



# INVESTMENT ASSIGNMENT SUBMISSION

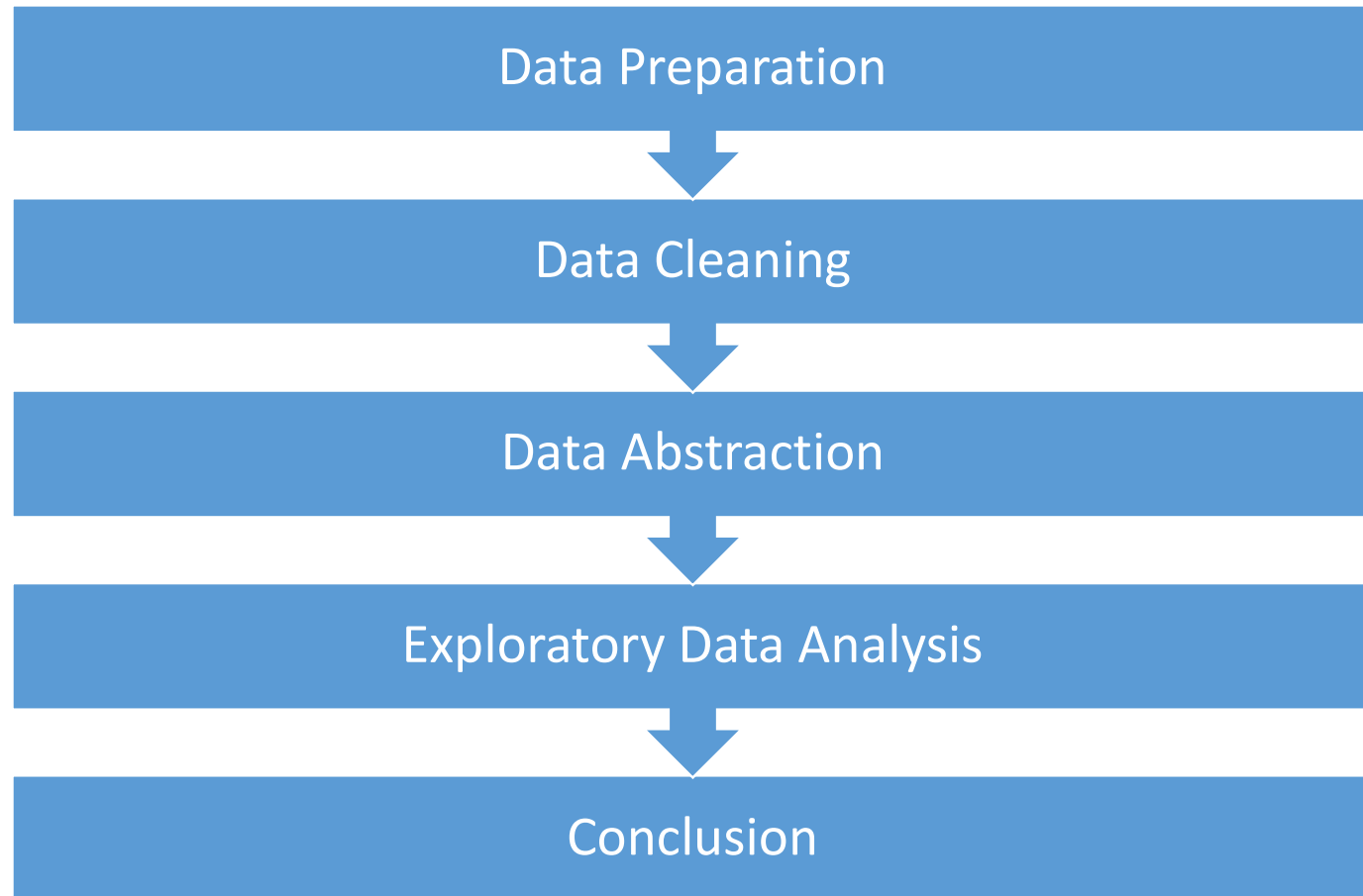
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## <Abstract>

- Spark Funds wants to make investments in a few companies. The CEO of Spark Funds wants to understand the global trends in investments so that she can take the investment decisions effectively.
- Spark Funds has two minor constraints for investments:
- It wants to invest between **5 to 15 million USD** per round of investment
- It wants to invest only in **English-speaking countries** because of the ease of communication with the companies it would invest in
- **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:
  - **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.
  - **Country analysis:** Identifying the countries which have been the most heavily invested in the past. These will be Spark Funds' favourites as well.
  - **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.)

