INVESTMENT ASSIGNMENT

SUBMISSION

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Executive summary

Objectives

Spark funds is an investment firm and wants to understand the best countries , sectors and type of funding for its investment.

Information provided -

- Data related to the companies and the funding received by these companies is part of the datasets Companies and Rounds.

- Mapping dataset holds the information on the main 8 sectors and the different sub sector which are part of the main sector.

Expected output -

- Analyze the different types of funding in these companies and identify most appropriate funding category (between 5M USD and 15m USD). Based on this suggest which type of investment is best suited for Spark Funds.

- Identify the top3 countries which are suitable for investment for Spark funds.

- Identify the main sectors across these countries suited for investment for Spark funds.

Approach used to identify the solution

Data Preparation and Cleaning

- Load the Data for Companies , Rounds and Mapping files into dataframes
- Data cleaning steps such as converting the data into lower case so that it can be merged into a master data frame.
- Data correction in the mapping data frame. 'na' is incorrectly marked as '0' in the mapping dataframe. This is corrected.

Merge dataframe. slicing and dicing the data

- Merge companies and rounds datasets into a single master dataframe using the inner join on fields- 'company_permalink' and 'permalink'
- **Investment Funding type analysis -** Group the master dataframe based on the field 'funding_round_type'.
- **Analysis to identify the top 3 countries**. Create a new dataframe which holds the records grouped by 'country_code'
- Perform the 'Sector analysis' by mapping the main sectors from the mapping data frame and primary sector from the master dataframe.

Visualization of the result

- Create plots to represent the analysis in visualized form.
- Create a Box plot to represent the funding across different areas. This will depict the mean funding amount for each type.
- Create a Bar plot to depict the funding across different countries.
- Create a stacked Bar plot to depict the funding across the top sectors in the top 3 countries.

Understanding the key aspects of the data available for analysis

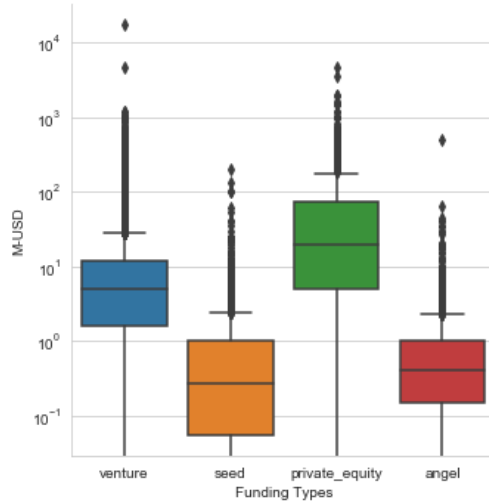|	
Number of unique companies in Rounds2	90247
Number of unique companies in the Companies dataset	66368
Number of observations in the merged (Rounds2 and Companies) Data frame	114942
Unique key for ach observations in the companies data set	Permalink
Are there companies in rounds2 which are not present in the companies data set	Yes

Average Values of Investments for each Funding Types

Key Observations	
Average funding amount of venture type	11,748,949 USD
Average funding amount of angel type	958,694 USD
Average funding amount of seed type	719,779 USD
Average funding amount of private equity type	73,308,593 USD
Considering that Spark Funds wants to invest between 5 to 15 million USD per investment round, which investment type is the most suitable for them?	Venture Type
Top 3 English speaking countries for Investment	USA , GBR and India in that order

Detailed analysis of the target countries and Sectors

Funding between 5M and 15 M USD	USA	GBR	India
Total number of Investments (count)	9983	561	243
Total amount of investment (USD)	88,997,097,294	4,889,078,691	2,174,543,602
Top Sector name (no. of investment-wise)	Others	others	others
Second Sector name (no. of investment-wise)	social, finance, analytics, advertising	cleantech / semiconductors	social, finance, analytics, advertising
Third Sector name (no. of investment-wise)	cleantech / semiconductors	social, finance, analytics, advertising	news, search and messaging
Number of investments in top sector	2423	129	78
Number of investments in second sector	2216	126	45
Number of investments in third sector	1991	118	41
Top sector count-wise, which company received the highest investment?	sofi - /organization/social-finance	oneweb - /organization/oneweb	flipkart - /organization/flipkart
Second best sector count-wise, which company received the highest investment?	/organization/mediavast	immunocore - /organization/immunocore	/organization/shopclues-com

