



INVESTMENT ASSIGNMENT SUBMISSION

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Abstract: To analyze the global trends in investments and identify best sectors, countries and suitable funding type for Spark Funds investment.

➤ The Best Investment Type Suitable for Spark Funds

- Spark Funds is looking to invest 5- 15 Million USD per round of investment
- In line with the above investment strategy, our goal is to identify the best investment type among the 4 major types – Angel, Seed, Venture Capital and Private Equity

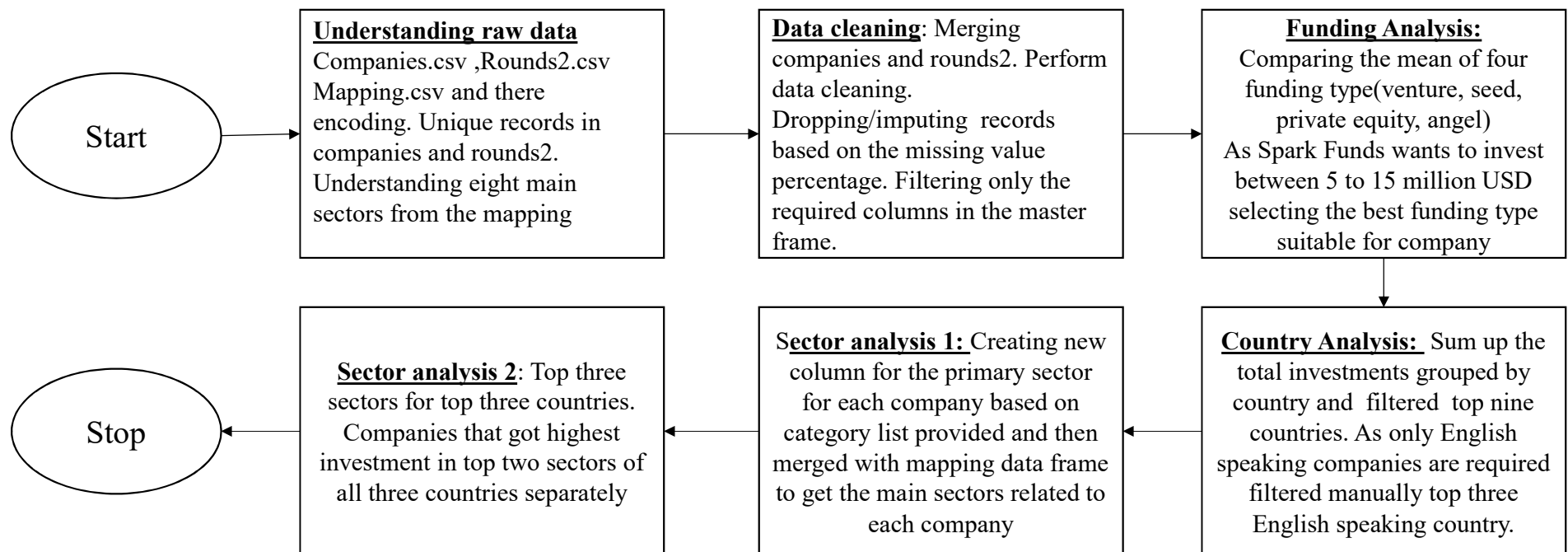
➤ Country of Investment

- Spark Funds wants to invest in English Speaking Countries for the ease of communication
- Goal is to identify and report the best countries to invest where English is one of the official languages
- Identification of best country is also based on the amount of investments the country has attracted in the past

➤ Best Sector

- Spark Funds wants to invest in sectors where most investors are investing
- Identify the potential sectors (within the best countries) from within the 8 main sectors based on the number of investments made in the past

Problem solving methodology



Funding Type Analysis

- The analysis started with merging the companies and the rounds2 data frame in one called master frame.(Used Right join as we want all variables (columns) in the companies frame to be added to the rounds2 data frame)
- Now checking the percentage of null values in the master frame for each column.
- Observed that columns: 'homepage_url','state_code','region','founded_at','funding_round_permalink','status','funding_round_code','city','funded_at' are not required in the analysis so dropped the columns from the data frame.
- Missing values percentage for category_list :2.97%, country_code: 7.55%, raised_amount_usd 17.39%.
- As missing value percentage for category_list and country_code is minimal dropping the rows with missing category_list and country_code values.
- For raised_amount_usd there are 17.39% missing value so planned to impute missing values with the median of raised_amount_usd of the funding type.
- Calculated median for each four funding type and imputed the missing values. Example for records of venture funding type if the raised_amount_usd is null then impute it with the median of venture type funding.
- Now no missing values calculated mean of each funding type to get the most representative amount for each funding type. As the mean for venture funding type lies between the requirement 5 to 15 million selected it as the suitable funding type.