## <Problem solving methodology>

Use flow chart

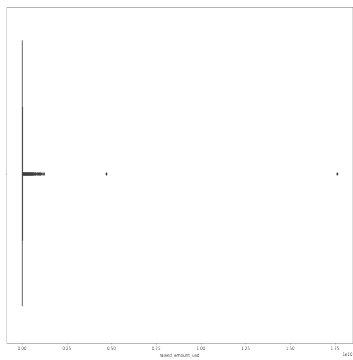




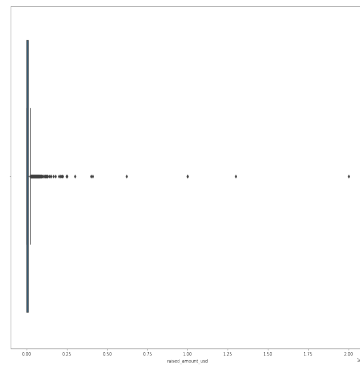
## <Analysis>

- Permalinks contains some uppercase and lowercase values. permalinks are not case sensitive. Not converting to a similar case might mislead information. Hence we convert all permalinks to lower / upper case before merging companies and rounds2 dataframe.
- Raised Amount contains 17% null values. Since number of records are very high and it is most important column for analysis, we cannot replace null values with any representative value. We can take risk and drop the rows where there are more nulls.
- There are 7 such permalinks which are present in rounds and not present in companies data. Since we require companies data for our further analysis it is better to drop these 7 permalinks

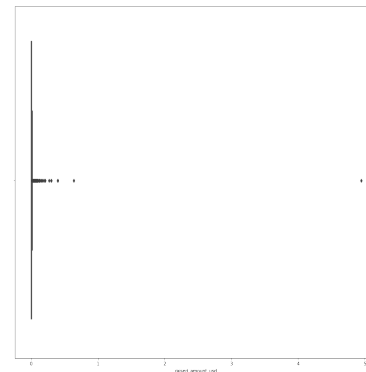
## <Analysis>



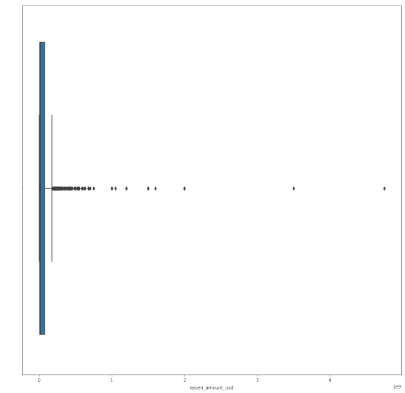
Venture boxplot



Seed boxplot



Angel boxplot



Private Equity boxplot

- From these boxplot info we can infer that there are extreme outliers at the upper end for each and every funding type.

## <Analysis>

### Venture Funding

raised_amount_usd	
count	4.780900e+04
mean	1.172422e+07
std	8.821571e+07
min	0.000000e+00
25%	1.600000e+06
50%	5.000000e+06
75%	1.200000e+07
max	1.760000e+10

### Seed Funding

raised_amount_usd	
count	2.109500e+04
mean	7.477937e+05
std	2.288318e+06
min	0.000000e+00
25%	6.881650e+04
50%	3.000000e+05
75%	1.000000e+06
max	2.000000e+08

### Angel Funding

raised_amount_usd	
count	4.400000e+03
mean	9.715739e+05
std	7.710904e+06
min	0.000000e+00
25%	1.527565e+05
50%	4.149060e+05
75%	1.000000e+06
max	4.945120e+08

