Analyse the Electoral Bond Data

- Import the Numpy, Pandas and matplotlib
- Load the DataFrames pdf and rdf from the CSV files (pre-processed output of the files downloaded from the ECI website). The two PDF files listing the purchaser and receiver details (uploaded on 21-mar-2024)
- They are converted into CSV format
- A unique alphanumeric code 'ANcode' is made by combining the 'Prefix' and 'Bond Number' columns.
- Column named 'Denomination' is renamed as 'Amount paid'in the purchaser file and Amount Received in the receiver file. This is important there are entries in the eb-encashed data with no corresponding entries in the eb-purchaser data.
- The result is kept at the URL shown below Visit https://scischool.in/ebond/index.html (https://scischool.in/ebond/index.html) for details. To know how this done, download the pre-processing program (https://scischool.in/ebond/pre-process.ipynb)

```
In [1]: import numpy as np
        import pandas as pd
        import matplotlib.pyplot as plt

        pdf = pd.read_csv('https://scischool.in/ebond/eb-purchased.csv', index_col = 'ANcode')
        rdf = pd.read_csv('https://scischool.in/ebond/eb-encashed.csv', index_col = 'ANcode')
        df = pd.concat([pdf, rdf], axis=1, sort = True)

        # Delete the entries that we are not analysing. Uncomment these lines if you want them
        df = df.drop(columns =['Reference No (URN)', 'Date of Expiry', 'Issue Branch Code', 'Issue Teller', 'Journal
        df = df.drop(columns = ['Pay Branch Code', 'Pay Teller', 'Account no. of Political Party'], axis = 'columns
```

Analysis

Total number of Bonds purchased and total number encashed along with the amounts.

```
In [2]: ptotal = pdf['Amount paid'].sum()
        print('Number of Bonds purchased = %d (Rs. %10.4f Crores)'%(len(pdf), ptotal))
        rtotal = rdf['Amount received'].sum()
        print('Number of Bonds encashed = %d (Rs. %10.4f Crores)'%(len(rdf), rtotal))
        print('Source unknown %d bonds (Rs. %10.4f Cr)'%(len(rdf)-len(pdf), rtotal - ptotal))
```

```
Number of Bonds purchased = 18871 (Rs. 12155.5132 Crores)
Number of Bonds encashed = 20421 (Rs. 12769.0893 Crores)
Source unknown 1550 bonds (Rs.   613.5761 Cr)
```

Result: Bonds without Donor info

purchaser details for **1550 bonds worth Rs. 613.5761 Cr** is missing.

Party-wise breakup of Unkown source bonds

```
In [3]: df["Name of the Purchaser"].fillna('Unknown', inplace = True) # if puchaser data is missing, show it as unkn
        x = df[df["Name of the Purchaser"] == 'Unknown']
        x.groupby(by='Name of the Political Party')['Amount received'].sum().nlargest(15)
```

```
Out[3]: Name of the Political Party
        BHARATIYA JANATA PARTY                                        466.310
        PRESIDENT, ALL INDIA CONGRESS COMMITTEE                        70.771
        BHARAT RASHTRA SAMITHI                                         23.550
        ALL INDIA TRINAMOOL CONGRESS                                   17.010
        YSR  CONGRESS PARTY  (YUVAJANA SRAMIKA RYTHU CONGRESS PARTY)    8.250
        TELUGU DESAM PARTY                                              7.300
        DRAVIDA MUNNETRA KAZHAGAM (DMK)                                 7.000
        SHIVSENA                                                        6.930
        ALL INDIA ANNA DRAVIDA MUNNETRA KAZHAGAM                        6.050
        JANATA DAL ( SECULAR )                                          2.500
        NATIONALIST CONGRESS PARTY MAHARASHTRA PRADESH                  2.500
        BIHAR PRADESH JANTA DAL(UNITED)                                 2.000
        JHARKHAND MUKTI MORCHA                                          1.000
        RASHTRIYA JANTA DAL                                             1.000
        ADYAKSHA SAMAJVADI PARTY                                        0.840
        Name: Amount received, dtype: float64
```

BJP has received the maximum amount without donor information (as per the data relesed).

Total amount Donations received (for top 20)

```
In [4]: df.groupby(by='Name of the Political Party')['Amount received'].sum().nlargest(20)
```

```
Out[4]: Name of the Political Party
        BHARATIYA JANATA PARTY                                          6060.5111
        ALL INDIA TRINAMOOL CONGRESS                                    1609.5314
        PRESIDENT, ALL INDIA CONGRESS COMMITTEE                         1421.8655
        BHARAT RASHTRA SAMITHI                                          1214.7099
        BIJU JANATA DAL                                                  775.5000
        DRAVIDA MUNNETRA KAZHAGAM (DMK)                                  639.0000
        YSR  CONGRESS PARTY  (YUVAJANA SRAMIKA RYTHU CONGRESS PARTY)     337.0000
        TELUGU DESAM PARTY                                               218.8800
        SHIVSENA                                                         159.3814
        RASHTRIYA JANTA DAL                                               73.5000
        AAM AADMI PARTY                                                   65.4500
        JANATA DAL ( SECULAR )                                            43.5000
        SIKKIM KRANTIKARI MORCHA                                          36.5000
        NATIONALIST CONGRESS PARTY MAHARASHTRA PRADESH                    31.0000
        JANASENA PARTY                                                    21.0000
        ADYAKSHA SAMAJVADI PARTY                                          14.0500
        BIHAR PRADESH JANTA DAL(UNITED)                                   14.0000
        JHARKHAND MUKTI MORCHA                                            13.5000
        SHIROMANI AKALI DAL                                                7.2600
        ALL INDIA ANNA DRAVIDA MUNNETRA KAZHAGAM                           6.0500
        Name: Amount received, dtype: float64
```

