

INVESTMENT ASSIGNMENT

SUBMISSION

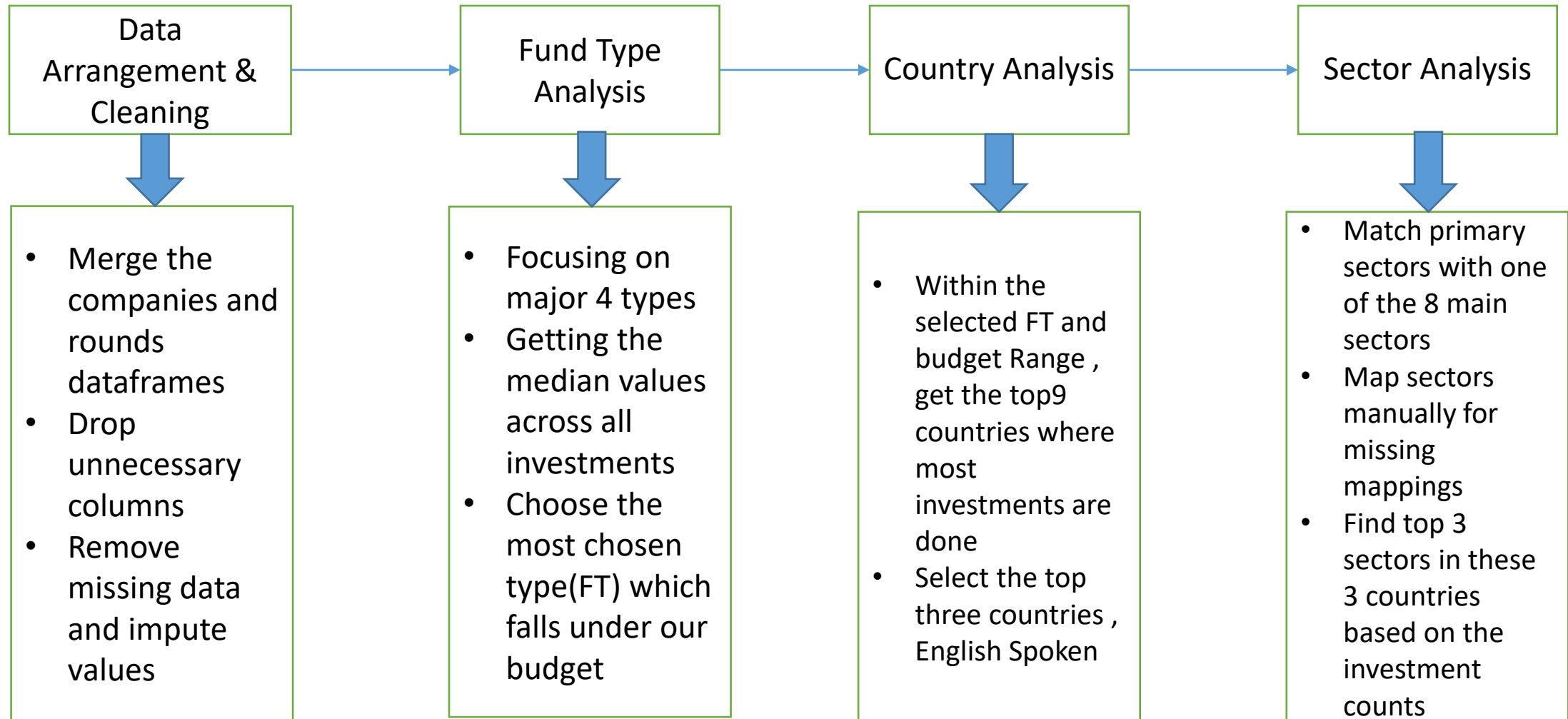
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Batch – March 31' 2021

SparkFunds Investment Assist - Abstract

1. SparkFunds is a company which is looking to invest into few companies
2. It wants to invest in companies where most of the other funding agencies/companies are investing.
3. It wants to invest in countries where English is accepted as an official language
4. SparkFunds wants to even invest in one of the most happening type of investments amongst **seed**, **angel**, **venture** and **private_equity** types.
5. It has a budget limit which it can invest. **5 million USD** to **15 million USD**
6. We have data of all the investments done companies which fall into different primary sectors.
7. These primary sectors are mapped to a single major sector. Data for this is also given.
8. Our task is to suggest the country, funding type, major sector and potential investment amount.

