final-we4tech-project

August 21, 2023

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

[ ]:
```
# Load the dataset
data = pd.read_csv('/content/B07_General_Election_2019.csv')
```

[ ]:
```
# Display basic information about the dataset
print(data.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
CASES                          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
None
```

[ ]:
```
# Display the first few rows of the dataset
print(data.head())
```

```
           STATE CONSTITUENCY                    NAME  WINNER PARTY SYMBOL  \
0      Telangana     ADILABAD          SOYAM BAPU RAO       1   BJP  Lotus
1      Telangana     ADILABAD            Godam Nagesh       0   TRS    Car
2      Telangana     ADILABAD           RATHOD RAMESH       0   INC   Hand
3      Telangana     ADILABAD                    NOTA       0  NOTA    NaN
4  Uttar Pradesh         AGRA  Satyapal Singh Baghel       1   BJP  Lotus

  GENDER CRIMINAL\nCASES   AGE CATEGORY      EDUCATION  \
0   MALE              52  52.0       ST      12th Pass
1   MALE               0  54.0       ST  Post Graduate
2   MALE               3  52.0       ST      12th Pass
3    NaN             NaN   NaN      NaN            NaN
4   MALE               5  58.0       SC      Doctorate

                        ASSETS                  LIABILITIES  GENERAL\nVOTES  \
0    Rs 30,99,414\n ~ 30 Lacs+      Rs 2,31,450\n ~ 2 Lacs+          376892
1  Rs 1,84,77,888\n ~ 1 Crore+      Rs 8,47,000\n ~ 8 Lacs+          318665
2  Rs 3,64,91,000\n ~ 3 Crore+  Rs 1,53,00,000\n ~ 1 Crore+          314057
3                          NaN                          NaN           13030
4  Rs 7,42,74,036\n ~ 7 Crore+    Rs 86,06,522\n ~ 86 Lacs+          644459

   POSTAL\nVOTES  TOTAL\nVOTES  OVER TOTAL ELECTORS \nIN CONSTITUENCY  \
0            482        377374                                25.330684
1            149        318814                                21.399929
2            181        314238                                21.092771
3              6         13036                                 0.875023
4           2416        646875                                33.383823

   OVER TOTAL VOTES POLLED \nIN CONSTITUENCY  TOTAL ELECTORS
0                                  35.468248         1489790
1                                  29.964370         1489790
2                                  29.534285         1489790
3                                   1.225214         1489790
4                                  56.464615         1937690
```

[ ]:
```
# Summary statistics of numerical columns
print(data.describe())
```

	WINNER	AGE	GENERAL\nVOTES	POSTAL\nVOTES	TOTAL\nVOTES	\
count	2263.000000	2018.000000	2.263000e+03	2263.000000	2.263000e+03	
mean	0.238179	52.273538	2.615991e+05	990.710561	2.625898e+05	
std	0.426064	11.869373	2.549906e+05	1602.839174	2.559822e+05	
min	0.000000	25.000000	1.339000e+03	0.000000	1.342000e+03	
25%	0.000000	43.250000	2.103450e+04	57.000000	2.116250e+04	
50%	0.000000	52.000000	1.539340e+05	316.000000	1.544890e+05	
75%	0.000000	61.000000	4.858040e+05	1385.000000	4.872315e+05	
max	1.000000	86.000000	1.066824e+06	19367.000000	1.068569e+06	

	OVER TOTAL ELECTORS \nIN CONSTITUENCY	\
count	2263.000000	
mean	15.811412	
std	14.962861	
min	0.097941	
25%	1.296518	
50%	10.510553	
75%	29.468185	
max	51.951012	

	OVER TOTAL VOTES POLLED \nIN CONSTITUENCY	TOTAL ELECTORS
count	2263.000000	2.263000e+03
mean	23.190525	1.658016e+06
std	21.564758	3.145187e+05
min	1.000039	5.518900e+04
25%	1.899502	1.530014e+06
50%	16.221721	1.679030e+06
75%	42.590233	1.816857e+06
max	74.411856	3.150313e+06

