```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

```
df2 = pd.read_csv('LS_2.0.csv')
```

```
df2.rename(columns={'CRIMINAL\nCASES': 'criminal'}, inplace=True)
```

```
df2.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2263 entries, 0 to 2262
Data columns (total 19 columns):
 #   Column                                    Non-Null Count  Dtype  
---  ------                                    --------------  -----  
 0   STATE                                     2263 non-null   object 
 1   CONSTITUENCY                              2263 non-null   object 
 2   NAME                                      2263 non-null   object 
 3   WINNER                                    2263 non-null   int64  
 4   PARTY                                     2263 non-null   object 
 5   SYMBOL                                    2018 non-null   object 
 6   GENDER                                    2018 non-null   object 
 7   criminal                                  2018 non-null   object 
 8   AGE                                       2018 non-null   float64
 9   CATEGORY                                  2018 non-null   object 
 10  EDUCATION                                 2018 non-null   object 
 11  ASSETS                                    2018 non-null   object 
 12  LIABILITIES                               2018 non-null   object 
 13  GENERAL
VOTES                             2263 non-null   int64  
 14  POSTAL
VOTES                              2263 non-null   int64  
 15  TOTAL
VOTES                               2263 non-null   int64  
 16  OVER TOTAL ELECTORS 
IN CONSTITUENCY      2263 non-null   float64
 17  OVER TOTAL VOTES POLLED 
IN CONSTITUENCY  2263 non-null   float64
 18  TOTAL ELECTORS                            2263 non-null   int64  
dtypes: float64(3), int64(5), object(11)
memory usage: 336.0+ KB
```

```
df2.describe()
```

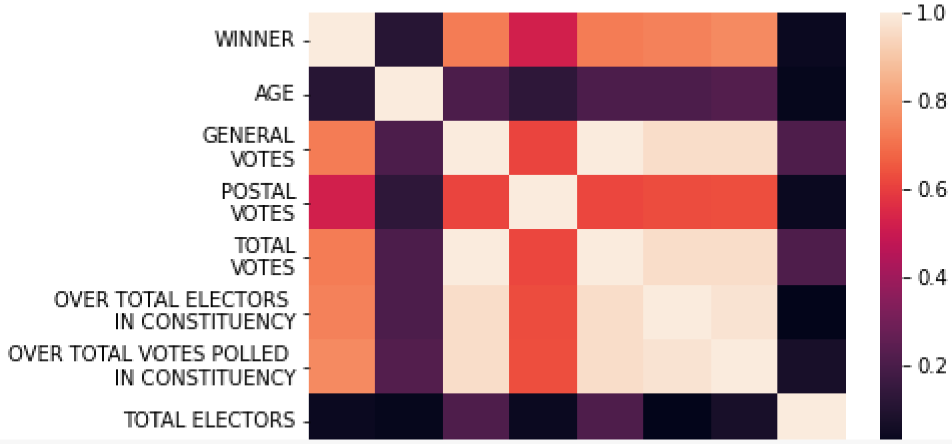
	WINNER	AGE	GENERAL\nVOTES	POSTAL\nVOTES	TOTAL\nVOTES	OVER ELI CONSTI
count	2263.000000	2018.000000	2.263000e+03	2263.000000	2.263000e+03	2263.(
mean	0.238179	52.273538	2.615991e+05	990.710561	2.625898e+05	15.:
std	0.426064	11.869373	2.549906e+05	1602.839174	2.559822e+05	14.!
min	0.000000	25.000000	1.339000e+03	0.000000	1.342000e+03	0.(
25%	0.000000	43.250000	2.103450e+04	57.000000	2.116250e+04	1.:
50%	0.000000	52.000000	1.539340e+05	316.000000	1.544890e+05	10.!

```
df2.corr()
```

	WINNER	AGE	GENERAL\nVOTES	POSTAL\nVOTES	TOTAL\nVOTES
WINNER	1.000000	0.110294	0.725678	0.520286	0.726125
AGE	0.110294	1.000000	0.208567	0.129360	0.208600
GENERAL\nVOTES	0.725678	0.208567	1.000000	0.616742	0.999988
POSTAL\nVOTES	0.520286	0.129360	0.616742	1.000000	0.620614
TOTAL\nVOTES	0.726125	0.208600	0.999988	0.620614	1.000000
OVER TOTAL ELECTORS \nIN CONSTITUENCY	0.738976	0.207304	0.962219	0.630882	0.962441
OVER TOTAL VOTES POLLED \nIN CONSTITUENCY	0.757303	0.223700	0.962905	0.634896	0.963150
TOTAL ELECTORS	0.038107	0.021083	0.211092	0.038453	0.210515

```
sns.heatmap(df2.corr())
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7feb766a7a10>
```



```
df2.isnull().values.any()
```

```
True
```

```
df2['criminal'].value_counts()
```

```
0                1242
1                 313
2                 119
3                 104
4                  64
5                  42
6                  26
Not Available      22
7                  18
8                  16
10                 11
9                  11
11                  5
12                  4
14                  4
13                  3
15                  2
28                  1
52                  1
24                  1
41                  1
42                  1
16                  1
40                  1
204                 1
240                 1
31                  1
22                  1
18                  1
Name: criminal, dtype: int64
```

```
df2['criminal'] = df2['criminal'].replace(['Not Available'],'0')
df2['criminal'] = pd.to_numeric(df2['criminal'] , errors='coerce')
df2['criminal'].value_counts()
df2['criminal'].isna()
```

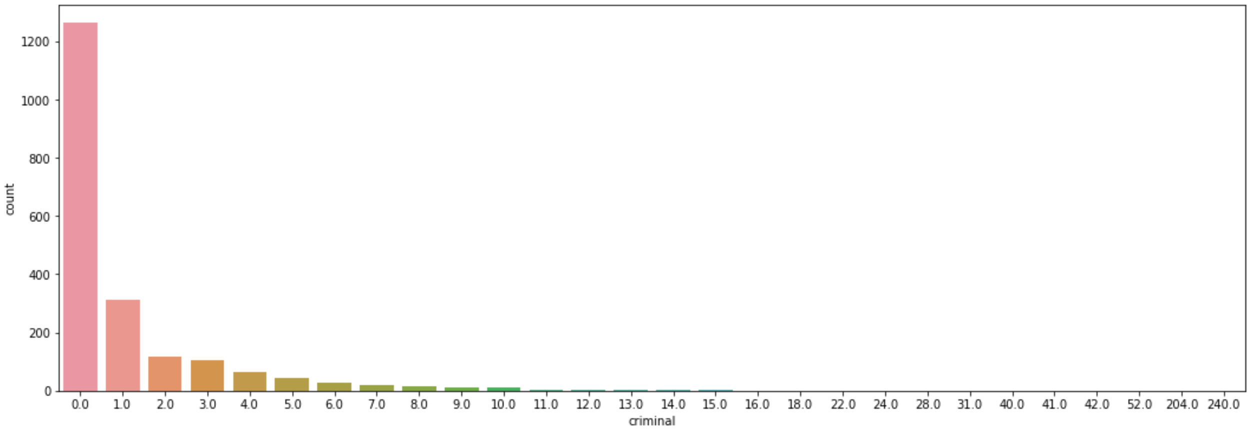
```
0       False
```

