# INVESTMENT ASSIGNMENT

# SUBMISSION

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# Objective:

- **Problem Statement:** Spark Funds wants to understand the global trends in investments so that she can take the investment decisions effectively. Spark Funds wants to invest where most other investors are investing. This pattern is often observed among early stage startup investors.

- The business objectives and goals of data analysis are pretty straightforward.

**Business objective:** 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:** Your goals are divided into three sub-goals:

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. These will be Spark Funds' favourites as well.

3. Sector analysis: Understanding the distribution of investments across the eight main sectors. (Note that we are interested in the eight 'main sectors' provided in the mapping file. The two files — companies and rounds2 — have numerous sub-sector names; hence, you will need to map each sub-sector to its main sector.)

# Flow Chart:
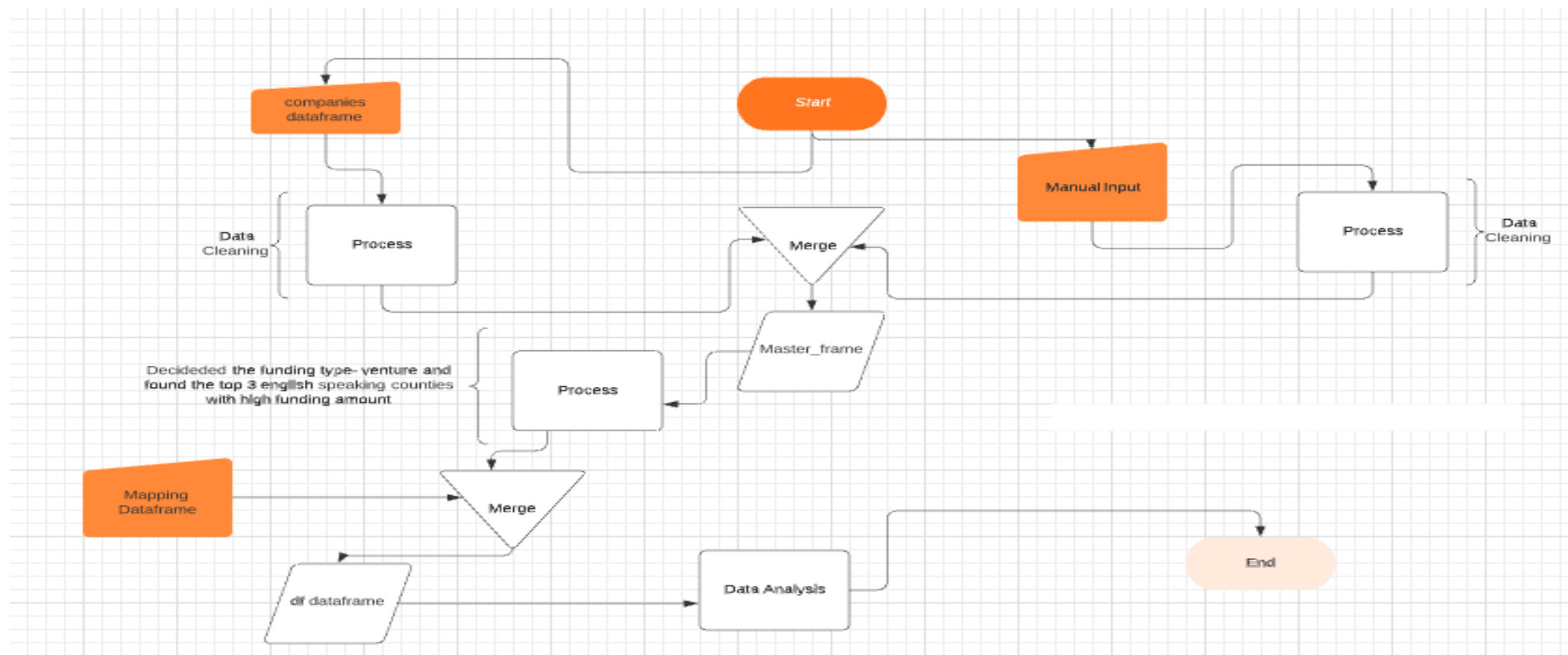
# Investment Type Analysis:

- After the cleaning and merging the companies and round2 dataframe into master_fame

- This is the first of the three goals of data analysis – investment type analysis.