[ ]:
```
# Check for missing values
print(data.isnull().sum())
```

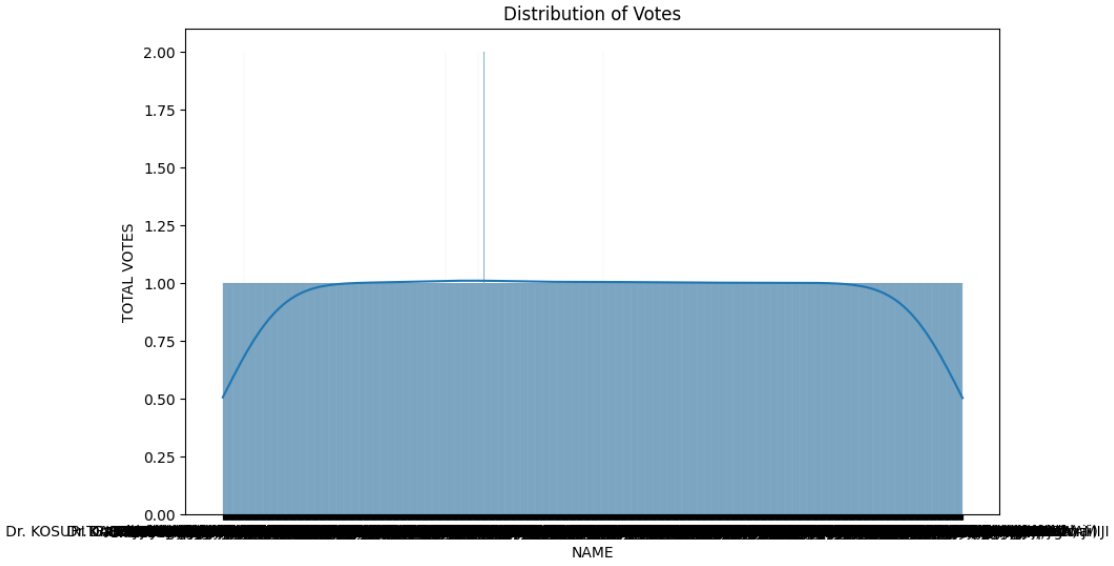
```
STATE                                  0
CONSTITUENCY                           0
NAME                                   0
WINNER                                 0
PARTY                                  0
SYMBOL                               245
GENDER                               245
CRIMINAL\nCASES                      245
AGE                                  245
CATEGORY                             245
EDUCATION                            245
ASSETS                               245
LIABILITIES                          245
GENERAL\nVOTES                         0
POSTAL\nVOTES                          0
```

```
TOTAL\nVOTES                                    0
OVER TOTAL ELECTORS \nIN CONSTITUENCY           0
OVER TOTAL VOTES POLLED \nIN CONSTITUENCY       0
TOTAL ELECTORS                                  0
dtype: int64
```

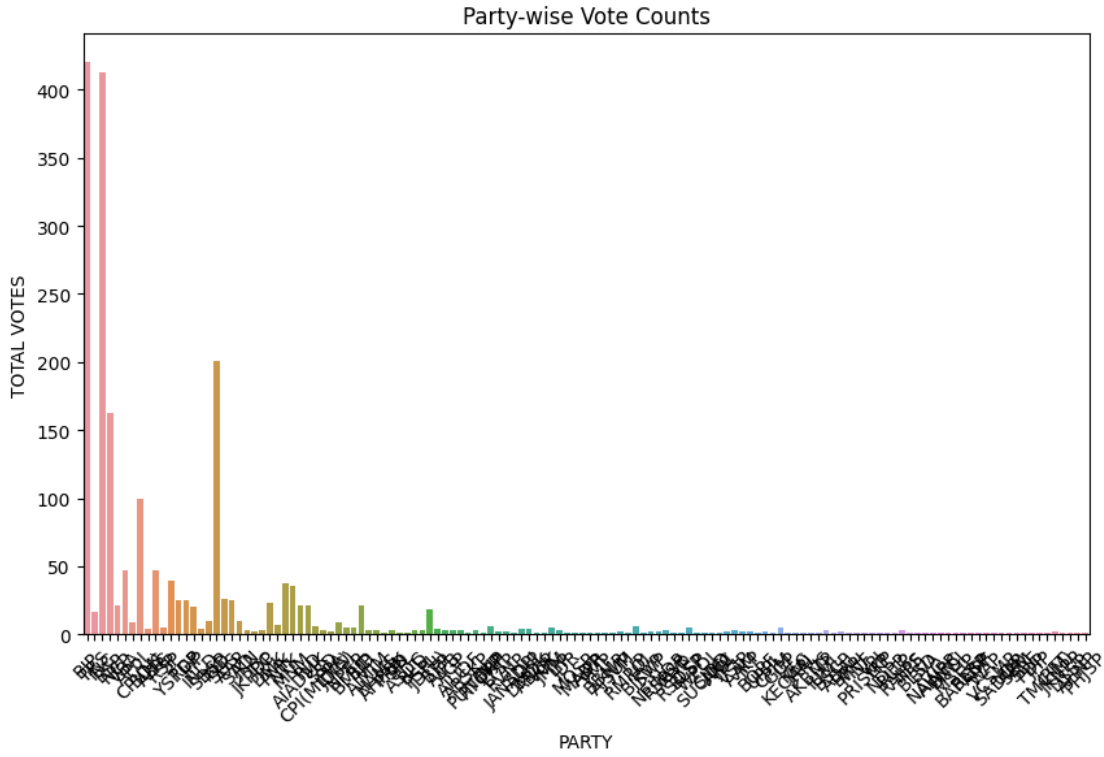
[ ]:
```
# Handling missing values
data.dropna(inplace=True)
```