BJP tops the list with 6060.5 Crores

Main Donors of BJP

The code beloww lists the larget 25 donors of BJP and the total amount donor-wise.

```
In [5]: bjp = df[df['Name of the Political Party'] == 'BHARATIYA JANATA PARTY']
        bjp.groupby(by='Name of the Purchaser')['Amount received'].sum().nlargest(20)
```

```
Out[5]: Name of the Purchaser
        MEGHA ENGINEERING AND INFRASTRUCTURES LI MITED    519.00
        Unknown                                           466.31
        QWIKSUPPLYCHAINPRIVATELIMITED                     375.00
        VEDANTA LIMITED                                   226.65
        BHARTI AIRTEL LIMITED                             183.00
        MADANLAL LTD.                                     175.50
        KEVENTER FOODPARK INFRA LIMITED                   144.50
        DLF COMMERCIAL DEVELOPERS LIMITED                 130.00
        BIRLACARBONINDIAPRIVATELIMITED                    105.00
        FUTURE GAMING AND HOTEL SERVICES PR               100.00
        HALDIA ENERGY LIMITED                              81.00
        WESTERN UP POWER TRANSMISSION COMPANY LI MITED     80.00
        UTKAL ALUMINA INTERNATIONAL LIMITED                75.00
        INFINA FINANCE PRIVATE LIMITED                     60.00
        MEGHA ENGINEERING AND INFRASTRUCTURES LTD          60.00
        NCC LIMITED                                        60.00
        TORRENT  POWER  LIMITED                            58.00
        ESSEL MINING AND INDS LTD                          50.00
        RUNGTA SONS P LTD                                  50.00
        SRI SIDDHARTH INFRATECH AND SERVICES I P           50.00
        Name: Amount received, dtype: float64
```

Note that the name of Megha Engineering appear twice in the list because the name is entered in different ways.

Main Donors of INC

```
In [6]:  inc = df[df['Name of the Political Party'] == 'PRESIDENT, ALL INDIA CONGRESS COMMITTEE']
         inc.groupby(by='Name of the Purchaser')['Amount received'].sum().nlargest(20)
```

```
Out[6]:  Name of the Purchaser
         WESTERN UP POWER TRANSMISSION COMPANY LI MITED     110.000
         VEDANTA LIMITED                                    104.000
         Unknown                                             70.771
         MKJ ENTERPRISES LIMITED                             69.350
         YASHODA SUPER SPECIALITY HOSPITAL                   64.000
         AVEES TRADING FINANCE PVT LTD                       53.000
         FUTURE GAMING AND HOTEL SERVICES PR                 50.000
         SASMAL INFRASTRUCTURE PRIVATE LIMITED               39.000
         RITHWIK PROJECTS  PRIVATE LIMITED                   30.000
         SEPC POWER PVT LTD OPERATION RETEN                  30.000
         MKJ ENTERPRISES LTD                                 22.250
         SIDDHI TRADING                                      22.000
         VEDANTA LTD                                         21.000
         BKC PROPERTIES PVT LTD                              20.000
         JINDAL STEEL AND POWER LIMITED                      20.000
         KEVENTER FOODPARK INFRA LIMITED                     20.000
         MEGHA ENGINEERING AND INFRASTRUCTURES LI MITED      18.000
         TORRENT  POWER  LIMITED                             17.000
         TRANSWAYS EXIM PRIVATE LIMITED                      15.200
         APARNA FARMS AND ESTATES LLP                        15.000
         Name: Amount received, dtype: float64
```

You may note that the 'Unknown' donor is second or third in the list.