Methodology



Data Cleaning

- There are 66368 unique company permalinks in companies dataframe.
- There are 90247 unique permalinks out of 114949 in the rounds dataframe.
- There are 7 companies which are there in rounds df but not companies dataframe
- We have 114942 entries in master_frame after performing inner join on rounds and companies df.
- Dropped around 8720 rows which had rounds happening on closed companies.
- There are 17.246% (~18.3K records) approx. missing values in the raised_amount_usd column.
- There are around 5.263% (4.26K records) missing the country code.
- There are around 431 records which are missing the primary sector field.
- Dropping all the records in the above three points.
- Records not falling in the major 4 FTs were dropped.
- 44780 records (38.95%) were dropped out of 114,942.

Fund Type Analysis

Fund Type	Median Value
Seed	313837 USD
Angel	418856 USD
Venture	5M USD
Private Equity	21M USD

- We see that private equity is beyond 15M
- We also see that seed and angel type are way too below our budget border which is 5M
- Venture is the best suited Investment Fund type.

Fund Type	No of investments
Seed	19731
Angel	3960
Venture	44748
Private Equity	1723

- Based on no of investments done as well we see Venture FT is the best
- **Note:** These values were analysed from Dataset which includes records below 5M and above 15M as well
- There are 44748 records left after keeping only venture type data

Country Analysis

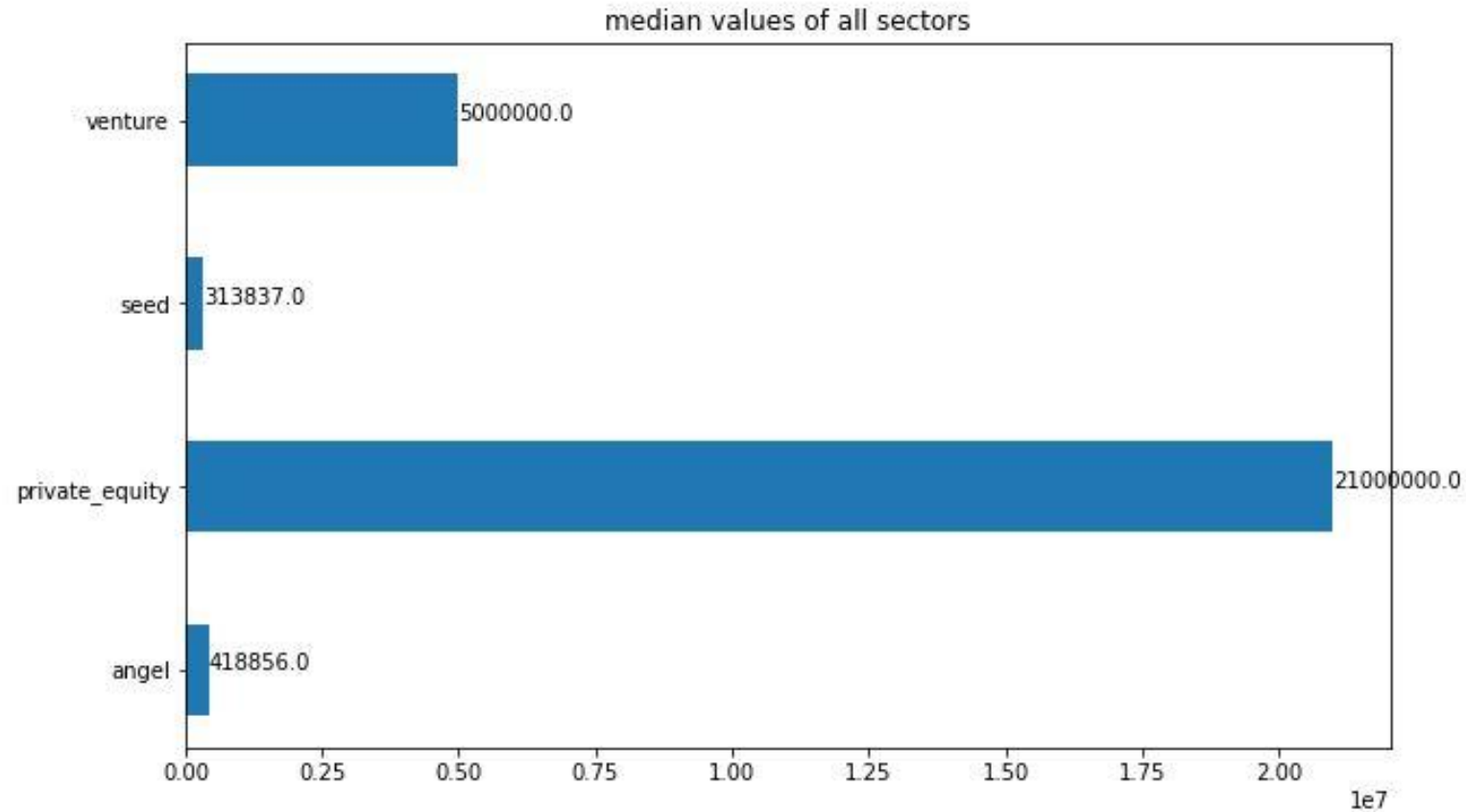
Country Code	Funded Amount Sum
USA	398324586390.000
CHN	38642273502.000
GBR	18142285645.000
IND	13920253718.000
CAN	8747167598.000
FRA	6742608637.000
ISR	6484356814.000
DEU	6021103078.000
JPN	3156202471.000