[ ]:
```
# Handling duplicates
data.drop_duplicates(inplace=True)
```

[ ]:
```
# Histogram of a numeric variable
plt.figure(figsize=(10, 6))
sns.histplot(data['NAME'], bins=20, kde=True)
plt.title('Distribution of Votes')
plt.xlabel('NAME')
plt.ylabel('TOTAL VOTES')
plt.show()
```

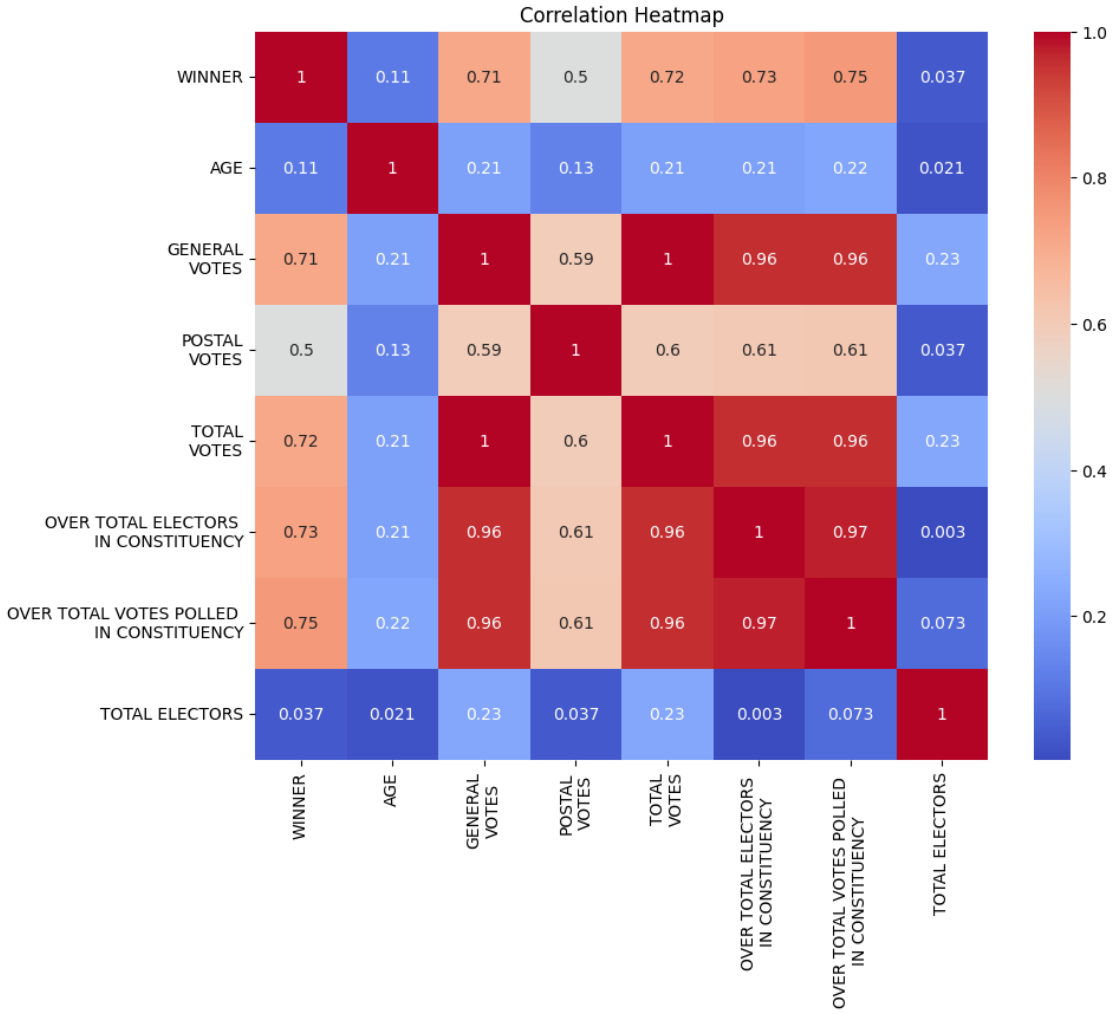


[ ]:
```
# Count plot of a categorical variable
plt.figure(figsize=(10, 6))
sns.countplot(x='PARTY', data=data)
plt.title('Party-wise Vote Counts')
plt.xticks(rotation=45)
plt.xlabel('PARTY')
plt.ylabel('TOTAL VOTES')
plt.show()
```



