Indian Startups

```
# importing essential libraries
import numpy as np
import pandas as pd
import re
import seaborn as sns
import matplotlib.pyplot as plt
from wordcloud import WordCloud
import warnings

pd.set_option('display.max_columns', None)
# pd.set_option('display.max_rows', None)

sns.set_style('darkgrid')
plt.style.use('ggplot')
%matplotlib inline

warnings.filterwarnings('ignore')

df = pd.read_excel(r"G:\03 - Learnbay\Datasets\Startups.xlsx")
df
```

```
       SNo       Date                  Startup_Name
Industry_Vertical  \
0        1 2020-01-09                        BYJU’S               E-
Tech
1        2 2020-01-13                        Shuttl
Transportation
2        3 2020-01-09                     Mamaearth           E-
commerce
3        4 2020-01-02  https://www.wealthbucket.in/
FinTech
4        5 2020-01-02                        Fashor  Fashion and
Apparel
...    ...        ...                           ...                  .
..
3039  3040 2015-01-29                    Printvenue
NaN
3040  3041 2015-01-29                      Graphene
NaN
3041  3042 2015-01-30                Mad Street Den
NaN
3042  3043 2015-01-30                     Simplotel
NaN
3043  3044 2015-01-31              couponmachine.in
NaN

                                SubVertical       City  \
0                                E-learning  Bengaluru
1                 App based shuttle service    Gurgaon
2     Retailer of baby and toddler products  Bengaluru
3                         Online Investment  New Delhi
4               Embroiled Clothes For Women     Mumbai
...                                     ...        ...
3039                                    NaN        NaN
3040                                    NaN        NaN
3041                                    NaN        NaN
3042                                    NaN        NaN
3043                                    NaN        NaN

                              Investors       Investment_Type
Amount(USD)  \
0               Tiger Global Management  Private Equity Round
200000000
1             Susquehanna Growth Equity              Series C
8048394
2                 Sequoia Capital India              Series B
18358860
3                        Vinod Khatumal          Pre-series A
3000000
4               Sprout Venture Partners            Seed Round
1800000
...                                 ...                   ...
...
3039        Asia Pacific Internet Group        Private Equity
4500000
3040                     KARSEMVEN Fund        Private Equity
825000
3041     Exfinity Fund, GrowX Ventures.        Private Equity
1500000
3042                         MakeMyTrip        Private Equity
NaN
3043  UK based Group of Angel Investors          Seed Funding
140000

                             Unnamed: 9
0                                   NaN
1                                   NaN
2                                   NaN
3                                   NaN
4                                   NaN
...                                 ...
3039                                NaN
3040                Govt backed VC Fund
3041                                NaN
3042  Strategic Funding, Minority stake
3043                                NaN
```

```
[3044 rows x 10 columns]
```

Data Cleaning

```
# checking for duplicated values
df.duplicated().any()
```

```
False
```

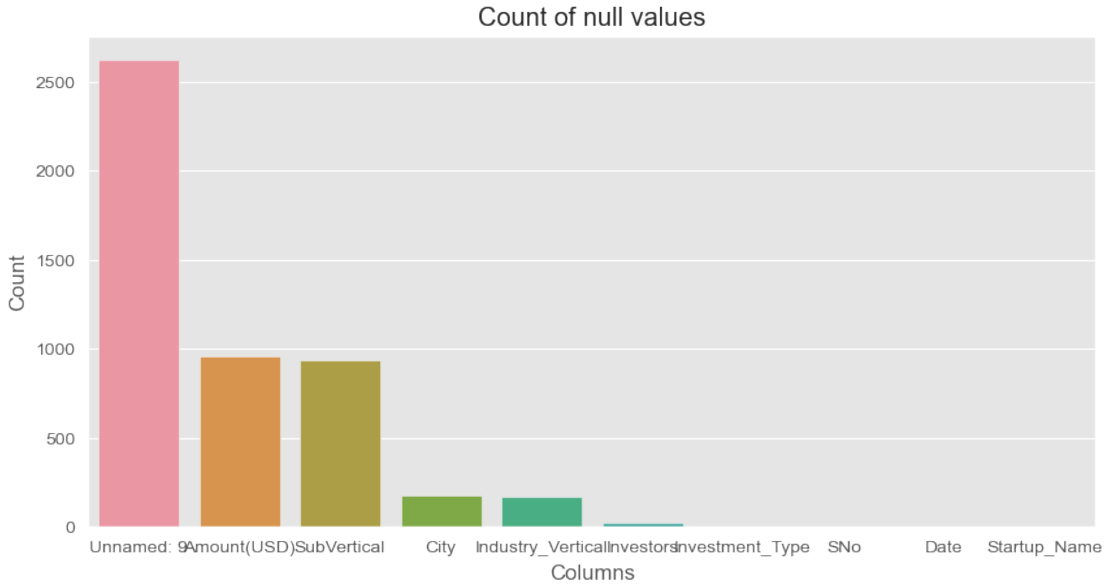
```
# checking for null values
df.isnull().sum()
```

```
SNo                        0
Date                       0
Startup_Name               0
Industry_Vertical        171
SubVertical              936
City                     180
Investors                 24
Investment_Type            4
Amount(USD)              960
Unnamed: 9              2625
dtype: int64
```

```
# percentage of null values
x = df.isnull().sum() * 100/ len(df)
null_percent_df = pd.DataFrame({'missing_percent' : x})

null_percent_df.sort_values(by = 'missing_percent', ascending = False)
```

```
                   missing_percent
Unnamed: 9               86.235217
Amount(USD)              31.537451
SubVertical              30.749014
City                      5.913272
Industry_Vertical         5.617608
Investors                 0.788436
Investment_Type           0.131406
SNo                       0.000000
Date                      0.000000
Startup_Name              0.000000
```

```
# plotting null values
null = df.isnull().sum().sort_values(ascending = False)

plt.figure(figsize = (10,5), dpi = 100)
sns.barplot(null.index, null.values)
plt.title('Count of null values')
plt.ylabel('Count')
plt.xlabel('Columns')
plt.show()
```



