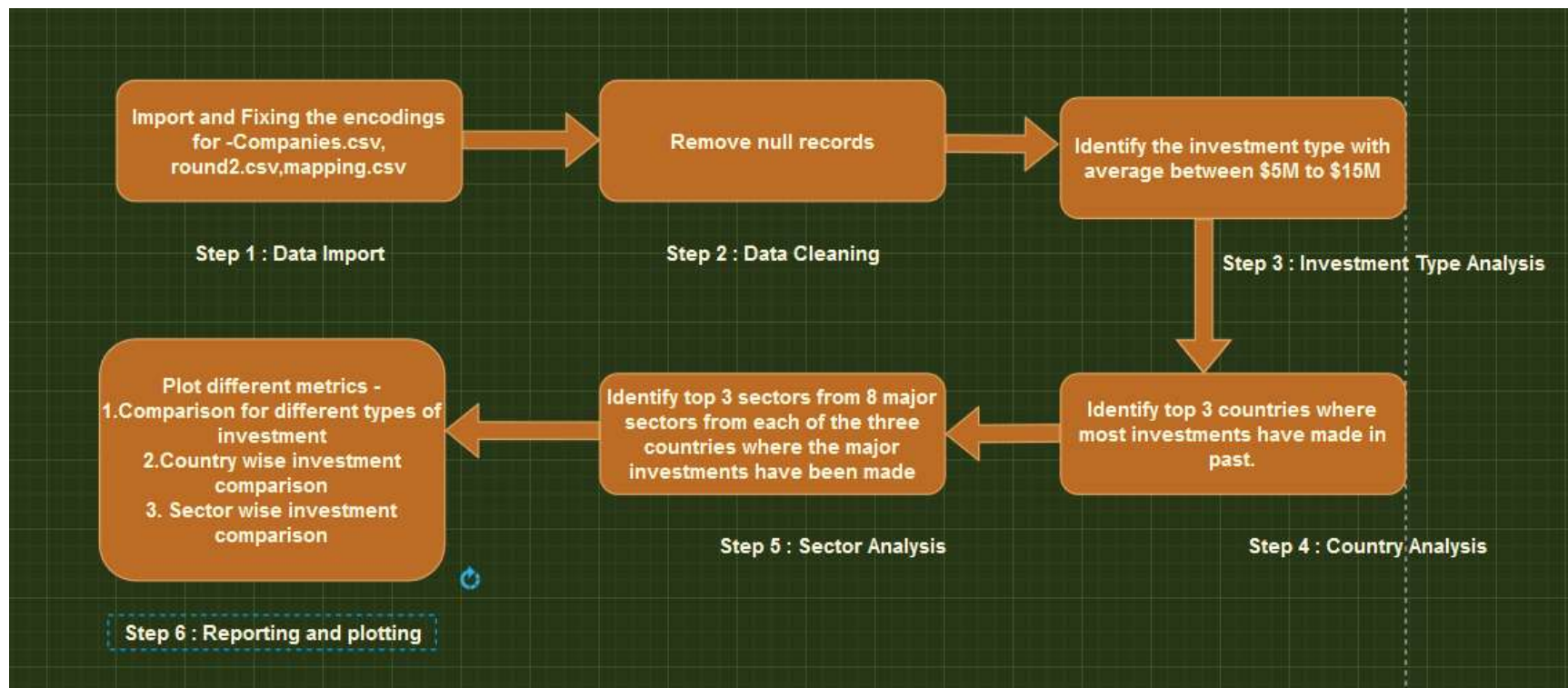# INVESTMENT ASSIGNMENT

SUBMISSION

Subhabrata Ghosh

Spark Fund Investment strategy

- A global asset management company called **Spark Fund** is looking to make investment into few companies based on the global investment trends in different sectors.
- An Investment strategy needs to be planned based on global trends and few other limitations keeping in mind.

- **Limitations:**
  - ➤ The investment amount will be between 5 million USD to 15 million USD
  - ➤ The investment will be made in the countries where one of the official language is English

- **Business Objectives:**
  - ➤ To identify the best sectors and country and suitable investment type – where the most investments have been made in the past.
  - ➤ Extensive analysis on Investment Types , Country and Sectors.
    - ❑ Investment type Analysis - Analyze different investment types and find the best suitable ones based on past history and limitations
    - ❑ Country Analysis – Identify best countries where investments have been made in the past
    - ❑ Sector Analysis – Identify best Sectors to invest

Analysis Process – Flow chart

Investment strategy - Analysis

This investment case study requires the following
- ❑ Data Model Analysis
- ❑ Investment Type Analysis
- ❑ Country Analysis
- ❑ Sector Analysis

Data Model Analysis

The Data Model Analysis is a two step process

Data Import:

➢ Import the following CSV files – companies.csv ,rounds2.csv , mapping.csv

➢ Fix the encoding issues in the files.