- Since Spark Funds wants to invest in countries which have most funded amount, we will analyse the top three countries
- English is not an official language in CHN
- So we focussed on USA,GBR and IND
- Based on count of investments USA is way too high in count compared to any other country.

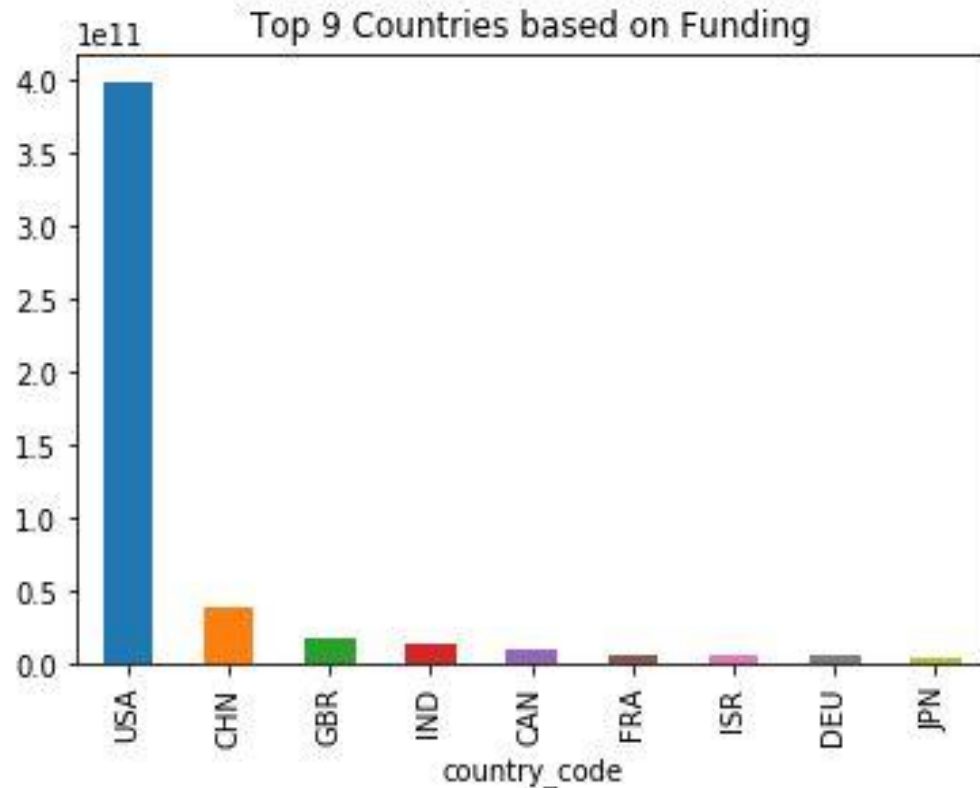
Sector Analysis

- After extracting the primary sector we create a new derived variable called **main_sector** given a primary sector
- We observed that there are few missing mappings in the mappings.csv
 - Dropped all the rows which had primary sector NOT mapped to any main sector and being less than 100
 - For all the primary sectors with more than 100 records not having a mapping, we manually mapped them.
 - Eg: Analytics was one such primary sector which was not mapped to any main sector.
- After dropping the above records, we were only left with 38.54% of data
- Further created three dataframes with USA,GBR and IND and investment between 5M and 15M
- We did not observe more outliers in this range of 5M and 15M
- Based on Count -
 - Others, Social-Finance-Analytics-Advertising and CleanTech/SemiConductors are Top sectors in USA
 - Others, Social-Finance-Analytics-Advertising and CleanTech/SemiConductors are Top sectors in GBR(UK)
 - Others, Social-Finance-Analytics-Advertising and News-Search-Messaging are Top sectors in India