Country Analysis

- The Country Analysis is done on Venture Type Funding.
- Created pivot table to get the total amount invested in each country. Filtered top 9 countries which are heavily invested.
- Top three countries heavily invested are : USA , CHN and GBR but as CHN is non English speaking country so selected top three counties as : USA, GBR and IND.

raised_amount_usd	
country_code	
USA	4.305230e+11
CHN	4.185392e+10
GBR	2.119281e+10
IND	1.508651e+10

Sector Analysis

- Obtained the main sector from the mapping.csv corresponding to the category list.
- Added new column in master frame to fetch primary sector from the category list provided for the company.
- Merged master frame and mapping. Left join so all the columns in the mapping frame added to master frame.
- Dropped records where the main sector is blanks as we have to focus only on the eight main sectors.
- Created separate data frames for top three countries and found the top three sectors for each country where maximum number of investments are done.

	raised_amount_usd	Country
main_sector		
Others	3373	USA
Cleantech / Semiconductors	2561	USA
Social, Finance, Analytics, Advertising	2309	USA

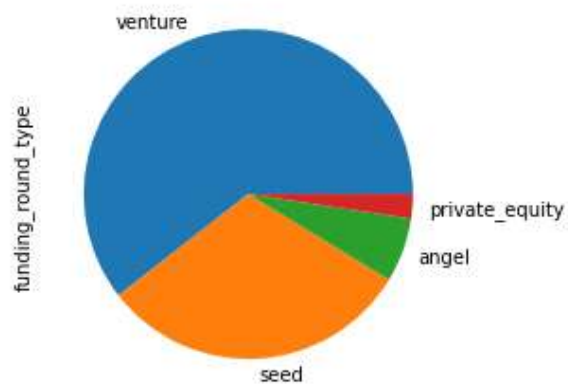
	raised_amount_usd	Country
main_sector		
Others	207	GBR
Cleantech / Semiconductors	150	GBR
Social, Finance, Analytics, Advertising	139	GBR

	raised_amount_usd	Country
main_sector		
Others	157	IND
News, Search and Messaging	76	IND
Social, Finance, Analytics, Advertising	59	IND