```
1       False
2       False
3        True
4       False
        ...  
2258    False
2259    False
2260    False
2261    False
2262     True
Name: criminal, Length: 2263, dtype: bool
```

```
df2['criminal'].isnull().sum().sum()
```

```
245
```

```
plt.figure(figsize=(18,6))
sns.countplot(x='criminal',data=df2);
```



```
df2['criminal'].describe()
```

```
count    2018.000000
mean        1.453915
std         7.636973
min         0.000000
25%         0.000000
50%         0.000000
75%         1.000000
max       240.000000
Name: criminal, dtype: float64
```

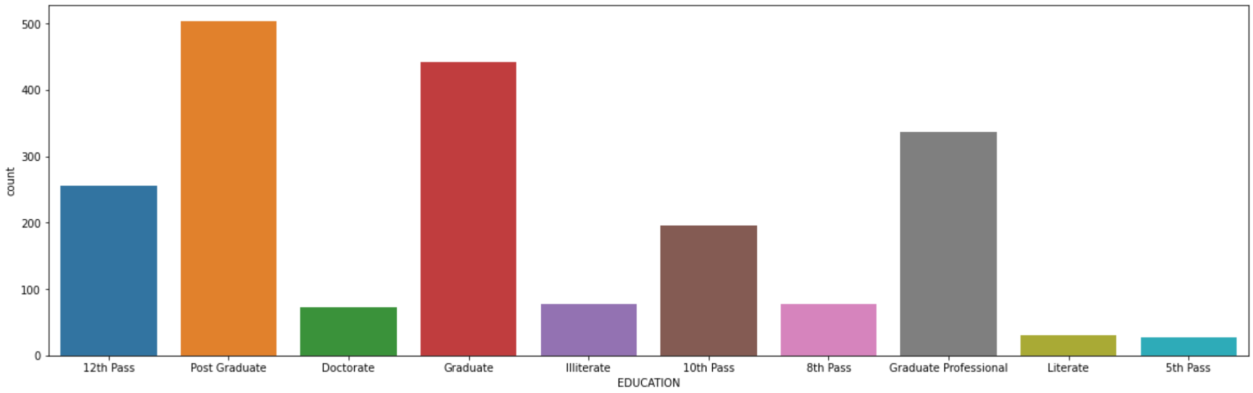
```
df2.EDUCATION.value_counts()
```

```
Post Graduate           502
Graduate                441
Graduate Professional   336
12th Pass               256
10th Pass               196
8th Pass                 78
Doctorate                73
Others                   50
Literate                 30
5th Pass                 28
Not Available            22
Illiterate                5
Post Graduate\n           1
Name: EDUCATION, dtype: int64
```

```
df2['EDUCATION'] = df2['EDUCATION'].replace(['Not Available','Others'],'Illiterate')
df2['EDUCATION'] = df2['EDUCATION'].replace(['Post Graduate\n'],'Post Graduate')
df2['EDUCATION'].value_counts()
```

```
Post Graduate           503
Graduate                441
Graduate Professional   336
12th Pass               256
10th Pass               196
8th Pass                 78
Illiterate               77
Doctorate                73
Literate                 30
5th Pass                 28
Name: EDUCATION, dtype: int64
```

```
plt.figure(figsize=(20,6))
sns.countplot(x='EDUCATION',data=df2);
```

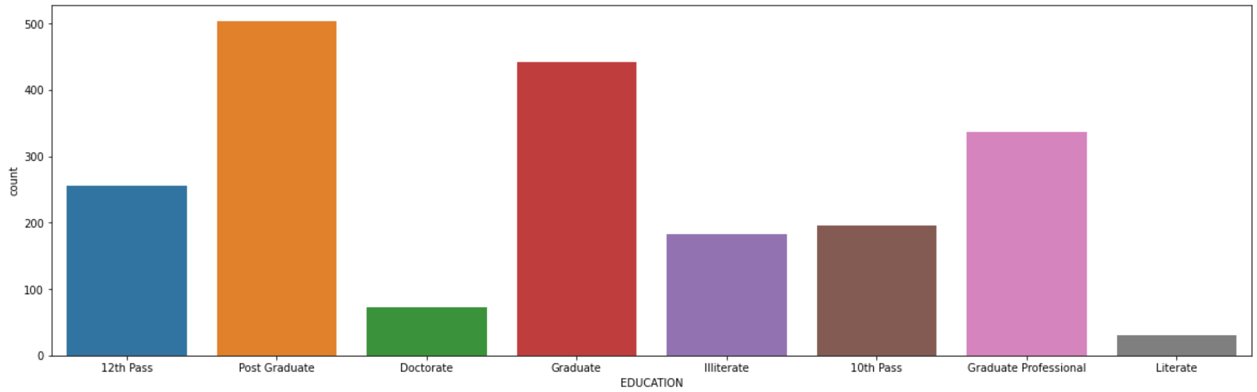


```
df2['EDUCATION'] = df2['EDUCATION'].replace(['5th Pass','8th Pass'],'Illiterate')
```

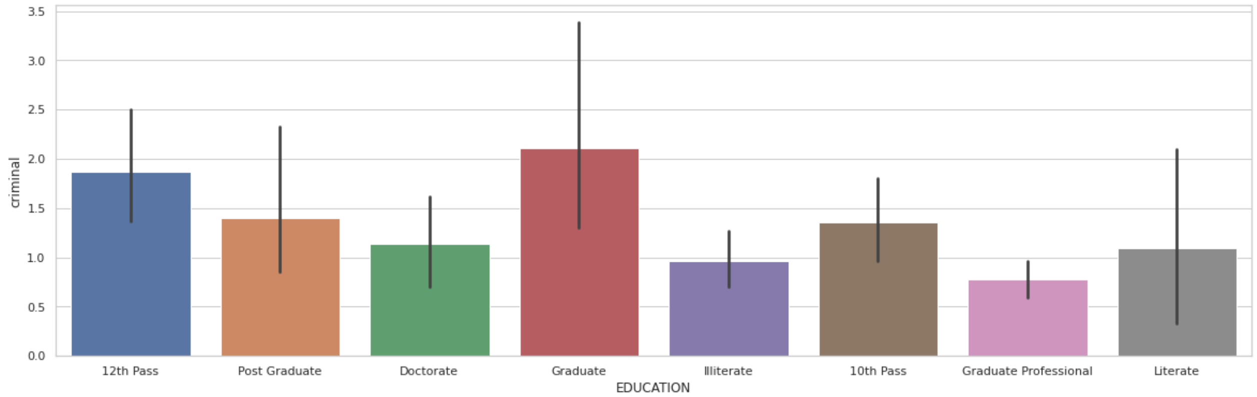
```
df2['EDUCATION'].value_counts()
```