1. We have a lot of null values here. We'll treat them according to their nature.
2. We can remove 'SubVertical' and 'Unnamed :9' column.
3. Also from the 'Date' column we can only fetch Years.

```
# removing unnecessary columns
df.drop(columns = 'Unnamed: 9', inplace = True)
df.drop(columns = 'SubVertical', inplace = True)

# fetching year from 'date' column
def get_year(x):
    return str(x).split('-')[0].strip()

df['Date'] = df['Date'].map(get_year)

# changing column 'Date' to 'Year'
df.rename(columns = {'Date' : 'Year'}, inplace = True)

df.head()
```

```
   SNo  Year                  Startup_Name    Industry_Vertical
City  \
0    1  2020                        BYJU’S               E-Tech
Bengaluru
1    2  2020                        Shuttl       Transportation
Gurgaon
2    3  2020                     Mamaearth           E-commerce
Bengaluru
3    4  2020  https://www.wealthbucket.in/              FinTech  New
Delhi
4    5  2020                        Fashor  Fashion and Apparel
Mumbai
```

```
                   Investors       Investment_Type Amount(USD)
0    Tiger Global Management  Private Equity Round   200000000
1  Susquehanna Growth Equity              Series C     8048394
2      Sequoia Capital India              Series B    18358860
3             Vinod Khatumal          Pre-series A     3000000
4    Sprout Venture Partners            Seed Round     1800000
```

```
# there are some inappropriate values in our dataset
df.iloc[2602:2612]
```

```
       SNo  Year                    Startup_Name  \
2602  2603  2015        \\xc2\\xa0News in shorts
2603  2604  2015             \\xc2\\xa0Bluestone
2604  2605  2015              \\xc2\\xa0Shopsity
2605  2606  2015              \\xc2\\xa0Notesgen
2606  2607  2015    \\xc2\\xa0Infinity Assurance
2607  2608  2015  \\xc2\\xa0Footprints Education
2608  2609  2015        \\xc2\\xa0Loylty Rewards
2609  2610  2015                 \\xc2\\xa0Ameyo
2610  2611  2015              \\xc2\\xa0Mamagoto
2611  2612  2015             \\xc2\\xa0Satvacart

                                      Industry_Vertical
City  \
2602               \\xc2\\xa0News Aggregator mobile app      \\xc2\\
xa0Noida
2603                   \\xc2\\xa0Online Jewellery Store  \\xc2\\
xa0Bangalore
2604              \\xc2\\xa0Fashion Info Aggregator App    \\xc2\\
xa0Gurgaon
2605           \\xc2\\xa0Online Study Notes Marketplace  \\xc2\\xa0New
Delhi
2606  \\xc2\\xa0Warranty Programs Service Administra...  \\xc2\\xa0New
Delhi
2607                         \\xc2\\xa0Pre-School Chain    \\xc2\\
xa0Gurgaon
2608  \\xc2\\xa0Premium Loyalty Rewards Point Manage...     \\xc2\\
xa0Mumbai
2609         \\xc2\\xa0Contact Center Software Platform    \\xc2\\
xa0Gurgaon
2610           \\xc2\\xa0Casual Dining restaurant Chain  \\xc2\\xa0New
Delhi
2611                  \\xc2\\xa0Online Grocery Delivery    \\xc2\\
xa0Gurgaon

                                              Investors
Investment_Type  \
2602                             \\xc2\\xa0Tiger Global  Private
Equity
2603  \\xc2\\xa0IvyCap Ventures, Accel Partners, Dra...  Private
```

```
Equity
2604        \\xc2\\xa0 Sandeep Aggarwal, Teruhide Sato    Seed
Funding
2605  \\xc2\\xa0Rajeev Saraf, Arvind Jha, R. Satya N...    Seed
Funding
2606                    \\xc2\\xa0Indian Angel Network    Seed
Funding
2607  \\xc2\\xa0LetsVenture, Kumar Bansal, Kshitij Jain    Seed
Funding
2608                         \\xc2\\xa0IndianIdeas.com  Private
Equity
2609                      \\xc2\\xa0Forum Synergies PE Fund  Private
Equity
2610                          \\xc2\\xa0Goldman Sachs  Private
Equity
2611                        \\xc2\\xa0Palaash Ventures    Seed
Funding

               Amount(USD)
2602  \\xc2\\xa020,000,000
2603  \\xc2\\xa016,200,000
2604         \\xc2\\xa0N/A
2605         \\xc2\\xa0N/A
2606     \\xc2\\xa0600,000
2607     \\xc2\\xa0685,000
2608  \\xc2\\xa019,350,000
2609   \\xc2\\xa05,000,000
2610  \\xc2\\xa010,000,000
2611         \\xc2\\xa0N/A
```

Lets deal with these

```
df['Startup_Name'] = df['Startup_Name'].str.replace('+', '', regex =
True)
df['Startup_Name'] = df['Startup_Name'].str.replace('\\', '', regex =
True)
df['Startup_Name'] = df['Startup_Name'].str.replace('xc2xa0', '',
regex = True)

df['Industry_Vertical'] = df['Industry_Vertical'].str.replace('+', '',
regex = True)
df['Industry_Vertical'] = df['Industry_Vertical'].str.replace('\\',
'', regex = True)
df['Industry_Vertical'] =
df['Industry_Vertical'].str.replace('xc2xa0', '', regex = True)

df['City'] = df['City'].str.replace('+', '', regex = True)
df['City'] = df['City'].str.replace('\\', '', regex = True)
df['City'] = df['City'].str.replace('xc2xa0', '', regex = True)

df['Investors'] = df['Investors'].str.replace('+', '', regex = True)
```

```
df['Investors'] = df['Investors'].str.replace('\\', '', regex = True)
df['Investors'] = df['Investors'].str.replace('xc2xa0', '', regex =
True)
```

```
df.iloc[2602:2612]
```

```
       SNo  Year          Startup_Name  \
2602  2603  2015        News in shorts
2603  2604  2015             Bluestone
2604  2605  2015              Shopsity
2605  2606  2015              Notesgen
2606  2607  2015    Infinity Assurance
2607  2608  2015  Footprints Education
2608  2609  2015        Loylty Rewards
2609  2610  2015                 Ameyo
2610  2611  2015              Mamagoto
2611  2612  2015             Satvacart

                             Industry_Vertical       City  \
2602                News Aggregator mobile app      Noida
2603                    Online Jewellery Store  Bangalore
2604               Fashion Info Aggregator App    Gurgaon
2605            Online Study Notes Marketplace  New Delhi
2606  Warranty Programs Service Administration  New Delhi
2607                          Pre-School Chain    Gurgaon
2608  Premium Loyalty Rewards Point Management     Mumbai
2609          Contact Center Software Platform    Gurgaon
2610            Casual Dining restaurant Chain  New Delhi
2611                   Online Grocery Delivery    Gurgaon

                                              Investors
Investment_Type  \
2602                                       Tiger Global  Private
Equity
2603  IvyCap Ventures, Accel Partners, Dragoneer Inv...  Private
Equity
2604                    Sandeep Aggarwal, Teruhide Sato    Seed
Funding
2605       Rajeev Saraf, Arvind Jha, R. Satya Narayanan    Seed
Funding
2606                               Indian Angel Network    Seed
Funding
2607            LetsVenture, Kumar Bansal, Kshitij Jain    Seed
Funding
2608                                    IndianIdeas.com  Private
Equity
2609                            Forum Synergies PE Fund  Private
Equity
2610                                      Goldman Sachs  Private
```

```
Equity
2611                                   Palaash Ventures    Seed
Funding

               Amount(USD)
2602  \\xc2\\xa020,000,000
2603  \\xc2\\xa016,200,000
2604         \\xc2\\xa0N/A
2605         \\xc2\\xa0N/A
2606     \\xc2\\xa0600,000
2607     \\xc2\\xa0685,000
2608  \\xc2\\xa019,350,000
2609   \\xc2\\xa05,000,000
2610  \\xc2\\xa010,000,000
2611         \\xc2\\xa0N/A
```

```
# other info
df.dtypes
```

```
SNo                   int64
Year                 object
Startup_Name         object
Industry_Vertical    object
City                 object
Investors            object
Investment_Type      object
Amount(USD)          object
dtype: object
```