Funding Type with Representative Value

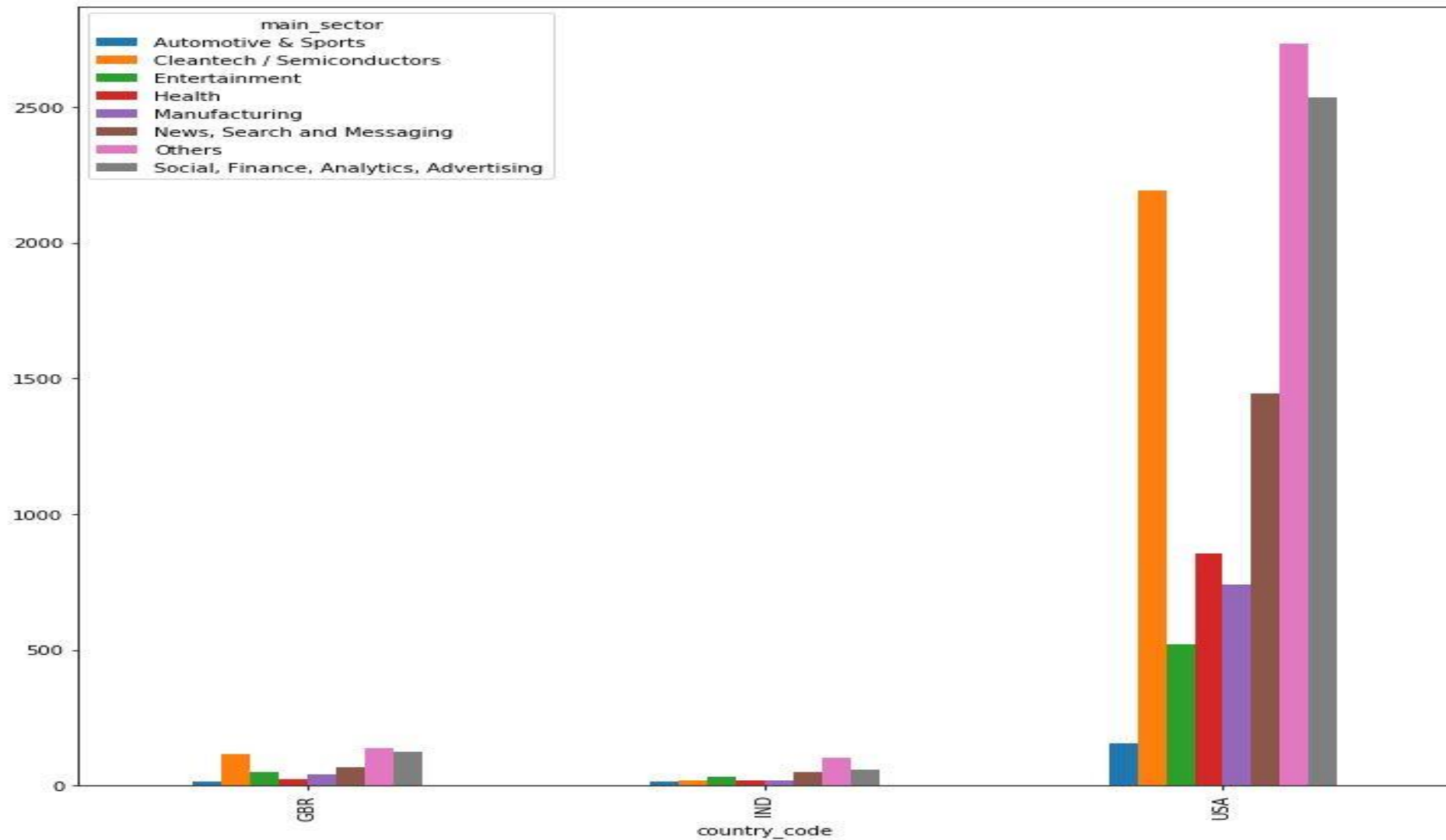


Top 9 Countries based on Funding Sum



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Sectors based on Counts in Top3 Countries



Conclusions

1. There are more than one companies receiving the top fund in USA , GBR and IND under the top sector and the second top sector
2. Since SparkFunds wants to invest in a funding type where most companies do, we have selected venture as the best one.
3. Since SparkFunds wants to invest in a top English speaking country , we can invest in **USA** as it has the highest number of investments done among the top three countries including **GBR** and **IND**.
4. Since SparkFunds wants to invest in a sector which has the highest number of investments, **Others** is the one which is highly contributed sector.
5. But this sector has a little uncertainty because this sector is not focused on Prime Area of Knowledge. Instead if we can invest in the second highest sector in **USA** i.e., **Social-Finance-Analytics-Advertising** , it is kind of a better investment as the domain here is fixed and **2535** investments are done here which are close to **2732** investments done in **Others**.
 - **ShotsPotter** is the highest fund receiving company in USA under Social-Finance-Analytics-Advertising with the total sum of 67.93M dollars
 - **VirtuStream** is the highest fund receiving company in USA under Others Category with the total sum of 64.3M dollars.
 - Both the companies are close by in terms of investment.