[ ]:
```
# Correlation heatmap for numeric variables
plt.figure(figsize=(10, 8))
sns.heatmap(data.corr(), annot=True, cmap='coolwarm')
plt.title('Correlation Heatmap')
plt.show()
```

```
<ipython-input-15-cc94773b3ac5>:3: FutureWarning: The default value of
numeric_only in DataFrame.corr is deprecated. In a future version, it will
default to False. Select only valid columns or specify the value of numeric_only
to silence this warning.
  sns.heatmap(data.corr(), annot=True, cmap='coolwarm')
```



[ ]:
```
# Countplot of votes by state
plt.figure(figsize=(12, 6))
sns.countplot(data=data, x='STATE', hue='PARTY')
plt.title('Votes by State and Party')
plt.xlabel('State')
plt.ylabel('Number of Votes')
plt.xticks(rotation=45)
plt.legend(title='Party')
plt.show()
```


Party
BJP
TRS
INC
BSP
NCP
VBA
APoI
CPI(M)
BDJS
AITC
RSP
SP
YSRCP
TDP
JnP
INLD
SBSP
IND
SHS
AAP
SAD
JKN
JKPDP
JPC
DMK
PMK
NTK
MNM
AIADMK
RJD
CPI(ML)(L)
SSD
PPA
JD(S)
NPEP
BMUP
BJD
AIMIM
HAMS
AHFBK
PPID
SPL
ASDC
RLD
PSPL
JD(U)
BTP
AIFB
AGP
AIUDF
ABSKP
PUNEKP
RTORP
JNJP
LTSP
RVNP
JANADIP
SDPI
DMDK
ABGP
VCK
JMM
LJP
JDR
MOSP
MADP
AJPR
PMP
BBMP
AJSUP
JVM
RMPOI
LJP
BJKVP
SWP
NEINDP
RSPSR
ravp
RSOSP
BLSP
WPOI
SUCI(C)
SJDD
ANC
JDL
VSIP
AAM
JKP
BOPF
UPPL
CPIM
GGP
KEC(M)
KEC
JAPL
AKBMP
TJS
IUML
BSCP
ADAL
BRPI
MNF
PRISMP
VPI
YKP
NDPP
RLTP
RAHIS
NPF
BLSD
BVA
NAWPP
AINRC
BNDI
MSHP
BARESP
BLRP
AIPF
WAP
VCSMP
SAD(M)
UDP
SKM
SDF
PDP
JHP
TMC(M)
IPFT
JKNPP
DSSP
AHNP
PHJSP
Votes by State and Party
Number of Votes
0
10
20
30
40
50
60
70
80
Telangana
Uttar Pradesh
Maharashtra
Rajasthan
Kerala
West Bengal
Uttarakhand
Andhra Pradesh
Punjab
Jammu & Kashmir
Andaman & Nicobar Islands
Arunachal Pradesh
Assam
Karnataka
Madhya Pradesh
Chhattisgarh
Chandigarh
NCT OF Delhi
Jharkhand
Himachal Pradesh
Lakshadweep
Nagaland
Puducherry
Meghalaya
Sikkim
Tripura
State

[ ]:
```
c1=0
c2=0
c3=0
for i in data['AGE']:
  if i>=60 :
    c1=c1 + 1
  elif i>30:
    c2=c2+1
  elif i>0:
    c3=c3+1
print("Age greater than 60:", c1)
print("Age between 30 and 60:", c2)
print("Age less than 30:", c3)
```

```
Age greater than 60: 606
Age between 30 and 60: 1344
Age less than 30: 68
```

[ ]:
```
df=data.groupby(['PARTY'])['WINNER'].sum()
df1=df.sort_values( ascending=False).head(10)
print(df1)
```

