

# INVESTMENT ASSIGNMENT SUBMISSION

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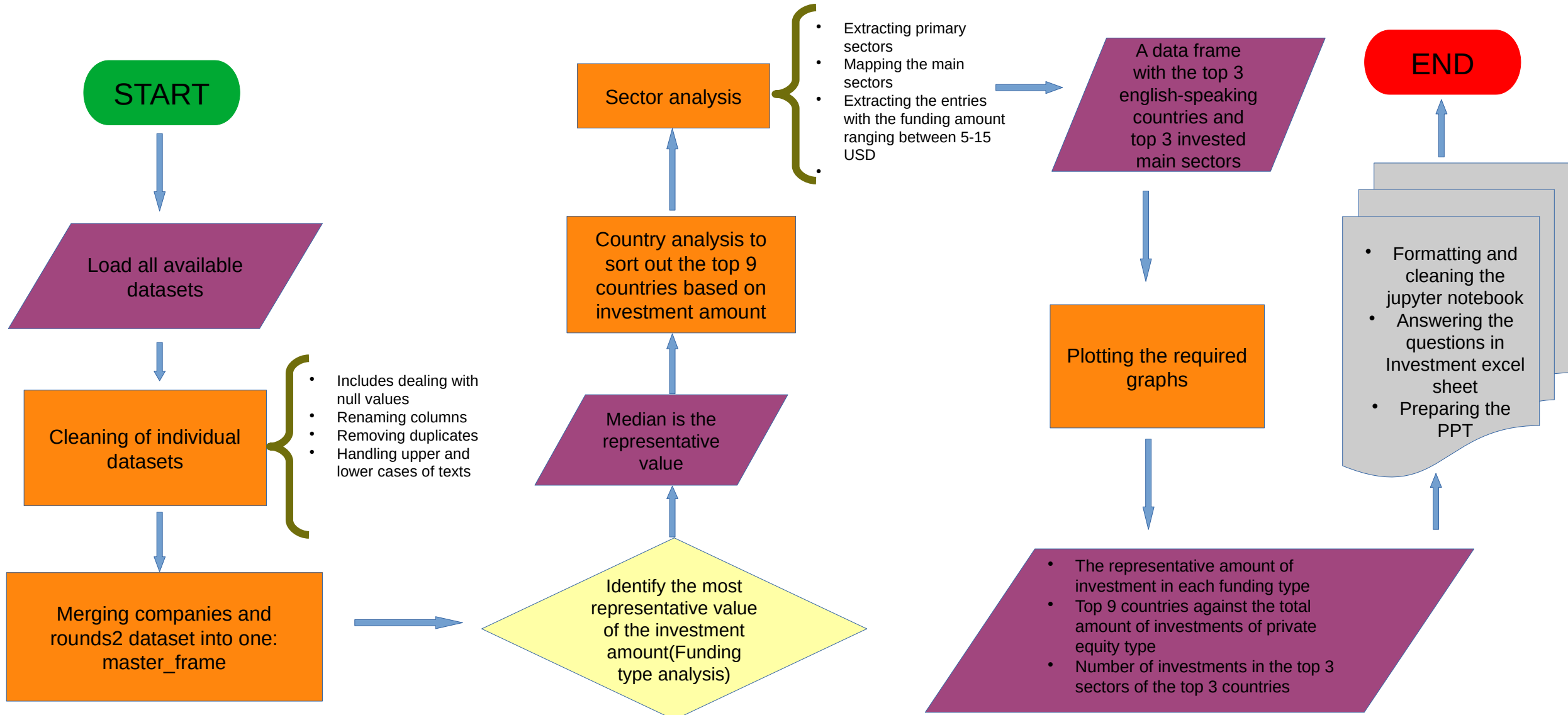
## Abstract

Planning before investment is crucial. The major objective is to present a general trend of market and formulate an efficient way to Spark Funds to let them invest and thus assisting them in gaining optimum profits. Data provided by Spark Funds is in form of three data sets. One contains company names, primary sectors they are working in and their origin country. The other data set contains funding type and the funding amount in USD. The third data set contains names of eight main sectors mapped with the list of primary sectors.

