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March 5, 2022

0.1 1.0- Introduction

0.2 2.0- An Overview of Hyundai Motor Company's Internationalization Strategy

Rapid Global Expansion:

Development of Local Leadership:

Business Agility:

Development New Technology through International Partnership:

(My Findings)

Details about **Hyundai Motor Company in 2012** * total patent count 3839 * total Turnover lay 90029031.0 * total turnover 78899421.0 * total asset 113523083.0 * R&D 641328

Figure 6 indicates They had a 7th highest turnover in 2012.

Figure 7 indicates They had 7th highest total asset in 2012.

Figure 8 represents correlation between variables which suggests turnover and turnover lay had the highest positive correlation of 0.96.

Figure 9 indicates that turnover and tunrover lay variables had a positive correlation line. Which means 1 unit increase in turnover will cause turnover lay to increase by 0.96 unit.

```
[34]: #importing all the needed packages for data analysis
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import warnings
warnings.filterwarnings('ignore')
#location of the IBM data
path = '/content/drive/MyDrive/Colab Notebooks/assignment/data/'
#location of all the attribute files
attribute4 = path + 'USPTO_2012_2_proj_attributes_NEW.csv'
edgelist4 = path + 'USPTO_2012_2_proj.xlsx'
```

```
[35]: from google.colab import drive
drive.mount('/content/drive')
```

Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount("/content/drive", force_remount=True).

```
[36]: #read all the csv files of edgelist
colnames = ['From', 'To']
edgelist_df4 = pd.read_excel(edgelist4,names=colnames)
final_edgelist = edgelist_df4
print('total shape of edgelist {}'.format(final_edgelist.shape))
```

total shape of edgelist (552, 2)

0.3 3.0- Network analysis techniques and visualizations to describe the network in which it is embedded (indicatively 700 words)

0.3.1 (Your written part)

Company Network Analysis:

Global Value Chain:

0.3.2 (My Findings)

Provided dataset **edgelist** corresponds of:

1. Number of node (companies): 606 and Number of edges(connections): 552
2. From **Figure 1** we can see that the network is a industrial network (define industrial network). From **figure 2** we can see that the network has 2 communities(yellow, green). The community detection was done using **girvan_newman** algoirthm. Under the Girvan-Newman algorithm, the communities in a graph are discovered by iteratively removing the edges of the graph, based on the edge betweenness centrality value. The edge with the highest edge betweenness is removed first.
3. Hyundai Motor Company have number of degree = 7 which means it has total of 7 unique direct connections with companies.

```
[37]: import networkx as nx

# Read Our Edgelist
us_graph = nx.from_pandas_edgelist(final_edgelist,source="From",target="To")
```

```
[38]: def get_graph_info(graph):
    print("Number of nodes:", graph.number_of_nodes())
    print("Number of edges:", graph.number_of_edges())
```

