



INVESTMENT ASSIGNMENT

SUBMISSION

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Analysing investment data and find possible companies to invest

1. We had the data corresponding to previous investments bagged by several companies across different sectors.
2. We analysed the data and found out possible investment opportunities across different sectors and countries.

What did we consider?

1. We bounded our range of average investment over the rounds with a lower limit of 5 million USD and an upper limit of 15 million USD.
2. We will look for different types of investments and sectors considering this range in mind.
3. Which investment type is ideal to go for?
4. Which countries are ideal to invest in?
5. Among these countries, which sectors are ideal to go after?

Initial Data Cleaning

1. We found that permalink of same companies were mentioned in different formats in the investment rounds data. Some were completely upper-case and some were lowe-case. Nonetheless, they represent the same companies so we converted all the permlinks to uniform lower-case.
2. Created a master data-frame by inner joining the companies data and investment rounds data.
3. We found out that many rows didn't have the total investment amount. Meaning the raised amounts were NaN. We removed such rows from the master-frame as there was no way to impute them and they didn't provide any valuable insight.
4. We exported this master data frame as 'master_frame.csv'

Analysis based on Investment types

1. Next step was to identify what investment type was the ideal one to go for according to the bracket that we have decided (5 million to 15 million).
2. We grouped the master_frame depending on the investment types and found out the average investment amounts over the rounds for each investment types.

funding_round_type	
non_equity_assistance	4.112031e+05
equity_crowdfunding	5.383682e+05
seed	7.197796e+05
angel	9.586945e+05
product_crowdfunding	1.363131e+06
convertible_note	1.453439e+06
grant	4.300576e+06
venture	1.174895e+07
debt_financing	1.704353e+07
undisclosed	1.924237e+07
private_equity	7.330859e+07
secondary_market	7.964963e+07
post_ipo_equity	8.218249e+07
post_ipo_debt	1.687046e+08

3. Out of all the investment types the best one to go after according to go after according to our bracket size was 'venture'

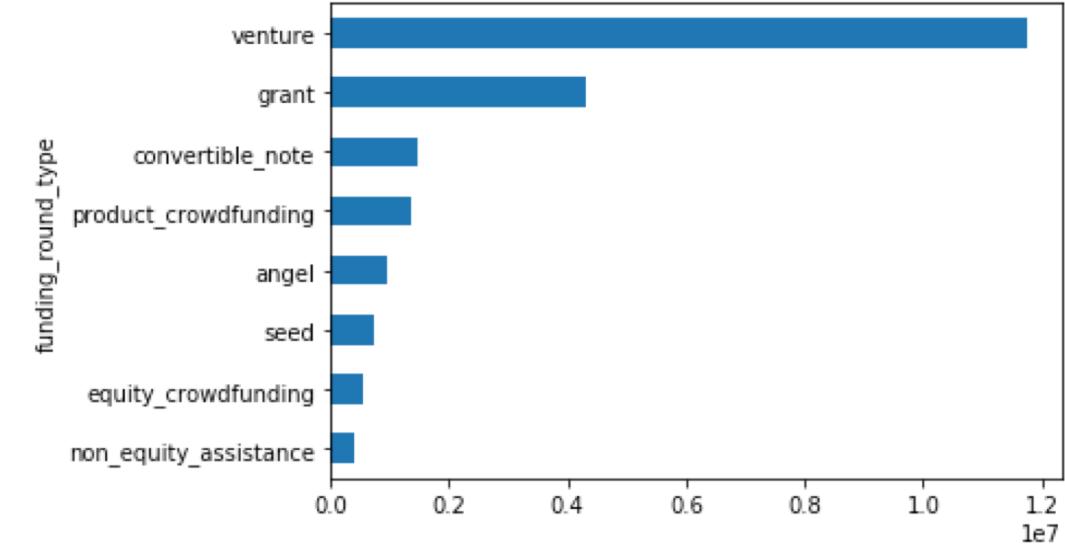
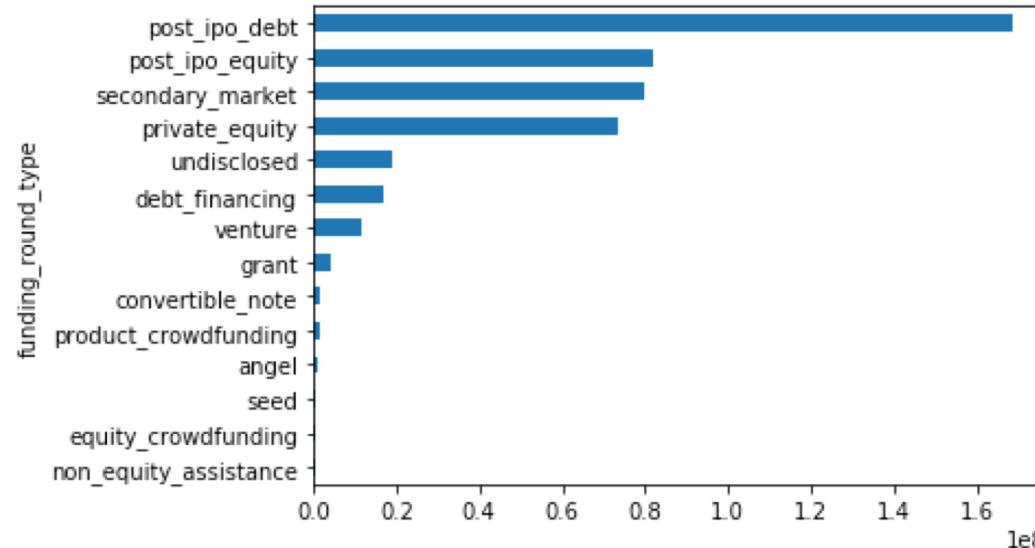
Analysis based on Countries

