INVESTMENT ASSIGNMENT

# SUBMISSION

Name: Abhishek Kumar

▪ Abstract

- The CEO of Spark Funds wants to understand the global trends in investments so that she can take the investment decisions effectively and make investments in a few companies.

▪ Business Understanding

- The objective is to identify the best sectors, countries, and a suitable investment/funding type for making investments.
- Spark Funds has two minor constraints for investments.
  - Invest between 5 to 15 million USD per round of investment
  - Invest only in English-speaking countries for the ease of communication with the companies it would invest in.
- The strategy is to invest where most other investors are investing.

▪ Raw Data

- Companies - A table with basic data of companies
- Rounds2 -   A table with Funding round details
- Mapping –   It contains the mapping of category names in the companies table (such 3D printing, aerospace, agriculture, etc.) to eight broad sector names

Problem Solving Methodology

Funding Type Analysis
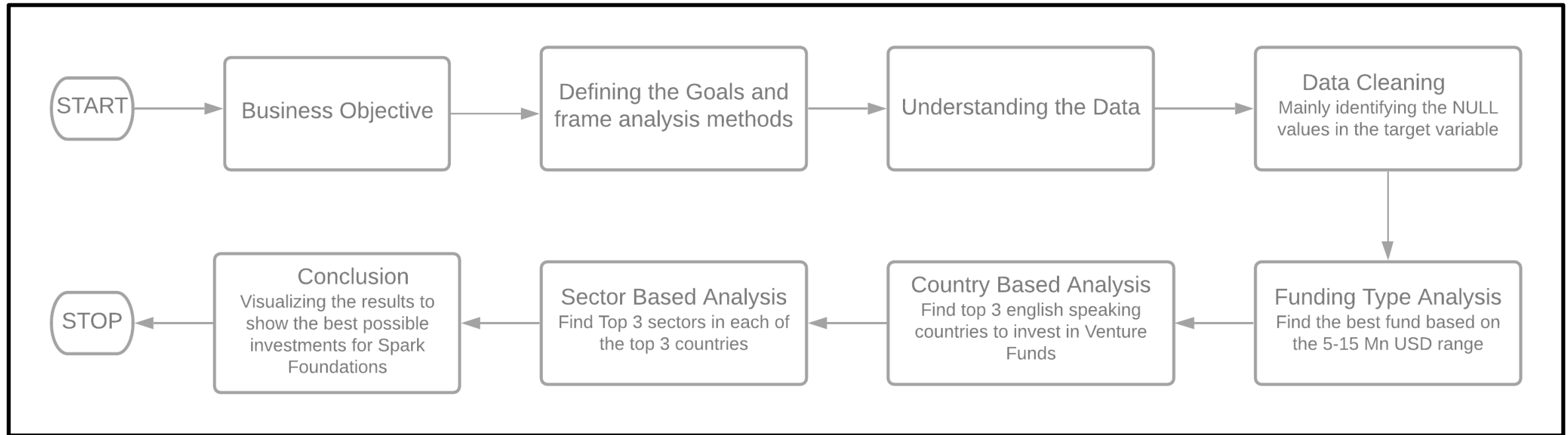
- To find out the best investments for Spark Funds, the analysis is done with three criteria.
    - 1. **Funding Type Analysis** – Finding the best funding type
    - 2. **Country Analysis** - – Finding the few top countries to invest
    - 3. **Sector Analysis** - – Finding the few top sectors to invest

- The funding types such as seed, venture, angel, etc. depend on the type of the company (startup, corporate, etc.), its stage (early stage startup, funded startup, etc.), the amount of funding (a few million USD to a billion USD), and so on. For example, seed, angel and venture are three common stages of startup funding.

- The different funding type is compared for the Total Amount Invested, the average Investment Amount and the number of investments.

- Considering all the statistics, the **Venture Funding type is the best type to invest in**. Specifically the avg amount of venture funds is between 5-15 millions as required by Spark Funds.

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| funding_round_type	count	Total Investment	mean	median	max	min
seed	23602	16988238596.00	719779.62	275000.00	200000000.00	0.00
angel	4860	4659255123.00	958694.47	400000.00	494511992.00	0.00
venture	50228	590126216876.00	11748949.13	5000000.00	17600000000.00	0.00
private_equity	1936	141925436105.00	73308593.03	20000000.00	4745460219.00	0.00

Country Based Analysis

- The country based analysis is done only for the Venture funds as the observations related to other funds are removed.

- The input data contains the companies of English as well non-English speaking countries. The details of the official language of the countries are scraped from the Wikipedia.

