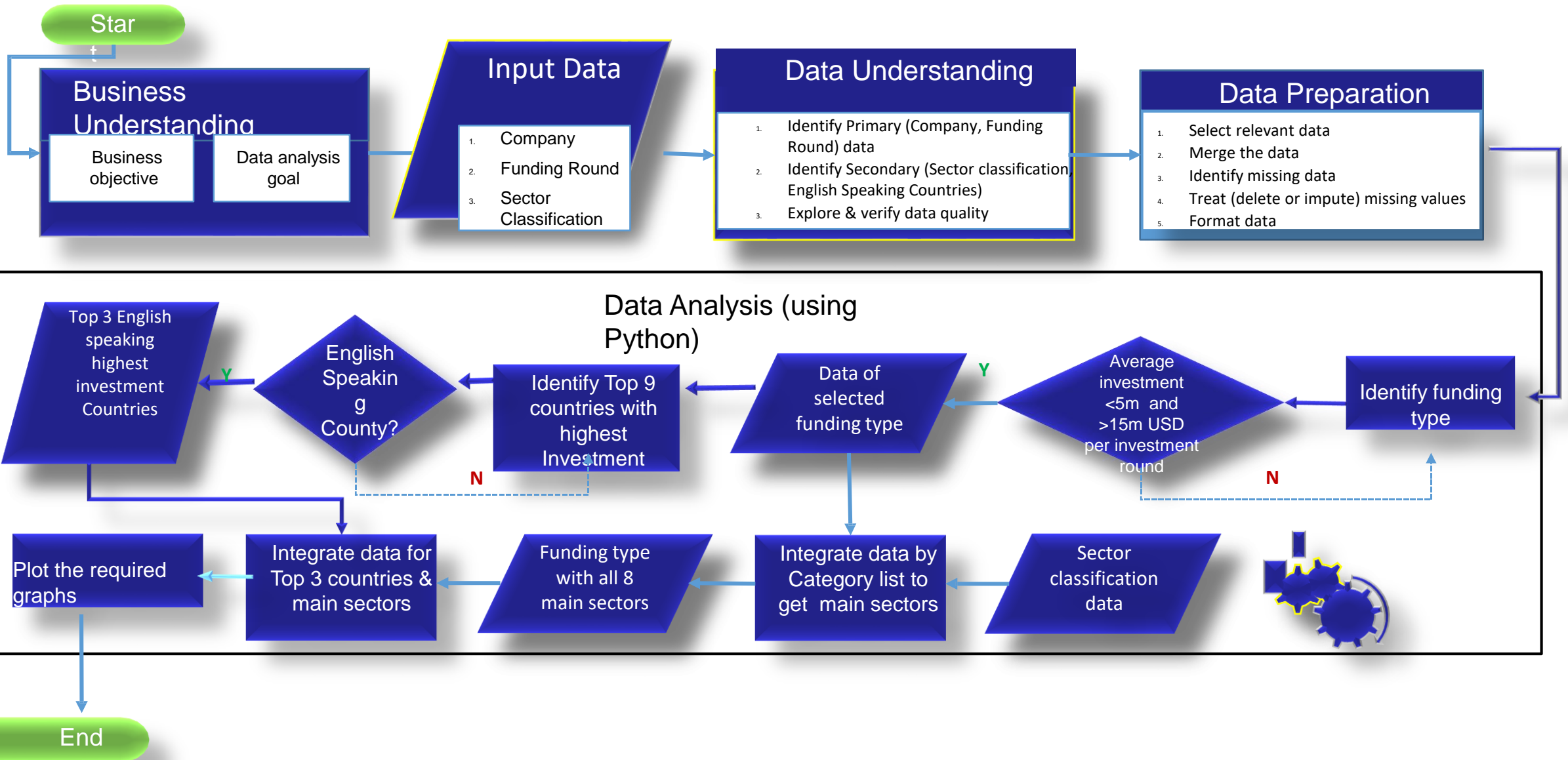# INVESTMENT ASSIGNMENT SUBMISSION

Name: DHANUSH M

<Abstract>

- **Aim :** To make investments in a few companies and understand the global trends in investments so that we can take the investment decisions effectively - Do Data analysis and find out where most other investors are investing in

- **Business Understanding :** 1. Invest between **5 to 15 million USD** per round of investments

  2. Invest only in **English-speaking countries**

- **Data Understanding :** The objective is to identify the best sectors, countries, and a suitable investment type for making investments. The overall strategy is to invest where others are investing, implying that the 'best' sectors and countries are the ones 'where most investors are investing'.