```
Post Graduate           503
Graduate                441
Graduate Professional   336
12th Pass               256
10th Pass               196
Illiterate              183
Doctorate                73
Literate                 30
Name: EDUCATION, dtype: int64
```

```
plt.figure(figsize=(20,6))
sns.countplot(x='EDUCATION',data=df2);
```



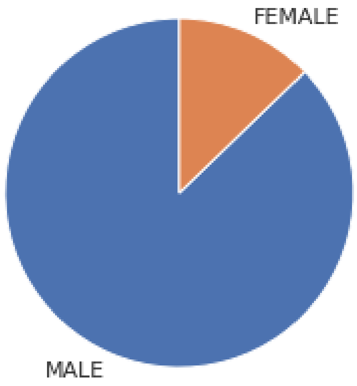
```
import seaborn as sns
sns.set_theme(style="whitegrid")
plt.figure(figsize=(20,6))
ax = sns.barplot(x="EDUCATION", y="criminal", data=df2)
```



```
cn1= int (0)
cn2= int (0)
for i in df2['GENDER']:
  if i=='MALE':
    cn1+=1
  elif i=='FEMALE':
    cn2+=1
print(cn1)
print(cn2)
```

```
1760
258
```

```
y = np.array([cn1,cn2])
mylabels = ["MALE","FEMALE"]
plt.pie(y, labels = mylabels, startangle = 90)
plt.show()
```

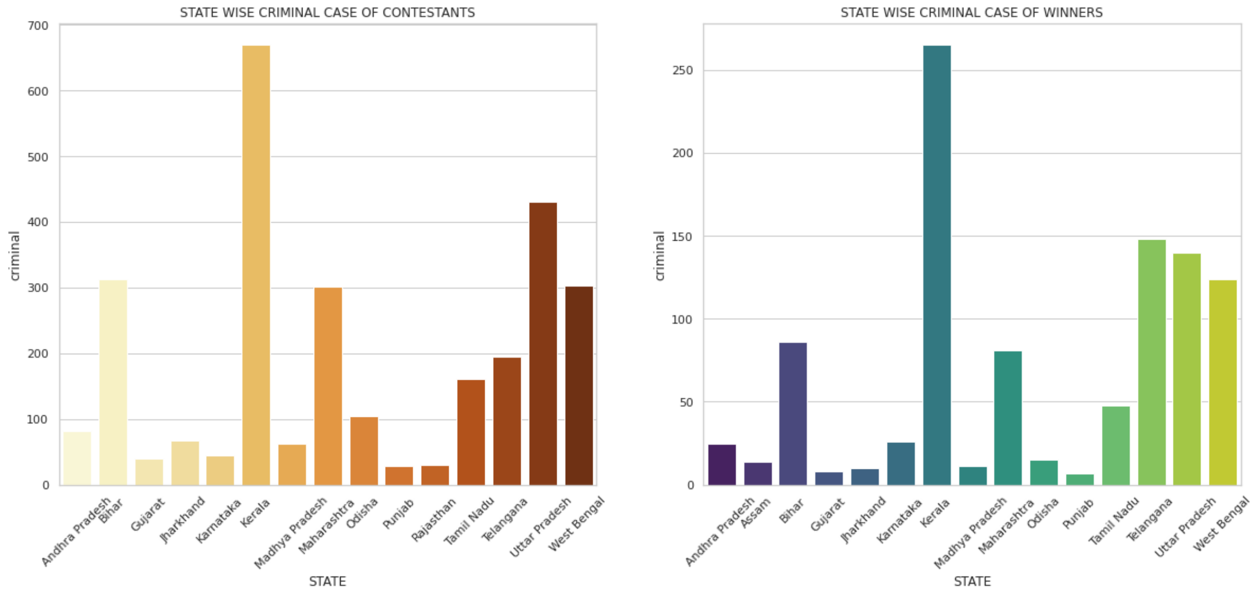


```
state_criminal = df2.groupby('STATE')[['criminal']].sum().sort_values(by=
                        ['criminal']).tail(15).sort_values(by=['STATE'])

state_criminal_winner = df2[df2['WINNER']>0].groupby('STATE')[['criminal']].sum().sort_val
                        ['criminal']).tail(15).sort_values(by=['STATE'])
state_criminal
```

STATE	criminal
Andhra Pradesh	81.0
Bihar	312.0
Gujarat	39.0
Jharkhand	67.0
Karnataka	44.0
Kerala	669.0
Madhya Pradesh	63.0
Maharashtra	302.0
Odisha	105.0

```
fig, axes = plt.subplots(1, 2, figsize=(20, 8))
sns.barplot(x = state_criminal.index , y = state_criminal['criminal'] , ax=axes[0] , palet
axes[0].tick_params(axis='x' , rotation=45);
axes[0].set_title('STATE WISE CRIMINAL CASE OF CONTESTANTS');
sns.barplot(x = state_criminal_winner.index , y = state_criminal_winner['criminal'] , ax=a
axes[1].set_title('STATE WISE CRIMINAL CASE OF WINNERS');
plt.xticks(rotation=45);
```

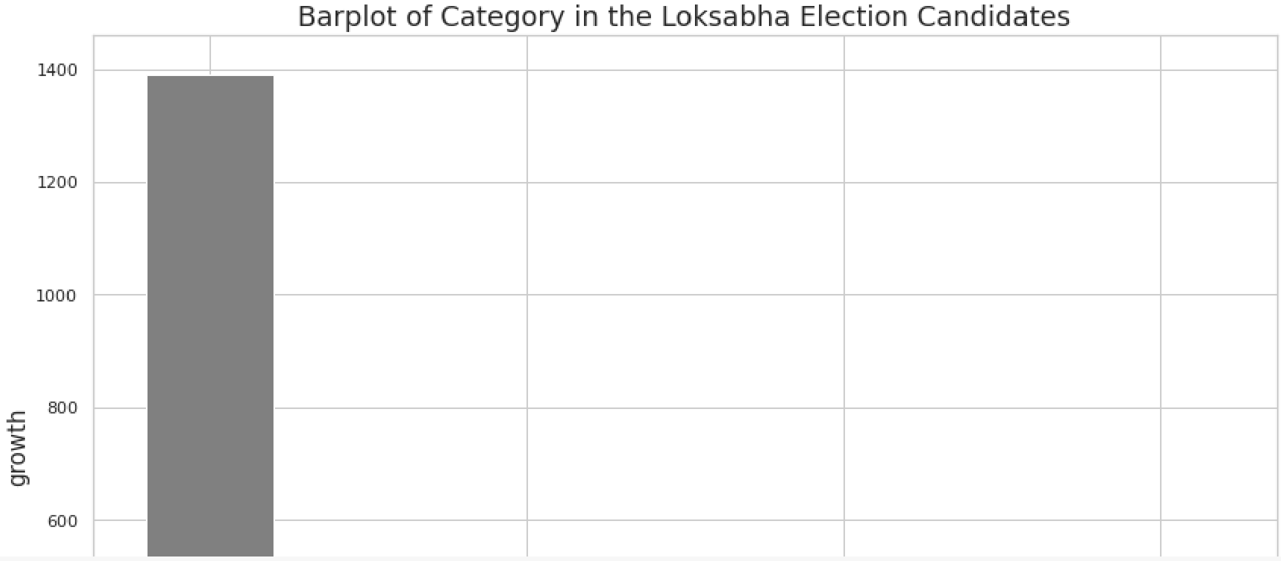