In order to achieve the goal, the programming language, Python has extensively been used as the prime tool during the entire process of analysis along with an IDE called Jupyter Notebook and other some external python libraries like numpy, pandas, matplotlib and seaborn.

The approach begins with merging the three data sets into one which would contain all the necessary information. This merged data set then undergoes various processes to attain a clean and sane state. Various analysis based on funding types, countries, sectors at various stages are performed to figure out the overall tendency of funding. Bar plot, stacked bar plot, line plot, box plot, pie chart and heat-map have been used as part of data visualization which ultimately helped in presenting the gist and concluding that how investment on some sectors and countries could fetch profit whereas others may cause to face loss.

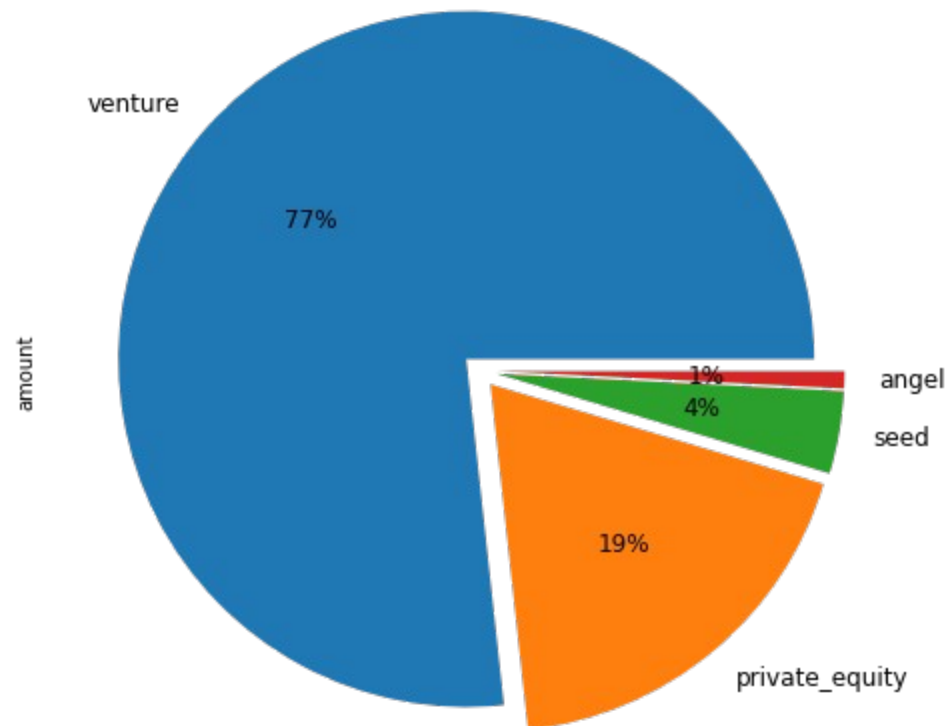
# Problem solving methodology



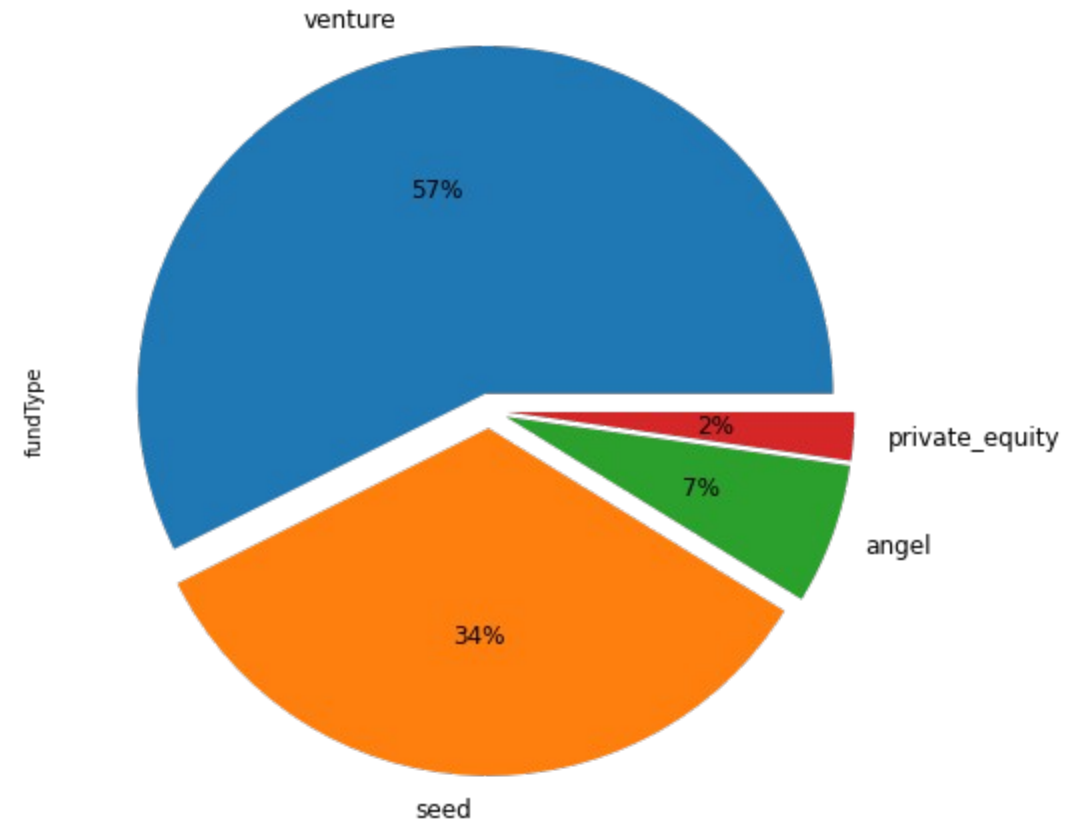
# Funding Type Analysis

In this analysis, the aim is to find the most representative value of the investment amount for each of venture, angel, seed, and private equity funding types and hence determine the most suitable funding type for Spark Funds to invest between 5 to 15 million USD per investment round.