- **Goals of data analysis : 1. Investment type analysis**: Comparing the typical investment amounts in the venture, seed, angel, private equity etc. so that Spark Funds can choose the type that is best suited for their strategy.

  2. **Country analysis :** Identifying the countries which have been the most heavily invested in the past.

  3. **Sector analysis :** Understanding the distribution of investments across the eight main sectors.

Problem solving methodology

UpGrad

Start

Business Understanding

| Business objective | Data analysis goal |

Input Data

1. Company
2. Funding Round
3. Sector Classification

Data Understanding

1. Identify Primary (Company, Funding Round) data
2. Identify Secondary (Sector classification English Speaking Countries)
3. Explore & verify data quality

Data Preparation

1. Select relevant data
2. Merge the data
3. Identify missing data
4. Treat (delete or impute) missing values
5. Format data

Data Analysis (using Python)

Top 3 English speaking highest investment Countries

English Speaking County?

Identify Top 9 countries with highest Investment

Data of selected funding type

Average investment <5m and >15m USD per investment round

Identify funding type

Y

N

Y

N

Plot the required graphs

Integrate data for Top 3 countries & main sectors

Funding type with all 8 main sectors

Integrate data by Category list to get main sectors

Sector classification data

End

Funding Type Analysis

Spark Funds wants to invest between 5 to 15 million USD per investment round
Below graphs shows average funding amount of 4 funding types venture, seed, angel & private equity
Private_equity has very high average value of raised_amount_usd which is way above 15m USD limit while angel and seed are way below 5m USD limit
venture funding type looks most suitable as its average funding amount is $11.724223 between 5m to 15m USD.

```
funding_round_type
angel                0.97
private_equity      73.94
seed                 0.75
venture             11.72
```

	mean				median			
funding_round_type	angel	private_equity	seed	venture	angel	private_equity	seed	venture
raised_amount_usd	0.971574	73.938486	0.747794	11.724223	0.414906	20.0	0.3	5.0

Country Analysis

Spark Funds wants to invest in counties which have been *heavily invested* in past but they should be only *English- speaking* countries

Based on analysis, heavily invested top 9 courtiers are- USA, China, GBR, India, Canada, France, Israel, Germany and Japan in sequence

But top 3 English speaking countries from above are *USA, GBR* and *India* so Spark Funds should invest in these countries

	country_code	raised_amount_usd
0	USA	420068.029342
1	CHN	39338.918773
2	GBR	20072.813004
3	IND	14261.508718
4	CAN	9482.217668
5	FRA	7226.851352
6	ISR	6854.350477
7	DEU	6306.921981
8	JPN	3167.647127

Based on sector analysis, below figure shows top 3 sectors
where most investors are investing for top 3 countries
The graph for the same is shown in the below slides

	country_code	main_sector	Total_investment_count
0	USA	Others	2950
1	USA	Social, Finance, Analytics, Advertising	2714
2	USA	Cleantech / Semiconductors	2300
0	GBR	Others	147
1	GBR	Social, Finance, Analytics, Advertising	133
2	GBR	Cleantech / Semiconductors	128
0	IND	Others	110
1	IND	Social, Finance, Analytics, Advertising	60
2	IND	News, Search and Messaging	52

| country_code	main_sector	Total_no_investment	Total_amount_invested
GBR	Automotive & Sports	16	167.051565
	Cleantech / Semiconductors	128	1150.139665
	Entertainment	56	482.784687
	Health	24	214.537510
	Manufacturing	42	361.940335
	News, Search and Messaging	73	615.746235
	Others	147	1283.624289
	Social, Finance, Analytics, Advertising	133	1089.404014
IND	Automotive & Sports	13	136.900000
	Cleantech / Semiconductors	20	165.380000
	Entertainment	33	280.830000
	Health	19	167.740000
	Manufacturing	21	200.900000
	News, Search and Messaging	52	433.834545
	Others	110	1013.409507
	Social, Finance, Analytics, Advertising	60	550.549550
USA	Automotive & Sports	167	1454.104361
	Cleantech / Semiconductors	2300	21206.628192
	Entertainment	591	5099.197982
	Health	909	8211.859357
	Manufacturing	799	7258.553378
	News, Search and Messaging	1582	13959.567428
	Others	2950	26321.007002
	Social, Finance, Analytics, Advertising	2714	23807.376964