```
cn1= int (0)
cn2= int (0)
cn3= int (0)
cn4= int (0)
for i in df2['CATEGORY']:
  if i=='SC':
    cn1+=1
  elif i=='ST':
    cn2+=1
  elif i=='GENERAL':
    cn3+=1
  else:
    cn4+=1
print(cn1)
print(cn2)
print(cn3)
print(cn4)
```

```
383
243
1392
245
```

```
consumption = ['SC','ST','GENERAL','OTHERS']
growth = [cn1,cn2,cn3,cn4]
df = pd.DataFrame({"consumption": consumption,
                   "growth": growth})
df_sorted_desc= df.sort_values('growth',ascending=False)
plt.figure(figsize=(14,10))
plt.bar('consumption', 'growth',data=df_sorted_desc,color ='grey',
        width = 0.4)
plt.xlabel("Category", size=15)
plt.ylabel("growth", size=15)
plt.title("Barplot of Category in the Loksabha Election Candidates", size=18)
```

```
Text(0.5, 1.0, 'Barplot of Category in the Loksabha Election Candidates')
```



```
cn1= int (0)
cn2= int (0)
cn3= int (0)
cn4= int (0)
cn5= int (0)
cn6= int (0)
for i in df2['PARTY']:
  if i=='BJP':
    cn1+=1
  elif i=='INC':
    cn2+=1
  elif i=='NOTA':
    cn3+=1
  elif i=='IND':
    cn4+=1
  elif i=='BSP':
    cn5+=1
  else:
    cn6+=1
    print(cn1)
print(cn2)
print(cn3)
print(cn4)
print(cn5)
print(cn6)
```

```
1
3
3
6
8
8
9
9
11
11
12
12
14
```

```
      14
      14
      15
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      28
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      30
      31
      31
      31
      32
      32
      32
      32
```
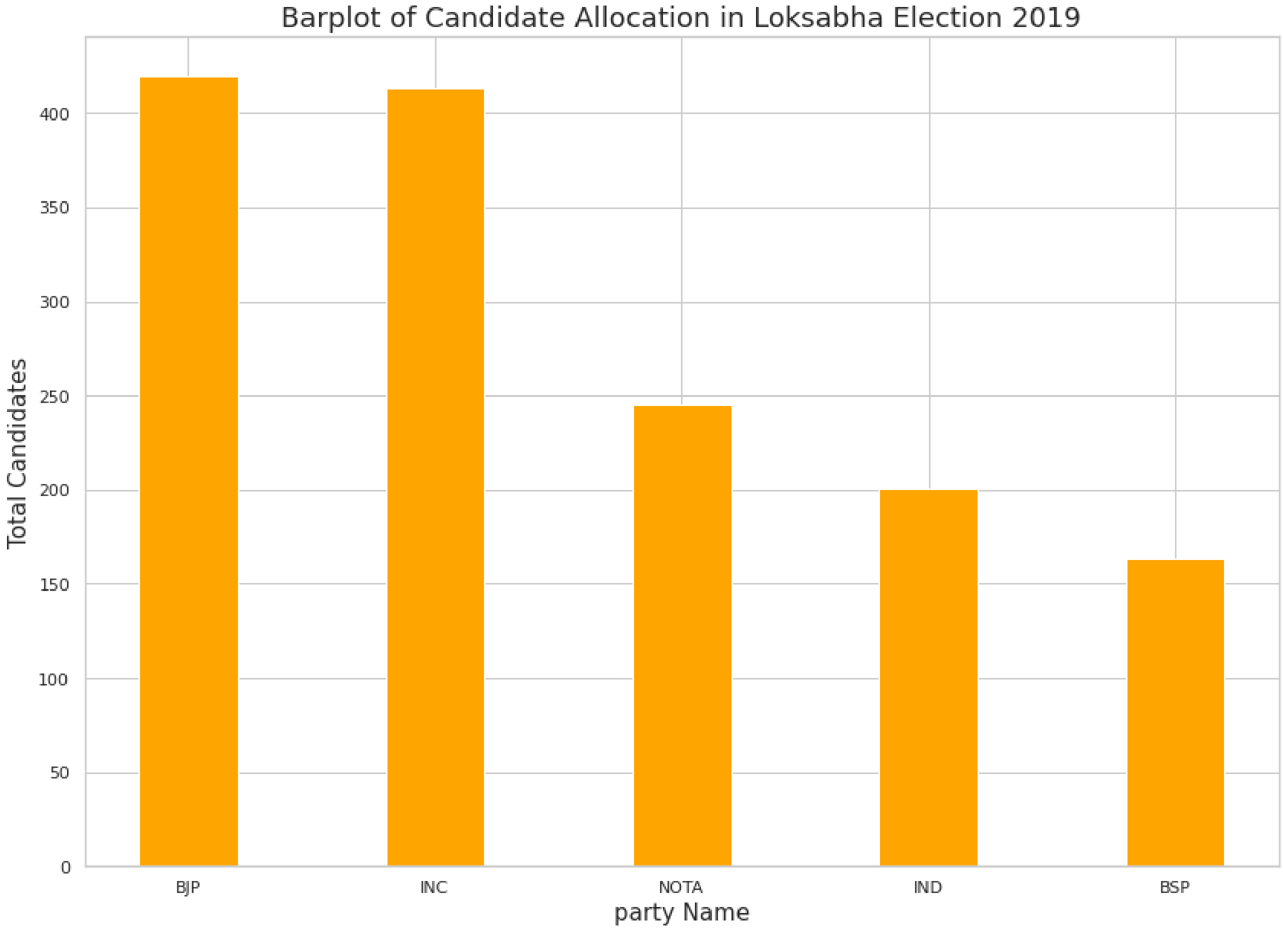