- 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

- Seed/angel funding refer to early stage startups whereas venture funding occurs after seed or angel stage/s and involves a relatively higher amount of investment.

- Private equity type investments are associated with much larger companies and involve much higher investments than venture type. Startups which have grown in scale may also receive private equity funding. This means that if a company has reached the venture stage, it would have already passed through the angel or seed stage/s.

- Spark Funds wants to choose one of these four investment types for each potential investment they will make.

- Considering the constraints of Spark Funds, we have to decide one funding type which is most suitable for them.:
    1. Calculate the most representative value of the investment amount for each of the four funding types (venture, angel, seed, and private equity) and report the answers in Table 2.
    2. Based on the most representative investment amount calculated above, which investment type do you think is the most suitable for Spark Funds?

# Result:
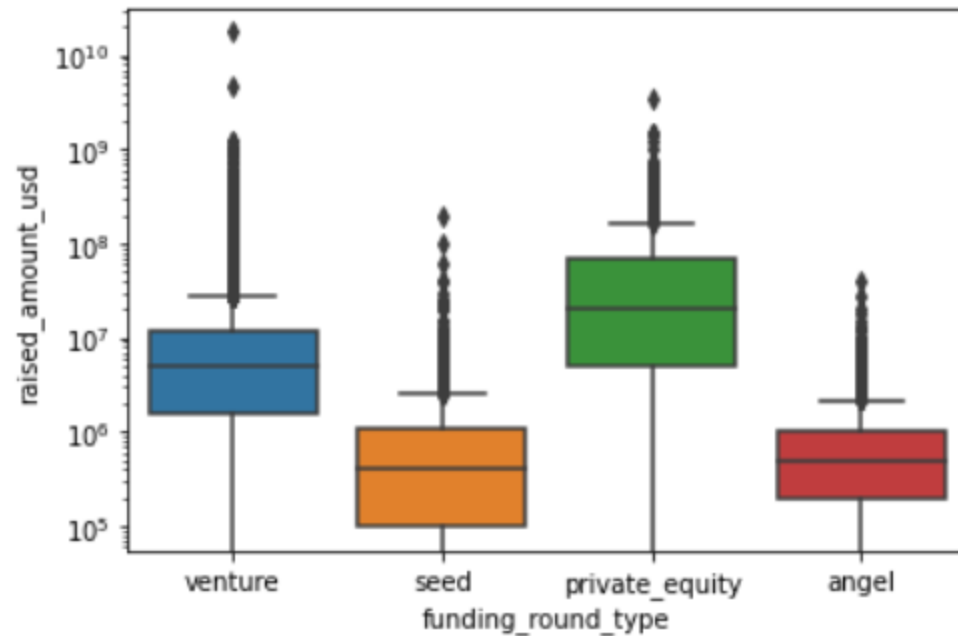


The median investment amount for type 'private_equity' is approx. USD 20m, which is beyond Spark Funds' range of 5-15m. The median of 'venture' type is about USD 5m, which is suitable for them. The average amounts of angel and seed types are lower than their range.

Thus, 'venture' type investment will be most suited to them.

# Country Analysis:

- This is the second of the three goals of data analysis – Country analysis.

- Now that we know the type of investment suited for Spark Funds, let's narrow down the countries.

- Spark Funds wants to invest in countries with the highest amount of funding for the chosen investment type. This is a part of its broader strategy to invest where most investments are occurring.

- Spark Funds wants to see the top nine countries which have received the highest total funding (across ALL sectors for the chosen investment type)

- For the chosen investment type, make a data frame named top9 with the top nine countries (based on the total investment amount each country has received)

- Identify the top three English-speaking countries in the data frame top9.