Important :

1. Amount(USD) is showing as object data type.
2. We have to convert it into int or float.
3. A total of 960 missing values are there in the 'Amount(USD)'. There are some inappropriate values in this column as well.

```
# spotting the places where Amount(USD) is inappropriate
s1 = df.loc[(df["Amount(USD)"] == "undisclosed")]
s2 = df.loc[(df["Amount(USD)"] == "Undisclosed")]
s3 = df.loc[(df["Amount(USD)"] == "unknown")]
s4 = df.loc[(df["Amount(USD)"] == "N/A")]

pd.concat([s1,s2,s3,s4])
```

```
     SNo  Year     Startup_Name  Industry_Vertical       City  \
20    21  2019     Burger Singh  Food and Beverage    Gurgaon
89    90  2019     Ola Electric          Transport  Bengaluru
91    92  2019       StyleDotMe         E-commerce      Delhi
58    59  2019   Mishry Reviews           Services    Gurgaon
112  113  2019           FleetX                 AI    Gurgaon
139  140  2018         Skillbox     Social Network   Gurugram
34    35  2019  The Man Company     Consumer Goods    Gurgaon
```

```
                                             Investors
Investment_Type  \
20                                      RB Investments
Venture
89                                           Tata Sons         Series
A
91   Indian Angel Network and other angel investors...     Bridge
Round
58                                         Vir Sanghvi         Series
A
112  India Quotient and LetsVenturexe2x80x99s Angel...     Pre Series
A
139                               Individual investors     Seed
Funding
34                                   Ayushmann Khurana  Corporate
Round

     Amount(USD)
20   undisclosed
89   undisclosed
91   undisclosed
58   Undisclosed
112  Undisclosed
139  Undisclosed
34       unknown
```

We do not know how much funds they got. So we can either remove them or convert these values to 0 so they do not have any impact.

```
# converting to '0'
df.loc[(df["Amount(USD)"] == "undisclosed") | (df["Amount(USD)"] ==
"Undisclosed") |
       (df["Amount(USD)"] == "unknown") | (df["Amount(USD)"] == 'N/A')
,"Amount(USD)"] = "0"

# Converting Amount(USD) into float
for i in range (0, len(df["Amount(USD)"])):
    df["Amount(USD)"][i] = re.sub('\D', "", str(df["Amount(USD)"][i]))

df["Amount(USD)"] = pd.to_numeric(df["Amount(USD)"])

df.dtypes
```

```
SNo                    int64
Year                  object
Startup_Name          object
Industry_Vertical     object
City                  object
Investors             object
Investment_Type       object
```

```
Amount(USD)          float64
dtype: object
```

```
df[df['Amount(USD)'].isnull()].head()
```

```
     SNo  Year    Startup_Name  Industry_Vertical      City  \
144  145  2018       Northmist            Fashion     Delhi
155  156  2018     HappyGoEasy  Consumer Internet  Gurugram
157  158  2018  Mad Street Den         Technology   Chennai
165  166  2018       HealthFin            Finance      Pune
189  190  2018        Leena AI         Technology  Gurugram

                                             Investors
Investment_Type  \
144                                   Prashant Jaiswal  Seed/ Angel
Funding
155  Korea Investment Partners (KIP), Samsung and C...       Private
Equity
157                                               KDDI       Private
Equity
165        Axilor, Sprout Venture Partners and others  Seed/ Angel
Funding
189                                      Y Combinator  Seed/ Angel
Funding

     Amount(USD)
144          NaN
155          NaN
157          NaN
165          NaN
189          NaN
```

```
df['Amount(USD)'].isnull().sum()
```

```
960
```

1. There are 960 null values in the Amount(USD) column.
2. Removing them will cause data loss but filling them with mean/median also wouldn't be apt.

```
# removing the null values from Amount(USD)
df.dropna(subset = ["Amount(USD)"], inplace = True)

# we can also convert Amount(USD) in millions
# formula : amount / 1000000

df['Amount(USD)'] = (df['Amount(USD)'] / 1000000).round(2)
df.head()
```

```
   SNo  Year                 Startup_Name    Industry_Vertical
City  \
0    1  2020                       BYJU’S               E-Tech
```

```
Bengaluru
1    2  2020                        Shuttl       Transportation
Gurgaon
2    3  2020                     Mamaearth           E-commerce
Bengaluru
3    4  2020  https://www.wealthbucket.in/              FinTech  New
Delhi
4    5  2020                        Fashor  Fashion and Apparel
Mumbai

                   Investors       Investment_Type  Amount(USD)
0    Tiger Global Management  Private Equity Round       200.00
1  Susquehanna Growth Equity              Series C         8.05
2      Sequoia Capital India              Series B        18.36
3             Vinod Khatumal          Pre-series A         3.00
4    Sprout Venture Partners            Seed Round         1.80
```

```python
# changing the column Amount(USD) to Amount(in millions)
df.rename(columns = {'Amount(USD)' : 'Amount(in millions)'}, inplace = True)
```

Cleaning column 'Startup_Name'

```python
# ola
def f7(k):
    if "Ola" in k or "Ola Cabs" in k or "Olacabs" in k:
        k = "Ola"
    return k
df["Startup_Name"] = df["Startup_Name"].apply(f7)


# flipkart
def f8(k):
    if "Flipkart.com" in k:
        k = "Flipkart"
    return k
df["Startup_Name"] = df["Startup_Name"].apply(f8)


# paytm
def f9(k):
    if "Paytm Marketplace" in k:
        k = "Paytm"
    return k
df["Startup_Name"] = df["Startup_Name"].apply(f9)

# oyo
def f10(k):
    if "OYO" in k or "OYO Rooms" in k or "OyoRooms" in k or 'Oyorooms' in k or 'Oyo' in k or 'Oyo Rooms' in k:
        k = "OYO Rooms"
    return k
df["Startup_Name"] = df["Startup_Name"].apply(f10)

# BYJU's
def f11(k):
    if "Byjuxe2x80x99s" in  k or "BYJU’S" in k:
        k = "BYJU's"
    return k
df["Startup_Name"] = df["Startup_Name"].apply(f11)
```

