

INVESTMENT CASE STUDY

SUBMISSION

Group Name:

1. Arpit Joshi
2. Harsh Tiwari
3. Harshit Tiwari
4. Vinay Dharwadkar

Spark Funds Global Investment Trend Analysis

Spark Funds, a new asset management company, wants to invest in Start-up Companies where most of the other investors are investing.

Objective : To identify the most suited funding type, top 3 countries and the top 3 sectors to invest.

Limitation :

1. The investments have to be done in countries where “English” is an official language.
2. Invest 5 to 15 Million dollars for each round of funding.

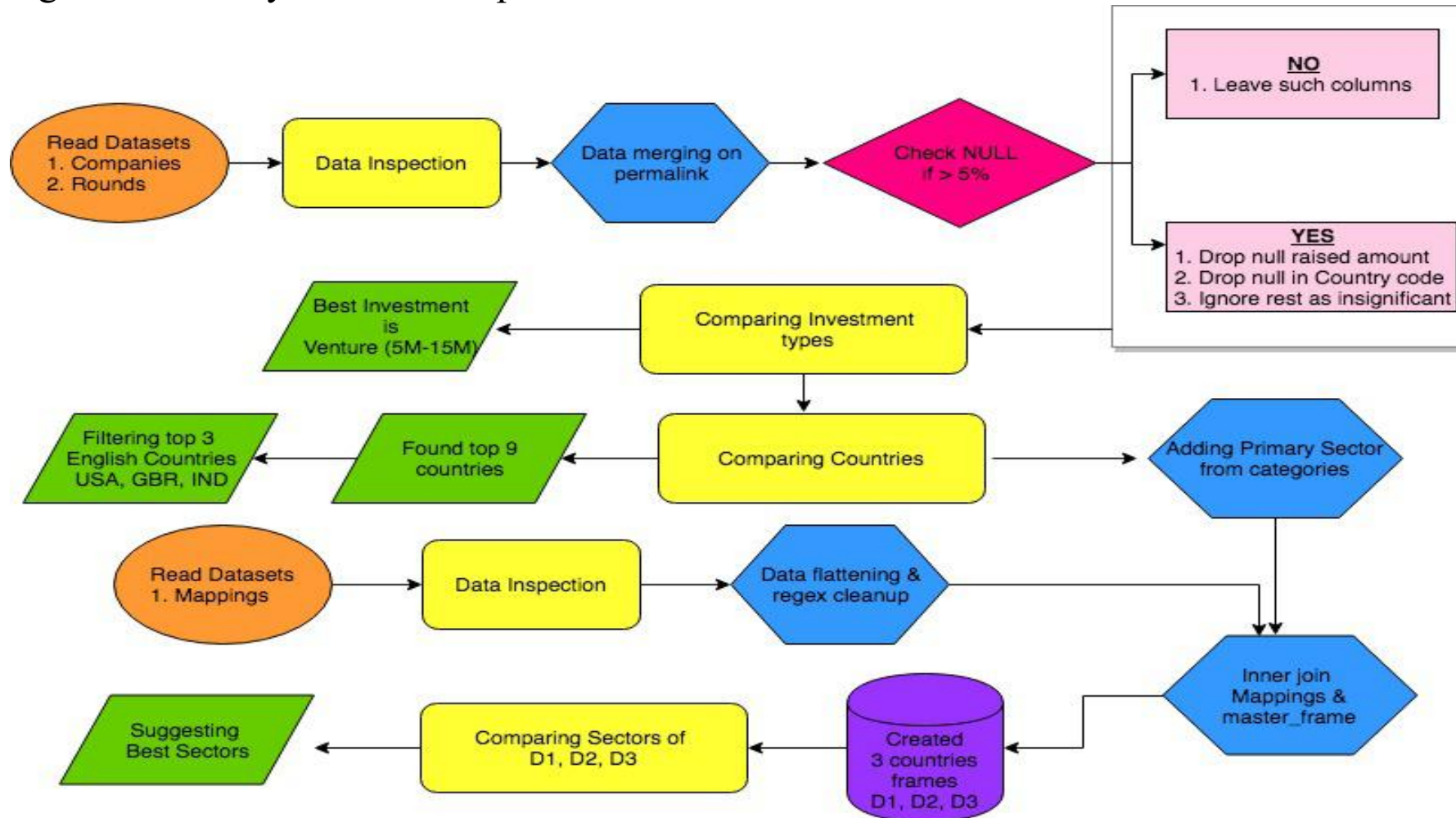
Strategy : Invest in countries, sectors and funding types in which most of the other asset management companies are investing.

