



INVESTMENT ASSIGNMENT

SUBMISSION

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Investment Assessment for *Spark Funds*, an asset management company

Project Brief:

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.

The objective is to identify the best sectors, countries, and a suitable investment type for making investments.

Business Understanding:

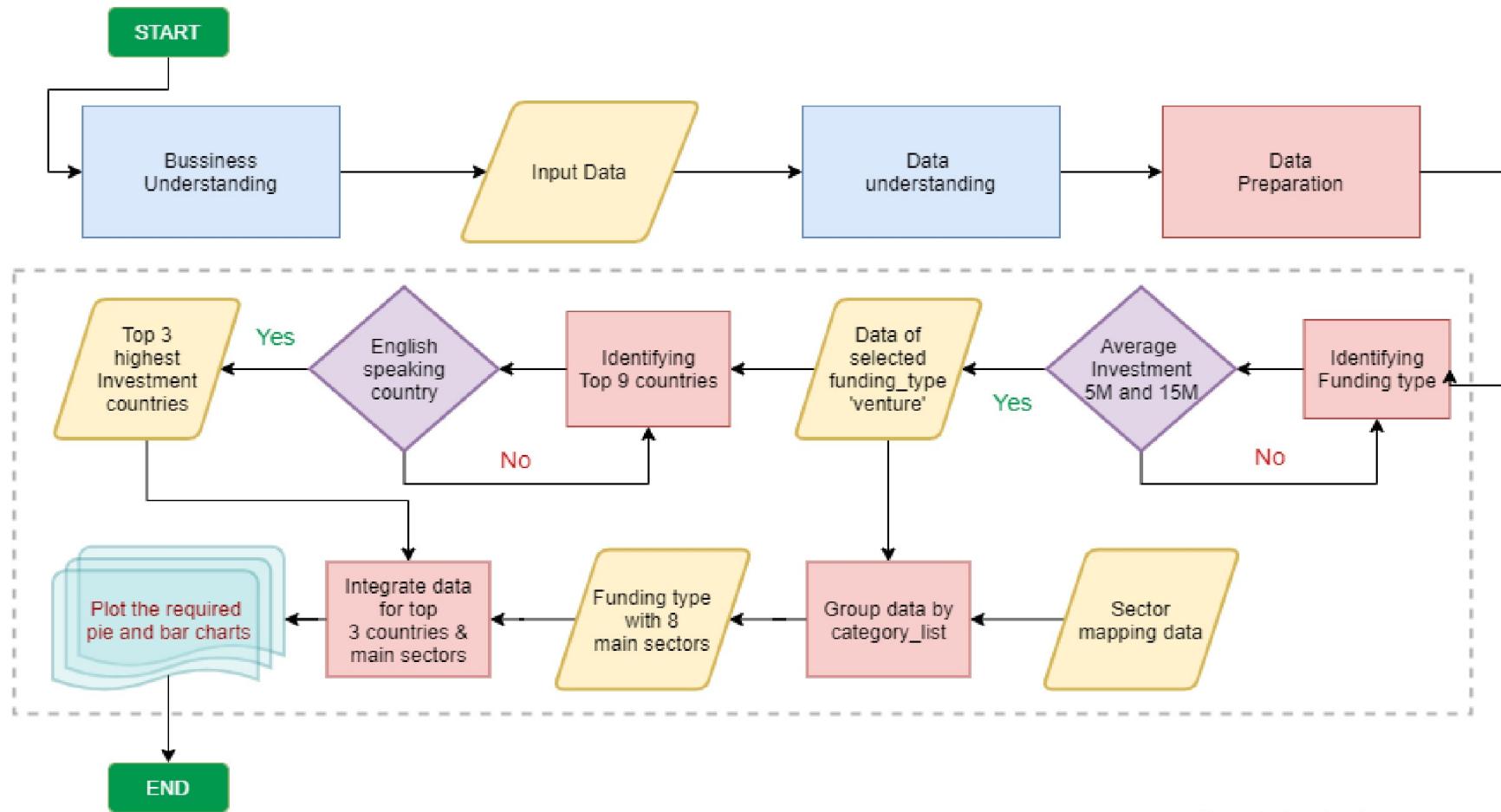
Strategy is to invest where others are investing, implying that the 'best' sectors and countries are the ones 'where most investors are investing'.

- Invest between **5 to 15 million USD** per round of investment.
- Invest only in **English-speaking countries**.