- **USA, China (CHN), United Kingdom (GBR) and India (IND) are the topmost countries**. But China being the non-English speaking country is excluded from the suggestion and further analysis.

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	country_code	tot_raised_amt_usd	Language
0	USA	422510842796.00	English
1	CHN	39835418773.00	Non-English
2	GBR	20245627416.00	English
3	IND	14391858718.00	English
4	CAN	9583332317.00	English
5	FRA	7259536732.00	Non-English
6	ISR	6907514579.00	Non-English
7	DEU	6346959822.00	Non-English
8	JPN	3363676611.00	Non-English

Sector Based Analysis

- There are 8 main sectors listed in mapping file. The category list of all the companies map to one of these broad sectors.

- After the analysis on countries, the input data is filtered and only the top 3 English speaking countries are retained to conduct analysis on sectors.

- The data is now grouped based on the country and the main sectors to get the best performing sectors in the top 3 English speaking countries.

- These best sectors are identified by the Number of Investments done in each sector for each country.

- USA   United Kingdom (GBR)   India (IND)

USA		United Kingdom (GBR)		India (IND)	
Others	8243	Others	507	Others	281
Cleantech / Semiconductors	7849	Cleantech / Semiconductors	433	News, Search and Messaging	130
Social, Finance, Analytics, Advertising	5156	Social, Finance, Analytics, Advertising	318	Social, Finance, Analytics, Advertising	77
News, Search and Messaging	4301	News, Search and Messaging	241	Entertainment	75
Health	3263	Entertainment	133	Manufacturing	55
Manufacturing	2453	Manufacturing	122	Cleantech / Semiconductors	54
Entertainment	1756	Health	118	Health	42
Automotive & Sports	505	Automotive & Sports	44	Automotive & Sports	31

- The below bar graph shows the average amount of investment in seed, angel, venture and private equity.
- The venture funds is in the required range of 5-15 Million USD
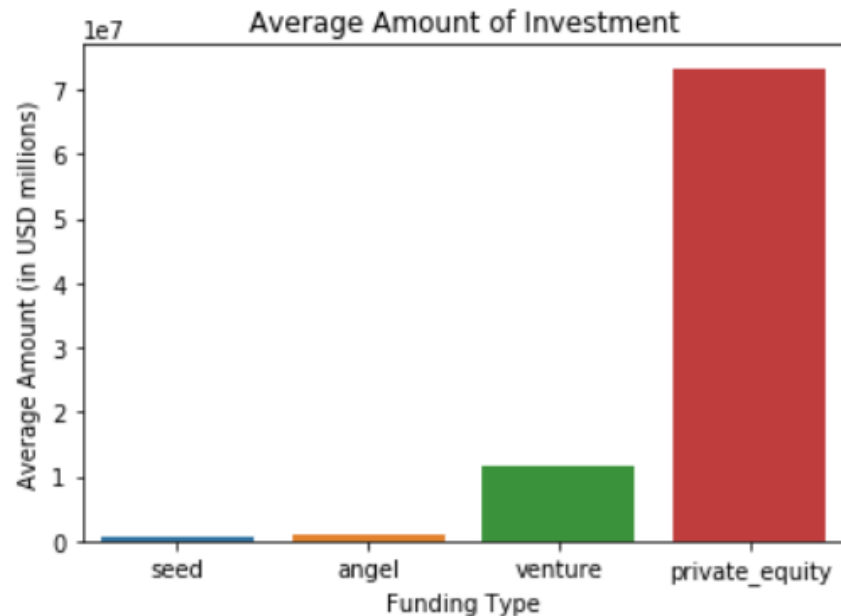
- The below bar graph shows the fraction of each fund against the total investments.
- The Venture Funding type has the highest fraction of investment.
- Satisfying the 5-15 Mn USD criteria and also the highest fraction of investment, **Venture funds** is the **obvious choice**.