```
consumption = ['BJP','INC','NOTA','IND','BSP']
growth = [cn1,cn2,cn3,cn4,cn5]
df = pd.DataFrame({"consumption": consumption,
                   "growth": growth})
df_sorted_desc= df.sort_values('growth',ascending=False)
plt.figure(figsize=(14,10))
plt.bar('consumption', 'growth',data=df_sorted_desc,color ='orange',
        width = 0.4)
plt.xlabel("party Name", size=15)
plt.ylabel("Total Candidates", size=15)
plt.title("Barplot of Candidate Allocation in Loksabha Election 2019", size=18)
```

```
Text(0.5, 1.0, 'Barplot of Candidate Allocation in Loksabha Election 2019')
```

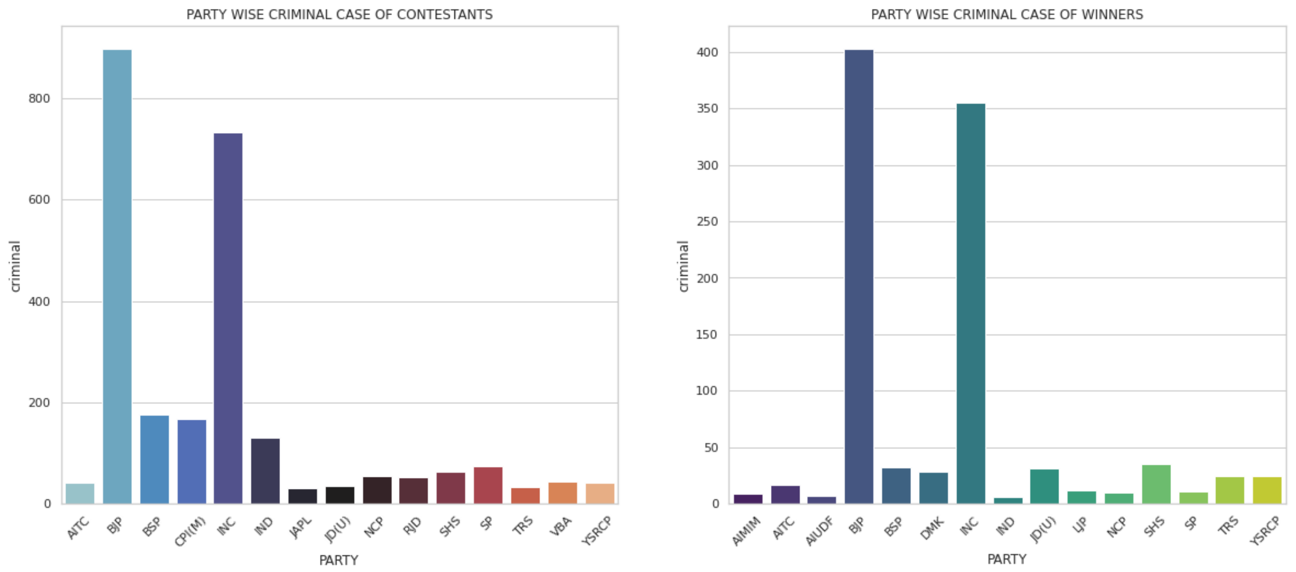


```
df2['criminal'] = pd.to_numeric(df2['criminal'] , errors='coerce')
```

```
party_criminal_winner = df2[df2['criminal']>0].groupby('PARTY')[['criminal']].sum().sort_v
                        ['criminal']).tail(15).sort_values(by=['PARTY'])
party_winner = df2[(df2['criminal']>0) & (df2['WINNER']>0)].groupby('PARTY')[['criminal']]
                        ['criminal']).tail(15).sort_values(by=['PARTY'])

party_winner
```

	criminal
PARTY	
AIMIM	9.0
AITC	17.0
AIUDF	7.0
BJP	403.0
BSP	32.0
DMK	28.0
INC	355.0
IND	6.0
JD(U)	31.0

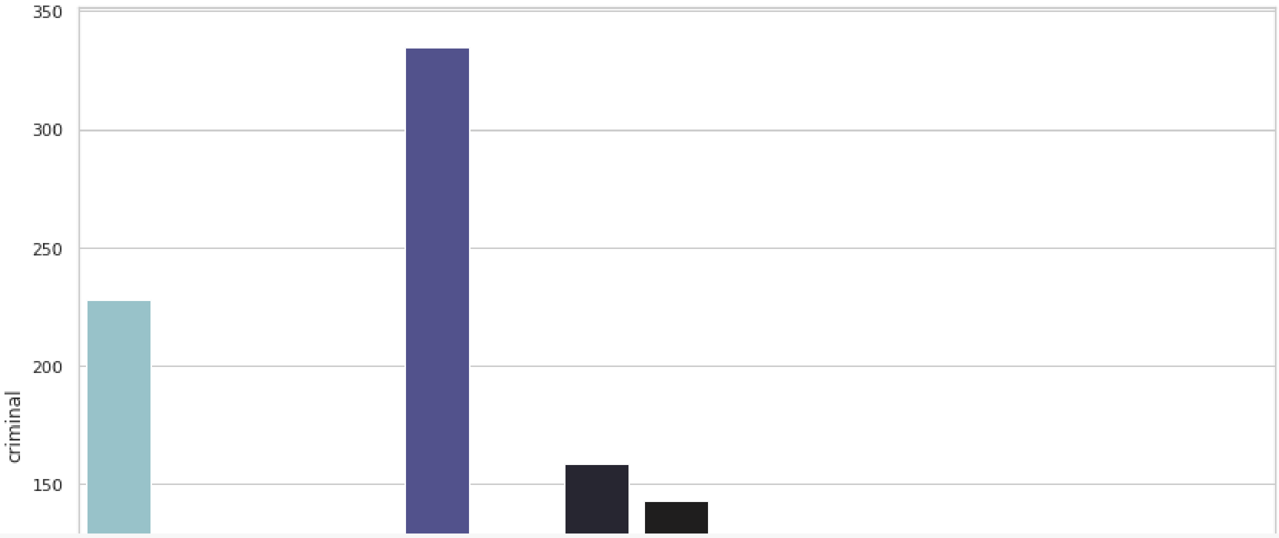
```
fig, axes = plt.subplots(1, 2, figsize=(20, 8))
sns.barplot(x = party_criminal_winner.index , y = party_criminal_winner['criminal'] , ax=a
axes[0].tick_params(axis='x' , rotation=45);
axes[0].set_title('PARTY WISE CRIMINAL CASE OF CONTESTANTS');
sns.barplot(x = party_winner.index , y = party_winner['criminal'] , ax=axes[1] , palette='
axes[1].set_title('PARTY WISE CRIMINAL CASE OF WINNERS');
plt.xticks(rotation=45);
```