Data Cleaning:

➢ Remove NA values from the columns requires for analysis

➢ Identify the unique column from the data frame companies - **permalink**

➢ Count total companies in company data frame. – **66368**

➢ Identify total unique company_permalink column in the dataset for round2 – **66368**

➢ Merge two data sets -Company and Round into master_frame and count total records – **114949**
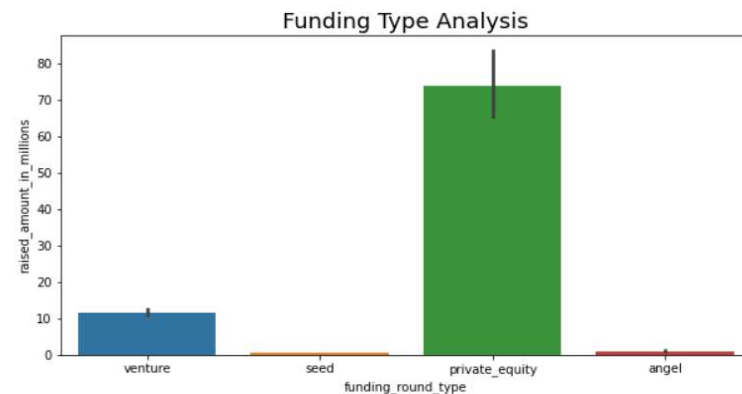
	Table-1.1	
	Understand the Data Set	
Sl. No	**Questions**	**Answer**
1	How many unique companies are present in rounds2?	66368
2	How many unique companies are present in the companies file?	66368
3	In the *companies* data frame, which column can be used as the unique key for each company? Write the **name of the column.**	permalink
4	Are there any companies in the rounds2 file which are not present in *companies* ? Answer **Y/N.**	N
5	Merge the two data frames so that all variables (columns) in the *companies* frame are added to the *rounds2* data frame. Name the merged frame *master_frame* . How many observations are present in *master_frame* ?	114949

Investment Type Analysis

The goal for this investment analysis is to find the mean values for the four following investment types – venture , seed , angel ,private equity. Then identify a preferable investment type.

Observations:

- Private equity is the most preferred investment type in the past with an average of $73.94 M

- Our preferred investment is venture , because the average value is between $5M to $15M which is the preferred investment amount.

Funding Type Analysis

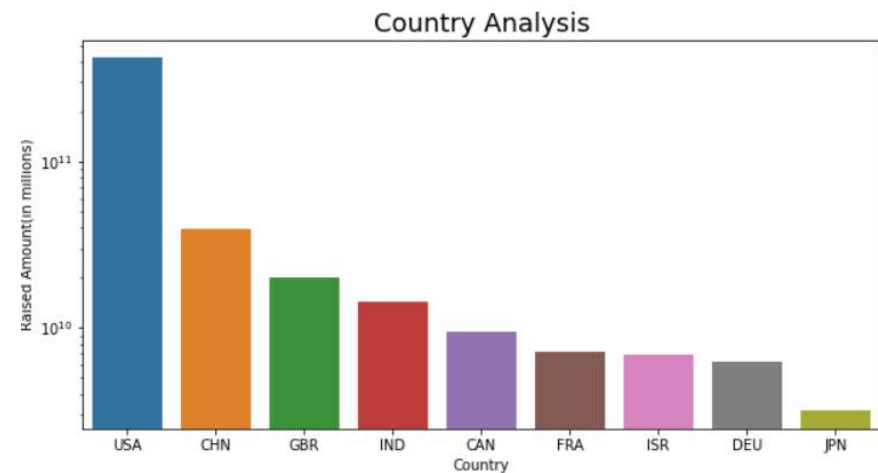|	mean in ($) millions	median in ($) millions
funding_round_type		
angel	$0.97MM	$0.41MM
private_equity	$73.94MM	$20.0MM
seed	$0.75MM	$0.3MM
venture	$11.72MM	$5.0MM

Country Analysis

The goal for this analysis is to identify the top 9 countries where the most investments have been made followed by identify the top 3 three countries with official language English.