Assumptions :

1. A country is termed “English-Speaking” country if “English” is one of the official languages. The ‘’ pdf file is referred to determine such countries.’
2. Companies having no information in amount invested field have been excluded from the analysis, as they indicate that either there was no investment done in these companies or the investment amount was not recorded.
3. Companies having no country code information have been excluded from the analysis as it is not possible to determine their origin country.

Problem solving methodology

The various stages of the analysis done is depicted in the flow chart below:



Data Cleaning and Funding Type Analysis

Data Cleaning:

- Datasets : companies.txt (Company Information), rounds2.csv (Investment Round Information) and mapping.csv (Categories to Main Sectors mapping).
- Datasets are loaded into Python Pandas Data-frames
- Few columns which are insignificant to the analysis are dropped,
- Data in important columns is standardised (converting to lower-case).
- The companies and rounds2 dataset are joined on the respective 'Permalink' field to produce a "master_frame" dataset to be used for further analysis.
- Further, rows with no information in the Investment Amount and Country Code columns are removed from the dataset as they would include noise to the overall analysis.

Fund Type Analysis:

Objective : Identify the most preferred investment type for Spark Funds.

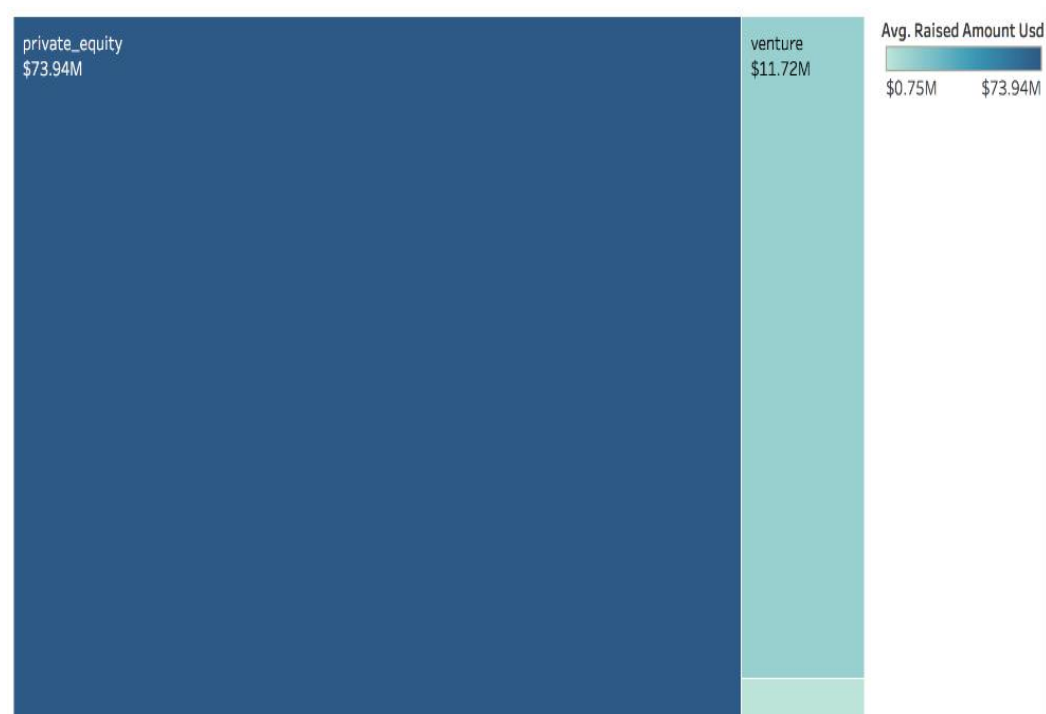
Approach:

1. Spark funds is a early stage start-up investor and the most preferred investment types for Start-up funding are : Angel, Private-Equity, Seed and Venture.
2. With the constraint that the investment amount should be between 5 to 15 Million USD per round of investment, the "master_frame" dataset is grouped by the preferred investments types "Angel, Private-Equity, Seed and Venture" and the average funding amount for each of these funding types is found out.