Average Amount of Investment

Fraction of Investment across Funding types
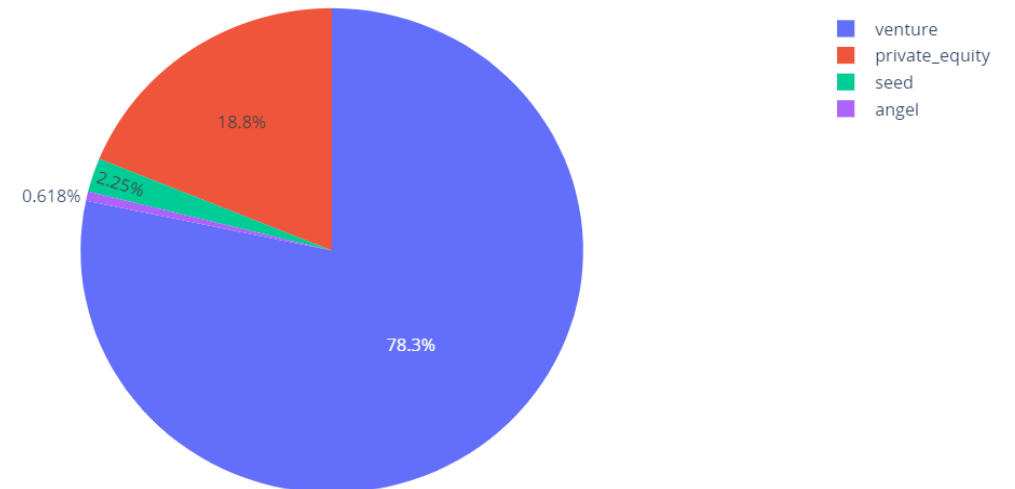
- The bar graph shows the top 9 countries for Venture funding.
- USA tops the list, followed by China, Great Britain and India.
- Considering only the English speaking countries **USA, GBR and IND** are the **top 3** countries to **invest** in for **Venture Funds**.

Top 9 Countries for Venture Funding

Result – Sector Based Analysis
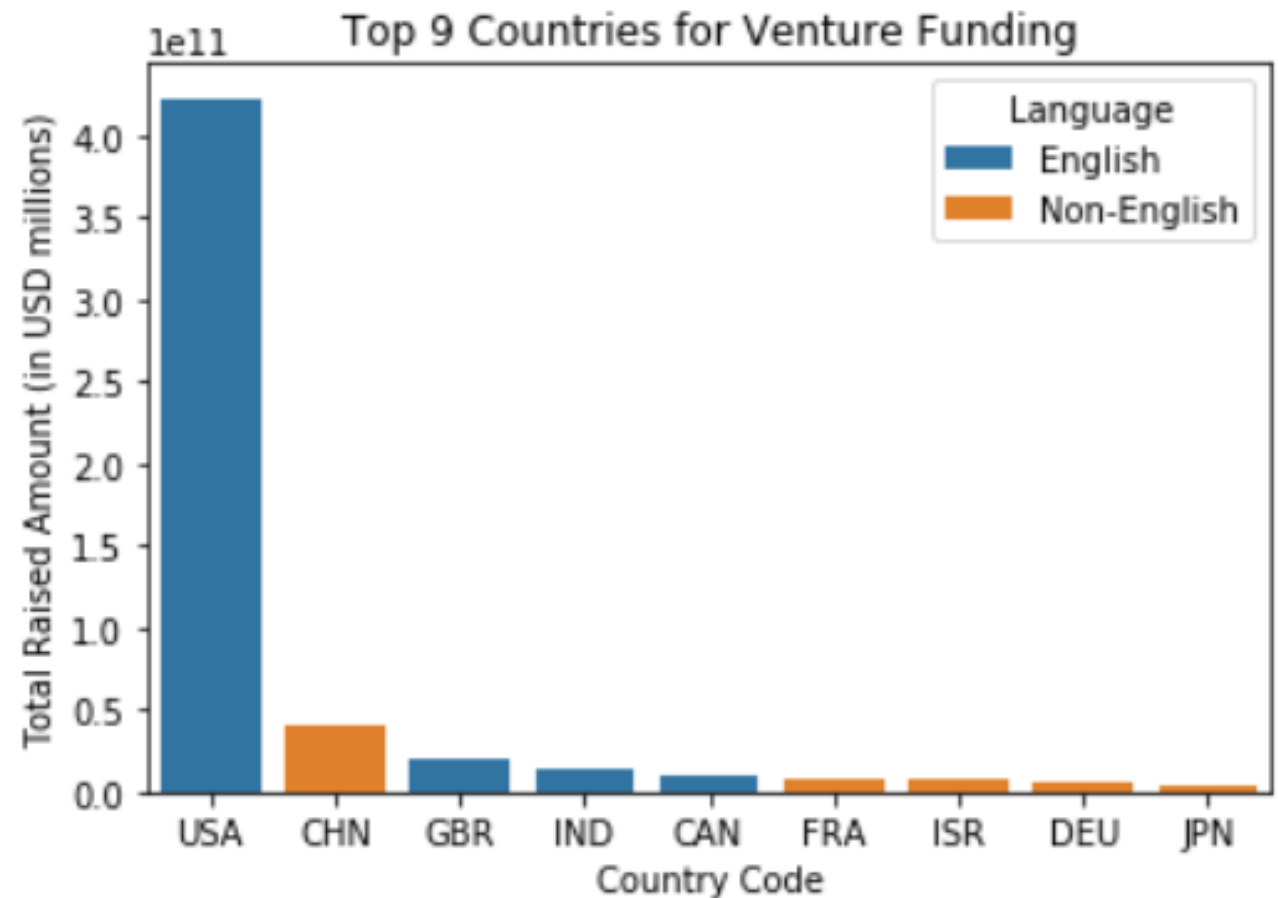
- Based on the sector analysis, the below graph depicts the top 3 sectors on the top 3 countries.