1. Once we have narrowed down on the investment type that we will go after, next is identifying potential countries to invest in.
2. For this, we will only look for investments of 'venture' type.
3. There were many rows which didn't have 'country_code'. We had to remove these entries as there was no way to impute them and without the 'country_code' they were not valuable.
4. Next was to identify top9 countries with the maximum raised amounts. This data is stored in 'top9.csv' 'USA', 'CHN', 'GBR', 'IND', 'CAN', 'FRA', 'ISR', 'DEU', 'JPN' were the countries in decreasing order of the total amount raised in funding.
5. Out of these 9 we decided to go after the top3 English speaking countries.
'USA', 'GBR', 'IND'

Analysis based on sectors

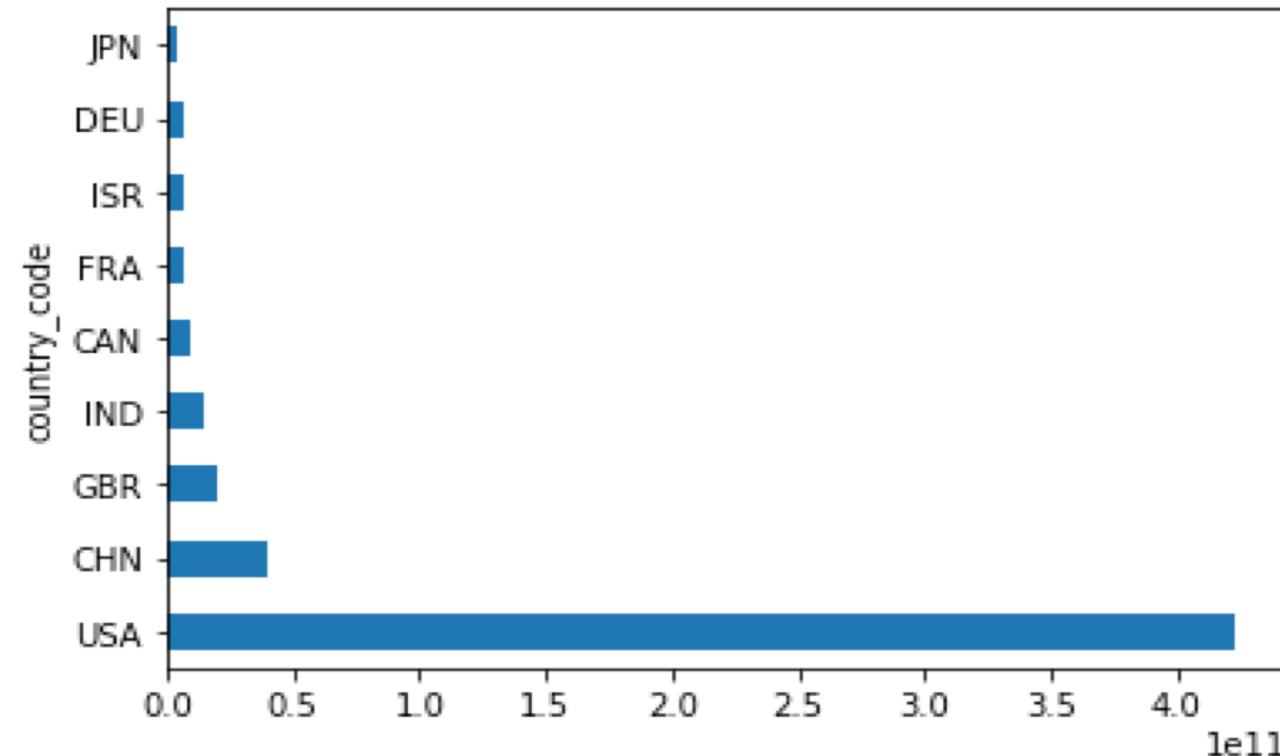
1. We had identified 8 main_sectors that we could put all these companies into. This data was 'mapping.csv' which had a mapping of the categories that the companies offer services in and indicating which of the main sectors they belong to.
2. We added two new columns in our 'top3.csv' and called it 'top3MC.csv'. This had information of investments in those companies that could be categorized in one of the 8 main_sectors that we identified.
3. Next was to segregate this 'top3MC.csv' data into separate data for all the countries. We stored this data in 3 csvs named 'USA.csv', 'GBR.csv', 'IND.csv'
4. And we went on to find top 3 sectors in each of these countries that had maximum no of investments.
5. We identified the companies that sought most amount of investment for these countries in these sectors.