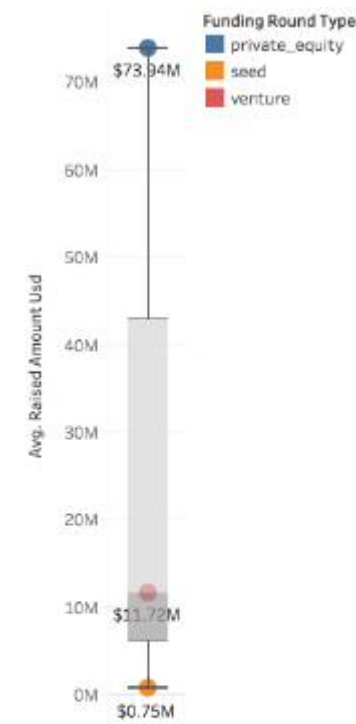
Outcome : "Venture" funding type emerges as the most preferred type of funding with average funding amount of ~11.7 Million USD.

Funding Type Analysis - Results

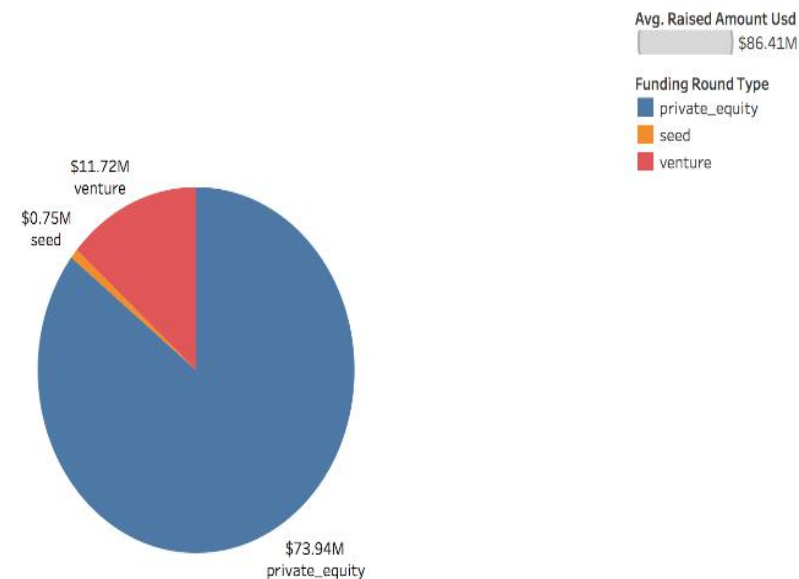
Outcome : “Venture” emerges as the most preferred type funding type with an average of ~11.7 Million USD.



Funding Round Type and average of Raised Amount Usd. Color shows average of Raised Amount Usd. Size shows average of Raised Amount Usd. The marks are labeled by Funding Round Type and average of Raised Amount Usd. The view is filtered on Funding Round Type, which keeps private_equity, seed and venture.



Average of Raised Amount Usd. Color shows details about Funding Round Type. The marks are labeled by average of Raised Amount Usd. The view is filtered on Funding Round Type, which keeps private_equity, seed and venture.



Average of Raised Amount Usd and Funding Round Type. Color shows details about Funding Round Type. Size shows average of Raised Amount Usd. The marks are labeled by average of Raised Amount Usd and Funding Round Type. The view is filtered on Funding Round Type, which keeps private_equity, seed and venture.