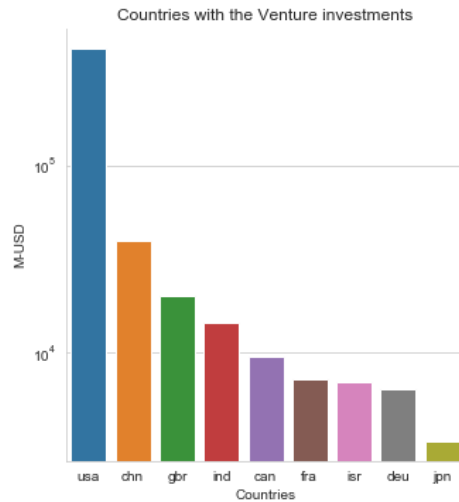| funding_round_type	raised_amount_usd count	mean
angel	4,860.0000	958,694.4698
private_equity	1,936.0000	73,308,593.0294
seed	23,602.0000	719,779.6202
venture	50,228.0000	11,748,949.1295

Funding across different categories

Box plot which shows the funding across the categories - Venture, seed, angel and private equity. The mean in the box plot is the average funding. This considers all the investments and is not limited to cases where the funding is between 5 and 15 million USD
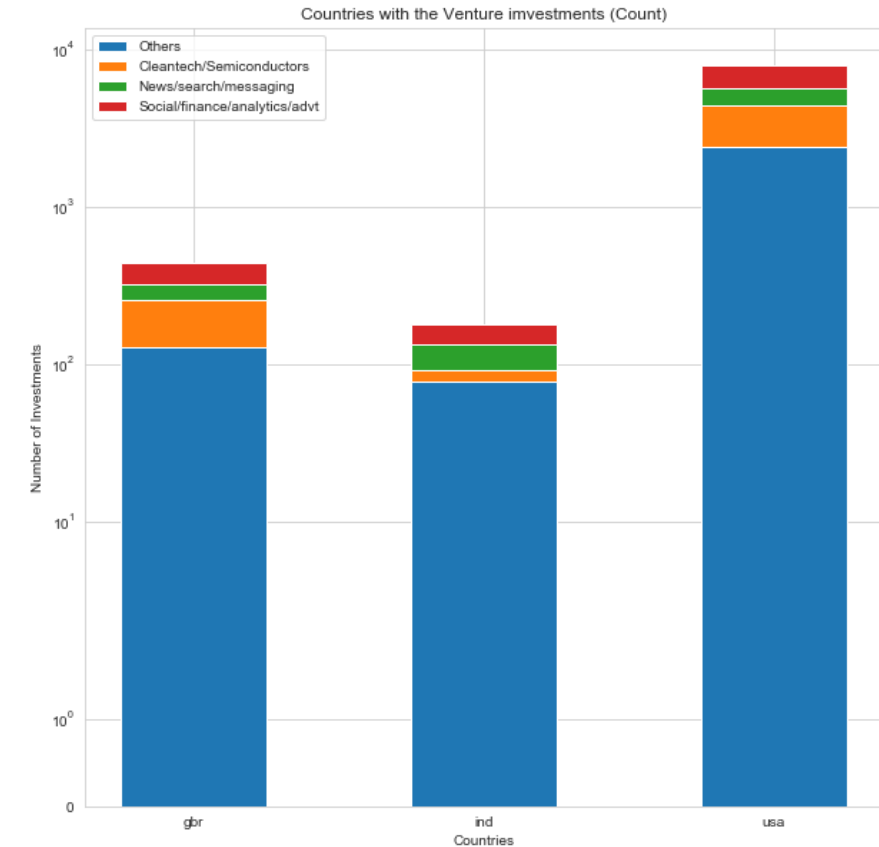
Amount of funding (Venture) received for the top 9 countries

This considers all the investments and is not limited to cases where the funding is between 5 and 15 million USD

Top 3 Investment sectors across top 3 countries

For Venture funds , this shows the numbers of investments across top3 sectors of top 3 countries. This considers all the investments and is limited to cases where the funding is between 5 and 15 million USD

Recommendations

Investment recommendation for Spark funds -

- The best investment funding type for Spark funds would be 'Venture' funding. It has been observed that most of the funding in the range 5M USD and 15M USD occurs as a Venture funding.

- The best countries for investment would be USA, Great Britain and India in that order. China is also a top contender for the investment destination , but looses out since English is not a official language in China.

- The top sectors for investment in each of this countries is mentioned below. This analysis only considers investment range of 5MUSD to 15MUSD
    - 'Others' seems to be the overwhelming top contender across the Top 3 countries identified.
    - 'Social, Finance, Analytics, Advertising' is the second best sector for investment in USA and India. This is also the third best sector for investment in Great Britain.
    - 'Cleantech / Semiconductors' is the second best sector for investment in Great Britain and the third best in USA.
    - 'News, Search and Messaging' is the third best sector for investment in India