```
age_criminal = df2[df2['criminal']>0].groupby('AGE')[['criminal']].sum().sort_values(by=
                        ['criminal']).tail(15).sort_values(by=['AGE'])
age_criminal
```

	criminal
AGE	
37.0	228.0
42.0	68.0
46.0	70.0
48.0	114.0
49.0	335.0
50.0	83.0
51.0	159.0
52.0	143.0
54.0	104.0
55.0	90.0
56.0	76.0
57.0	79.0
58.0	103.0
60.0	81.0
63.0	91.0

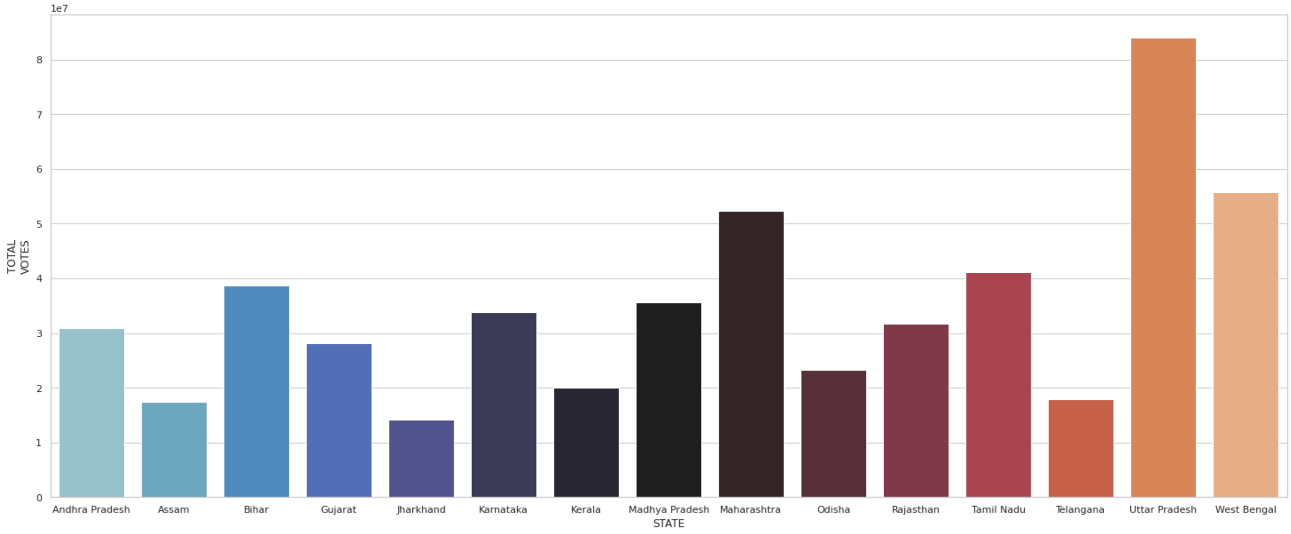
```
plt.figure(figsize=(14,10))
sns.barplot(x = age_criminal.index , y = age_criminal['criminal'] , palette='icefire');
```



```
total_voter1 = df2[df2['TOTAL\nVOTES']>0].groupby('STATE')[['TOTAL\nVOTES']].sum().sort_va
                        ['TOTAL\nVOTES']).tail(15).sort_values(by=['STATE'])

total_voter1
```

	TOTAL\nVOTES
STATE	
Andhra Pradesh	30968703
Assam	17441534
Bihar	38755595
Gujarat	28158684
Jharkhand	14253127
Karnataka	33859226
Kerala	20010727
Madhya Pradesh	35580595
Maharashtra	52287234
Odisha	23250248
Rajasthan	31698131
Tamil Nadu	41080470
Telangana	17956633
Uttar Pradesh	84046966
West Bengal	55738817

```
plt.figure(figsize=(25,10))
sns.barplot(x = total_voter1.index , y = total_voter1['TOTAL\nVOTES'] , palette='icefire')
```



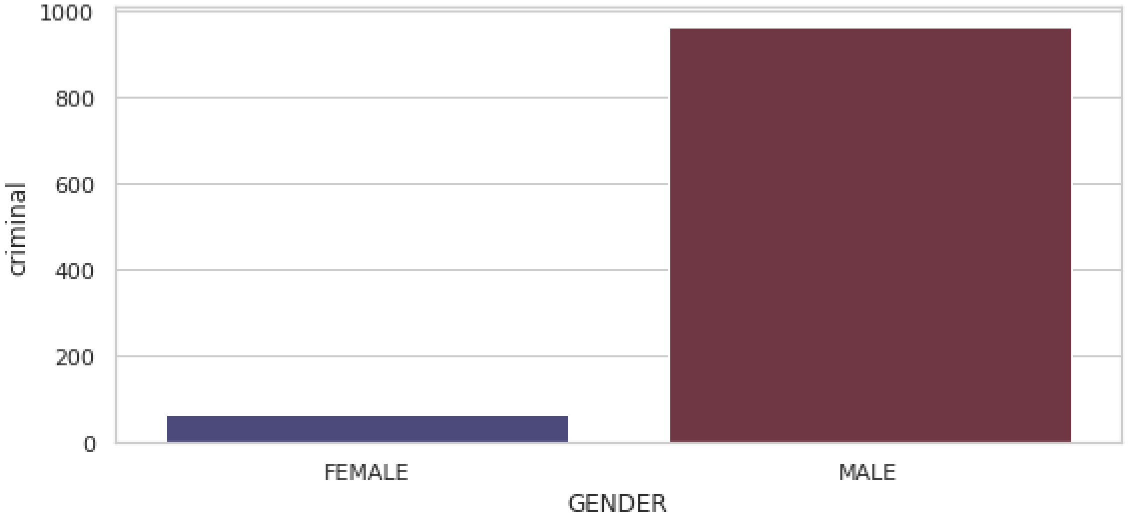
```
fm = df2.groupby(['GENDER','WINNER'])[['criminal']].sum().sort_values(by=
                        ['criminal']).tail(15).sort_values(by=['GENDER'])

fm
```

```
                 criminal
GENDER  WINNER
FEMALE    1          65.0
          0         171.0
 MALE     1         964.0
          0        1734.0
```

