Load 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
```

Data Analysis, total amounts

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

```
In [2]: purchased = df['Amount paid'].sum()
        print('Number of Bonds purchased = %d (Rs. %10.4f Crores)'%(len(pdf), purchased))
        received = rdf['Amount received'].sum()
        print('Number of Bonds encashed = %d (Rs. %10.4f Crores)'%(len(rdf), received))
        print('Puchaser info missing for %d bonds (worth Rs. %10.4f Cr)'%(len(rdf)-len(pdf), received - purchased))
```

```
Number of Bonds purchased = 18871 (Rs. 12155.5132 Crores)
Number of Bonds encashed = 20421 (Rs. 12769.0893 Crores)
Puchaser info missing for 1550 bonds (worth Rs.   613.5761 Cr)
```

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

Party-wise breakup of Unkown donor bonds

```
In [3]: df["Name of the Purchaser"].fillna('Unknown', inplace = True) # if puchaser data is missing, show it as unk
        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).

Donor-wise breakup of bonds

```
In [4]: df.groupby(by='Name of the Purchaser')['Amount received'].sum().nlargest(10)
        from10 = df.groupby(by='Name of the Purchaser')['Amount received'].sum().nlargest(10).sum()
        print('Donation from top 10 donors = %10.4f Cr'%from10)
        df.groupby(by='Name of the Purchaser')['Amount received'].sum().nlargest(15)
        #df.groupby(by='Name of the Purchaser')['Amount received'].sum().value_counts()
```

```
Donation from top 10 donors =  4636.8610 Cr
```

```
Out[4]: Name of the Purchaser
        FUTURE GAMING AND HOTEL SERVICES PR               1205.000
        MEGHA ENGINEERING AND INFRASTRUCTURES LI MITED     821.000
        Unknown                                            623.211
        QWIKSUPPLYCHAINPRIVATELIMITED                      410.000
        HALDIA ENERGY LIMITED                              377.000
        VEDANTA LIMITED                                    375.650
        ESSEL MINING AND INDS LTD                          224.500
        WESTERN UP POWER TRANSMISSION COMPANY LI MITED     220.000
        KEVENTER FOODPARK INFRA LIMITED                    195.000
        MADANLAL LTD.                                      185.500
        BHARTI AIRTEL LIMITED                              183.000
        YASHODA SUPER SPECIALITY HOSPITAL                  162.000
        UTKAL ALUMINA INTERNATIONAL LIMITED                135.100
        DLF COMMERCIAL DEVELOPERS LIMITED                  130.000
        MKJ ENTERPRISES LIMITED                            128.350
        Name: Amount received, dtype: float64
```

Out of around 274 contributors giving Rs 12155.5132 Crores, the top 10 donors contributed accounts for around one third of it, Rs. 4196.6500 Cr.

Party-wise breakup of Bonds received (top 15)

```
In [5]: df.groupby(by='Name of the Political Party')['Amount received'].sum().nlargest(15)
```

```
Out[5]: 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
        Name: Amount received, dtype: float64
```

BJP tops the list with 6060.5 Crores

Top Donors of BJP

The code beloww lists the larget 15 donors of BJP and the total amount donor-wise.

```
In [6]: bjp = df[df['Name of the Political Party'] == 'BHARATIYA JANATA PARTY']
        bjp.groupby(by='Name of the Purchaser')['Amount received'].sum().nlargest(15)
```

```
Out[6]: 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
        Name: Amount received, dtype: float64
```

Top Donors of TMC

```
In [7]: inc = df[df['Name of the Political Party'] == 'ALL INDIA TRINAMOOL CONGRESS']
        inc.groupby(by='Name of the Purchaser')['Amount received'].sum().nlargest(10)
```

```
Out[7]: Name of the Purchaser
        FUTURE GAMING AND HOTEL SERVICES PR               435.0
        HALDIA ENERGY LIMITED                             281.0
        DHARIWAL INFRASTRUCTURE LIMITED                    90.0
        FUTURE GAMING AND HOTEL SERVICES PVT LTD           62.0
        FUTURE GAMING AND HOTEL SERVICES PRIVATE LIMITED   45.0
        IFB AGRO INDUSTRIES LIMITED                        42.0
        CHENNAI GREEN WOODS PRIVATE LIMITED                40.0
        PCBL LIMITED                                       40.0
        PRARAMBH SECURITIES PVT LTDPROPRIET                38.0
        CRESCENT POWER LTD                                 33.0
        Name: Amount received, dtype: float64
```

Top Donors of INC

```
In [8]: 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[8]: 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

```python
# 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).

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

```python
In [10]: names = ['natco', 'Micro labs', 'Hetero labs', 'Intas', 'Lupin', 'Mankind']

         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(5))
             print()
```

```
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
Name: Amount received, dtype: float64

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 =  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
```

Bond data between 2019 April 12th to May 10 (before 2019 elections)

```python
In [11]: df['DateTime'] = pd.to_datetime(rdf['Date of Encashment'])
         start_date = '2019-04-12'     # 12-Apr-2019 to 10-May-2019 , before 2019 election
         end_date = '2019-05-10'

         # Select DataFrame rows between two dates
         mask = (df['DateTime'] > start_date) & (df['DateTime'] <= end_date)
         data2019 = df.loc[mask]
         data2019.groupby(by='Name of the Political Party')['Amount received'].sum().nlargest(15)
```

```
Out[11]: Name of the Political Party
         BHARATIYA JANATA PARTY                                        1213.7201
         PRESIDENT, ALL INDIA CONGRESS COMMITTEE                        130.4610
         ALL INDIA TRINAMOOL CONGRESS                                    22.7600
         SHIVSENA                                                        11.1800
         ADYAKSHA SAMAJVADI PARTY                                        10.8400
         DRAVIDA MUNNETRA KAZHAGAM (DMK)                                  9.0000
         BHARAT RASHTRA SAMITHI                                           8.0500
         TELUGU DESAM PARTY                                               7.0000
         SHIROMANI AKALI DAL                                             6.7600
         NATIONALIST CONGRESS PARTY MAHARASHTRA PRADESH                   3.5000
         BIHAR PRADESH JANTA DAL(UNITED)                                 3.0000
         JANATA DAL ( SECULAR )                                          2.5000
         RASHTRIYA JANTA DAL                                             2.5000
         YSR  CONGRESS PARTY  (YUVAJANA SRAMIKA RYTHU CONGRESS PARTY)     2.0000
         JHARKHAND MUKTI MORCHA                                          1.0000
         Name: Amount received, dtype: float64
```

```
In [ ]:
```