# Result:
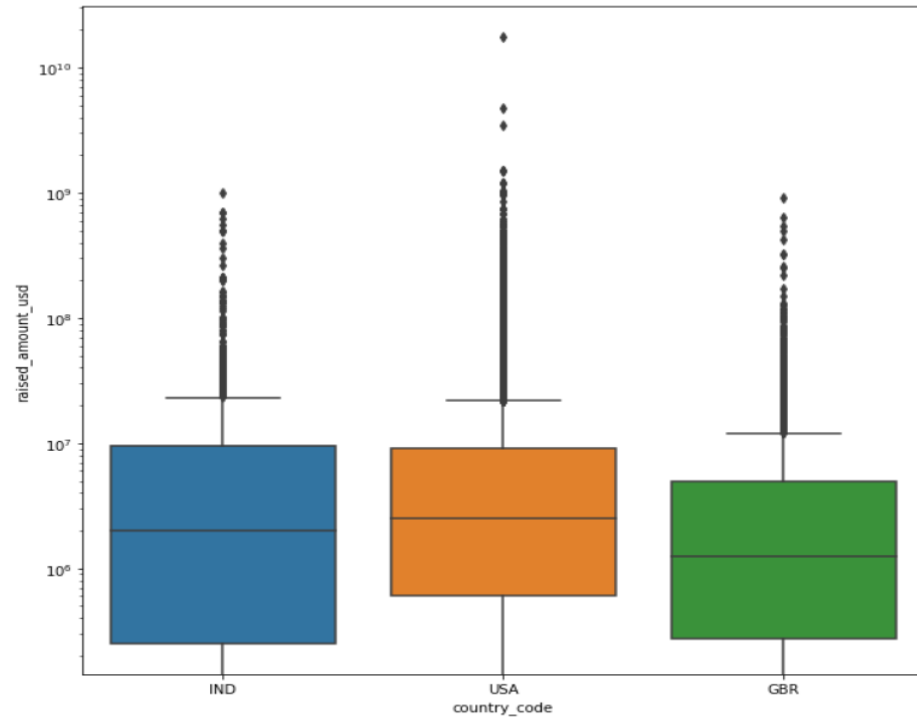


After comparing the total investment amounts across countries. We Found that top 9 countries are USA,CHN,GRB,IND,CAN, DEU, ISR, FRA, NLD.
Out of which USA, GBR and IND are the top three English speaking countries.

# Sector Analysis 1:

- This is the third of the three goals of data analysis – Country analysis.

- Extract the primary sector of each category list from the category_list column

- se the mapping file 'mapping.csv' to map each primary sector to one of the eight main sectors (Note that 'Others' is also considered one of the main sectors)

- Expected Results: Code for a merged data frame with each primary sector mapped to its main sector (the primary sector should be present in a separate column).

- Extracting the main sector using the column ```category_list```. The category_list column contains values such as 'Biotechnology|Health Care' - in this, 'Biotechnology' is the 'main category' of the company, which we need to use.

- Extracting the main categories in a new column.

