INVESTMENT ASSIGNMENT

SUBMISSION

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\<Abstract\>

Business objectives

Identify the best sectors, countries and suitable investment type for making investments. Spark Funds wants to invest where most other investors are investing.

Constraints

- Invest between 5 to 15 million USD per round of investment

- Invest only in English speaking countries

Investment type analysis

Understand investments in the venture, seed, angel, private equity categories and pick one suitable investment time based on objectives and constraints
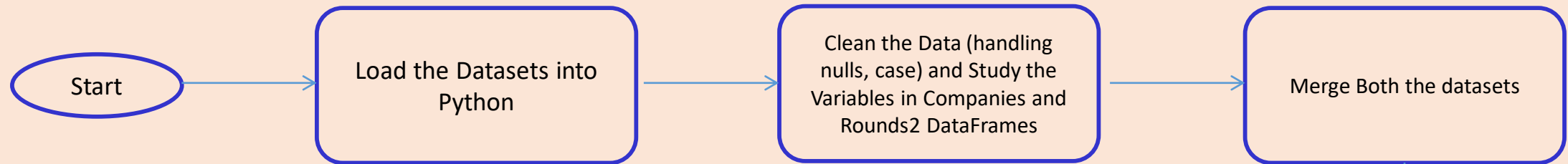
Country analysis

Understand which countries have had the most investments in the past. (Only English Speaking Countries)
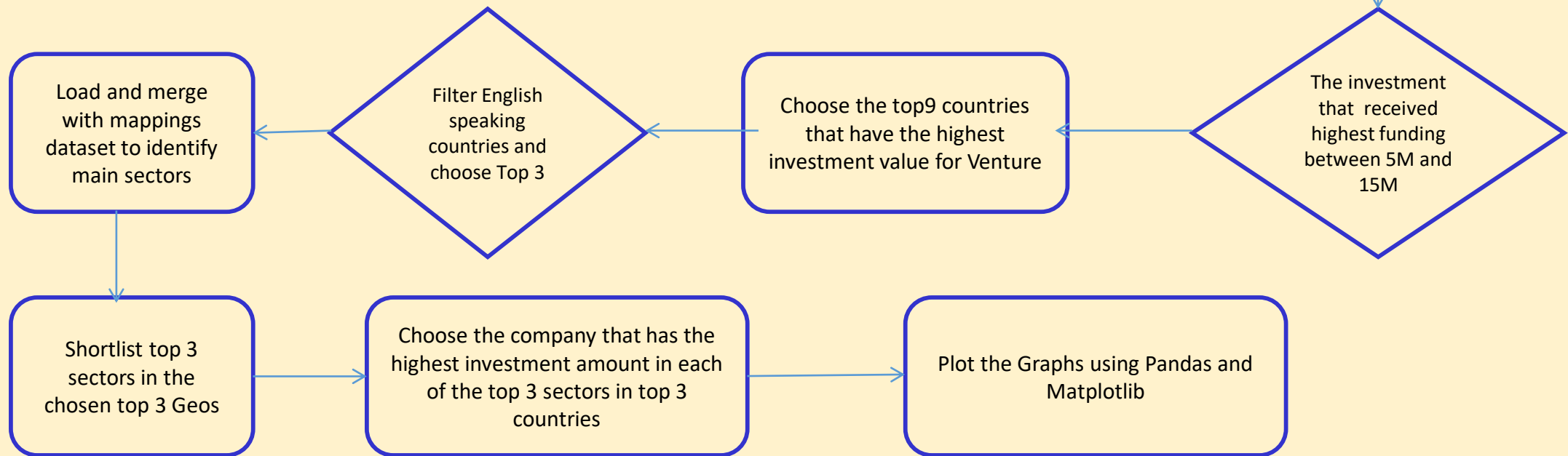
Sector analysis

Understand the distribution of investments across the eight main sectors and the major company that was invested in the top three sectors of top three geographies