Top 3 sectors in the top 3 countries

Conclusion
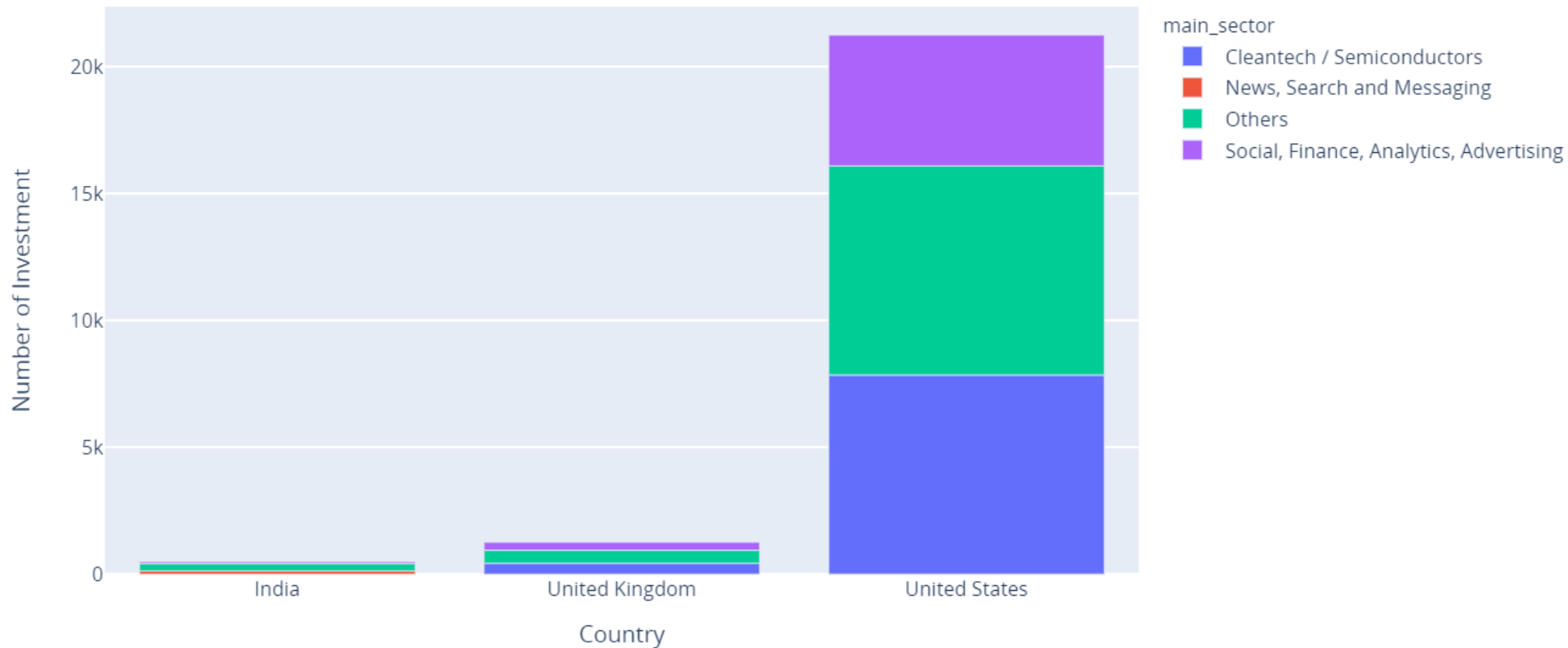
- After the analysis on the investments data, we can conclude the following.

- **Venture Capital** is the best investment type with an average size in the 5-15 M USD range.

- **USA, Great Britain** and **India** are the top 3 English speaking countries with the highest investment amount in the Venture Funding type.

- The final decision by the Spark foundation to invest could be in **Venture Funds** in the sectors **'Others',** **'Cleantech/Semiconductors'** and **'Social/Finance/Analytics/Advertising'** within **USA, Great Britain** and **India.**