Cleaning column 'City'

```
# dropping null value in City
df.dropna(subset = ['City'], inplace = True)

# Renaming City Names
df.loc[df.City == 'Gurgaon', 'City'] = 'Gurugram'
df.loc[df.City == 'Bengaluru', 'City'] = 'Bangalore'
df.loc[df.City == 'Pune / US', 'City'] = 'Pune'
df.loc[df.City == 'Bangalore / SFO', 'City'] = 'Bangalore'
df.loc[df.City == 'Ahemadabad', 'City'] = 'Ahmedabad'
df.loc[df.City == 'New Delhi / US', 'City'] = 'New Delhi'
df.loc[df.City == 'India/US', 'City'] = 'Misc'
df.loc[df.City == 'Mumbai/Bengaluru', 'City'] = 'Bangalore'
df.loc[df.City == 'Bangalore/ Bangkok', 'City'] = 'Bangalore'
df.loc[df.City == 'San Francisco', 'City'] = 'Misc'
df.loc[df.City == 'Kormangala', 'City'] = 'Bangalore'
df.loc[df.City == 'Boston', 'City'] = 'Bangalore'
df.loc[df.City == 'SFO / Bangalore', 'City'] = 'Bangalore'
df.loc[df.City == 'Dallas / Hyderabad', 'City'] = 'Hyderabad'
df.loc[df.City == 'Pune/Seattle', 'City'] = 'Pune'
df.loc[df.City == 'Pune / Dubai', 'City'] = 'Pune'
df.loc[df.City == 'Mumbai / Global', 'City'] = 'Mumbai'
df.loc[df.City == 'Kerala / USA', 'City'] = 'Kerela'
df.loc[df.City == 'US/India', 'City'] = 'Misc'
df.loc[df.City == 'New York/ India', 'City'] = 'Misc'
df.loc[df.City == 'Bangalore / San Mateo', 'City'] = 'Bangalore'
df.loc[df.City == 'Mumbai / UK', 'City'] = 'Mumbai'
df.loc[df.City == 'Noida / Singapore', 'City'] = 'Noida'
df.loc[df.City == 'USA/India', 'City'] = 'Misc'
df.loc[df.City == 'Mumbai / NY', 'City'] = 'Mumbai'
df.loc[df.City == 'Bangalore / Palo Alto', 'City'] = 'Bangalore'
df.loc[df.City == 'Hyderabad/USA', 'City'] = 'Hyderabad'
df.loc[df.City == 'Gurgaon / SFO', 'City'] = 'Gurugram'
df.loc[df.City == 'Delhi & Cambridge', 'City'] = 'Delhi'
df.loc[df.City == 'Missourie', 'City'] = 'Misc'
df.loc[df.City == 'San Jose', 'City'] = 'Misc'
df.loc[df.City == 'Tulangan', 'City'] = 'Misc'
df.loc[df.City == 'Burnsville', 'City'] = 'Misc'
df.loc[df.City == 'Menlo Park', 'City'] = 'Misc'
df.loc[df.City == 'Palo Alto', 'City'] = 'Misc'
df.loc[df.City == 'Santa Monica', 'City'] = 'Misc'
df.loc[df.City == 'Nairobi', 'City'] = 'Misc'
df.loc[df.City == 'Bengaluru and Gurugram', 'City'] = 'Bangalore'
df.loc[df.City == 'India/Singapore', 'City'] = 'Misc'
df.loc[df.City == 'New York, Bengaluru', 'City'] = 'Bangalore'
df.loc[df.City == 'California', 'City'] = 'Misc'
df.loc[df.City == 'India', 'City'] = 'Misc'
df.loc[df.City == 'Kerala', 'City'] = 'Kerela'
df.loc[df.City == 'New York', 'City'] = 'Misc'
df.loc[df.City == 'India / US', 'City'] = 'Misc'
df.loc[df.City == 'Bangalore / USA', 'City'] = 'Bangalore'
df.loc[df.City == 'Kerala', 'City'] = 'Kerela'
df.loc[df.City == 'New Delhi', 'City'] = 'Delhi'
```

Cleaning column 'Industry_Vertical'

```
# renaming
df.rename(columns = {'Industry_Vertical' : 'Industry'}, inplace =
True)

# dropping null values
df.dropna(subset = ['Industry'], inplace = True)

# E-Commerce
def f1(s):
    if "ECommerce" in s or "eCommerce" in s or "Ecommerce" in s or
"ecommerce" in s or"E-Commerce" in s or "OnlineMarketplace" in s:
        s = "E-Commerce"
    return s
df["Industry"] = df["Industry"].apply(f1)

# Transportation
def f2(s):
    if "LastMileTransportation" in s or "Transport" in s or
"Transportation&LogisticsPlatform" in s:
        s = "Transportation"
    return s
df["Industry"] = df["Industry"].apply(f2)

# Finance
def f3(s):
    if "finan" in s or "Finan" in s:
        s = "Finance"
    return s
df["Industry"] = df["Industry"].apply(f3)

# Health
def f4(s):
    if "Health" in s or "health" in s:
        s = "Health"
    return s
```

```
df["Industry"] = df["Industry"].apply(f4)

# Technology
def f5(s):
    if "FinTech" in s:
        s = "Technology"
    return s
df["Industry"] = df["Industry"].apply(f5)

# B2B
def f6(s):
    if "B2B" in s:
        s = "B2B"
    return s
df["Industry"] = df["Industry"].apply(f6)
```

Cleaning column 'Investors'

```
# removing null values
df.dropna(subset = ['Investors'], inplace = True)

# cleaning
def investor(y):
    y = y.strip()
    if y == 'undisclosed' or y == 'undisclosed investors' or y ==
'undisclosed investor' or y == 'Undisclosed':
        return 'Others'
    else:
        return y
df["Investors"] = df["Investors"].apply(investor)
```

Cleaning column 'Investors_Type'

```
# removing null value
df.dropna(subset = ['Investment_Type'], inplace = True)

df.isnull().sum()
```

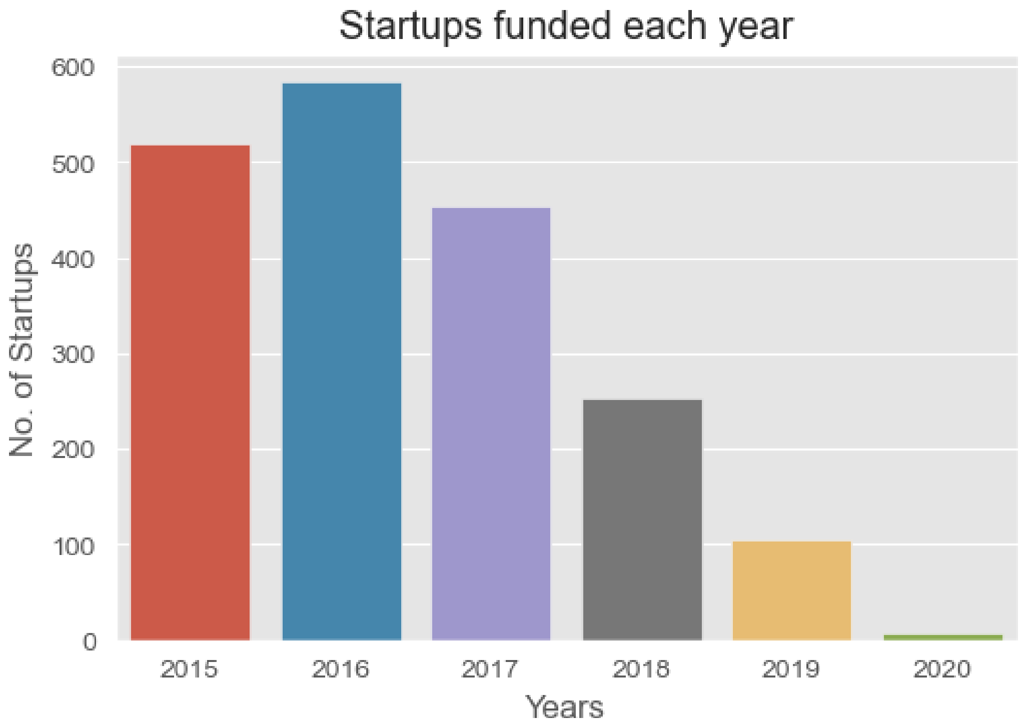
```
SNo                     0
Year                    0
Startup_Name            0
Industry                0
City                    0
Investors               0
Investment_Type         0
Amount(in millions)     0
dtype: int64
```