Observations:

- The top 3 preferred countries for the investment – USA , CHN,GBR

- The top 3 preferred countries with English are – USA , GBR ,IND

country_code	raised_amount_usd
USA	4.200680e+11
CHN	3.933892e+10
GBR	2.007281e+10
IND	1.426151e+10
CAN	9.482218e+09
FRA	7.226851e+09
ISR	6.854350e+09
DEU	6.306922e+09
JPN	3.167647e+09

Sector Analysis (1/2)

Objective:

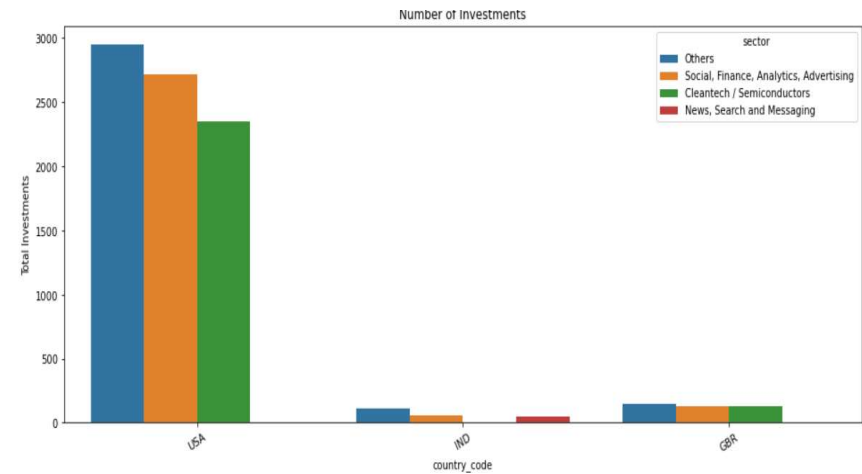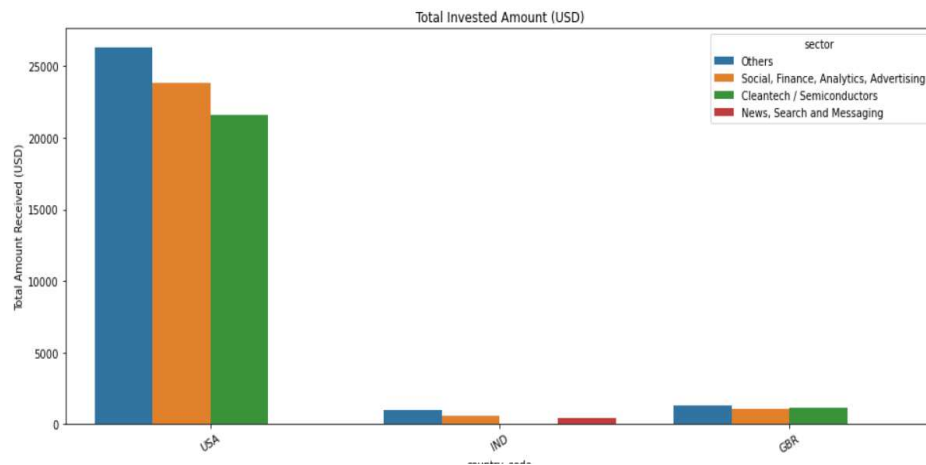The objective is to map the large number of sub sector into 8 major sectors.

Find out the sector wise investments in top 3 preferred countries

Observations:

Please see the tables for the top 3 sectors for top 3 countries.

country_code	sector	count	sum
USA	Others	2950	26321.01
USA	Social, Finance, Analytics, Advertising	2714	23807.38
USA	Cleantech / Semiconductors	2350	21633.45
IND	Others	110	1013.41
IND	Social, Finance, Analytics, Advertising	60	550.55
IND	News, Search and Messaging	52	433.84
GBR	Others	147	1283.65
GBR	Social, Finance, Analytics, Advertising	133	1089.39
GBR	Cleantech / Semiconductors	130	1163.97

Sector Analysis (2/2)

Conclusions

Based on analysis , We can conclude the following

- The preferred investment type – **Venture**

- Top three preferred countries for investment – USA , GBR ,IND

Questions	USA	GBR	IND
Total number of Investments (count)	12063	621	328
Total amount of investment (Millions USD)	107757.2	5379.07	2949.55
Top Sector name (no. of investment-wise)	Others	Others	Others
Second Sector name (no. of investment-wise)	Social, Finance, Analytics, Advertising	Social, Finance, Analytics, Advertising	Social, Finance, Analytics, Advertising
Third Sector name (no. of investment-wise)	Cleantech / Semiconductors	Cleantech / Semiconductors	News, Search and Messaging
Number of investments in top sector (3)	2950	147	102
Number of investments in second sector (4)	2714	133	49
Number of investments in third sector (5)	2350	130	32
For point 3 (top sector count-wise), which company received the highest investment?	Virtustream	Electric Cloud	FirstCry.com
For point 4 (second best sector count-wise), which company received the highest investment?	SST Inc. (Formerly ShotSpotter)	Celltick Technologies	Manthan Systems