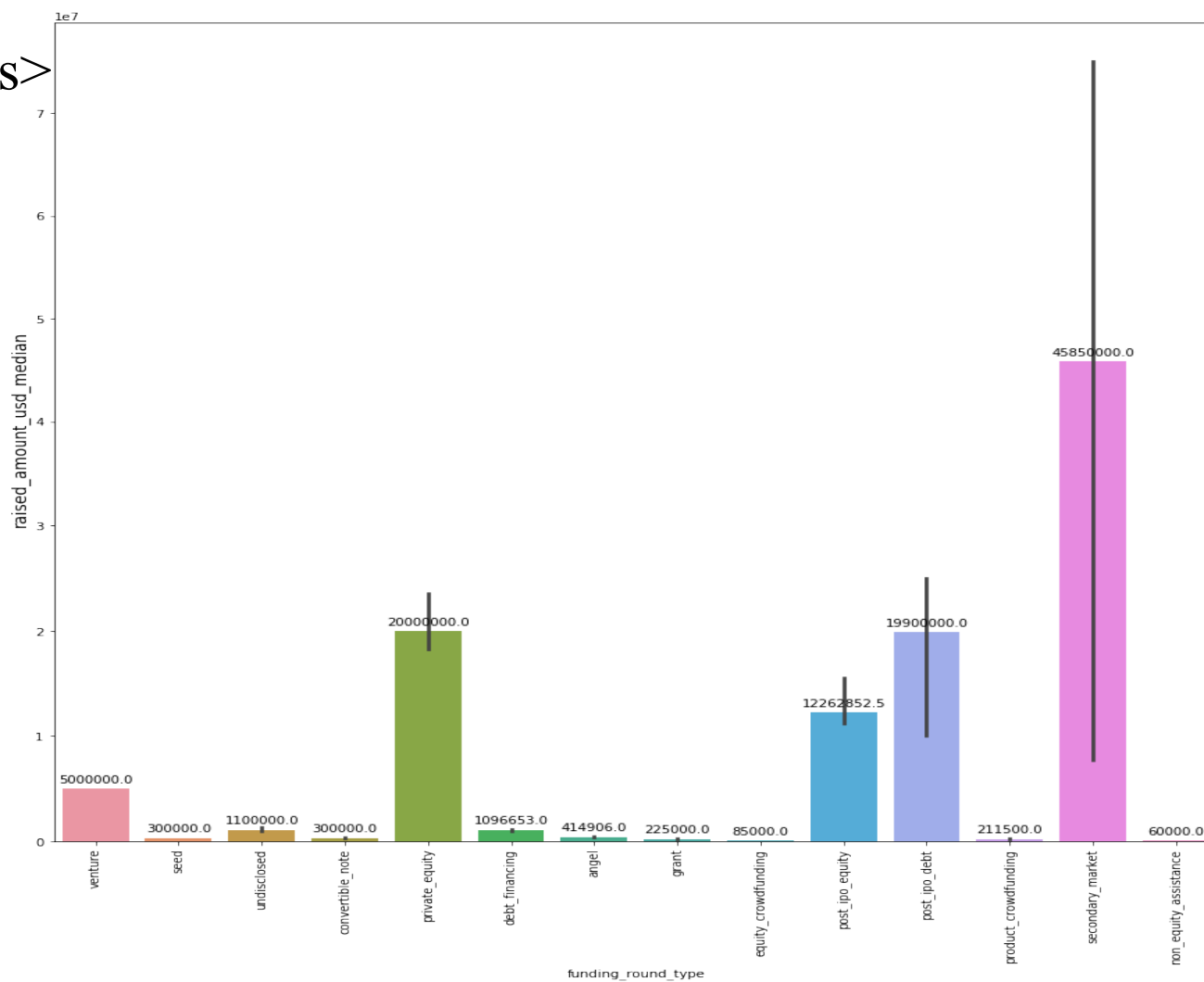
### Private Equity Funding

raised_amount_usd	
count	1.820000e+03
mean	7.393849e+07
std	2.017765e+08
min	0.000000e+00
25%	5.000000e+06
50%	2.000000e+07
75%	7.576257e+07
max	4.745460e+09

- Each funding type contains lot of outliers. So, a representative value of median is better measure for finding out suitable outlier.
- Since we can spend between 5 million to 15 million, median of funding type should lie between these two ranges.
- Venture funding seems best option based on above results