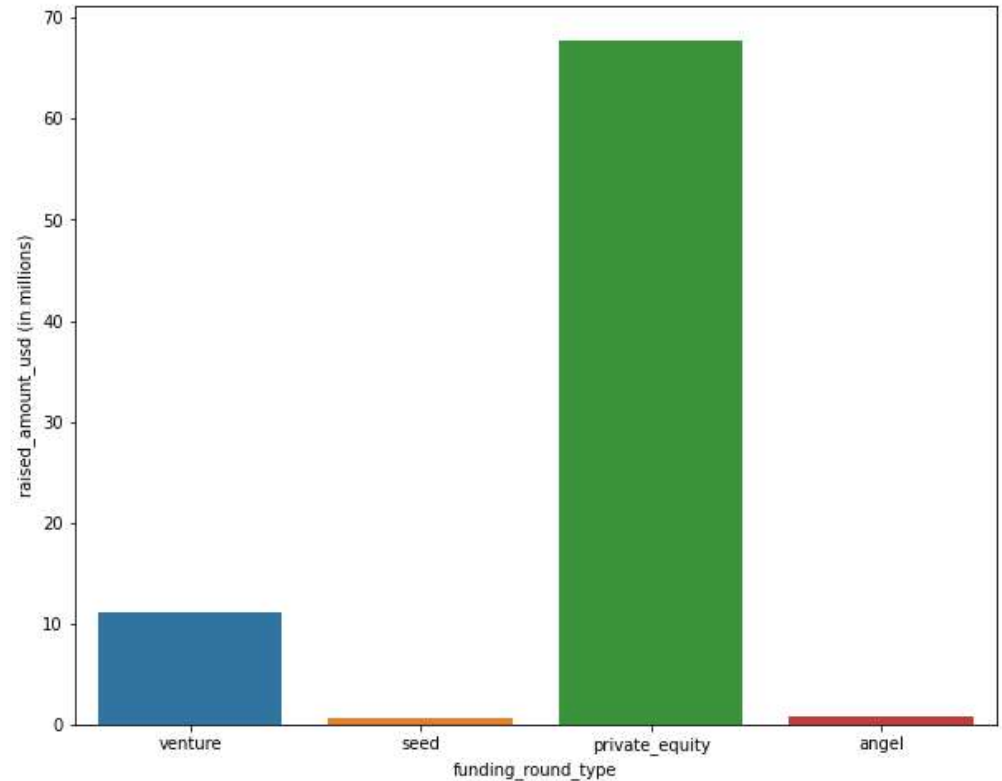
Results

Plot 1

Number of investment for different funding type



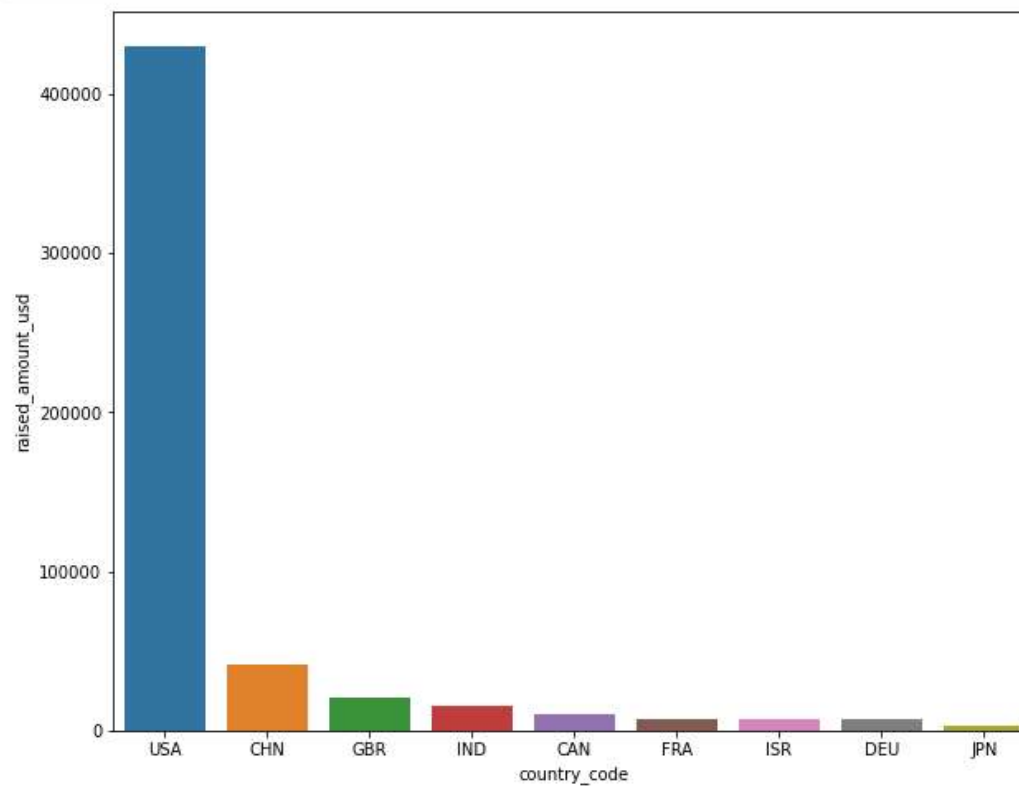
Average amount of investment



Results

Plot 2: The country wise sum of raised amounts are shown below.

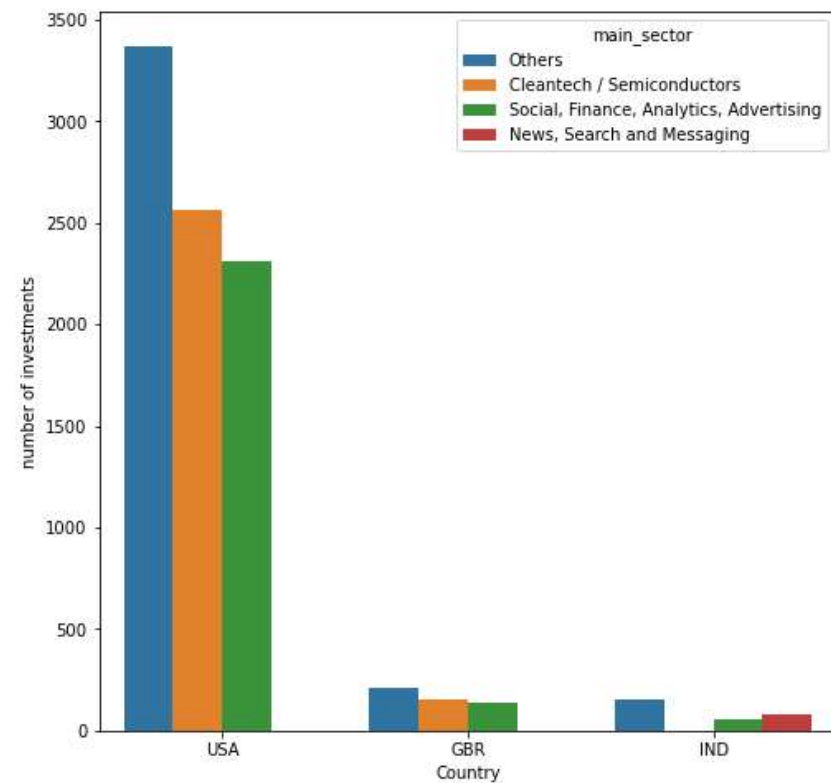
Top 9 countries for venture funding type



Results

Plot 3 : Top 3 sectors of top 3 English speaking countries :-

	main_sector	raised_amount_usd	Country
0	Others	3373	USA
1	Cleantech / Semiconductors	2561	USA
2	Social, Finance, Analytics, Advertising	2309	USA
3	Others	207	GBR
4	Cleantech / Semiconductors	150	GBR
5	Social, Finance, Analytics, Advertising	139	GBR
6	Others	157	IND
7	News, Search and Messaging	76	IND
8	Social, Finance, Analytics, Advertising	59	IND



Conclusions

Based on analysis of the Investments data it can conclude the following:-

- Best investment type with an average size of investment in the 5-15 M USD range is Venture.
- Top 3 English Speaking Countries receiving the highest investment amounts in Venture Capital funding types are USA, Great Britain and India.
- The most suitable sectors for funding in the above three countries are 'Others' and 'Social, Finance, Analytics, Advertising'. Because these two sectors have heavy number of investments made in all three countries.