Goals of data analysis:

- **Investment type analysis:** Comparing the typical investment amounts in the venture, seed, angel, private equity etc.
- **Country analysis:** Identifying the countries which have been the most heavily invested in the past.
- **Sector analysis:** Understanding the distribution of investments across the eight main sectors.

Problem solving methodology



Created using draw.io

Funding Type Analysis

- After cleaning the data, We will analyze the funding type in which we can invest.
- We are interested only in (“**venture**”, “**seed**”, “**angel**”, and “**private_equity**” types).
- So, we will filter out others and group them by funding_type and take **mean** of raised_amount.

```
# first, get only data of these 4 funding types
master_1 = master.loc[master['funding_round_type'].isin(['angel','private_equity','seed','venture'])]

# now lets get the average funding of each of these types and put it into a new DF
ft_means_frame = pd.DataFrame(master_1.groupby('funding_round_type')['raised_amount_usd'].mean().sort_values(ascending=False))
```

ft_means_frame.head()	
	raised_amount_usd
funding_round_type	
private_equity	7.330859e+07
venture	1.174895e+07
angel	9.586945e+05
seed	7.198180e+05

- From the results, we can clearly see *private_equity* is heavily invested. But we have a criteria of investment range between **5M to 15M USD**.
- So, only *venture* funding type is eligible for our funding type requirements.
- We can also see **medians** of these as there is huge difference between mean and median but they also give the same results.
- And so, we will go with “**venture**” type.

Country Analysis

- After filtering data with “venture” funding_type we will now analyze which countries are best suited to invest from.
- To do that, we will now group data with country_code and then sum the raised_amount of each country.

```
# To do that, we have to groupby country code and then sum the raised_amount_usd of each group
```

```
top9 = pd.DataFrame(master.groupby(by='country_code')['raised_amount_usd'].sum().sort_values(ascending=False).head(n=9))
```

country_code	raised_amount_usd
USA	4.225108e+11
CHN	3.983542e+10
GBR	2.024563e+10
IND	1.439186e+10
CAN	9.583332e+09

- Here we can see that the top 3 countries are USA, CHN and GBR.
- But, we are interested in investing only in English speaking countries.
- So, our priorities are “USA”, “GBR”, “IND”.

Sector Analysis

- After filtering data with our interested countries, we are now left with sector to analyze.
- To do that, we first need to get primary sector of data provided and map them to main sector provided in mapping file.
- Then we can identify sectors most popular in the interest countries and with in the range of 5M-15M USD and take the top sector of each country as priority and next 2 sectors as backup.

```
# for USA
D1.groupby(by='main_sector')['main_sector'].count().sort_values(ascending = False).head(n=3)
```

```
main_sector
others                      2923
cleantech / semiconductors   2297
social, finance, analytics, advertising  1912
Name: main_sector, dtype: int64
```

```
# for GBR
D2.groupby(by='main_sector')['main_sector'].count().sort_values(ascending = False).head(n=3)
```

```
main_sector
others                      143
cleantech / semiconductors   127
social, finance, analytics, advertising  98
Name: main_sector, dtype: int64
```

Sector Analysis

- Similarly, we will also take top 3 sectors for IND

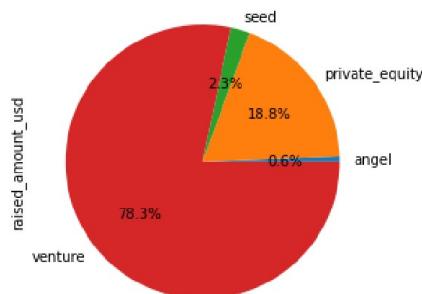
```
# for IND
D3.groupby(by='main_sector')['main_sector'].count().sort_values(ascending = False).head(n=3)
```

```
main_sector
others                  109
news, search and messaging    52
entertainment            33
Name: main_sector, dtype: int64
```

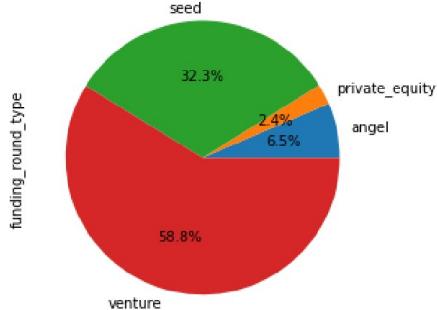
- From the above results, we can say “**Others**” is the main sector for USA, GBR and IND
- While “**cleantech / semiconductors**” and “**social, finance, analytics, advertising**” are next 2 for USA
- “**cleantech / semiconductors**” and “**social, finance, analytics, advertising**” are next 2 for GBR
- And “**news, search and messaging**” and “**entertainment**” are next 2 sectors for IND

