```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
from textblob import TextBlob
from wordcloud import WordCloud
import plotly.graph_objects as go
import plotly.express as px

trump_reviews = pd.read_csv("Trumpall2.csv")
biden_reviews = pd.read_csv("Bidenall2.csv")


print(trump_reviews.head())
print(biden_reviews.head())
```

```
                user                                               text
0      manny_rosen   @sanofi please tell us how many shares the Cr...
1        osi_abdul   https://t.co/atM98CpqF7  Like, comment, RT #P...
2          Patsyrw   Your AG Barr is as useless &amp;amp; corrupt as y...
3  seyedebrahimi_m   Mr. Trump! Wake Up!  Most of the comments bel...
4    James09254677   After 4 years you think you would have figure...
            user                                               text
0   MarkHodder3    @JoeBiden And we'll find out who won in 2026...
1    K87327961G  @JoeBiden Your Democratic Nazi Party cannot be...
2      OldlaceA                        @JoeBiden So did Lying Barr
3    penblogger  @JoeBiden It's clear you didnt compose this tw...
4  Aquarian0264         @JoeBiden I will vote in person thank you.
```

```
textblob1 = TextBlob(trump_reviews["text"][10])
print("Trump :",textblob1.sentiment)
textblob2 = TextBlob(biden_reviews["text"][500])
print("Biden :",textblob2.sentiment)
```

```
     Trump : Sentiment(polarity=0.15, subjectivity=0.3125)
     Biden : Sentiment(polarity=0.6, subjectivity=0.9)
```

```
def find_pol(review):
    return TextBlob(review).sentiment.polarity
trump_reviews["Sentiment Polarity"] = trump_reviews["text"].apply(find_pol)
print(trump_reviews.tail())

biden_reviews["Sentiment Polarity"] = biden_reviews["text"].apply(find_pol)
print(biden_reviews.tail())
```

```
                   user                                               text  \
     2783          4diva63  @realDonaldTrump For the 1/100 time, absentee ...
     2784         hidge826  @realDonaldTrump If you're so scared of losing...
     2785     SpencerRossy  @realDonaldTrump I rarely get involved with fo...
     2786  ScoobyMcpherson  @realDonaldTrump This is the moment when Trump...
     2787          bjklinz     @realDonaldTrump I'm sorry, Donald. No. #POTUS

           Sentiment Polarity
```

```
2783              0.000
2784              0.000
2785              0.225
2786              0.000
2787             -0.500
             user                                                text  \
2535    meryn1977  @JoeBiden You'll just try to calm those waters...
2536  BSNelson114  @JoeBiden 96 days 96 dias #VoteJoeBiden2020  #...
2537     KenCapel  @JoeBiden YOU THINK YOU CAN DO THAT??? YOU CAN...
2538   LeslyeHale  @JoeBiden Trump wants our children back at sch...
2539     rerickre  @JoeBiden ... and I know, because it’s much co...

      Sentiment Polarity
2535               0.15
2536               0.00
2537               0.00
2538               0.10
2539               0.20
```

```
trump_reviews["Expression Label"] = np.where(trump_reviews["Sentiment Polarity"]>0, "posit
trump_reviews["Expression Label"][trump_reviews["Sentiment Polarity"]==0]="Neutral"
print(trump_reviews.tail())

biden_reviews["Expression Label"] = np.where(biden_reviews["Sentiment Polarity"]>0, "posit
biden_reviews["Expression Label"][trump_reviews["Sentiment Polarity"]==0]="Neutral"
print(biden_reviews.tail())
```

```
                  user                                                text  \
2783          4diva63  @realDonaldTrump For the 1/100 time, absentee ...
2784         hidge826  @realDonaldTrump If you’re so scared of losing...
2785     SpencerRossy  @realDonaldTrump I rarely get involved with fo...
2786  ScoobyMcpherson  @realDonaldTrump This is the moment when Trump...
2787          bjklinz     @realDonaldTrump I’m sorry, Donald. No. #POTUS

      Sentiment Polarity Expression Label
2783               0.000          Neutral
2784               0.000          Neutral
2785               0.225         positive
2786               0.000          Neutral
2787              -0.500         negative
             user                                                text  \
2535    meryn1977  @JoeBiden You'll just try to calm those waters...
2536  BSNelson114  @JoeBiden 96 days 96 dias #VoteJoeBiden2020  #...
2537     KenCapel  @JoeBiden YOU THINK YOU CAN DO THAT??? YOU CAN...
2538   LeslyeHale  @JoeBiden Trump wants our children back at sch...
2539     rerickre  @JoeBiden ... and I know, because it’s much co...

      Sentiment Polarity Expression Label
2535               0.15          Neutral
2536               0.00          Neutral
2537               0.00         negative
2538               0.10          Neutral
2539               0.20         positive
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:3: SettingWithCopyWarnir
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/us
```

```
  This is separate from the ipykernel package so we can avoid doing imports until
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:7: SettingWithCopyWarnir
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/us
  import sys
```

```
reviews1 = trump_reviews[trump_reviews['Sentiment Polarity'] == 0.0000]
print(reviews1.shape)

cond1=trump_reviews['Sentiment Polarity'].isin(reviews1['Sentiment Polarity'])
trump_reviews.drop(trump_reviews[cond1].index, inplace = True)
print(trump_reviews.shape)

reviews2 = biden_reviews[biden_reviews['Sentiment Polarity'] == 0.0000]
print(reviews2.shape)

cond2=biden_reviews['Sentiment Polarity'].isin(reviews1['Sentiment Polarity'])
biden_reviews.drop(biden_reviews[cond2].index, inplace = True)
print(biden_reviews.shape)
```

```
(1464, 4)
(1324, 4)
(1509, 4)
(1031, 4)
```

```
# Donald Trump
np.random.seed(10)
remove_n =324
drop_indices = np.random.choice(trump_reviews.index, remove_n, replace=False)
df_subset_trump = trump_reviews.drop(drop_indices)
print(df_subset_trump.shape)
# Joe Biden
np.random.seed(10)
remove_n =31
drop_indices = np.random.choice(biden_reviews.index, remove_n, replace=False)
df_subset_biden = biden_reviews.drop(drop_indices)
print(df_subset_biden.shape)
```

```
(1000, 4)
(1000, 4)
```

```
count_1 = df_subset_trump.groupby('Expression Label').count()
print(count_1)

negative_per1 = (count_1['Sentiment Polarity'][0]/1000)*10
positive_per1 = (count_1['Sentiment Polarity'][1]/1000)*100

count_2 = df_subset_biden.groupby('Expression Label').count()
print(count_2)

negative_per2 = (count_2['Sentiment Polarity'][0]/1000)*100
positive_per2 = (count_2['Sentiment Polarity'][1]/1000)*100
```

```
Politicians = ['Joe Biden', 'Donald Trump']
lis_pos = [positive_per1, positive_per2]
lis_neg = [negative_per1, negative_per2]

fig = go.Figure(data=[
    go.Bar(name='Positive', x=Politicians, y=lis_pos),
    go.Bar(name='Negative', x=Politicians, y=lis_neg)
])
# Change the bar mode
fig.update_layout(barmode='group')
fig.show()
```

```
                    user  text  Sentiment Polarity
Expression Label
negative             449   449                 449
positive             551   551                 551
                    user  text  Sentiment Polarity
Expression Label
Neutral              524   524                 524
negative             181   181                 181
positive             295   295                 295
```