```
party_winner1 = df2[(df2['criminal']>0) & (df2['WINNER']>0)].groupby('GENDER')[['criminal'
                        ['criminal']).tail(15).sort_values(by=['GENDER'])
party_winner1
```

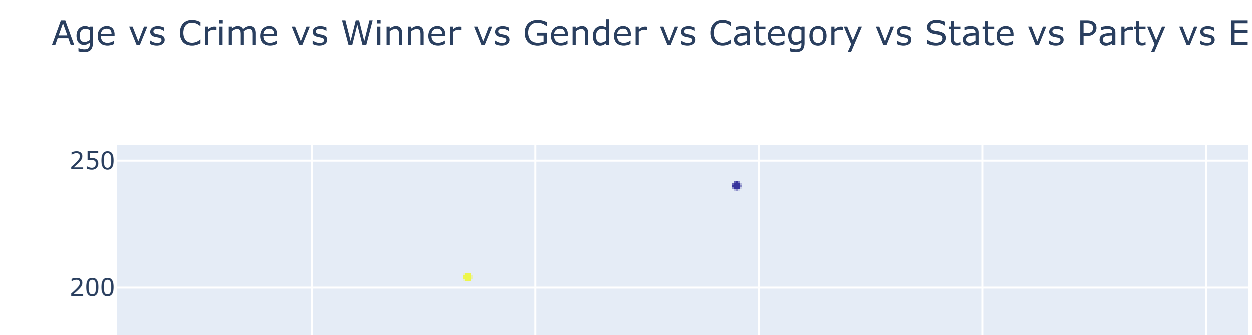
```
         criminal
GENDER
FEMALE       65.0
 MALE       964.0
```

```
plt.figure(figsize=(9,4))
sns.barplot(x = party_winner1.index , y = party_winner1['criminal']  , palette='icefire');
```



```
import plotly.express as px
import matplotlib
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
sns.set_style('darkgrid')
matplotlib.rcParams['font.size'] = 14
matplotlib.rcParams['figure.figsize'] = (10, 6)
matplotlib.rcParams['figure.facecolor'] = '#00000000'
```

```
fig = px.scatter(df2,
                 x='AGE',
                 y='criminal',
                 color='WINNER',
                 opacity=0.8,
                 hover_data=['GENDER','CATEGORY','STATE','PARTY','NAME','EDUCATION'],
                 title='Age vs Crime vs Winner vs Gender vs Category vs State vs Party vs
fig.update_traces(marker_size=5)
fig.show()
```

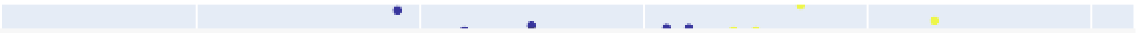


```
df=df2[df2.EDUCATION=='Doctorate']
df.shape
```

```
(73, 19)
```

```
df=df[df.WINNER==1]
df.shape
```

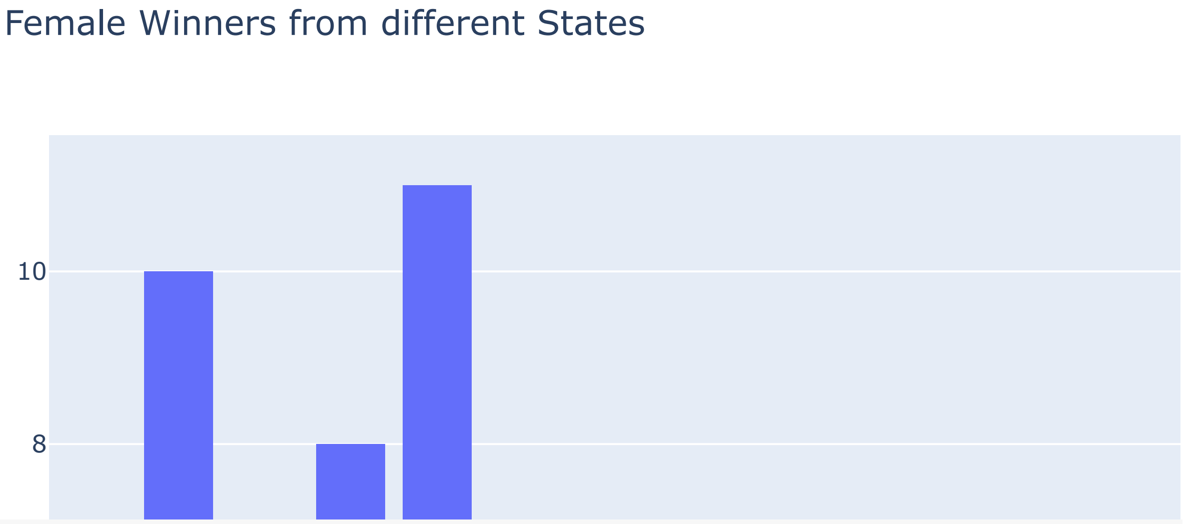
```
(23, 19)
```



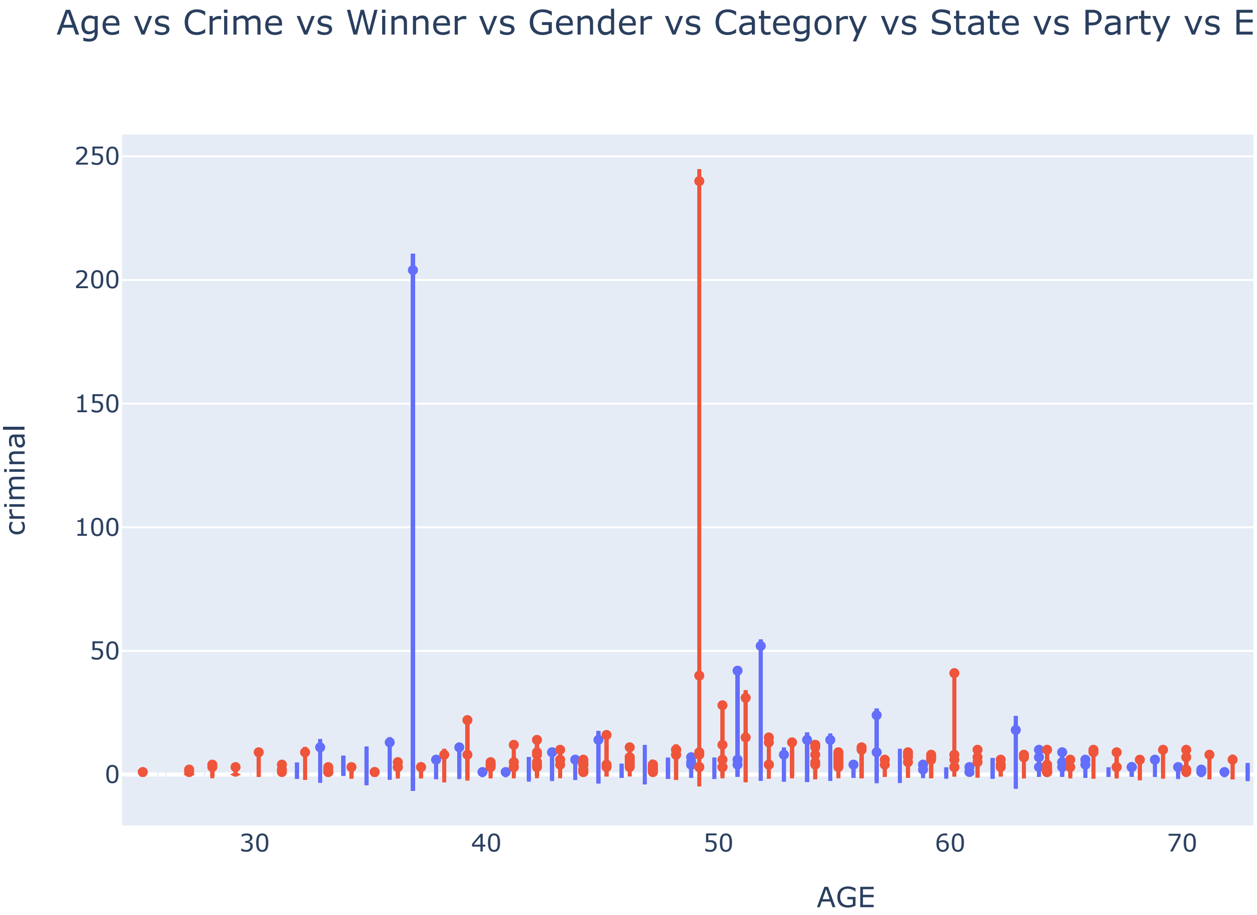
```
df1=df[(df.PARTY=='BJP') & (df.WINNER==1)]
df1.shape
```