Funding Type analysis results

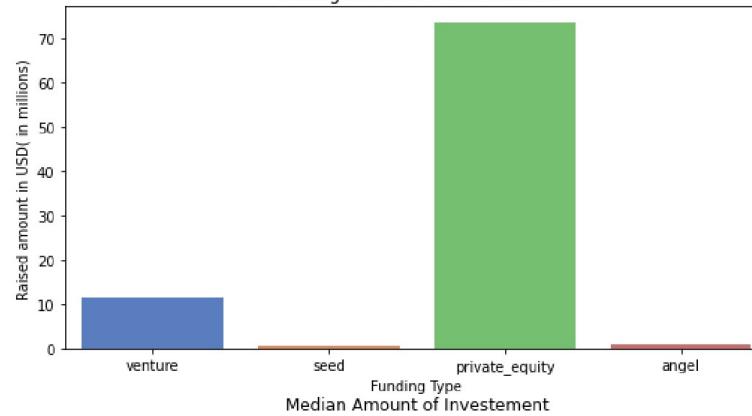
Fraction of Total Investments(globally)



Fraction of Total Investments count(globally)



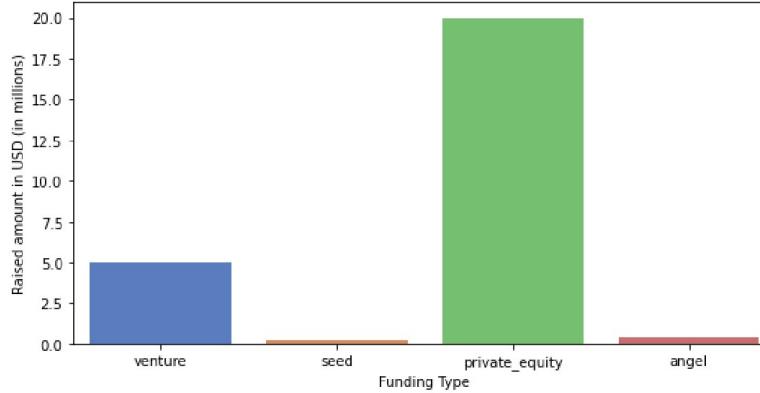
Average Amount of Investment



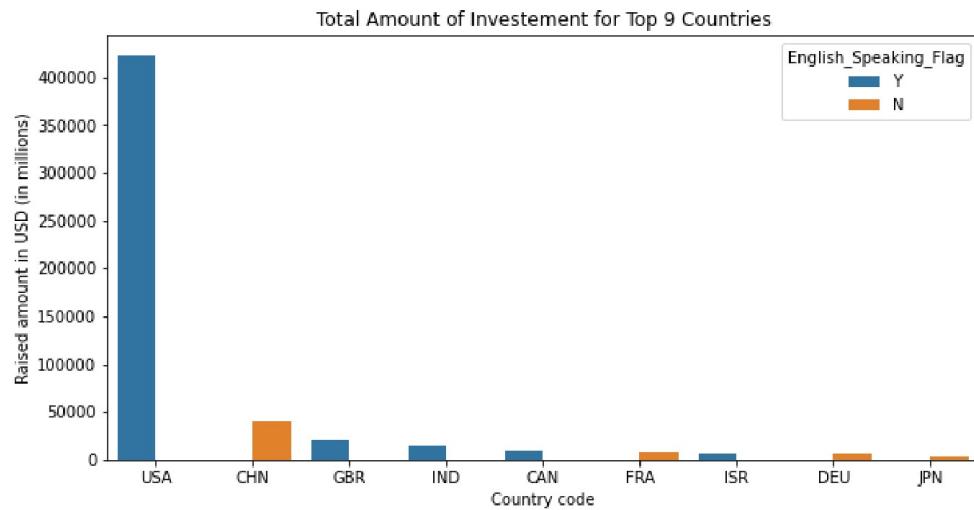
We can clearly see that '**venture**' is the mostly invested funding type

And the average investment is in the range of **5M and 15M.**

Median Amount of Investment



English speaking countries analysis results



From this chart, we can see that USA, CHN, GBR are top 3 countries investing in ‘venture’ funding type.