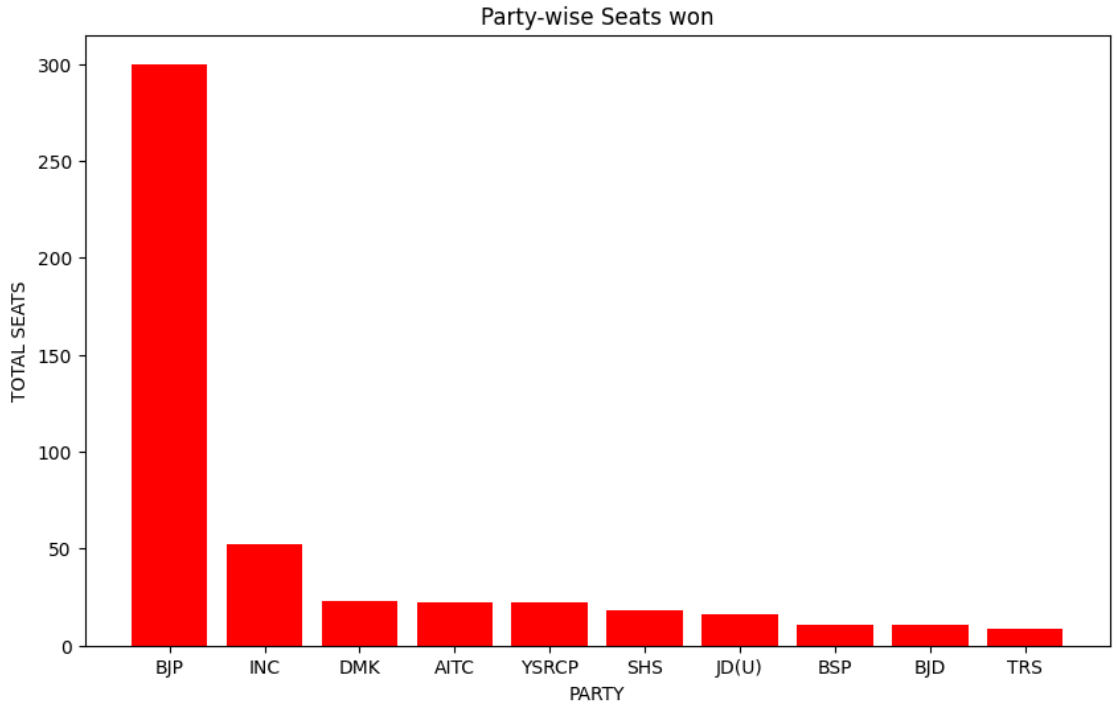
```
PARTY
BJP      300
INC       52
DMK       23
AITC      22
YSRCP     22
SHS       18
JD(U)     16
BSP       11
BJD       11
TRS        9
Name: WINNER, dtype: int64
```

[ ]:
```
df2=pd.DataFrame({'PARTY':df1.index, 'SEATS':df1.values})
print(df2)
```

```
   PARTY  SEATS
0    BJP    300
1    INC     52
2    DMK     23
3   AITC     22
4  YSRCP     22
5    SHS     18
```

```
6  JD(U)     16
7    BSP     11
8    BJD     11
9    TRS      9
```

[ ]:
```
# Count plot of a categorical variable
plt.figure(figsize=(10, 6))
#sns.countplot(x='PARTY', data=df2)
plt.bar(df2['PARTY'], df2['SEATS'], color='r')
plt.title('Party-wise Seats won')
plt.xlabel('PARTY')
plt.ylabel('TOTAL SEATS')
plt.show()
```



[ ]:
```
edu=data.groupby(['PARTY','EDUCATION'])['NAME'].count()
#edu1=edu.sort_values(ascending=False)
print(edu)
```

```
PARTY  EDUCATION
AAM    8th Pass                1
       Literate                1
AAP    10th Pass               1
       12th Pass               5
       8th Pass                1
                              ..
```

```
YSRCP  Doctorate                 1
       Graduate                  5
       Graduate Professional     6
       Post Graduate            10
ravp   Doctorate                 1
Name: NAME, Length: 372, dtype: int64
```

[ ]:
```
cat=data.groupby(['PARTY','CATEGORY'])['NAME'].count()
#cat1=cat.sort_values(ascending=False)
print(cat)
```

```
PARTY  CATEGORY
AAM    GENERAL      1
       SC           1
AAP    GENERAL     20
       SC           5
ABGP   ST           1
                   ..
YKP    GENERAL      1
YSRCP  GENERAL     20
       SC           4
       ST           1
ravp   GENERAL      1
Name: NAME, Length: 198, dtype: int64
```

[ ]:
```
gen=data.groupby(['PARTY','GENDER'])['NAME'].count()
#gen1=gen.sort_values(ascending=False)
print(gen)
```

```
PARTY  GENDER
AAM    FEMALE     1
       MALE       1
AAP    FEMALE     3
       MALE      22
ABGP   MALE       1
                 ..
WPOI   MALE       1
YKP    MALE       1
YSRCP  FEMALE     4
       MALE      21
ravp   MALE       1
Name: NAME, Length: 171, dtype: int64
```