```
(14, 19)
```

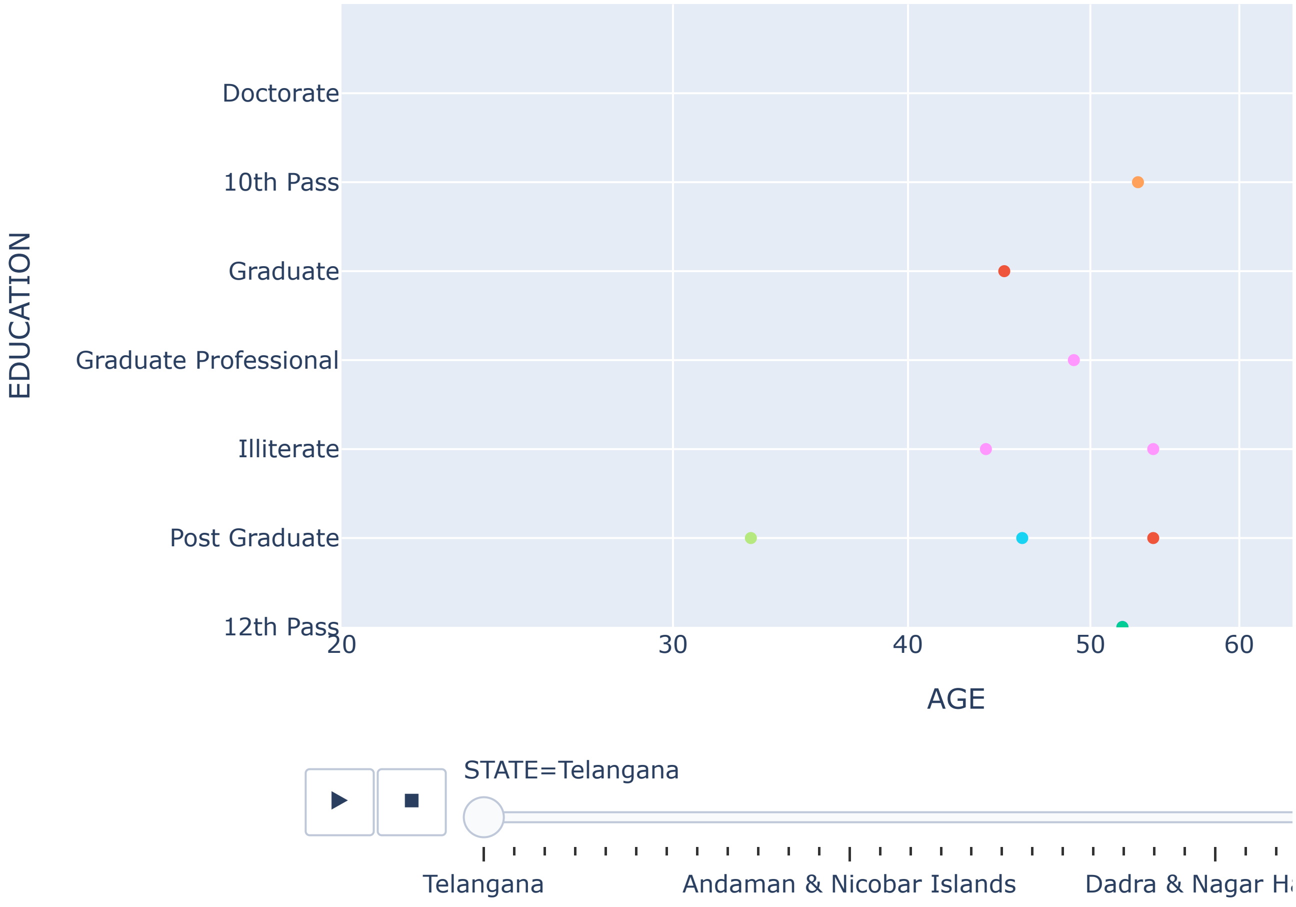
```
Female_winners = df2[(df2['WINNER']==1) & (df2['GENDER']=='FEMALE')]
ax = px.histogram(Female_winners, 'STATE', title = 'Female Winners from different States',
ax.show()
```



```
fig = px.violin(df2,
                 x='AGE',
                 y='criminal',
                 color='WINNER',

                 hover_data=['GENDER','CATEGORY','STATE','PARTY','NAME','EDUCATION'],
                 title='Age vs Crime vs Winner vs Gender vs Category vs State vs Party vs
fig.update_traces(marker_size=5)
fig.show()
```



```
fig = px.scatter(df2,
                 x="AGE",
                 y="EDUCATION",
                 animation_frame="STATE",
                 animation_group="PARTY",
                   color="PARTY",
                 hover_name="CONSTITUENCY",
                 log_x=True,
                 size_max=80,
                 range_x=[20,90],
                 range_y=[0,7])

fig.show()
```



```
sns.heatmap(df2.corr())
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-2-28890f610699> in <module>()
----> 1 sns.heatmap(df2.corr())

NameError: name 'sns' is not defined
```

SEARCH STACK OVERFLOW

✓ 0s completed at 11:19 PM ● ×