There is lot of outliers and there is huge difference between the mean and median value of raised_amount_usd. hence we are considering median value for our analysis
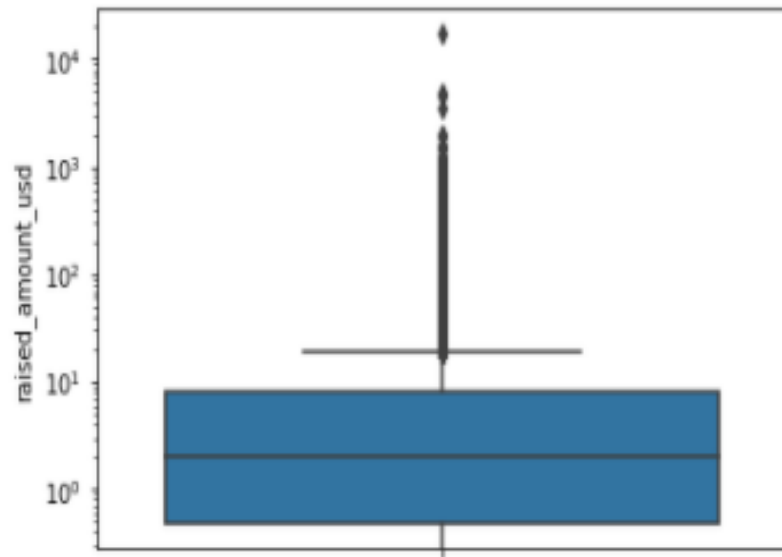

There is lot of outliers and there is huge difference between the mean and median value of raised_amount_usd. hence we are considering median value for our analysis