We have treated all the null values successfully. Now we can move forward for Analysis.

Analysis

1. Total number of Startups funded in each year.

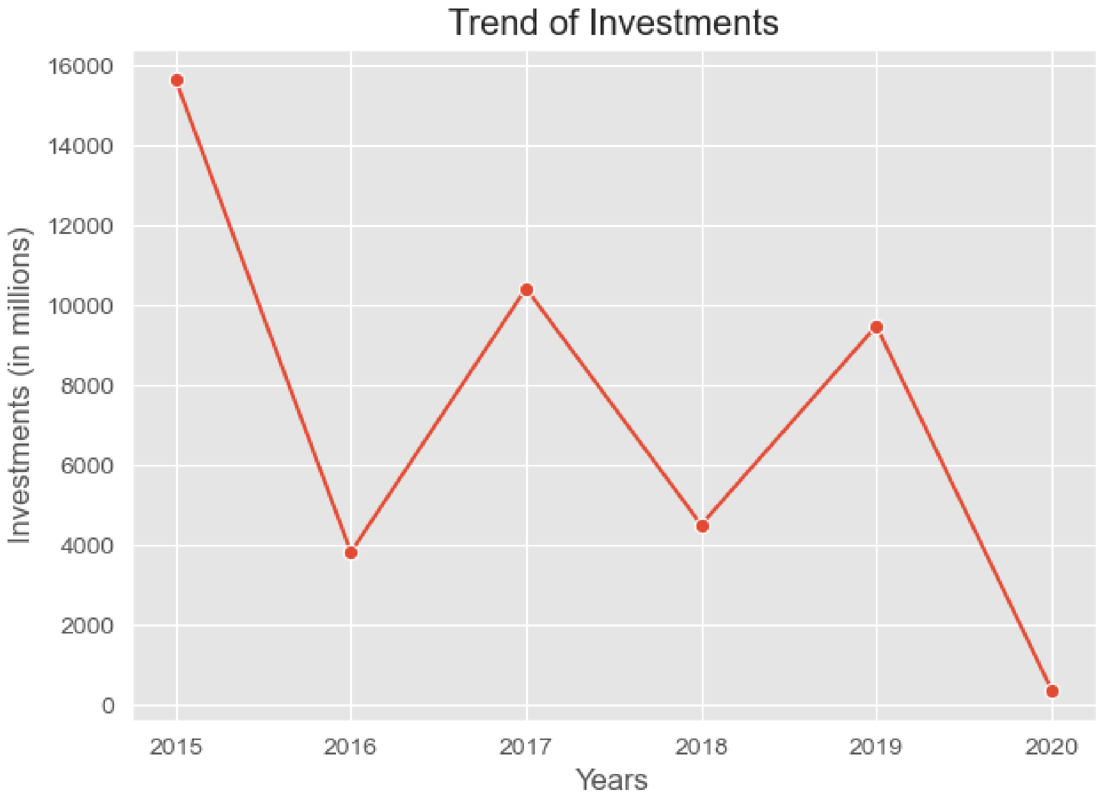
```
# will count the years and their no. of occurences
value, counts = np.unique(df['Year'], return_counts = True)

# plotting
plt.figure(figsize = (6,4), dpi = 100)
sns.barplot(x = value, y = counts)
plt.title('Startups funded each year')
plt.xlabel('Years')
plt.ylabel('No. of Startups')
plt.show()
```



2. Trend of Investments over the years

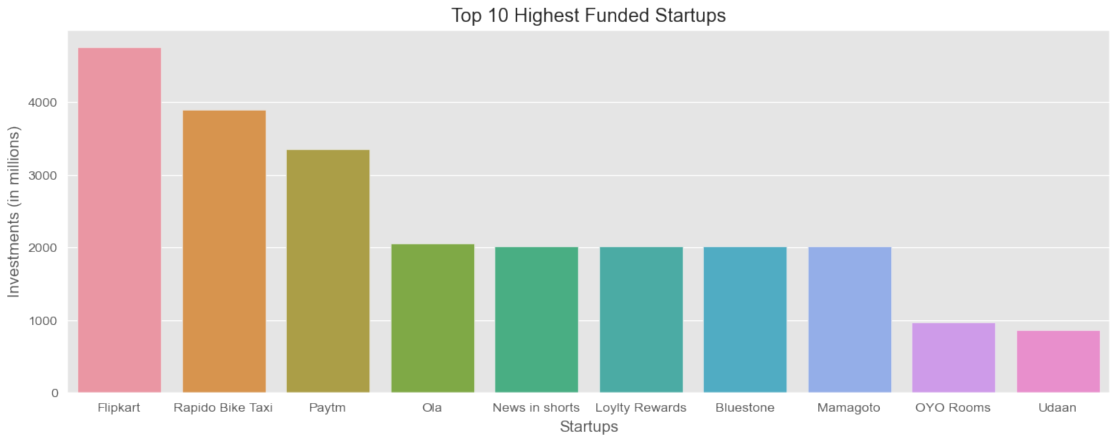
```
# For checking check the trend, we have to find investments done in
each year.

investments = df.groupby('Year')['Amount(in millions)'].sum()

# years
year = [2015,2016,2017,2018,2019,2020]

# plotting a lineplot to see the trend
plt.figure(figsize = (7,5), dpi = 100)
```

```
sns.lineplot(year, investments, marker = 'o')
plt.title('Trend of Investments')
plt.xlabel('Years')
plt.ylabel('Investments (in millions)')
plt.show()
```

