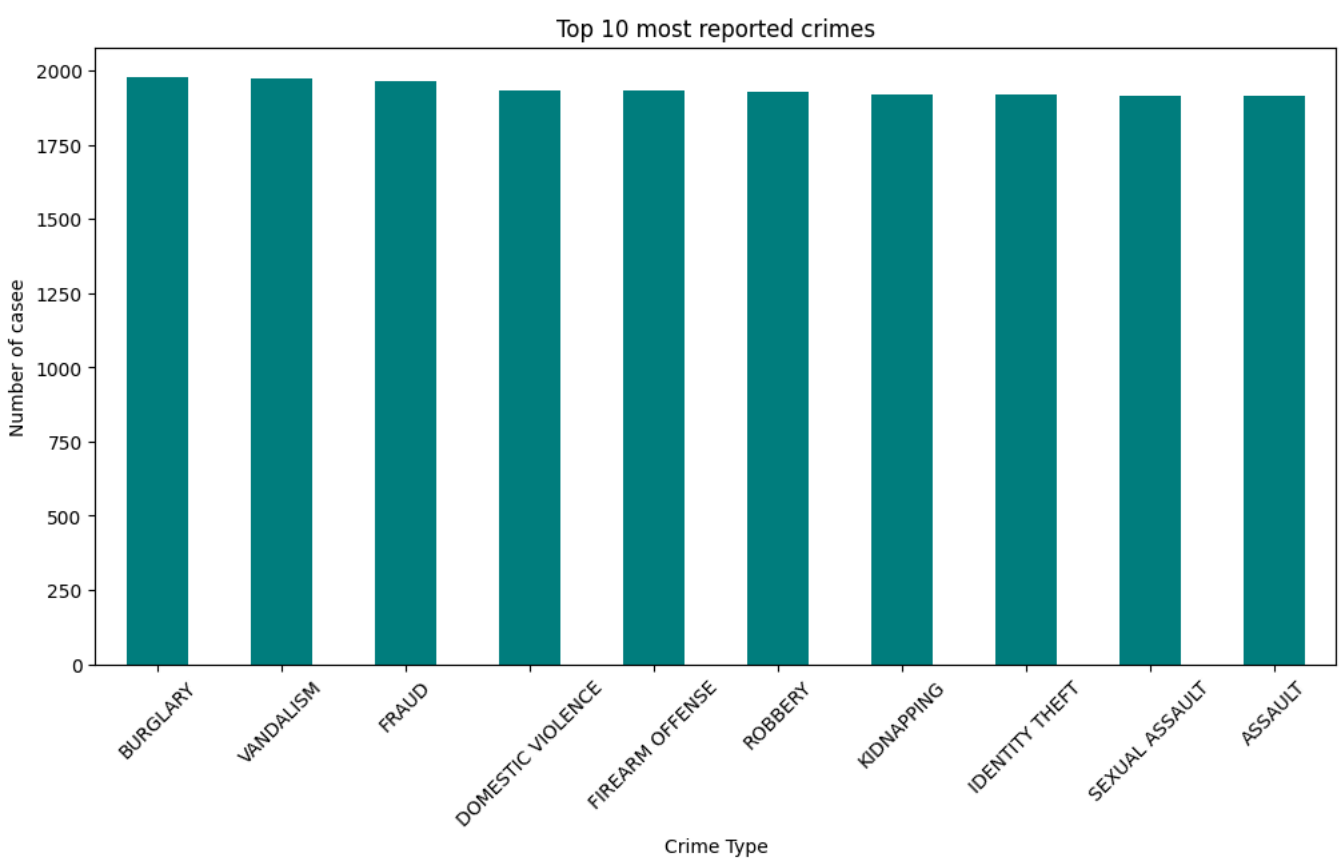
```
Total Crimes Against Women: 22423
```

```
crime_against_women.groupby("Victim Age")["Report Number"].count().plot(kind="bar",figsize=(12,6),color="purple")
plt.title("Crimes against women by age group")
plt.xlabel("Victim Age")
plt.ylabel("Number of cases")
plt.show()
```

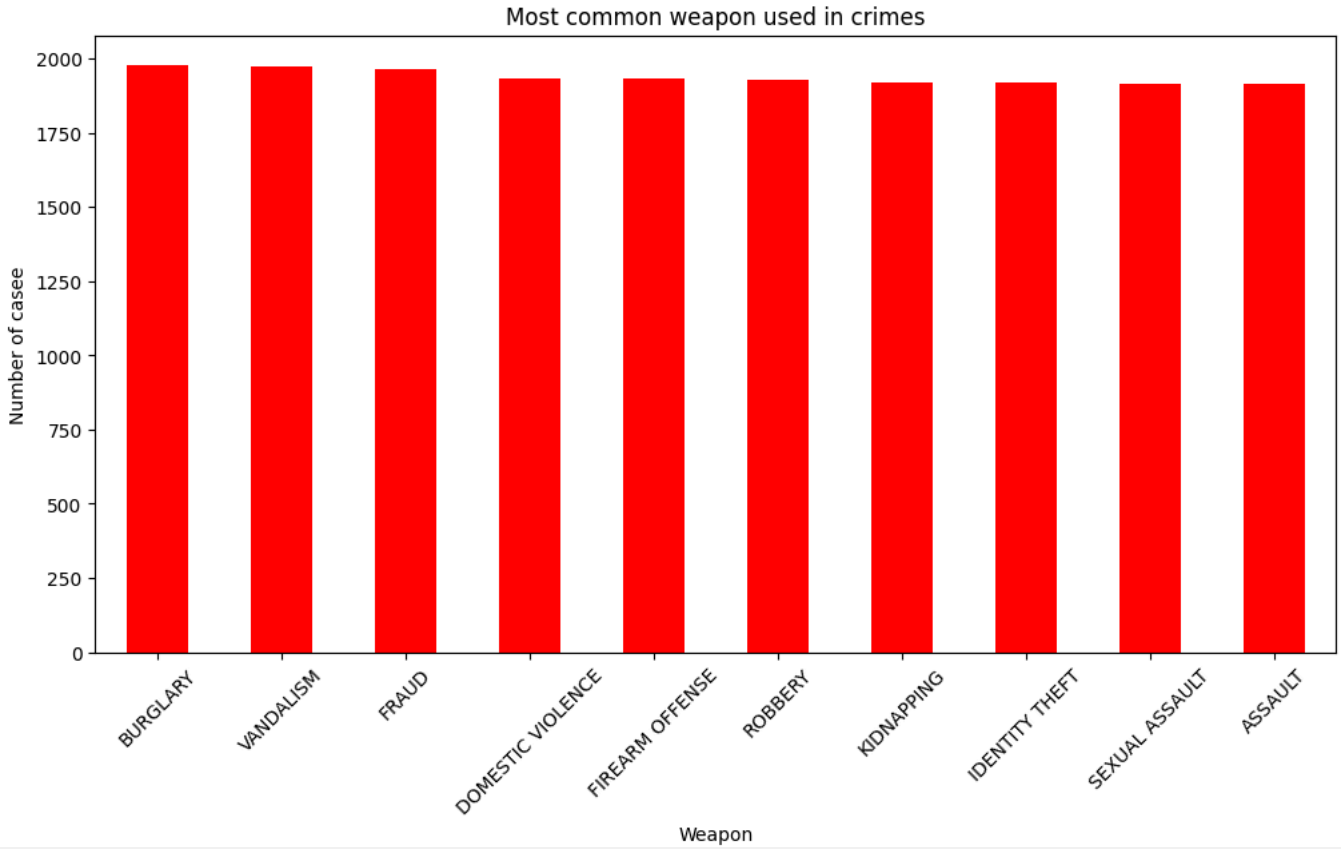



```
crime_by_type=df["Crime Description"].value_counts().head(10)
plt.figure(figsize=(12,6))
crime_by_type.plot(kind="bar",color="teal")
plt.title("Top 10 most reported crimes")
plt.xlabel("Crime Type")
plt.ylabel("Number of casee")
```

```
plt.xticks(rotation=45)
plt.show()
```




```
weapon_used=df["Weapon Used"].value_counts().head(10)
plt.figure(figsize=(12,6))
crime_by_type.plot(kind="bar",color="red")
plt.title("Most common weapon used in crimes")
plt.xlabel("Weapon")
plt.ylabel("Number of casee")
plt.xticks(rotation=45)
plt.show()
```




```
import pandas as pd
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df.head()
```

	Report Number	Date Reported	Date of Occurrence	Time of Occurrence	City	Crime Code	Crime Description	Victim Age	Victim Gender	Weapon Used	Crime Domain	Police Deployed	Case Closed	Date Case Closed
0	1	02-01-2020 00:00	01-01-2020 00:00	01-01-2020 01:11	Ahmedabad	576	IDENTITY THEFT	16	M	Blunt Object	Violent Crime	13	No	NaN
1	2	01-01-2020 19:00	01-01-2020 01:00	01-01-2020 06:26	Chennai	128	HOMICIDE	37	M	Poison	Other Crime	9	No	NaN