<Results>

Plot 1: A plot showing the representative amount of investment in each funding type.
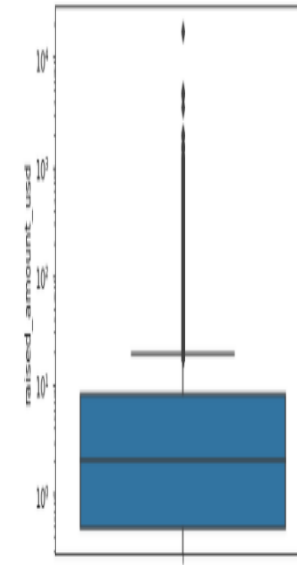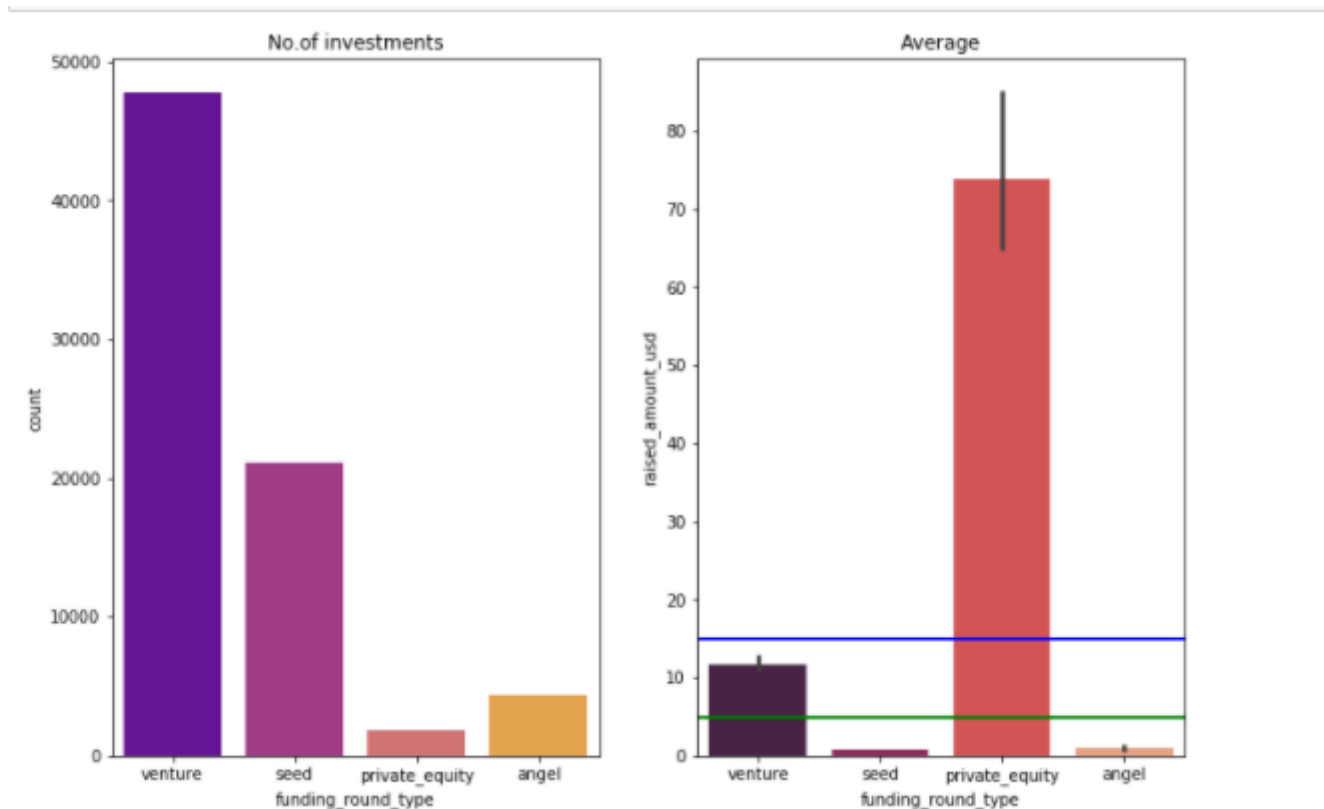
There is lot of outliers there is huge difference the mean amd median value of raised_amount_usd. hence we are considering median value for our analysis
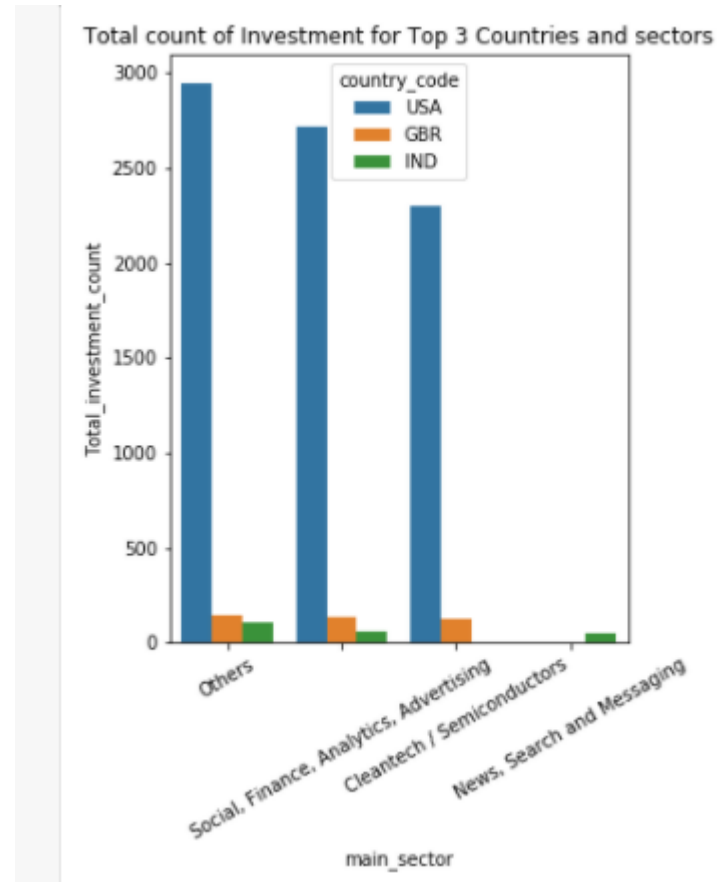
<Results>

Plot 2 : A plot showing the top 9 countries against the total amount of investments of funding type venture.