But CHN is not an English speaking country.

So, our top 3 countries will be **USA, GBR, IND**

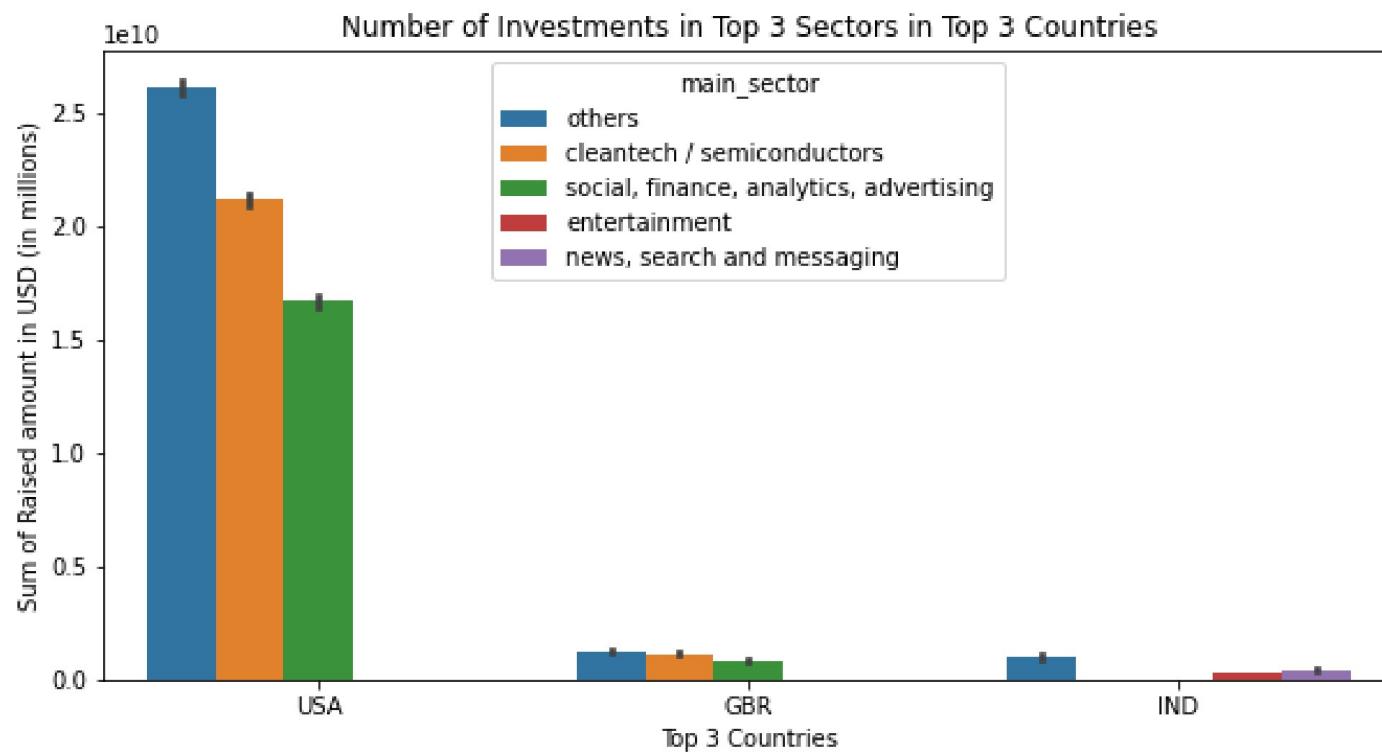
Top 3 countries with highest investments in ‘venture’ funding type:

USA – United State

GBR – United Kingdom

IND – India

Sector analysis results



From the chart we can clearly see the various top sectors in the top 3 countries.

Conclusions

- Spark Funds should consider investing
 - In 'venture' funding type.
 - In 'Others' main sector
 - In 'USA'
- Alternatively, There are other countries and sectors to invest as well, such as: (In the listed order with highest preference)
 - **USA** – United States
 - 'Others'
 - 'cleantech/semiconductors'
 - 'social, finance, analytics, advertising'
 - **GBR** – United Kingdom
 - 'Others'
 - 'cleantech/semiconductors'
 - 'social, finance, analytics, advertising'
 - **IND** – India
 - 'Others'
 - 'entertainment'
 - 'news, search and messaging'