Country Analysis

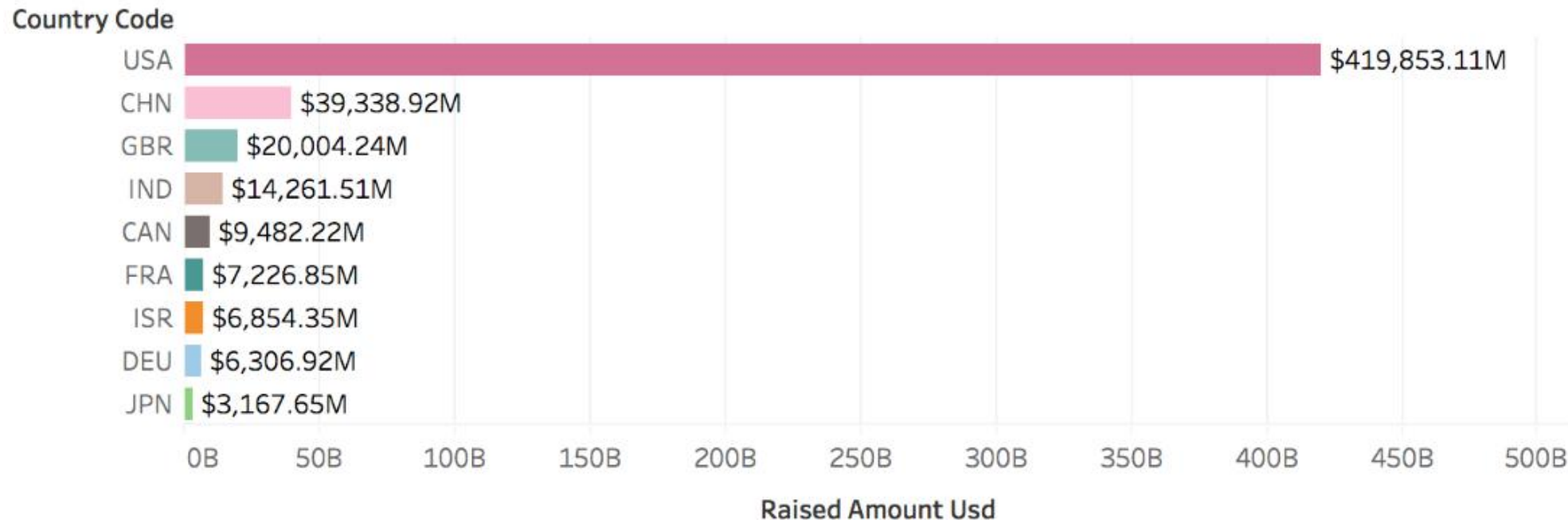
Objective : Identify Top9 countries which have received the highest amount of investment for “Venture” Funding. From these top 9 countries, identify the Top3 “English-Speaking” countries.

Approach:

1. Funding Type Analysis discovered that “Venture” Funding is the most suited funding type for Spark Funds. The “master_frame” dataset is filtered to contain only the observations for which the funding type is “Venture”.
2. The dataset is then grouped by countries using the “country_code” column and the total investment for each country is calculated.
3. Finally, the dataset is sorted in descending order and the top 9 entries are selected and saved in a new dataframe ‘top9’. This dataframe now has the top 9 countries by total investment amount in “Venture” funding.
4. By visual inspection and referring the “” pdf file, we can determine the Top 3 “English-Speaking” countries as United States of America (USA), United Kingdom (GBR) and India (IND).

Results from Country Analysis

The Top 3 English-Speaking countries most suited for investment by Spark Funds : United States of America (USA), United Kingdom (GBR) and India (IND).



Sum of Raised Amount Usd for each Country Code. Color shows details about Country Code. The marks are labeled by sum of Raised Amount Usd. The data is filtered on Funding Round Type, which keeps venture. The view is filtered on Country Code, which keeps 9 of 134 members.

Sector Analysis

Objectives :