Amount invested in all type of fundings



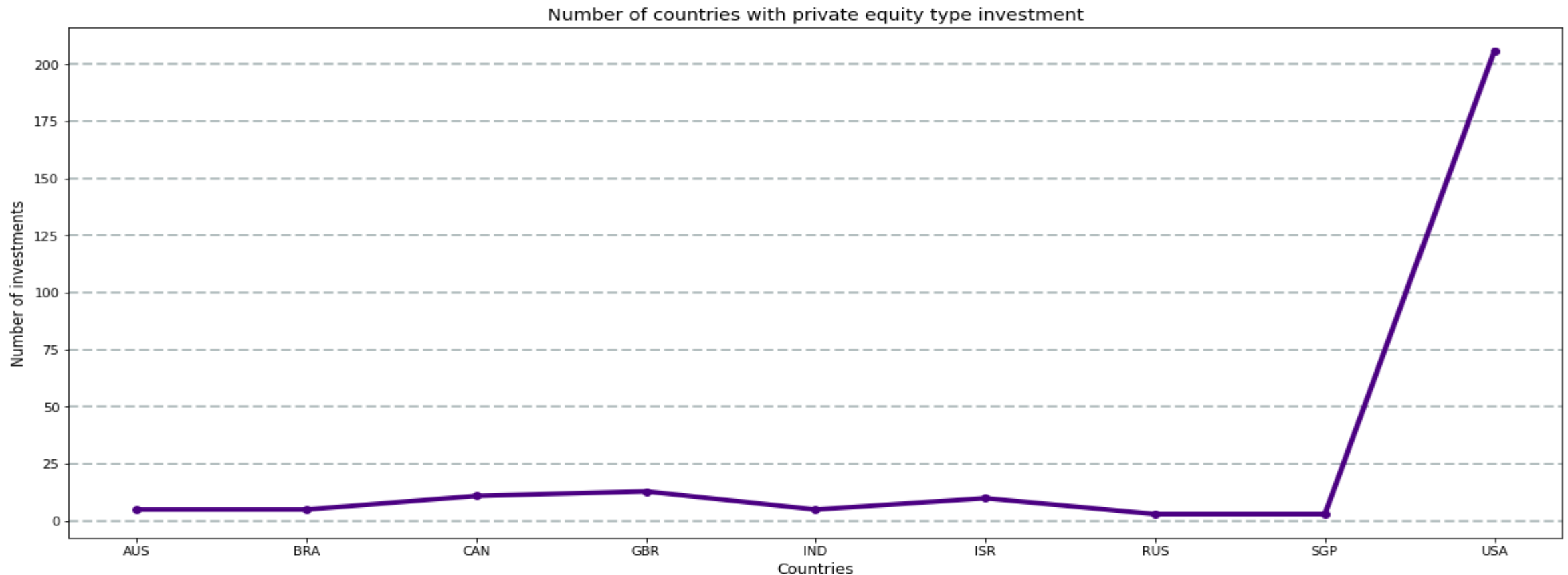
Number of fundings



## Country Analysis

In this analysis, the aim is to see the top nine countries which have received the highest total funding. Then to create a data frame for the chosen investment type with the top 9 countries (based on the total investment amount each country has received).

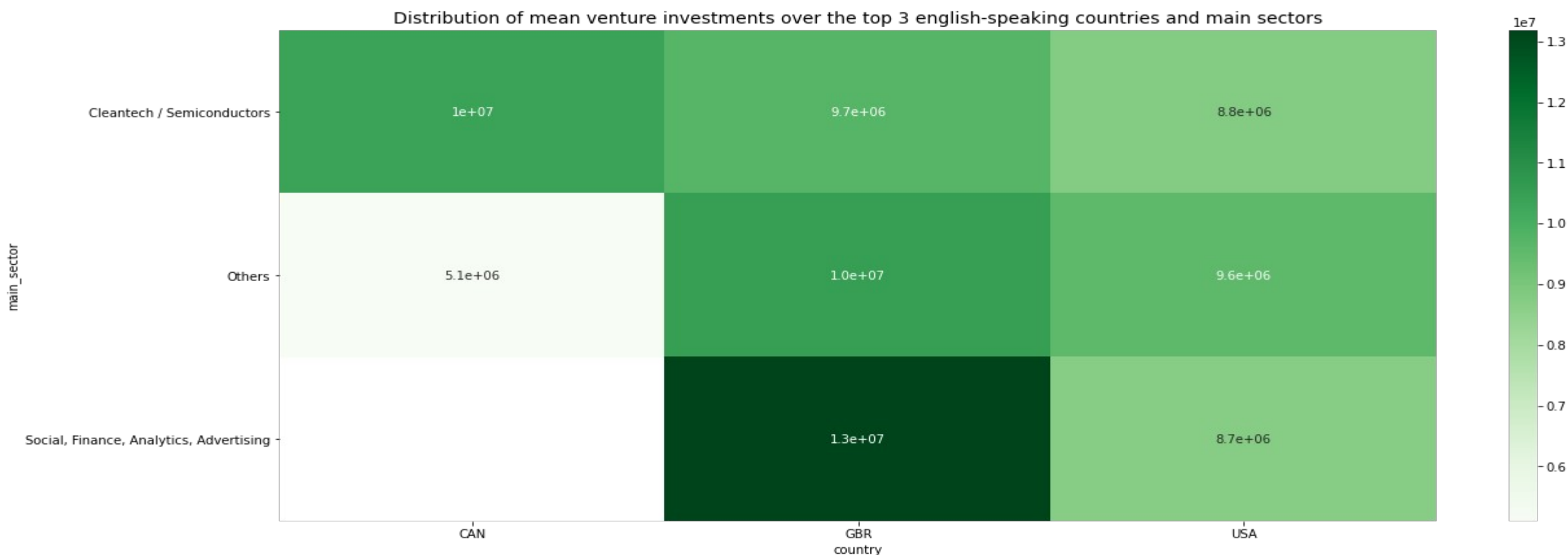
**Note:** The below graph does not show the top 9 countries based on the total amount of investments rather based on total number of investments. This has been provided for illustration purpose only.