**Result:**
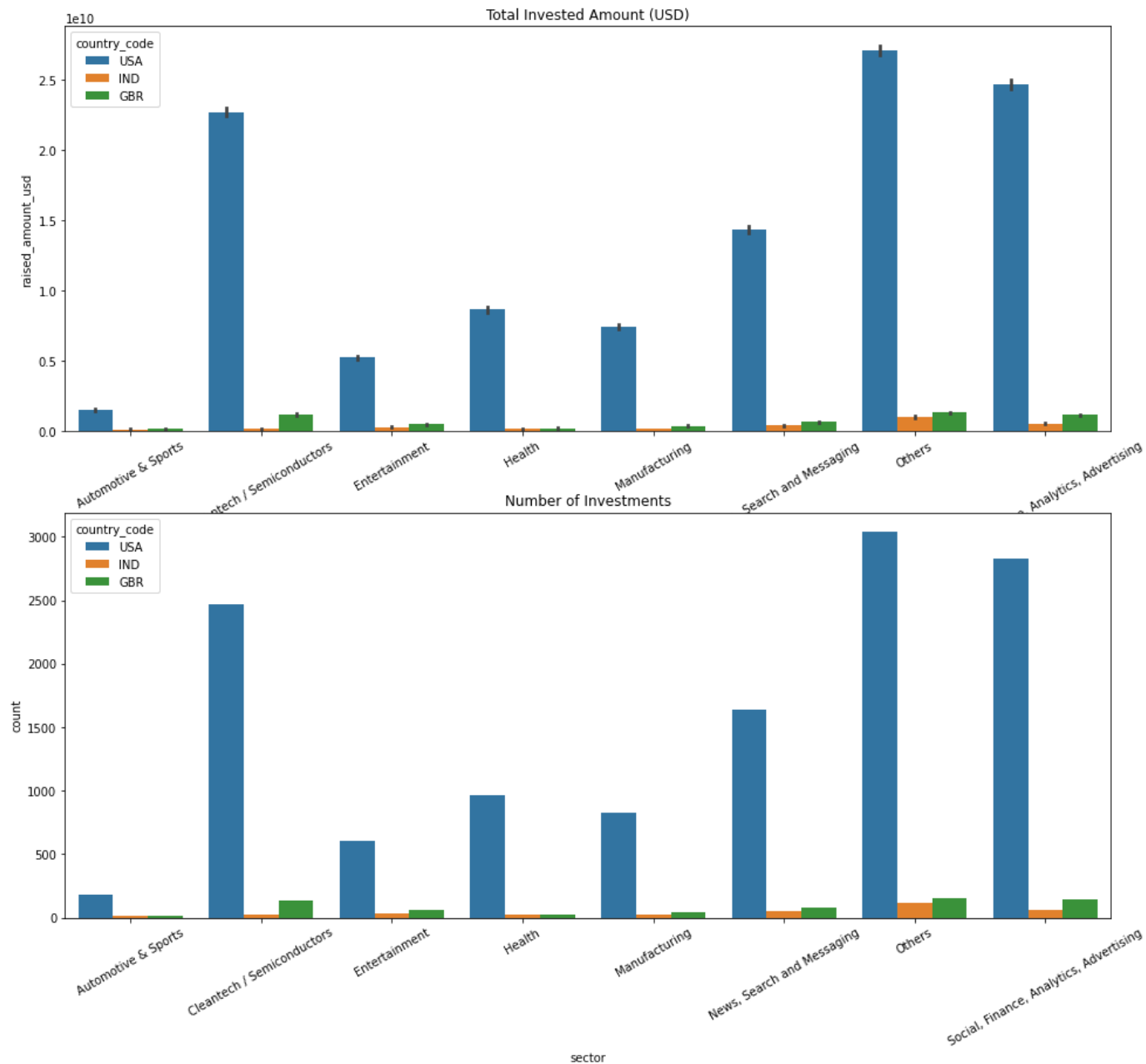
# Conclusions:

Based on the data it is clear that USA is the prime place to make investment, going by the number and volume of investments, 50% of the amount can be invested in the top 2 companies on the top 2 sectors shared equally among all 4 companies

- Virtustream
- Capella
- Shotspotter
- Demandbase

Next set of investment 25% each can be made at the top company of the top 2 sector in GBR and India respectively

- electric-cloud
- celltick-technologies
- manthan-systems
- firstcry-com

Thus, the top country in terms of the number of investments (and the total amount invested) is the USA. The sectors 'Others', 'Social, Finance, Analytics and Advertising' and 'Cleantech/Semiconductors' are the most heavily invested ones.

'News, Search and Messaging' is the next best sector in case we dont want to consider 'others'