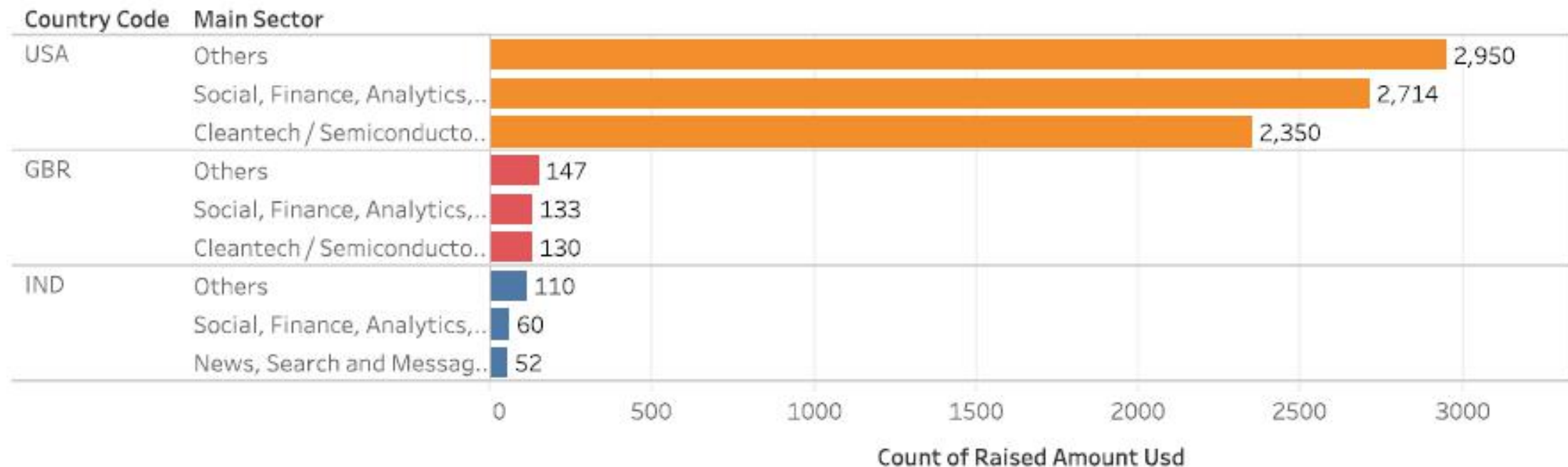
1. Identify the “Primary Sector” to which each of the companies belong. Modify the ‘mapping’ dataframe to map each “Primary Sector” to “Main Sector”.
2. Identify the Top3 most heavily invested “Main Sectors” in each of the “Top3 Countries”. The identification of the Top3 Sectors is to be based on the number of investments each of the 8 Main Sectors have received. Additionally, identify the companies which received the highest amount of investment was done in the Top2 sectors for each of the Top3 countries.

Approach:

1. From previous analysis, we know “Venture” Funding to be the most suited investment type and the Top3 suitable countries as “USA,GBR and IND”. Also, the amount invested during each investment round should be between 5 to 15 Million USD. The master_frame dataframe is filtered for above criteria.
2. Three new dataframes D1, D2 and D3 are created for each of the Top3 English Speaking countries i.e., United States of America (USA), United Kingdom (GBR) and India (IND) respectively.
3. Each of the country-wise dataframes are grouped by “Main Sector” on Investment Amount. The number of investments and the total amount of investments for each of the main sectors is calculated using count and sum aggregate functions.

Sector Analysis - Results

Outcome: The Top3 Sectors are :



Count of Raised Amount Usd for each Main Sector broken down by Country Code. Color shows details about Country Code. The marks are labeled by count of Raised Amount Usd. The data is filtered on Raised Amount Usd, Funding Round Type and Index2. The Raised Amount Usd filter ranges from 5000000 to 15000000. The Funding Round Type filter keeps venture. The Index2 filter keeps 6, 7 and 8. The view is filtered on Country Code, which keeps GBR, IND and USA.

- Most suitable Funding Type : Venture
- Most Suitable Countries to invest in : United States of America (USA), United Kingdom (GBR) and India (IND)
- Most Suitable Sectors to invest in :
 1. USA : “Others”, “Social, Finance, Analytics, Advertising” and “Cleantech / Semiconductors”.
 2. GBR: “Others”, “Social, Finance, Analytics, Advertising” and “Cleantech / Semiconductors”.
 3. IND : “Others”, “Social, Finance, Analytics, Advertising” and “News, Search and Messaging”.
- Top companies in Top2 Sectors:
 1. USA : “Others : Virtustream” . “Social, Finance, Analytics, Advertising : SST Inc. (Formerly ShotSpotter)”.
 2. GBR: “Others : Electric Cloud”. “Social, Finance, Analytics, Advertising : Celltick Technologies”.
 3. IND : “Others : First Cry”. “Social, Finance, Analytics, Advertising : Manthan Systems”.

THANK YOU