Donations from different categories of companies

```
In [7]:  # You may add more here
         categories = ['pharma', 'Engineering', 'Hotel', 'Media']#, 'Infra', 'Construction', 'Energy', 'Mining', 'cer

         for cat in categories:
             f1 = df[df['Name of the Purchaser'].str.contains(cat, na = False, case = False)]
             print('Company Category = ', cat)
             print(f1.groupby(by='Name of the Political Party')['Amount received'].sum().nlargest(15))
             print()
```

```
Company Category =  pharma
Name of the Political Party
BHARATIYA JANATA PARTY                                            238.95
BHARAT RASHTRA SAMITHI                                            55.00
PRESIDENT, ALL INDIA CONGRESS COMMITTEE                          18.25
TELUGU DESAM PARTY                                               16.50
SIKKIM KRANTIKARI MORCHA                                          7.00
JANASENA PARTY                                                    5.00
ADYAKSHA SAMAJVADI PARTY                                          3.00
YSR  CONGRESS PARTY  (YUVAJANA SRAMIKA RYTHU CONGRESS PARTY)      3.00
AAM AADMI PARTY                                                   1.00
SIKKIM DEMOCRATIC FRONT                                           0.50
Name: Amount received, dtype: float64

Company Category =  Engineering
Name of the Political Party
BHARATIYA JANATA PARTY                                           704.75
BHARAT RASHTRA SAMITHI                                          202.50
DRAVIDA MUNNETRA KAZHAGAM (DMK)                                 85.00
YSR  CONGRESS PARTY  (YUVAJANA SRAMIKA RYTHU CONGRESS PARTY)     37.00
TELUGU DESAM PARTY                                               28.00
PRESIDENT, ALL INDIA CONGRESS COMMITTEE                         19.00
BIHAR PRADESH JANTA DAL(UNITED)                                 10.00
BIJU JANATA DAL                                                  5.00
JANATA DAL ( SECULAR )                                           5.00
JANASENA PARTY                                                   4.00
Name: Amount received, dtype: float64

Company Category =  Hotel
Name of the Political Party
```

```
ALL INDIA TRINAMOOL CONGRESS                                  542.00
DRAVIDA MUNNETRA KAZHAGAM (DMK)                               503.00
YSR  CONGRESS PARTY  (YUVAJANA SRAMIKA RYTHU CONGRESS PARTY)  154.00
BHARATIYA JANATA PARTY                                        105.00
PRESIDENT, ALL INDIA CONGRESS COMMITTEE                        50.75
SIKKIM KRANTIKARI MORCHA                                       11.00
SIKKIM DEMOCRATIC FRONT                                         5.00
Name: Amount received, dtype: float64

Company Category =  Media
Name of the Political Party
BHARATIYA JANATA PARTY     42.0
Name: Amount received, dtype: float64
```

Donations from companies under investigation

The company names are taken from a report on [The Hindu on 19-Mar-2024 (https://www.thehindu.com/data/several-pharma-other-cos-that-bought-poll-bonds-also-faced-regulatory-action/article67968909.ece)](https://www.thehindu.com/data/several-pharma-other-cos-that-bought-poll-bonds-also-faced-regulatory-action/article67968909.ece).

Micro labs, Hetero labs, MSM pharma, Intas, Lupin, Mankind, Natco, Allana Group, My home construction

In [8]:
```python
names = ['Micro labs', 'Hetero labs', 'MSM pharma', 'Intas', 'Lupin', 'Mankind', 'Natco', 'Allana', 'My home

for s in names:
    firm = df[df['Name of the Purchaser'].str.contains(s, na = False, case = False)]
    print('Company name = ', s)
    print(firm.groupby(by='Name of the Political Party')['Amount received'].sum().nlargest(15))
    print()
```

```
Company name =  Micro labs
Name of the Political Party
SIKKIM KRANTIKARI MORCHA               7.0
BHARATIYA JANATA PARTY                 6.0
PRESIDENT, ALL INDIA CONGRESS COMMITTEE    3.0
Name: Amount received, dtype: float64

Company name =  Hetero labs
Name of the Political Party
BHARAT RASHTRA SAMITHI     20.0
BHARATIYA JANATA PARTY      5.0
Name: Amount received, dtype: float64

Company name =  MSM pharma
Series([], Name: Amount received, dtype: float64)

Company name =  Intas
Name of the Political Party
BHARATIYA JANATA PARTY     20.0
Name: Amount received, dtype: float64

Company name =  Lupin
Name of the Political Party
BHARATIYA JANATA PARTY     18.0
Name: Amount received, dtype: float64

Company name =  Mankind
Name of the Political Party
BHARATIYA JANATA PARTY     24.6
Name: Amount received, dtype: float64

Company name =  Natco
```

```
Name of the Political Party
BHARAT RASHTRA SAMITHI                                        20.00
BHARATIYA JANATA PARTY                                        15.00
TELUGU DESAM PARTY                                            14.00
PRESIDENT, ALL INDIA CONGRESS COMMITTEE                       12.25
JANASENA PARTY                                                 5.00
YSR  CONGRESS PARTY  (YUVAJANA SRAMIKA RYTHU CONGRESS PARTY)   3.00
Name: Amount received, dtype: float64

Company name =  Allana
Name of the Political Party
SHIVSENA                  5.0
BHARATIYA JANATA PARTY    1.0
Name: Amount received, dtype: float64

Company name =  My home
Name of the Political Party
BHARAT RASHTRA SAMITHI                     15.0
BHARATIYA JANATA PARTY                      5.0
PRESIDENT, ALL INDIA CONGRESS COMMITTEE     4.5
Name: Amount received, dtype: float64
```

In [ ]: