INVESTMENT CASE STUDY

SUBMISSION

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Abstract

Investments Global Trend Analysis - Spark Funds

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.

Constraints

1. Investment size per round - 5 to 15 million USD
2. Ease of communication - English-speaking countries only

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'.

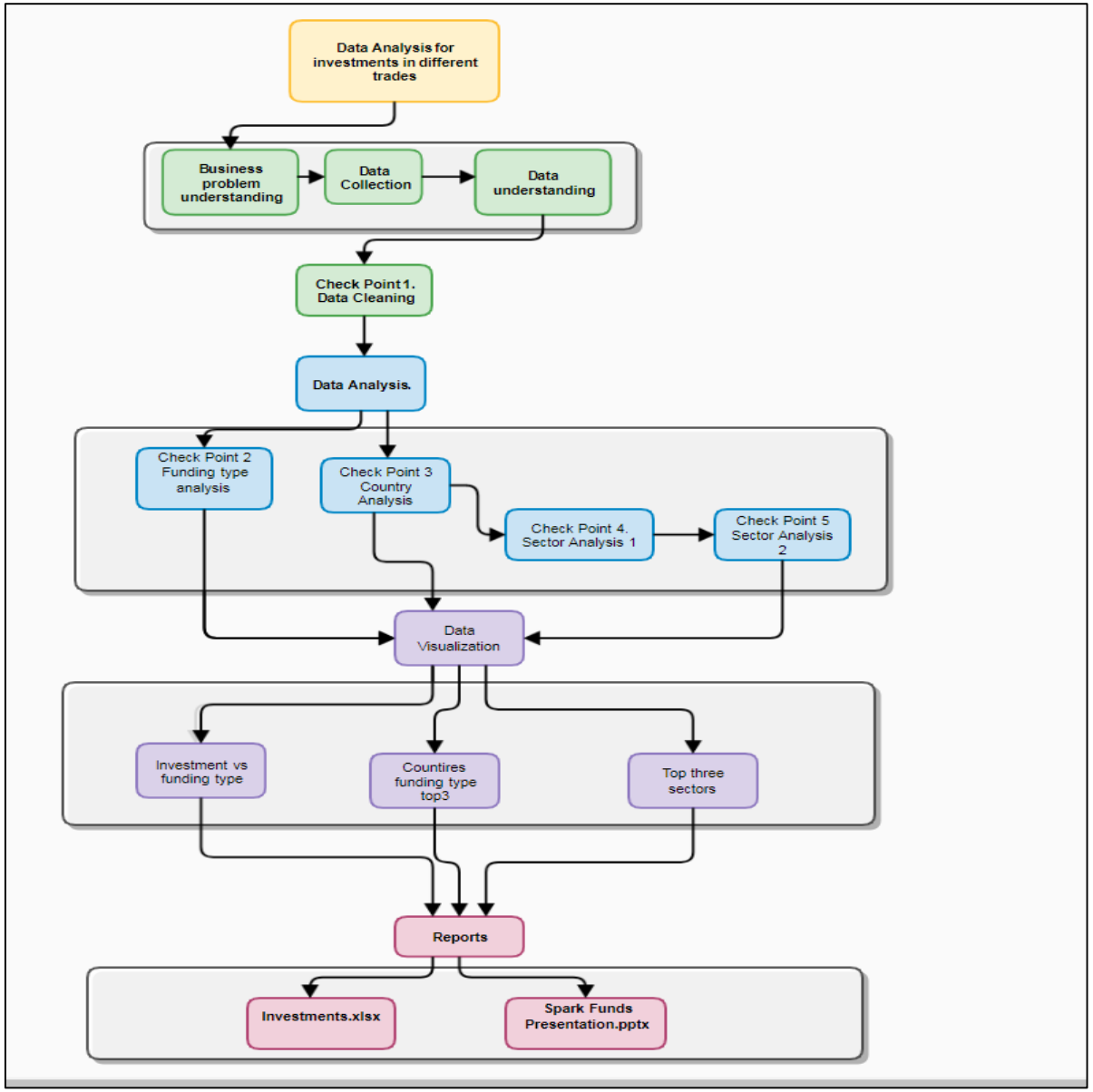
Goals of data analysis – Your goals are divided into three sub-goals:

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' favorites 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.)

Tools used

Anaconda(Jupyter Notebook- Python programming), Tableau, Excel

Problem solving Methodology



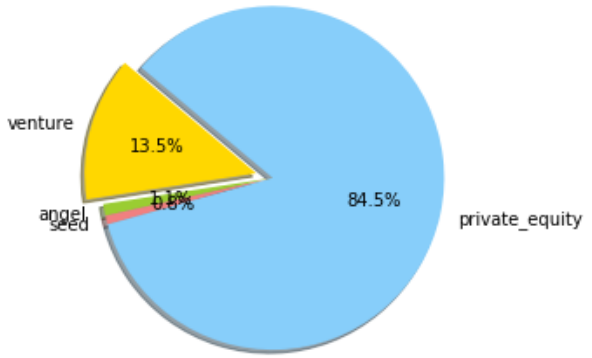
Data Analysis & Checkpoints

Checkpoint 1 – Data Cleaning

1. Special Characters handling using the encoding and decoding procedure as advised in problem
2. Handling Upper/Lower case values in “Permalink”
3. Columns with high percentage of missing values dropped which are not used for analysis problem
4. Finding unique companies from companies and rounds2 data frame
5. Identification of “Permalink” field of Companies dataframe as the key field and mapping its relation to Rounds2 to create master dataframe. 114,949 records finalized for analysis from master dataframe
6. Ensured that all companies are present in rounds2. Otherwise non-invested company should have been removed from further analysis

Checkpoint 2 – Funding Type Analysis

1. Convert all “raised_amount_usd” values to million by division of 1,000,000
2. 4 funding types analysed, resulting average investment size as below. With constraint of 5-15 million USD, **Venture** is our recommended investment type for Spark Funds
    1. **Venture = 11.75 million USD**
    2. Angel = 0.96 million USD
    3. Seed = 0.72 million USD
    4. Private Equity = 73.31 million USD



Data Analysis & Checkpoints

Checkpoint 3 – Country Analysis

1. Spark Funds wants to invest in countries with the highest amount of funding for the chosen investment type (i.e. "Venture")
2. Countries with maximum Venture type investment found
    1. Total investments calculated by sum at country level
    2. Top 9 countries finalized as shown on right
3. Top 3 English speaking countries recommended as asked
    1. With reference to provided PDF file of countries using English
    2. List shown on right for maximum investments
4. Finalized Countries of Interest
    1. **USA** (United States of Americas)
    2. **GBR** (United Kingdom)
    3. **IND** (India)

```
country_code
USA    422510.842796
CHN     39835.418773
GBR     20245.627416
IND     14391.858718
CAN      9583.332317
FRA      7259.536732
ISR      6907.514579
DEU      6346.959822
JPN      3363.676611
Name: raised_amount_usd, dtype: float64
```

Checkpoint 4 & 5 – Sector Analysis

1. Primary sector calculated from provided category list using "|" as delimiter
2. Master Frame merged with mapping.csv dataframe using primary sector(uppercase of each column of both dataframes)
3. 103,397 rows retrieved. 11,552 records in master frame either had blank primary sector, or no match in provided mapping.csv
4. Investment statistics(size and count) calculated at sector level for each finalized country and funding type

1- **D1** (USA, Venture, 5-15 million$) 2- **D2** (GBR, Venture, 5-15 million$) 3- **D3** (IND, Venture, 5-15 million$)

Data Analysis & Checkpoints

Checkpoint 4 & 5 – Sector Analysis(Contd.)

5. Top 3 sectors identified in each country on basis of maximum investment count
6. Preferred company for top 2 sectors identified in each country based on total highest investment

Checkpoint 6 – Data Visualisation

- Analysis 1 : Top Funding Type for Investment : **Venture**
- Analysis 2 : Top 3 English Speaking Countries for Investment
- Analysis 3 : Top 3 Countries Vs Top 3 Sectors

Analysis 1: Top Funding type for Investment: Venture

Reasons:

- Highest investment made by investors
- Average investment required is 5 – 15 million in Venture Funding Type

Funding Type, Venture

Funding Round Type	
venture	59.27%
private_equity	14.32%
debt_financing	11.57%
post_ipo_equity	5.42%
undisclosed	3.09%
post_ipo_debt	2.69%
seed	1.65%
grant	0.96%
angel	0.45%
secondary_market	0.26%
convertible_note	0.22%
equity_crowdfunding	0.06%
product_crowdfunding	0.05%
non_equity_assistance	0.00%

Analysis 2: Top 3 English Speaking Countries for Investment

Top 9 Countries

Fund Type: Venture

Country Analysis

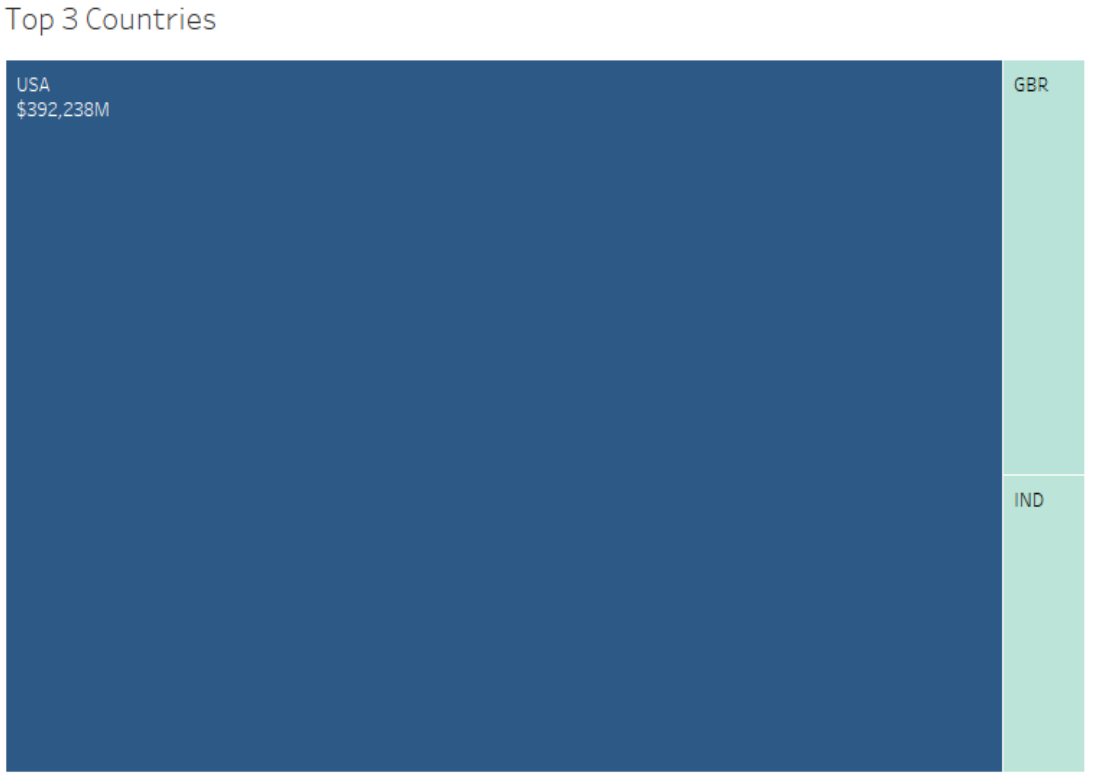
Country Code	
USA	$392,238M
CHN	$37,031M
GBR	$18,924M
IND	$13,538M
CAN	$8,716M
FRA	$7,034M
ISR	$6,521M
DEU	$5,752M
RUS	$1,345M

Finalized Locations

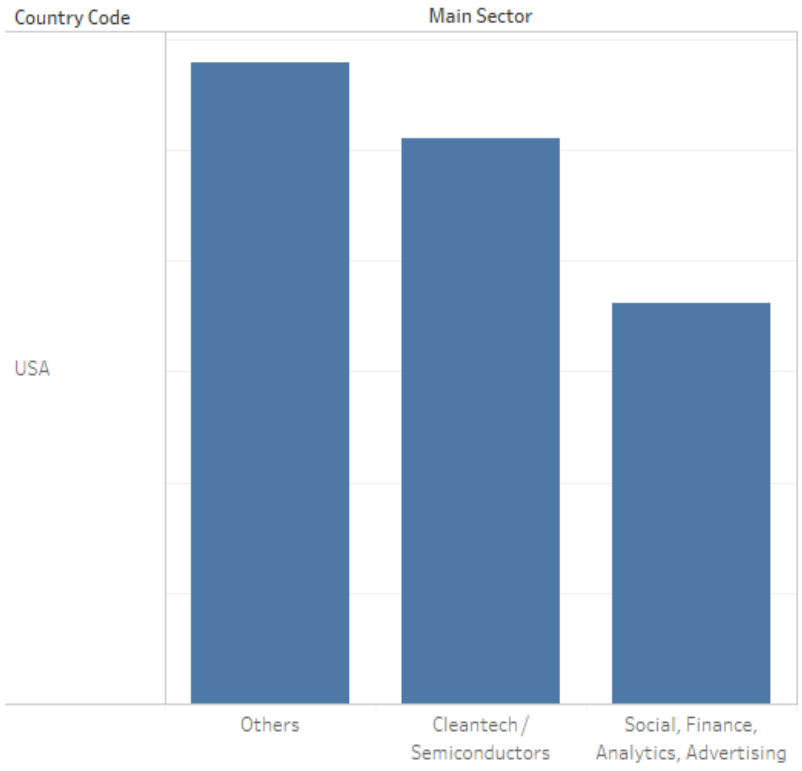
1. USA(Americas)
2. GBR(UK)
3. IND(India)