<Problem solving methodology>

Importing Cleaning

Start → Load the Datasets into Python → Clean the Data (handling nulls, case) and Study the Variables in Companies and Rounds2 DataFrames → Merge Both the datasets

Transformation & Analysis

Load and merge with mappings dataset to identify main sectors ← Filter English speaking countries and choose Top 3 ← Choose the top9 countries that have the highest investment value for Venture ← The investment that received highest funding between 5M and 15M

Load and merge with mappings dataset to identify main sectors → Shortlist top 3 sectors in the chosen top 3 Geos → Choose the company that has the highest investment amount in each of the top 3 sectors in top 3 countries → Plot the Graphs using Pandas and Matplotlib

<Analysis>

Data Cleaning :

- The master frame now consists of combined columns of Companies and Rounds2

- The null values present in million usd is around 17.3%.
  - Therefore choosing to fill it with median or mean rather than deleting those rows. Since the difference between the 75% and max is very large, suggesting the presence of high value outliers that can influence mean, I choose the median to fill the empty values.

Choosing particular Funding Investment Type:

S.No	Funding Round Type	Count	Mean(Million USD)
1	Angel	6094	1.1
2	Private_equity	2285	62.36
3	Seed	30524	0.93
4	Venture	55494	10.79

- Hence venture investment is most suitable. Average of 10.79 M USD per investment falls within the constrains of 5 – 15 M USD. Also, venture the highest number of counts and highest amount was invested in Venture, suggesting it is the most invested funding type

<Analysis>

Choosing top 9 Countries for Investment (Venture):

S.NO	Top 9 Countries	Million USD
1	USA	426263.3991
2	CHN	40714.3209
3	GBR	20662.3934
4	IND	14674.1829
5	CAN	9734.5769
6	FRA	7373.8104
7	ISR	7099.0912
8	DEU	6730.113
9	JPN	3437.6188

- Deleted the rows that does not have a country_code as they are not irrelevant to the analysis
- Out of the top 9 countries ,choose top 3 countries with English speaking. They are USA,GBR(UK),IND
- As china (CHN) is non-english speaking country it is not selected

<Analysis>

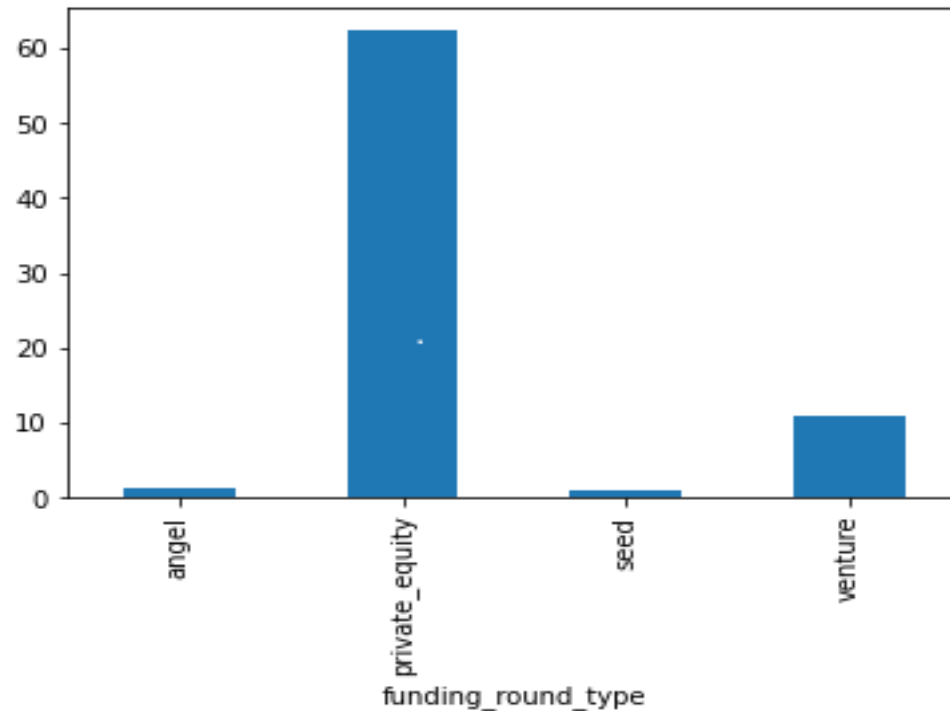# Choosing Top 3 Sectors from Each Country:

- Creating new column primary sector from Category List so that the first category given in the list for a specific company is chosen.

