

INVESTMENT CASE STUDY

SUBMISSION

Name:

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Investment Analysis Summary

- **Business Objective:**

- The objective is to identify the best sectors, countries, and a suitable investment type for making investments. The overall strategy is to invest where others are investing, implying that the 'best' sectors and countries are the ones 'where most investors are investing'.

- **Constraints:**

- Invest between **5 to 15 million USD** per round of investment
- Invest only in **English-speaking countries** because of the ease of communication

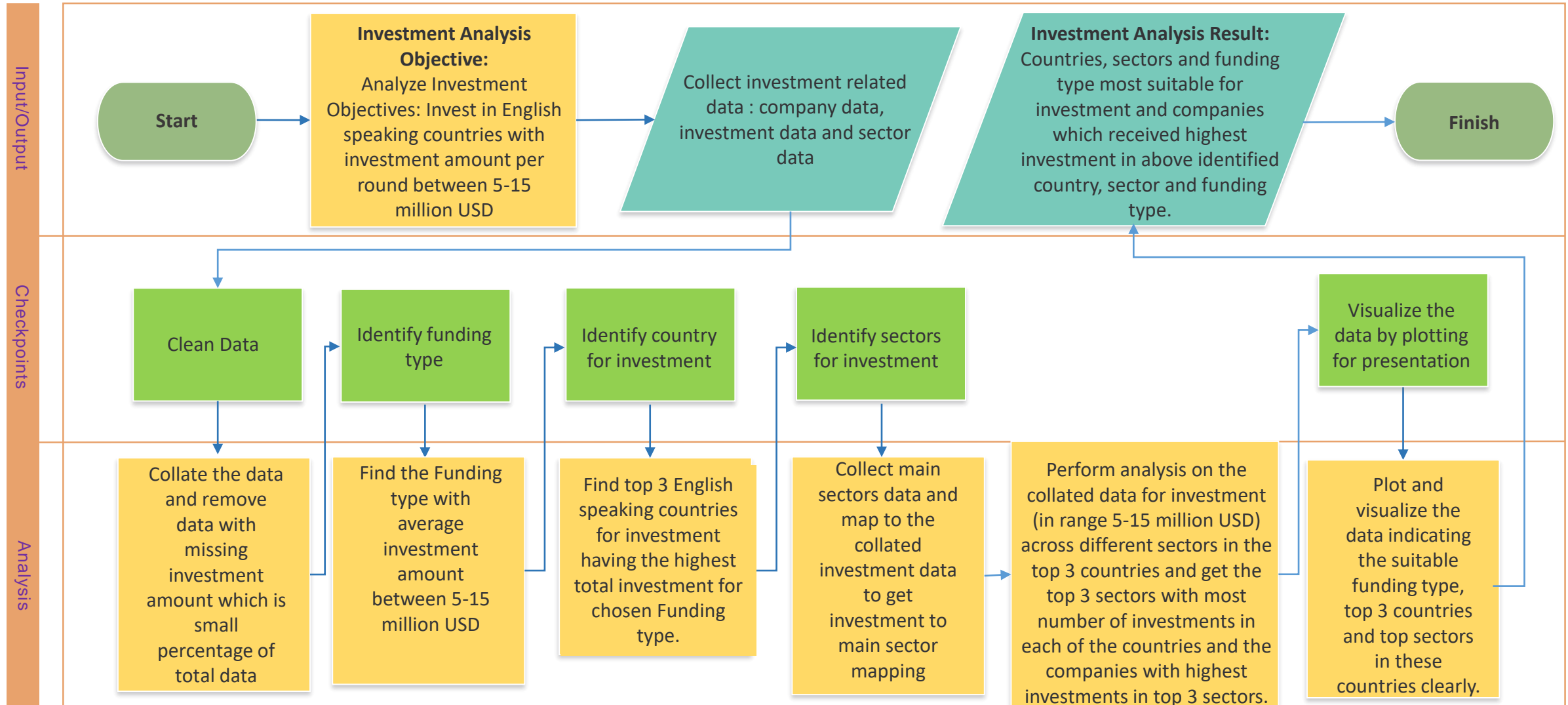
- **Checkpoints:**

- The analysis involves the below checkpoints:
 - Identifying the best funding type for investment.
 - Identifying the top countries for investment.
 - Identifying the best sectors for investment