<Results>
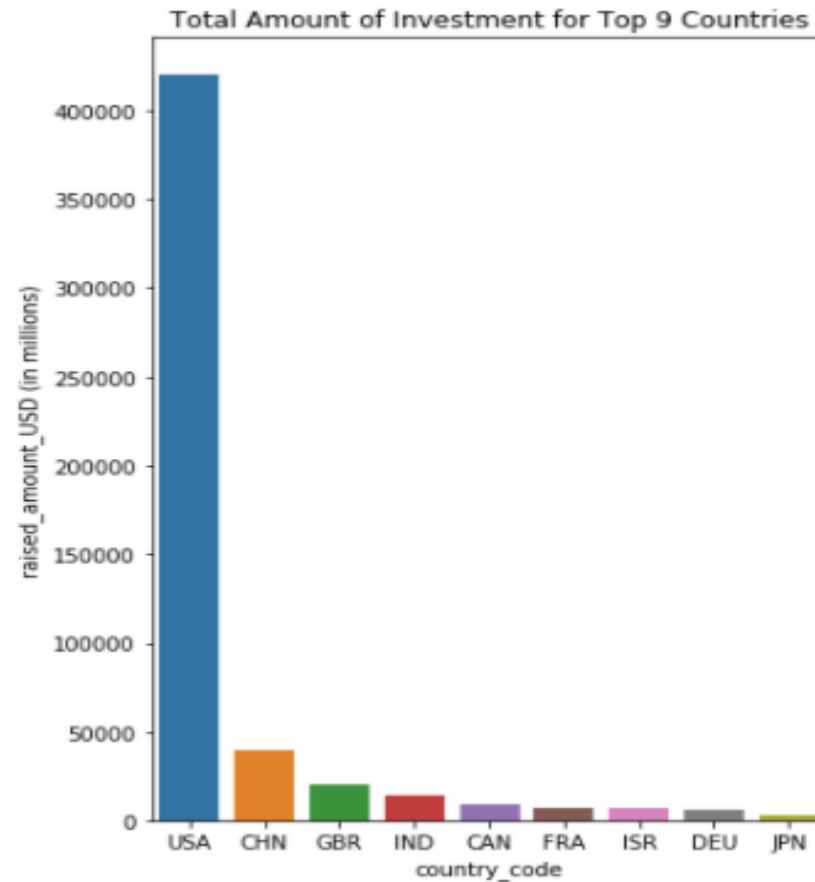
Plot 3:A plot showing the number of investments in the top 3 sectors of the top 3 countries on one chart (for the chosen investment type venture).

Total count of Investment for Top 3 Countries and sectors

Conclusions

Below can be the investment strategy for Spark Funds considering all the objectives, constraints and strategy:

- Spark Funds should consider investing in funding type *venture* in *Others* main sector in *USA* as that is where most investments are occurring.
- If Spark Funds wants to invest in different countries to reduce the risk due to country specific economy fluctuations then it should invest in *USA*, GBR and *India* respectively in funding type *venture* and main sector *Others*

- Top 3 Main sectors for USA and GBR are

- Others
- Social, Finance, Analytics, Advertising
- Cleantech / Semiconductors

Top 3 Main sectors for USA and GBR are
- Others
- Social, Finance, Analytics, Advertising
- News, Search and Messaging

	country_code	main_sector	Total_investment_count
0	USA	Others	2950
1	USA	Social, Finance, Analytics, Advertising	2714
2	USA	Cleantech / Semiconductors	2300
0	GBR	Others	147
1	GBR	Social, Finance, Analytics, Advertising	133
2	GBR	Cleantech / Semiconductors	128
0	IND	Others	110
1	IND	Social, Finance, Analytics, Advertising	60
2	IND	News, Search and Messaging	52