- Converting of mapping .csv from wide format to long format to create main sector variable.

- Creating three separate data frames D1, D2 and D3 for each of the three countries (USA, UK, IND) containing the observations of funding type FT falling within the 5-15 million USD range.

- The top three sectors in USA: Others > CleanTech/ Semiconductors > Social, Finance, Analytics, Advertising.

- The top three sectors in UK: Others > CleanTech/ Semiconductors > Social, Finance, Analytics, Advertising

- The top three sectors in IND: Others > News, Search and Messaging > Entertainment.

S.No	Main_Sector	USA	UK	IND
1	Others	2928	144	109
2	Cleantech / Semiconductors	2301	127	0
3	Social, Finance, Analytics, Advertising	1915	98	0
4	News, Search and Messaging	0	0	52
5	Entertainment	0	0	33

- The values in columns of USA,UK,IND are the number of investment count.

<Results>
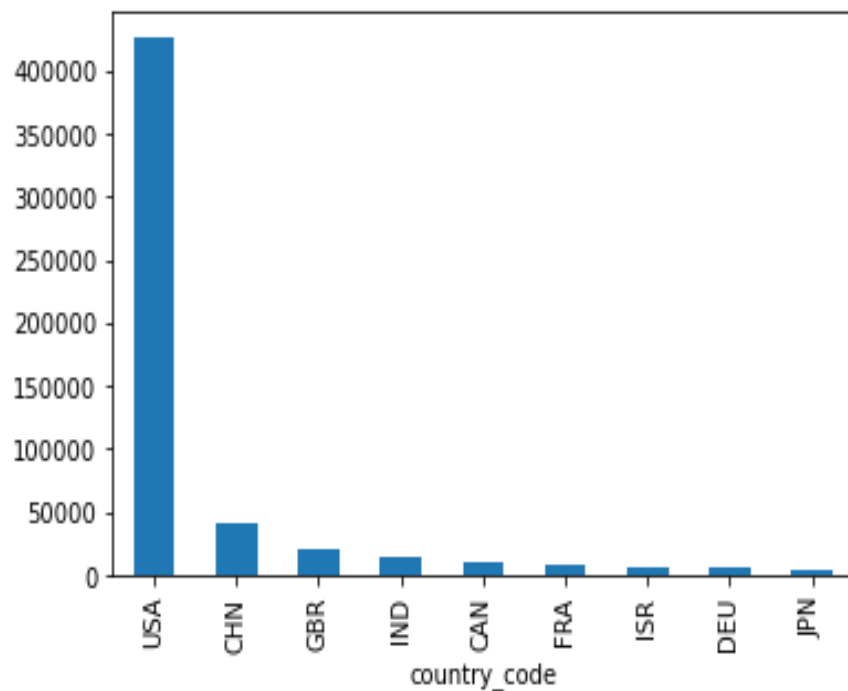
Plot 1:The avg funding for each investment vs funding type

From the graph shown, the mean values for each funding type are as follows

Funding Round Type	Mean(Million USD)
angel	1.1
private_equity	62.36
seed	0.93
venture	10.97

- Average of 10.97 M USD per investment. Falls within the constrains of 5 – 15 M USD