- **Approach for analysis:**

- The analysis involves below steps:
 - Collecting the countries and investment data and collating/merging the data to get investment data along with company details.
 - Processing the merged data to get the funding type with average investment amount between 5 to 15 million USD.
 - Processing the merged data to identify the top 3 English speaking countries with highest total funding for chosen funding type.
 - Collecting the main category (eg: Entertainment) mapping data with sub categories (eg: Art, Audio, Comics, etc) and mapping the main categories to the merged data.
 - Based on the mapped data identify the best main categories for investment (between 5 to 15 million USD) across the top 3 English speaking countries.

Investment Analysis Flow



Investment Analysis Steps

Collecting, Collating and Cleaning data:

- Data collected for analysis:
 - companies.xls - Basic data of companies
 - rounds2.xls - Investment details
- Collate data:
 - Data merged together to give details of company and investment together in a single dataframe – master_frame.
- Describe data:
 - Companies data and rounds data have the same number of unique companies: **66368**
 - The master frame has total number of investment records as: **114949**
- Clean Data:
 - Master_frame has data with missing investment amount for 17.39% of the investment records. This data is not required for analysis and is removed.
 - After cleaning the master frame has number of investment records: **94959**

Identifying Suitable Funding type:

- As per investment objective investment amount per funding round is between 5 to 15 million USD
 - Finding the mean investment amount for the 4 funding types (venture, angel, seed, and private equity) shows that **venture** is the only funding type with average investment between 5 to 15 million USD.

Investment Analysis Steps

Identifying Countries for investment:

- Objective is to invest where most investments are occurring and invest in English speaking countries for ease of communication:
 - For the venture funding type, the identifying the top 9 countries which have received the highest total funding and put into a data frame: top9
 - From the top9 frame, the top 3 English speaking countries from the list in descending order of total investment amount are:
United States of America (USA), United Kingdom (GBR) and India (IND)

Identifying Sectors for investment Stage 1:

- We need to identify main sectors for investment. From the 8 main sectors:
- Collect data:
 - The master_frame contains data for sub-sectors and the mapping.csv file has mapping data between the sub-sectors/sub-categories and 8 main sectors/categories.
- Treating data:
 - The mapping.csv file has the main category as column headers and sub-categories as category_list column. This is in the wide data format and needs to be converted to long data format so that we get a dataframe with 2 columns the category_list (sub-category) and main category.
 - For certain records in master_frame, multiple categories are present in the category_list (sub-category) column. We select the first category from these as the primary.category.
 - Add a column primary category (sub-categories) to the master frame containing single category for each investment record.
- Mapping data:
 - We need to merge the master_frame with this category mapping frame (on the primary category) to get a merged_frame containing the company data, investment data and main category data merged into a single frame.

Investment Analysis Steps

Identifying Sectors for investment Stage 2:

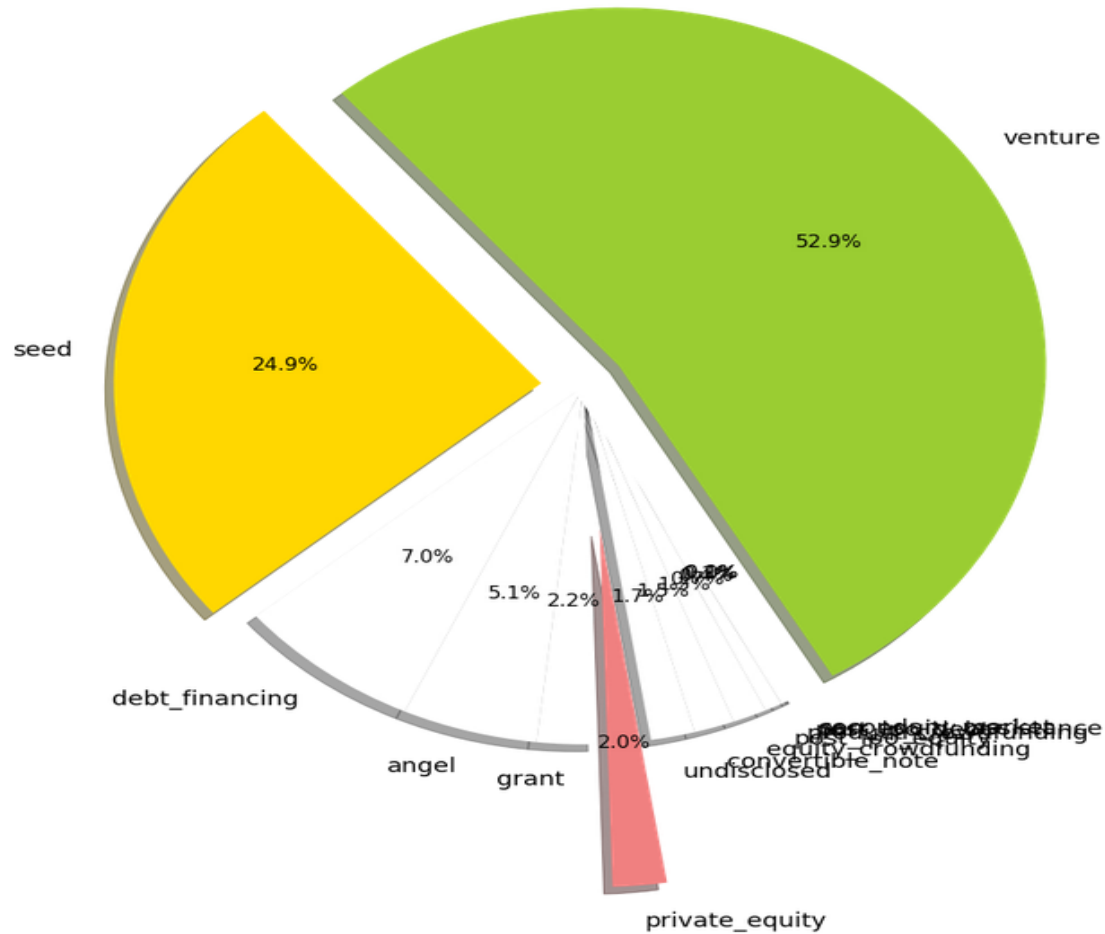
We need to identify the most heavily invested 3 sectors (in the range 5-15 million USD) in each of the top 3 countries:

Construct Data:

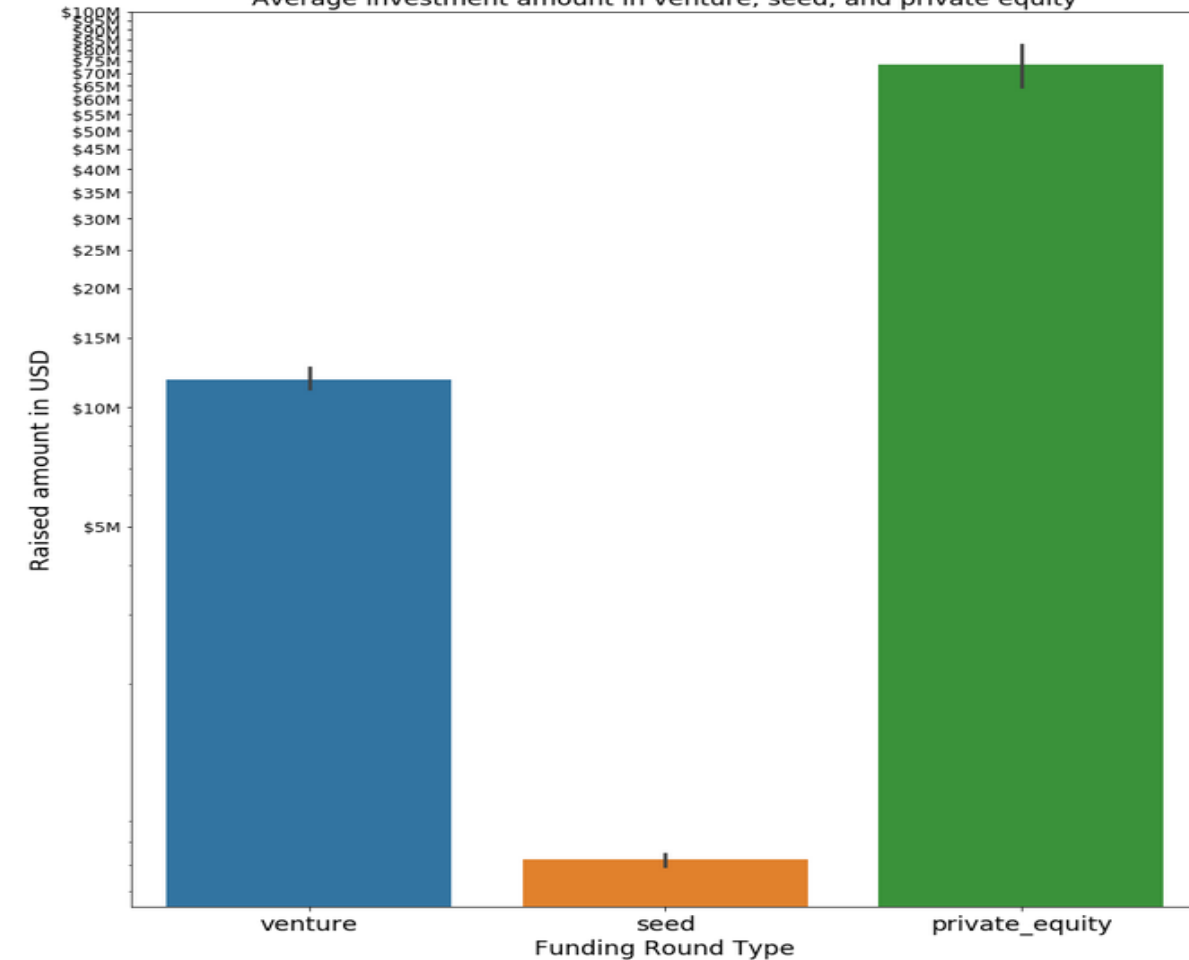
- Using the mapping data from stage 1, construct data for each of the top 3 countries:
 - Create data frames D1, D2 and D3 for the 3 countries USA, GBR and IND respectively.
 - Each data frame to contain investment records:
 - For the venture funding type .
 - In the range of 5 to 15 million.
 - Primary sector and the main sector data.
 - total number (or count) of investments for each main sector in a separate column
 - The total amount invested in each main sector in a separate column
- Identify the the top 3 main categories from D1, D2 and D3 based on count of investments:
 - For D1 (country USA): Top 3 sectors identified as: **Others**, **'Social, Finance, Analytics, Advertising'** and **'Cleantech / Semiconductors'**
 - For D2 (country GBR): Top 3 sectors identified as: **Others**, **'Social, Finance, Analytics, Advertising'** and **'Cleantech / Semiconductors'**
 - For D3 (country IND): Top 3 sectors identified as: **Others**, **'Social, Finance, Analytics, Advertising'** and **'News, Search and Messaging'**.
- Identify the companies that received highest investments:
 - For the top sector count-wise, companies that received the highest investment: **Virtustream** (USA), **Electric Cloud** (GBR) and **FirstCry.com** (IND)
 - For the second-best sector count-wise, company received the highest investment: **SST Inc. (Formerly ShotSpotter)** (USA), **Celltick Technologies** (GBR) and **Manthan Systems** (IND)