2	3	02-01-2020 05:00	01-01-2020 02:00	01-01-2020 14:30	Ludhiana	271	KIDNAPPING	48	F	Blunt Object	Other Crime	15	No	NaN
		01-01-												29-04-

```
df.columns
```

```
Index(['Report Number', 'Date Reported', 'Date of Occurrence',
       'Time of Occurrence', 'City', 'Crime Code', 'Crime Description',
       'Victim Age', 'Victim Gender', 'Weapon Used', 'Crime Domain',
       'Police Deployed', 'Case Closed', 'Date Case Closed'],
      dtype='object')
```

```
df.head
```

```
<bound method NDFrame.head of        Report Number     Date Reported Date of Occurrence Time of Occurrence  \
0                  1  02-01-2020 00:00   01-01-2020 00:00   01-01-2020 01:11
1                  2  01-01-2020 19:00   01-01-2020 01:00   01-01-2020 06:26
2                  3  02-01-2020 05:00   01-01-2020 02:00   01-01-2020 14:30
3                  4  01-01-2020 05:00   01-01-2020 03:00   01-01-2020 14:46
4                  5  01-01-2020 21:00   01-01-2020 04:00   01-01-2020 16:51
...              ...               ...                ...                ...
40155          40156  01-08-2024 16:00   07-31-2024 03:00   31-07-2024 05:05
40156          40157  31-07-2024 14:00   07-31-2024 04:00   31-07-2024 04:14
40157          40158  02-08-2024 03:00   07-31-2024 05:00   31-07-2024 21:33
40158          40159  01-08-2024 19:00   07-31-2024 06:00   31-07-2024 11:05
```

```
40159          40160  31-07-2024 17:00   07-31-2024 07:00   31-07-2024 17:19

            City  Crime Code   Crime Description  Victim Age Victim Gender  \
0      Ahmedabad         576      IDENTITY THEFT          16             M
1        Chennai         128            HOMICIDE          37             M
2       Ludhiana         271          KIDNAPPING          48             F
3           Pune         170            BURGLARY          49             F
4           Pune         421           VANDALISM          30             F
...          ...         ...                 ...         ...           ...
40155    Kolkata         312      COUNTERFEITING          78             F
40156     Mumbai         300  ILLEGAL POSSESSION          75             F
40157     Kanpur         423    VEHICLE - STOLEN          68             M
40158      Patna         311      SEXUAL ASSAULT          11             M
40159      Delhi         193   DOMESTIC VIOLENCE          43             F

        Weapon Used   Crime Domain  Police Deployed Case Closed  \
0      Blunt Object  Violent Crime               13          No
1            Poison    Other Crime                9          No
2      Blunt Object    Other Crime               15          No
3           Firearm    Other Crime                1         Yes
4             Other    Other Crime               18         Yes
...             ...            ...              ...         ...