## Sector Analysis

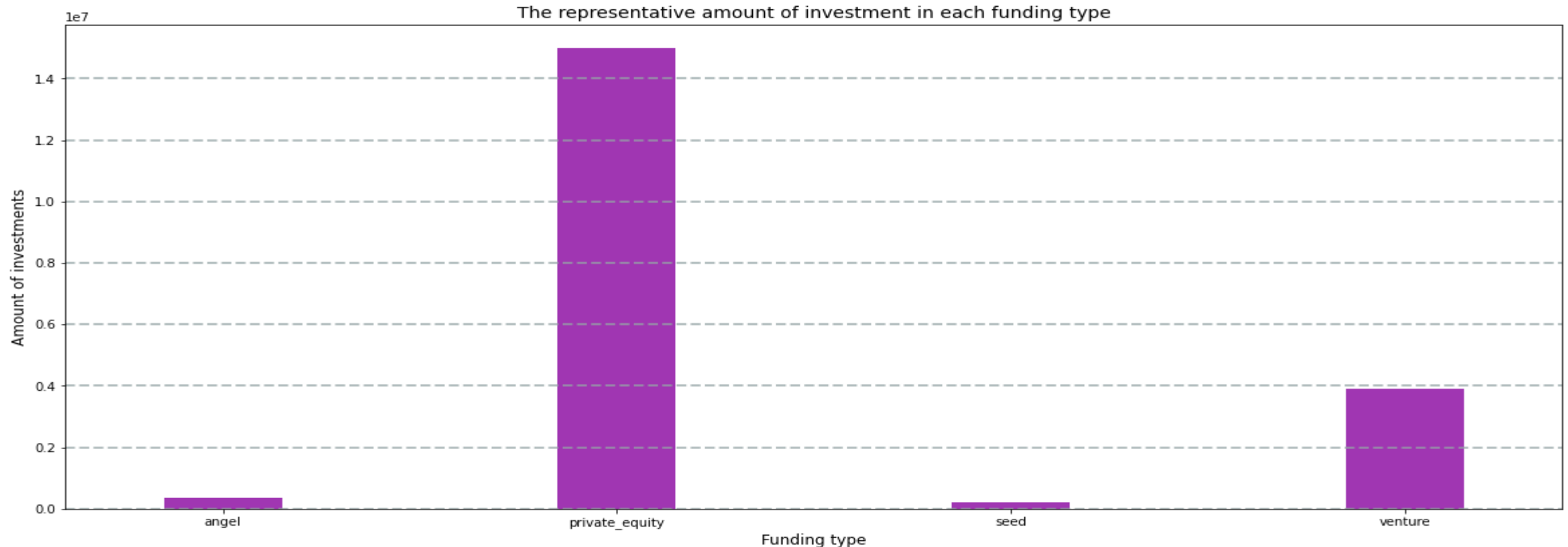
In this analysis, the main sectors are mapped with the primary sector of the main data frame. The data frame is sorted to have only the top three English speaking countries (USA, GBR, CAN), and the most suitable funding type for Spark Funds (Private Equity).