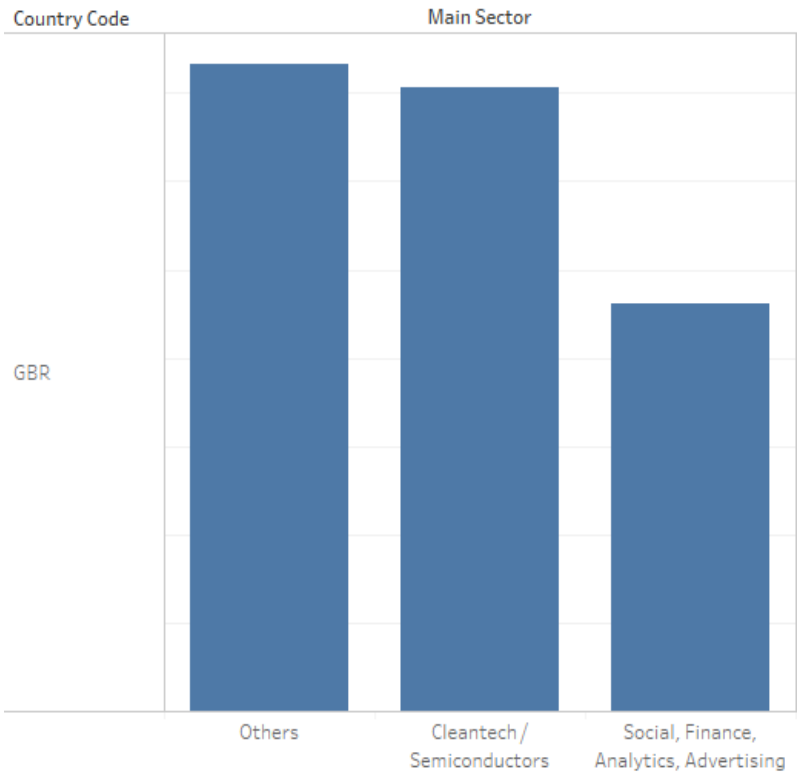
Top 3 Countries

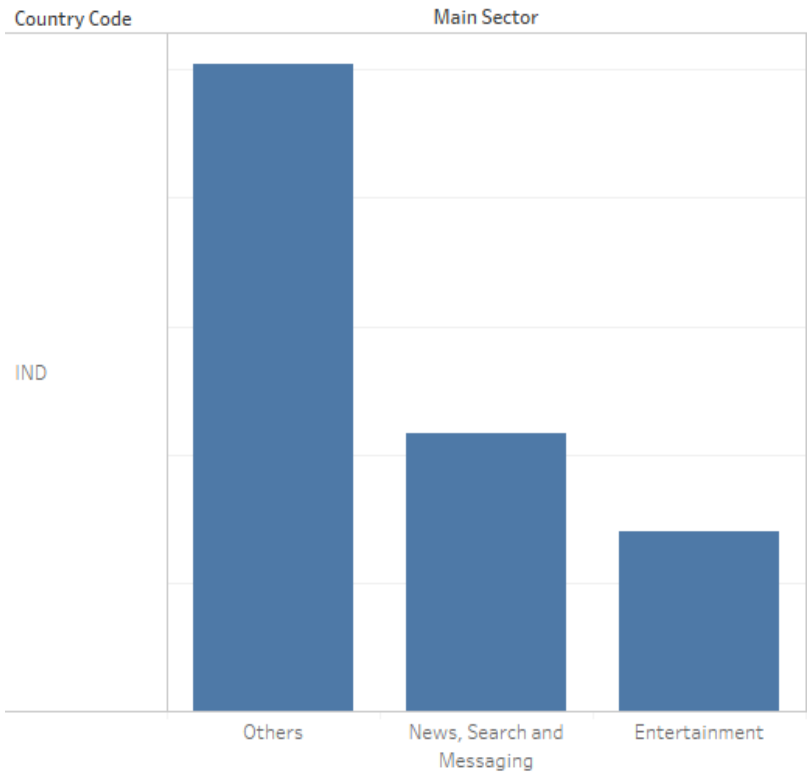
Fund Type: Venture
Country: English Speaking



Analysis 3: Top 3 Countries Vs Top 3 Sectors







Conclusions

Results are conclusive – For Spark Funds, provided the constraints of language and investment size

- Recommended investment type is "**Venture**", i.e. when the investment size is of 5-15 million USD
- Recommended locations are **USA**, **United Kingdom** & **India**
- Sectors recommendation (Ref. Table 5.1)
- Plots are made for country analysis, sector analysis and funding type analysis
- Plots made in Tableau are with data frames are exported to csv with pandas to_csv and loading in Tableau for plotting the data
- For all results and stats, please see investment.xlsx file provided in submission.
- Summary below –

Venture Funding			
Sector	**USA**	**UK**	**India**
Best Sector	Virtustream	Electric Cloud	FirstCry.com
Second best Sector	Biodesix	EUSA Pharma	GupShup