40155       Firearm    Other Crime               12          No
40156          None    Other Crime                2         Yes
40157         Other  Violent Crime                6          No
40158  Blunt Object  Violent Crime                1          No
40159       Poison  Violent Crime                7         Yes

       Date Case Closed
0                   NaN
1                   NaN
2                   NaN
3      29-04-2020 05:00
4      08-01-2020 21:00
...                 ...
40155               NaN
40156  29-09-2024 14:00
40157               NaN
40158               NaN
40159  28-09-2024 17:00

[40160 rows x 14 columns]>
```

df.describe

```
df["Crime Description"].unique()
```

```
array(['IDENTITY THEFT', 'HOMICIDE', 'KIDNAPPING', 'BURGLARY',
       'VANDALISM', 'ASSAULT', 'VEHICLE - STOLEN', 'COUNTERFEITING',
       'EXTORTION', 'PUBLIC INTOXICATION', 'FRAUD', 'SEXUAL ASSAULT',
       'DRUG OFFENSE', 'ARSON', 'CYBERCRIME', 'TRAFFIC VIOLATION',
       'SHOPLIFTING', 'ILLEGAL POSSESSION', 'FIREARM OFFENSE', 'ROBBERY',
       'DOMESTIC VIOLENCE'], dtype=object)
```

```
df.info
```

```
<bound method DataFrame.info of        Report Number     Date Reported Date of Occurrence Time of Occurrence  \
0                  1  02-01-2020 00:00   01-01-2020 00:00   01-01-2020 01:11
1                  2  01-01-2020 19:00   01-01-2020 01:00   01-01-2020 06:26
2                  3  02-01-2020 05:00   01-01-2020 02:00   01-01-2020 14:30
3                  4  01-01-2020 05:00   01-01-2020 03:00   01-01-2020 14:46
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...              ...               ...                ...                ...
40155          40156  01-08-2024 16:00   07-31-2024 03:00   31-07-2024 05:05
40156          40157  31-07-2024 14:00   07-31-2024 04:00   31-07-2024 04:14
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40159          40160  31-07-2024 17:00   07-31-2024 07:00   31-07-2024 17:19

            City  Crime Code   Crime Description  Victim Age Victim Gender  \
0      Ahmedabad         576      IDENTITY THEFT          16             M
1        Chennai         128            HOMICIDE          37             M
2       Ludhiana         271          KIDNAPPING          48             F
3           Pune         170            BURGLARY          49             F
4           Pune         421           VANDALISM          30             F
...          ...         ...                 ...         ...           ...
40155    Kolkata         312      COUNTERFEITING          78             F
40156     Mumbai         300  ILLEGAL POSSESSION          75             F
40157     Kanpur         423    VEHICLE - STOLEN          68             M
40158      Patna         311      SEXUAL ASSAULT          11             M
40159      Delhi         193   DOMESTIC VIOLENCE          43             F
```

```
        Weapon Used   Crime Domain  Police Deployed Case Closed  \
0      Blunt Object  Violent Crime               13          No
1            Poison    Other Crime                9          No
2      Blunt Object    Other Crime               15          No
3           Firearm    Other Crime                1         Yes
4             Other    Other Crime               18         Yes
...             ...            ...              ...         ...
40155       Firearm    Other Crime               12          No
40156          None    Other Crime                2         Yes
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40158  Blunt Object  Violent Crime                1          No
40159        Poison  Violent Crime                7         Yes

       Date Case Closed
0                   NaN
1                   NaN
2                   NaN
3      29-04-2020 05:00
4      08-01-2020 21:00
...                 ...
40155               NaN
40156  29-09-2024 14:00
40157               NaN
40158               NaN
40159  28-09-2024 17:00

[40160 rows x 14 columns]>
```

```
df.isnull().sum()
```

```
Report Number             0
Date Reported             0
Date of Occurrence        0
Time of Occurrence        0
City                      0
Crime Code                0
Crime Description         0
Victim Age                0
```