Three data frames are created for each of the three countries containing the observations of venture funding type falling within the 5-15 million USD range.



## Results of Funding type Analysis

- 1) Median is the most representative value of the investment amount
- 2) Private equity investment count comprises of 1286 nos., i.e, around 2 % of all round types
- 3) Private Equity funding total amount comprises of 45 billion USD, i.e., around 19 % of all round type
- 4) Median of investment amount of private equity funding is 15 million USD, which is therefore most suitable for Spark Funds (considering that Spark Funds wants to invest between 5 to 15 million USD per investment round)



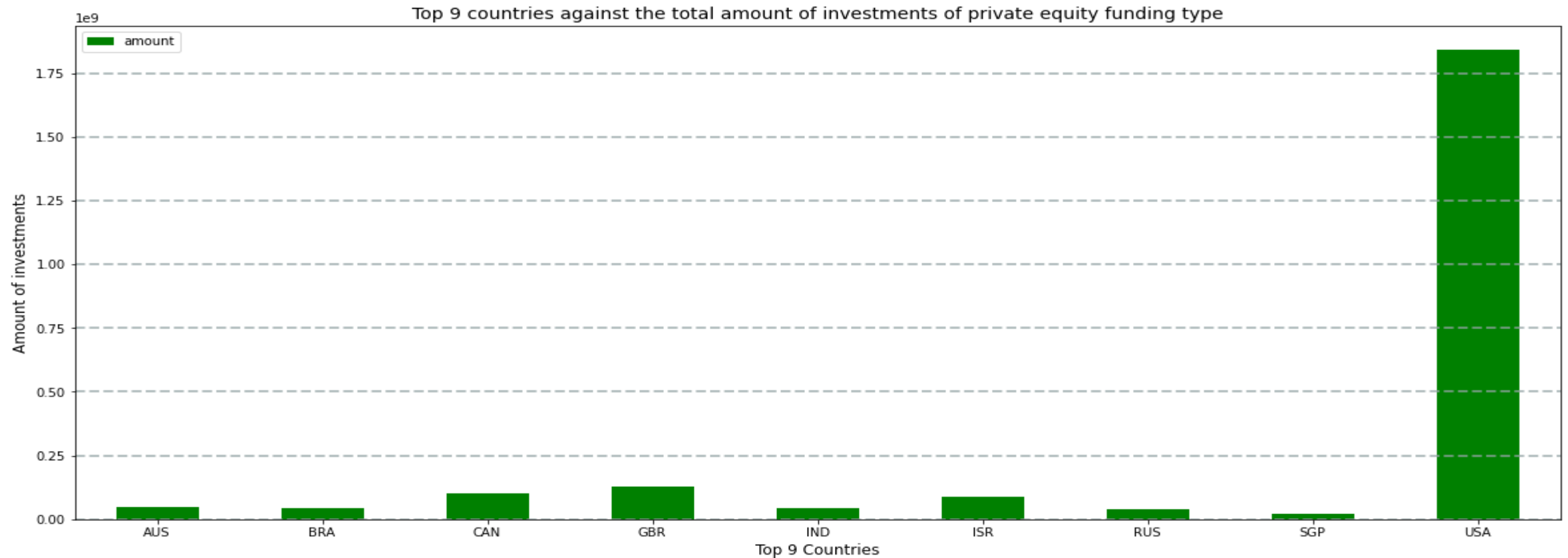
## Results of Country Analysis

1)Country codes of the top 9 countries where the maximum private equity investment occurs in decreasing order are :-

USA , GBR , CAN , ISR , AUS , BRA , IND , RUS , SGP

2)Among the top 9 countries, following are the top 3 english-apeating countries based on the amount of investment :-