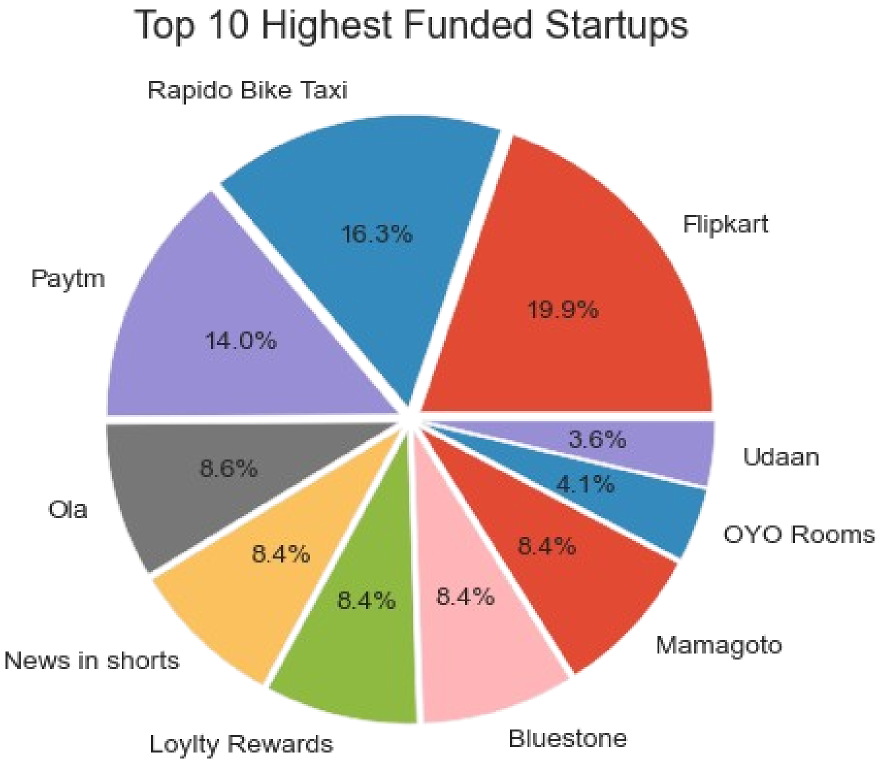


3. Startups with highest fundings.

```
funds = df.groupby('Startup_Name')['Amount(in millions)'].sum()

# Top 10 Startups with highest fundings
top_10 = funds.sort_values(ascending = False).head(10)

# plotting
plt.figure(figsize = (14,5), dpi = 100)
sns.barplot(top_10.index, top_10.values)
plt.title('Top 10 Highest Funded Startups')
plt.ylabel('Investments (in millions)')
plt.xlabel('Startups')

plt.show()
```



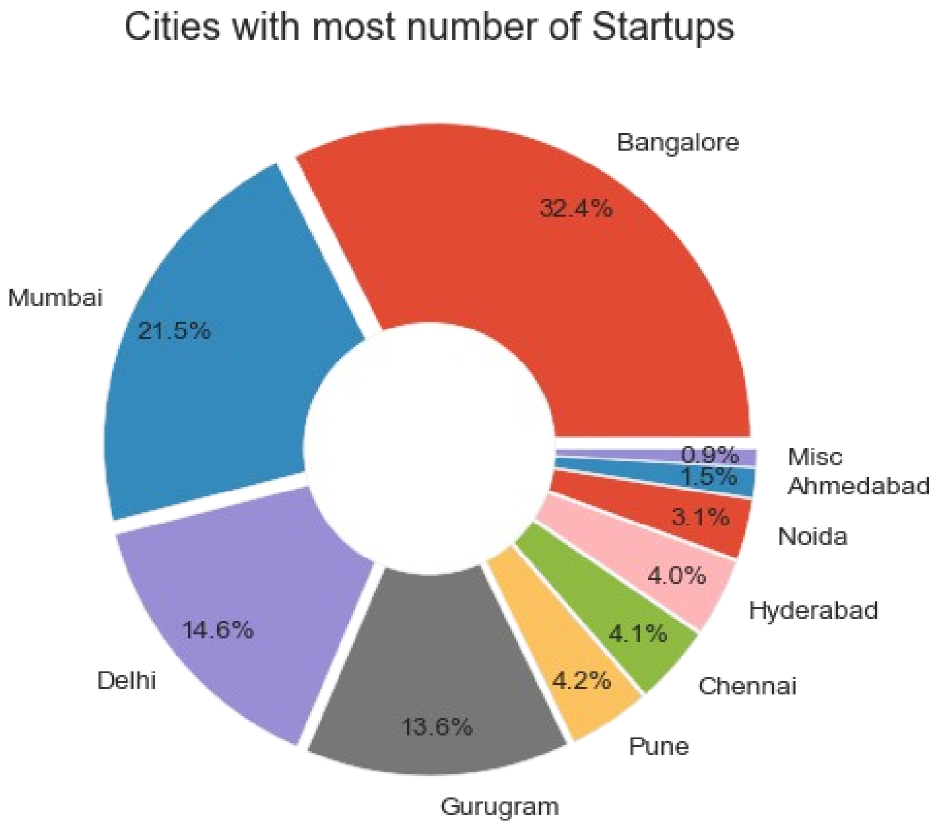
```
# we can also plot the above informartion in a pie chart
plt.figure(figsize = (5,5), dpi = 100)
explode = [0.04 for i in top_10.index]
plt.pie(top_10.values, labels = top_10.index, explode = explode,
autopct = '%1.1f%%')
plt.title('Top 10 Highest Funded Startups')
plt.show()
```



4. Top 10 Indian Cities which have most number of startups.

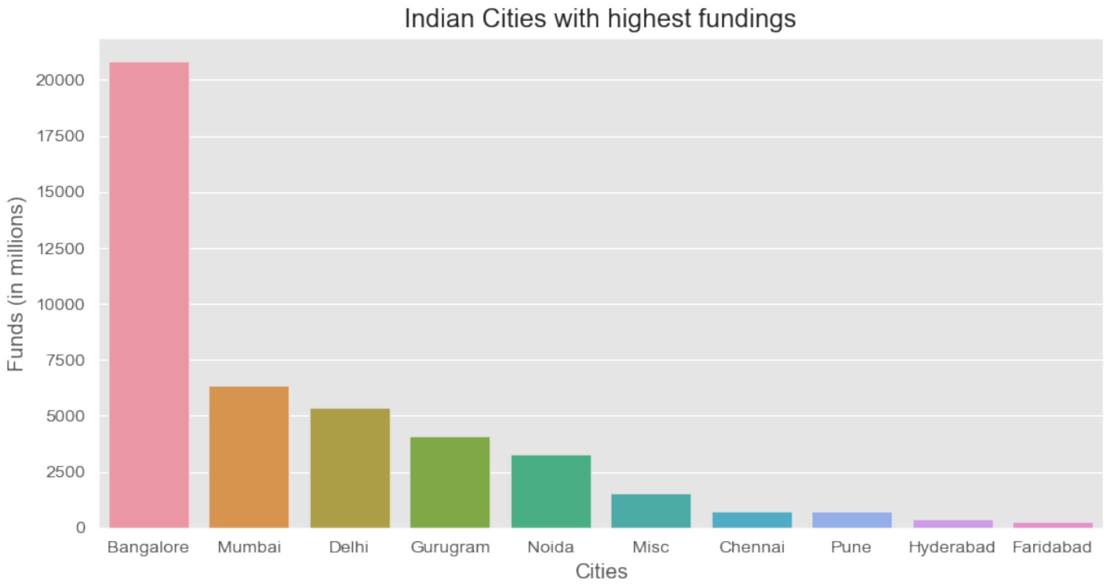
```
cities = df.City.value_counts()
top_10_cities = cities[:10]
```

```
# plotting
plt.figure(figsize = (5,5), dpi = 100)
explode = [0.04 for i in top_10_cities.index]
plt.pie(top_10_cities.values, labels = top_10_cities.index,
        explode = explode, autopct = '%1.1f%%', pctdistance = 0.85)

centre_circle = plt.Circle((0,0), 0.40, fc = 'white')
fig = plt.gcf()
fig.gca().add_artist(centre_circle)
plt.tight_layout()

plt.title('Cities with most number of Startups')
plt.show()
```