Average investments per round depending on the Investment type



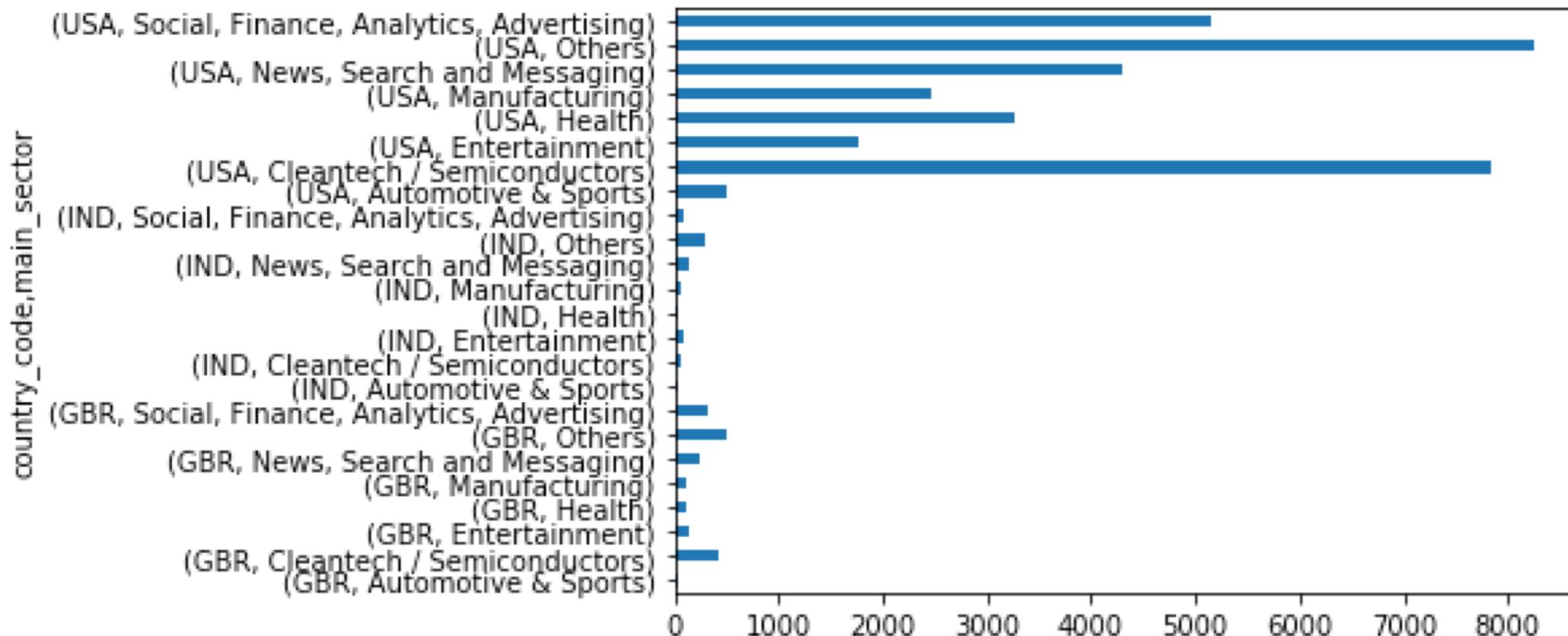
1. Figure1 shows a bar-plot of the average investment across all investment types.
2. Figure2 show a bar-plot of the average investment across all investments types which have average investment of lower than 15 million.
3. This shows clearly that 'venture' is the type of investment that would be ideal for us.

Top 9 countries that raised maximum investment in Venture investment



1. Figure showing the total amount of venture instatements by country.
2. USA is clear leader among English speaking countries followed by GBR and IND.

No of investments across sectors in top 3 countries



Conclusion

Table - 5.1

Sector-wise Investment Analysis				
Sl.no	Questions	C1	C2	C3
1	Total number of Investments (count)	33526	1916	745
2	Total amount of investment (USD)	3.92238E+11	18924390319	13537981235
3	Top Sector name (no. of investment-wise)	Others	Others	Others
4	Second Sector name (no. of investment-wise)	Cleantech / Semiconductors	Cleantech / Semiconductors	News, Search and Messaging
5	Third Sector name (no. of investment-wise)	Social, Finance, Analytics, Advertising	Social, Finance, Analytics, Advertising	Social, Finance, Analytics, Advertising
6	Number of investments in top sector (3)	8243	507	281
7	Number of investments in second sector (4)	7849	433	130
8	Number of investments in third sector (5)	5156	318	77
9	For point 3 (top sector count-wise), which company received the highest investment?	SoFi	OneWeb	Flipkart
10	For point 4 (second best sector count-wise), which company received the highest investment?	Freescale Semiconductor	Immunocore	Quikr

Following are the key companies to go after in investing across various sectors.