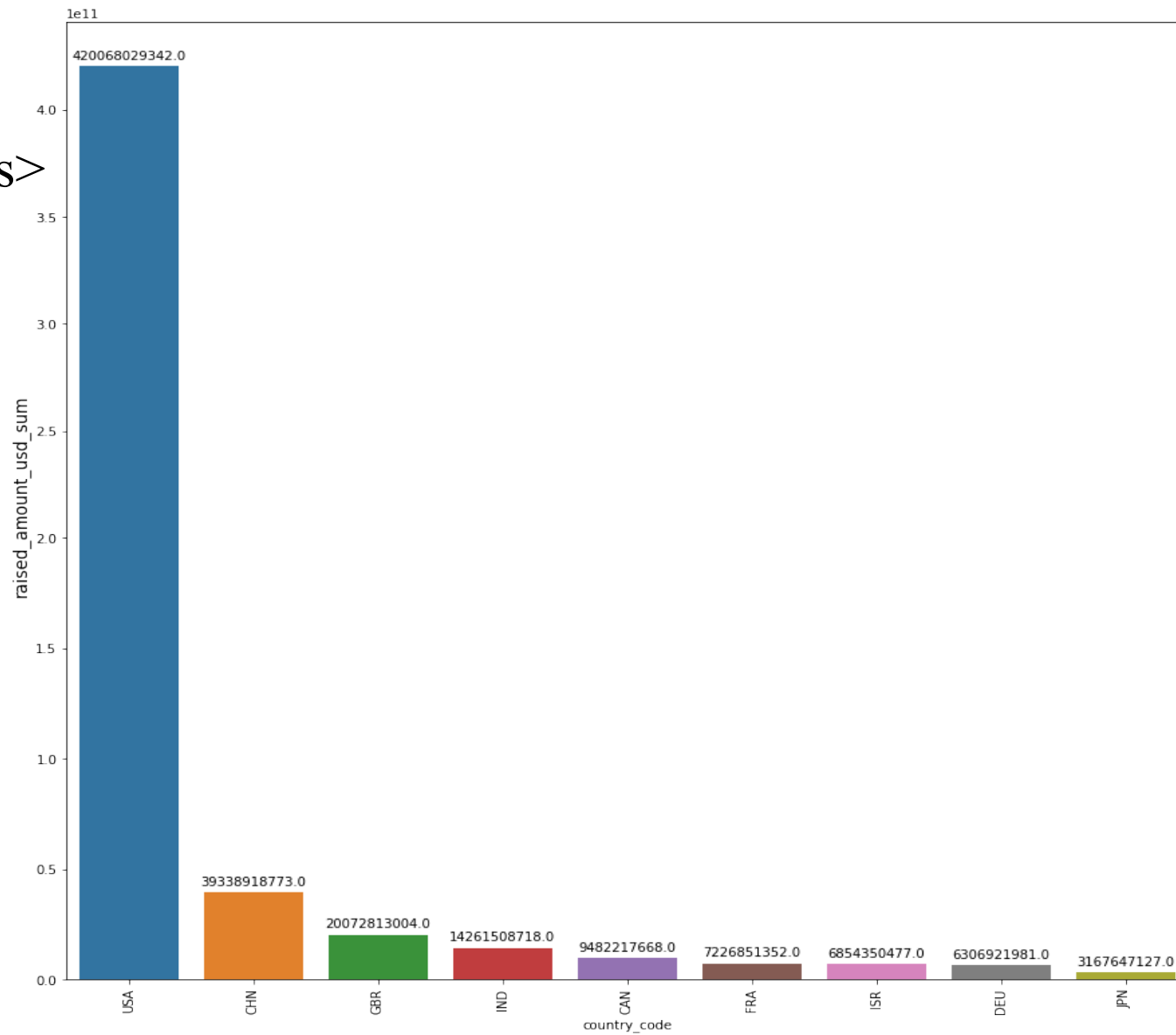
## <Results>

Plot 1



<Results>

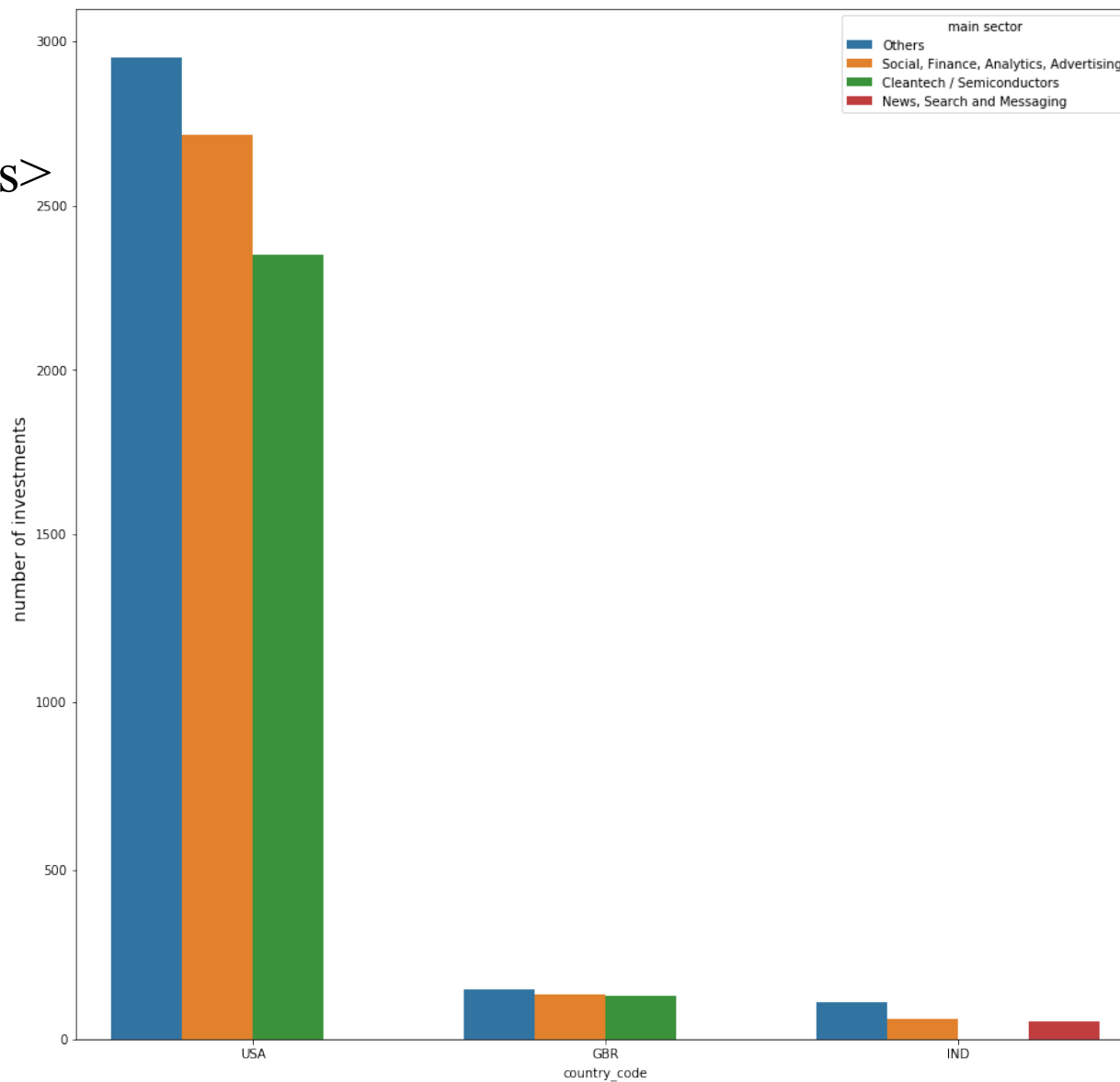
Plot 2





<Results>

Plot 3



## <Conclusions>

- From the Analysis we came to know that we can invest in USA, Great Britain and India which are English speaking countries.
- For USA, top Three sectors where we can invest are : “Others”,” Social, Finance, Analytics, Advertising”,” Cleantech / Semiconductors ”
- For Great Britain, top Three sectors where we can invest are : “Others”,” Social, Finance, Analytics, Advertising”,” Cleantech / Semiconductors ”
- For India, top Three sectors where we can invest are : “Others”,” Social, Finance, Analytics, Advertising”,” News, Search and Messaging ”
- Top company in USA in “Others” sector where we can invest is : Virtustream
- Top company in USA in ” Social, Finance, Analytics, Advertising” sector where we can invest is : SST Inc. (Formerly ShotSpotter)
- Top company in GBR in “Others” sector where we can invest is : Electric Cloud
- Top company in GBR in ” Social, Finance, Analytics, Advertising” sector where we can invest is : Celltick Technologies
- Top company in IND in “Others” sector where we can invest is : FirstCry.com
- Top company in IND in ” Social, Finance, Analytics, Advertising” sector where we can invest is : Manthan Systems