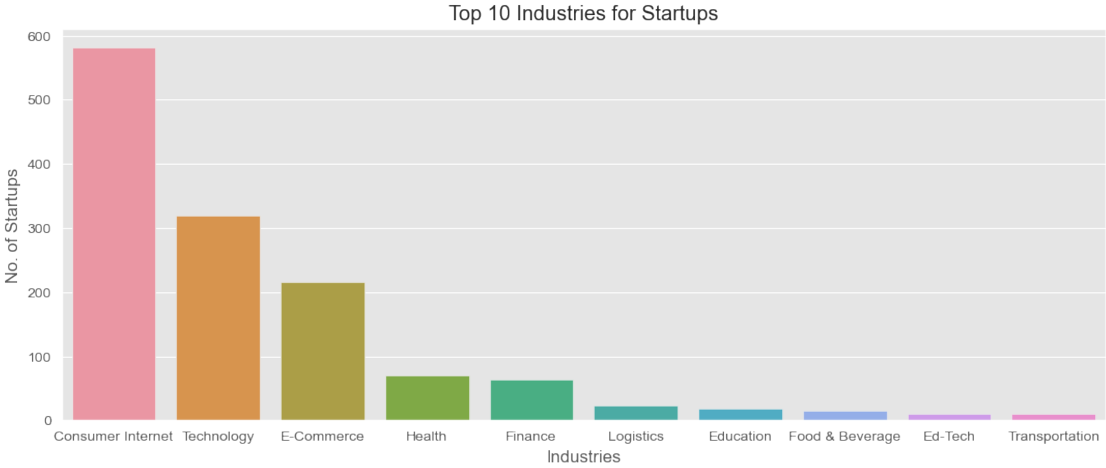
5. Top 10 Indian Cities with highest fundings

```
city_funds = df.groupby('City')['Amount(in millions)'].sum()
top_10_city_funds = city_funds.sort_values(ascending = False)[:10]

# plotting
plt.figure(figsize = (10,5), dpi = 100)
sns.barplot(top_10_city_funds.index, top_10_city_funds.values)
plt.title('Indian Cities with highest fundings')
plt.xlabel('Cities')
plt.ylabel('Funds (in millions)')
plt.show()
```



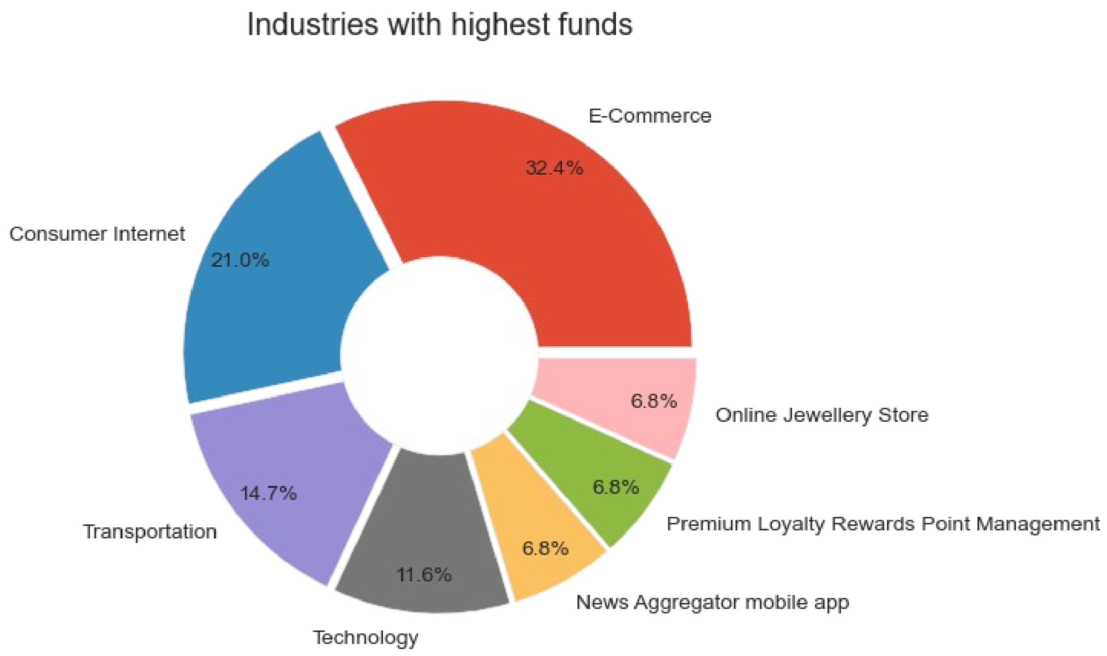
6. Top Industries for Startups

```
# Top 10 Industries
top_10_ind = df.Industry.value_counts()[:10]

# plotting
plt.figure(figsize = (13,5), dpi = 100)
sns.barplot(top_10_ind.index, top_10_ind.values)
plt.title('Top 10 Industries for Startups')
plt.xlabel('Industries')
plt.ylabel('No. of Startups')
plt.show()
```