USA , GBR , CAN





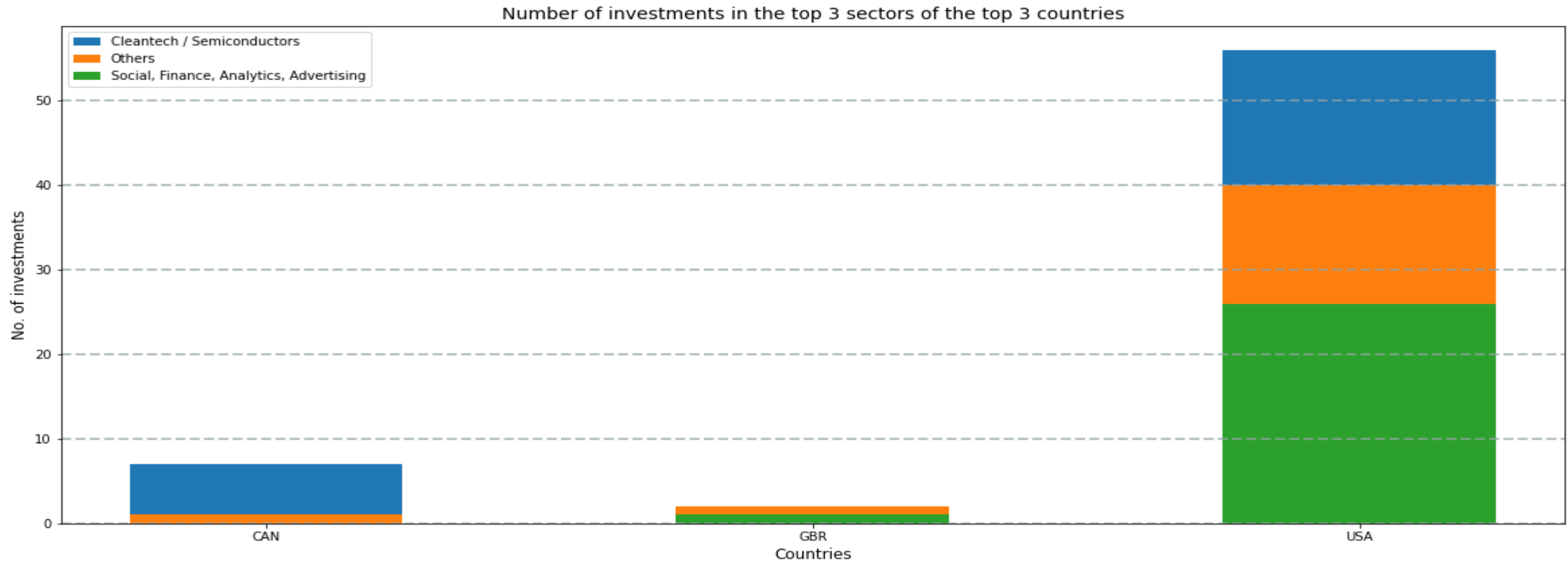
## Results of Sectors Analysis

1) The top 3 biggest sectors with the largest amounts of investments in the top 3 english speaking countries are :-

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

2) **USA** has the highest number of investments in all sectors followed by **CAN** and **GBR**

3) Investment is done more on followed by '**Cleantech / Semiconductors**' sector followed by '**Others**' and '**Social, Finance, Analytics, Advertising**'



## Conclusion

For Spark Funds to invest between 5 to 15 million USD per investment round, Spark fund should focus on investing on 'Cleantech / Semiconductors' main sector through private equity type funding, if any of the top 3 English-speaking country is chosen at random since 'Cleantech / Semiconductors' main sector has got the maximum amount of investments.

USA has got the maximum number and amount of investments.

'Cleantech / Semiconductors' sector has got maximum investments.

To specifically invest in USA since USA has got maximum investments, Spark Funds should invest in 'Cleantech / Semiconductors' sector and vice versa.