<Results>
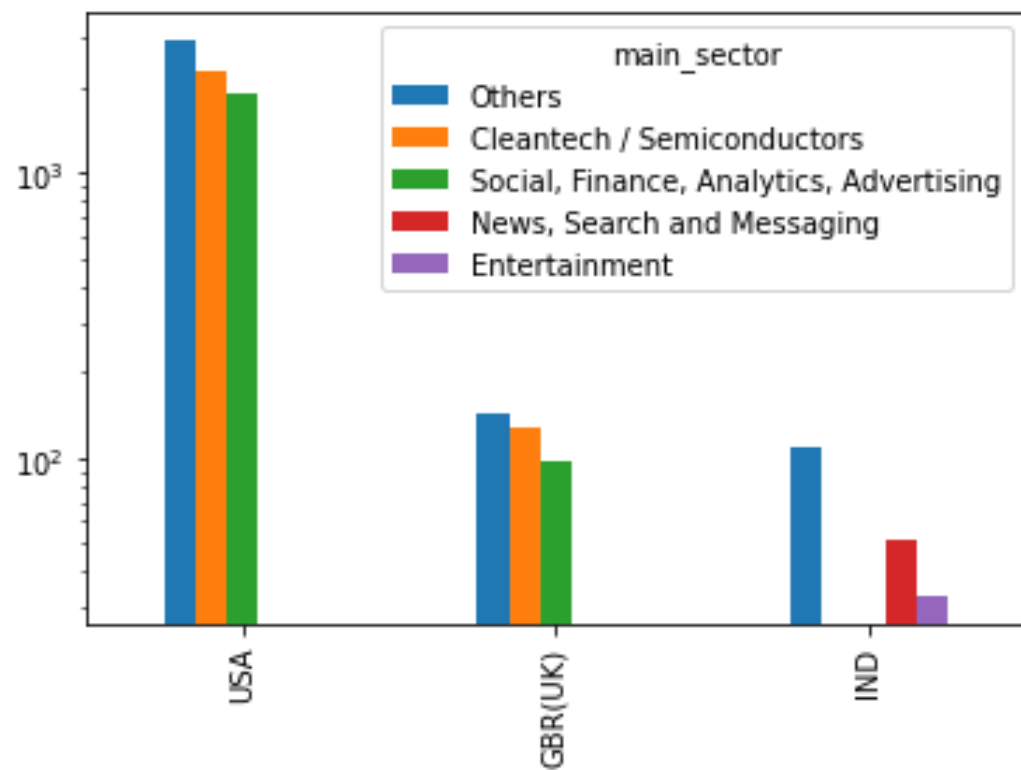
Plot 2:Top 9 countries vs investment by venture:

From the graph ,the values are as follows

Top 9 Countries	Million USD
USA	426263.3991
CHN	40714.3209
GBR	20662.3934
IND	14674.1829
CAN	9734.5769
FRA	7373.8104
ISR	7099.0912
DEU	6730.113
JPN	3437.6188

<Results>

Plot 3:Top three sectors in top three english speaking countries for investment funding type, Venture (vs. investment count)

Main_Sector	USA	UK	IND
Others	2928	144	109
Cleantech / Semiconductors	2301	127	0
Social, Finance, Analytics, Advertising	1915	98	0
News, Search and Messaging	0	0	52
Entertainment	0	0	33

\<Conclusions\>

➢ The Funding type which is most suited for our investing needs is Venture fund

➢ Top 3 English speaking countries to invest are :

✓ United States of America ,

✓ Great Britain

✓ India

➢ Best sectors to invest in are :

✓ The top three sectors in USA: Others , CleanTech/ Semiconductors ,Social, Finance, Analytics,   Advertising.

✓ The top three sectors in UK: Others ,CleanTech/ Semiconductors ,Social, Finance, Analytics, Advertising

✓ The top three sectors in IND: Others ,News, Search and Messaging , Entertainment.

Question	USA	UK	India
For point 3 (top sector count-wise), which company received the highest investment?	virtustream	electric-cloud	firstcry-com
For point 4 (second best sector count-wise), which company received the highest investment?	biodesix	eusa-pharma	gupshup-technology-india-pvt-ltd