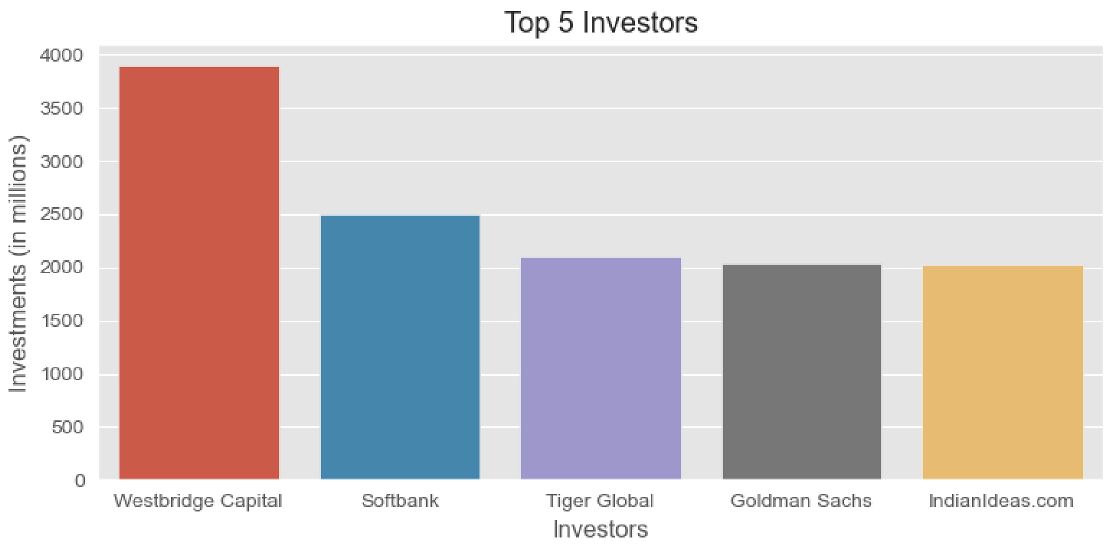
7. Top 7 Industries with highest fundings

```
funds_industries = df.groupby('Industry')['Amount(in millions)'].sum()
top_7_fund_ind = funds_industries.sort_values(ascending =
False).head(7)

# plotting
plt.figure(figsize = (7,7), dpi = 100)
explode = [0.04 for i in top_7_fund_ind.index]
plt.pie(top_7_fund_ind.values, labels = top_7_fund_ind.index,
        explode = explode, autopct = '%1.1f%%', pctdistance = 0.85)

centre_circle = plt.Circle((0,0), 0.40, fc = 'white')
fig = plt.gcf()
fig.gca().add_artist(centre_circle)
plt.tight_layout()

plt.title('Industries with highest funds')
plt.show()
```



8. Top Investors who have invested maximum number of times.

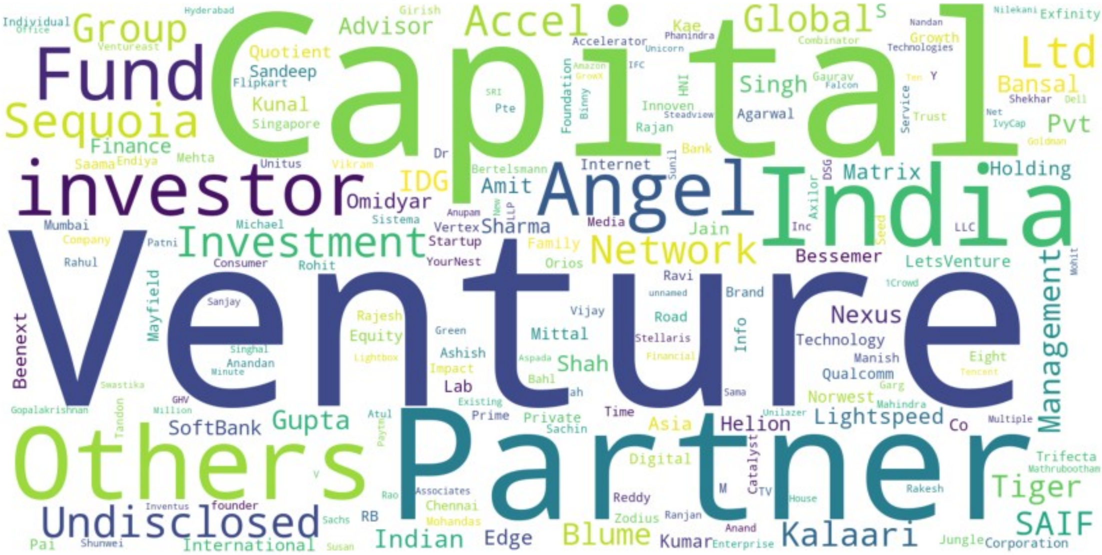
```
top_investors = df.groupby('Investors')['Amount(in millions)'].sum()
top_5_investors = top_investors.sort_values(ascending = False).head(5)

# plotting
plt.figure(figsize = (9,4), dpi = 100)
sns.barplot(top_5_investors.index, top_5_investors.values)
plt.title('Top 5 Investors')
plt.xlabel('Investors')
plt.ylabel('Investments (in millions)')
plt.show()
```



9. Frequent Investors

```
investors = df.Investors

word_cloud = WordCloud(max_words = 200, width = 1600, height = 800, 
collocations = False,
                       background_color = 'white').generate('
'.join(investors))
plt.figure(figsize = (15,8))
plt.imshow(word_cloud)
plt.title("Frequent investors :-\n", fontsize = 20, loc = 'left')
plt.axis("off")
plt.show()
```

Frequent investors :-


Venture
Capital
Partner
India
investor
Others
Angel
Fund
Sequoia
Investment
Undisclosed
Accel
Global
Group
Network
Kalaari
Ltd
Blume
Tiger
SAIF
Management
Nexus
Helion
Lightspeed
Gupta
SoftBank
Indian
Matrix
Holding
Bessemer
Bansal
Pvt
Singh
Advisor
Quotient
IDG
Omidyar
Amit
Sharma
Finance
Kunal
Sandeep
Flipkart
Singapore
Agarwal
Jain
Mittal
Shah
Equity
Rajesh
Mayfield
Beenext
LetsVenture
Technology
Qualcomm
Norwest
Asia
Digital
Edge
Kumar
International
Trifecta
Corporation
Jungle
Exfinity
Growth
Trust
Innoven
Rajan
Foundation
Internet
Bertelsmann
Startup
Vertex
Family
Orios
Road
Info
Ravi
Brand
Vijay
Ashish
Lab
Private
Prime
Time
Reddy
Zodius
Chennai
Mohandas
Associates
founder
Sachs
Pai
Shunwei
Inventus
Mumbai
Rahul
Company
Patni
Consumer
Rohit
YourNest
Michael
Sistema
Unitus
Saama
Endiya
Mehta
Vikram
Dr
Media
Axilor
Seed
LLC
Inc
Kae
Accelerator
Phanindra
Unicorn
Amazon
IFC
HNI
Binny
Pte
Steadview
Bank
Sunil
DSG
Service
Gaurav
Falcon
Shekhar
Dell
Net
IvyCap
Goldman
Nilekani
Nandan
Combinator
Technologies
Hyderabad
Girish
Individual
Office
Ventureast
SRI
Ten
Y
S
Anupam
LLP
New
Sanjay
Singhal
Anandan
Minute
Lightbox
Green
Aspada
Impact
Bahl
Financial
Stellaris
Swastika
GHV
Million
Gopalakrishnan
Tandon
Atul
Paytm
Existing
Sachin
Catalyst
TV
M
Sama
Unilazer
Mahindra
Garg
Eight
Tencent
Manish
Multiple
Co
Rakesh
House
Mathrubootham
Anand
Enterprise
Ranjan
Rao
RB
Susan
unnamed
1Crowd
Mohit
ah
Y