Plot for Funding Type

Fraction of total investments (globally) in venture, seed, and private equity



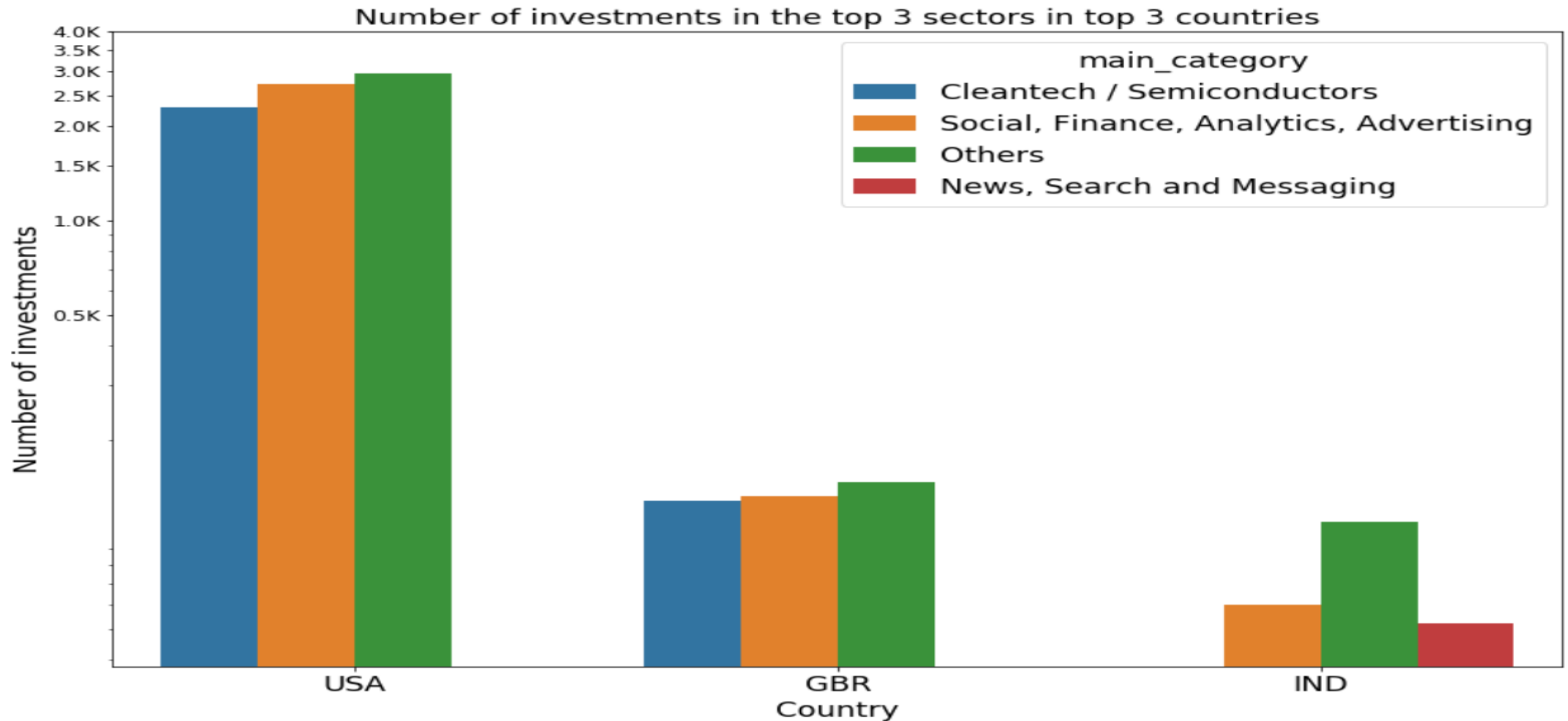
Average investment amount in venture, seed, and private equity



Plot for Top 9 countries by Total investment



Number of investment in top 3 sectors in top 3 countries (with greatest investment total for venture funding type) based on count of investments



Investment Analysis Conclusion:

Following are the results of investment analysis:

Funding Type for investment: VENTURE

Countries for investment: USA, United Kingdom (GBR) and India (IND)

Top 3 Main Sectors for investment:

In USA:

1. Others
2. Social, Finance, Analytics, Advertising
3. Cleantech / Semiconductors

In United Kingdom (GBR):

1. Others
2. Social, Finance, Analytics, Advertising
3. Cleantech / Semiconductors

In India (IND):

1. Others
2. Social, Finance, Analytics, Advertising
3. News, Search and Messaging