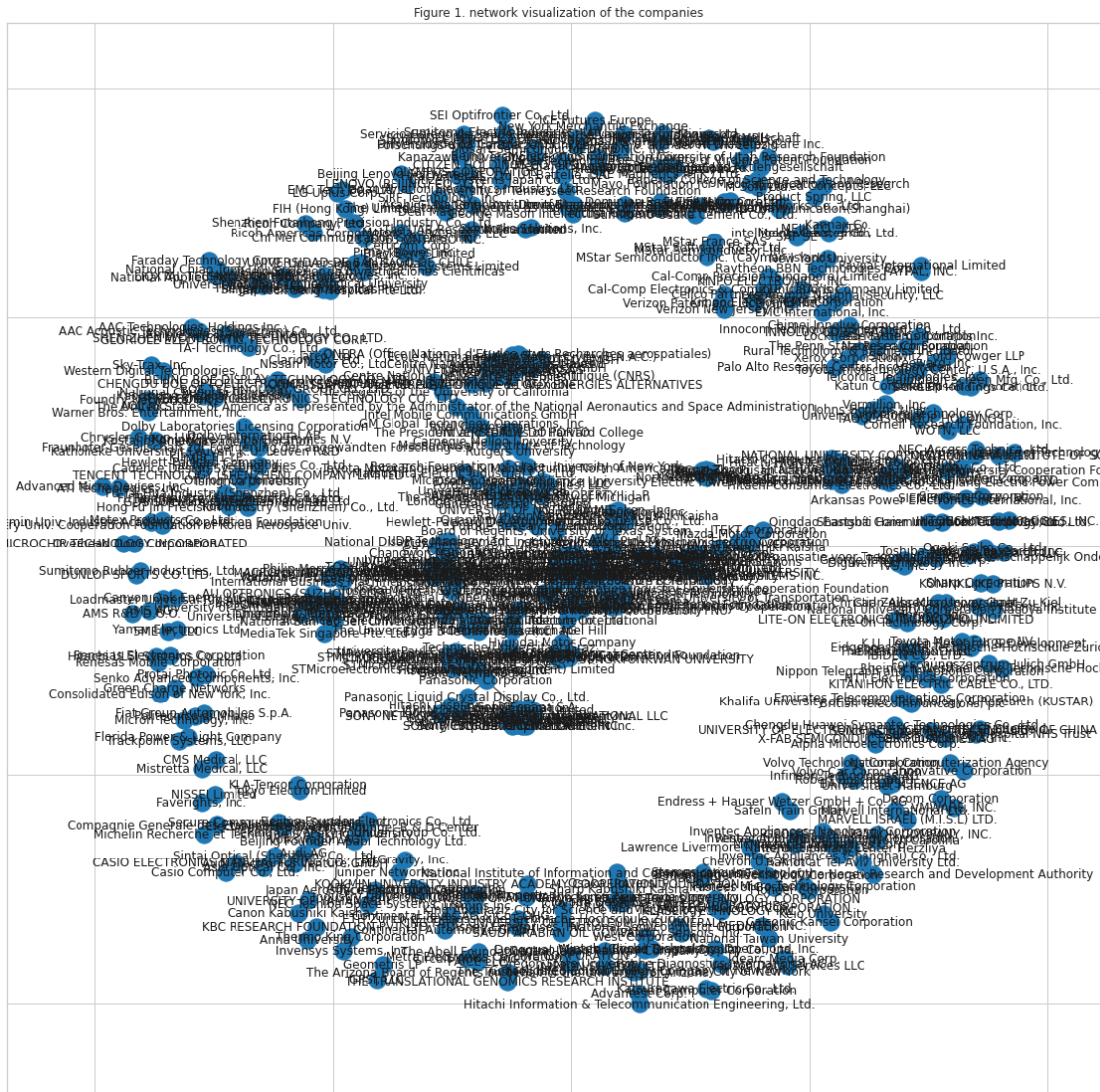
```
[39]: get_graph_info(us_graph)
```

Number of nodes: 606
Number of edges: 552

```
[40]: us_graph.degree('Hyundai Motor Company')
```

[40]: 7

```
[76]: plt.figure(figsize=(20,20))
nx.draw_networkx(us_graph,pos=nx.spring_layout(us_graph))
plt.title('Figure 1. network visualization of the companies')
plt.show()
```



```
[56]: from networkx.algorithms.community centrality import girvan_newman
```

```
G = us_graph
communities = girvan_newman(G)

node_groups = []
```

```

for com in next(communities):
    node_groups.append(list(com))

color_map = []
for node in G:
    if node in node_groups[0]:
        color_map.append('green')
    elif node in node_groups[1]:
        color_map.append('blue')
    else:
        color_map.append('yellow')

plt.figure(figsize=(20,20))
nx.draw(G, node_color=color_map, with_labels=True)
plt.title('Figure 2. girvan_newman community detection')
plt.show()

```

[illegible]

(My findings)

- 5

centrality means the company has more connections from other companies. For the dataset of **edgelist** it can be seen that top 3 best connected company was : **Samsung Electronics Co., Ltd. (0.0396694214876033)**, **Sony Corporation (0.024793388429752067)**, **Electronics and Telecommunications Research Institute (0.01983471074380165)**. **Hyundai Motor Company (0.011570247933884297)** has a relatively lower degree centrality which means it has the less connections from other companies of the network.

2. **Eigenvector centrality** measures a node's importance while giving consideration to the importance of its neighbors. Like degree centrality, EigenCentrality measures a node's influence based on the number of links it has to other nodes in the network. EigenCentrality then goes a step further by also taking into account how well connected a node is, and how many links their connections have, and so on through the network. **Xiangping Meng (0.3535528214423834)**, **Qiuye Sun (0.3535528214423834)**, **Northeastern University (0.3535528214423834)** had the eigenvector centrality which indicates that they are the most important companies in the network. It can be seen that the ranking of companies based on Degree of centrality and eigenvector centrality is quite similar. It's because the most connected companies are the ones who are more important in the network. **Hyundai Motor Company's (1.615359648074642e-08)** low score suggests they are less connected in the network.
3. **Betweenness Centrality** is a measure of centrality in a graph based on shortest paths. it is a way of detecting the amount of influence a company has over the flow of information in a network. It is often used to find company that serve as a bridge from one part of a network to another. it calculates unweighted shortest paths between all pairs of company in a network. Each node receives a score, based on the number of shortest paths that pass through the node. Companies that more frequently lie on shortest paths between other companies will have higher betweenness centrality scores. In our dataset **Samsung Electronics Co., Ltd. (0.011724408443252513)**, **Purdue Research Foundation (0.005648295112473318)**, **Toyota Jidosha Kabushiki Kaisha (0.004830058562749713)** had the highest betweenness score and they are the ones who influence the flow of information around the network. They are the ones whose removal from the network will most disrupt communications between other companies because they are the top connected companies. **Hyundai Motor Company (0.002337036834327623)** has a lower score which suggests they have comparatively low influence on the flow of information in the network.
4. **Closeness centrality** indicates how close a company is to all other companies in the network. It captures the average distance between each company and every other company in the network. If information needed to flow through the network, some company would be able to get a message to all the other companies relatively quickly (i.e., in few steps), whereas others may require many steps. Top 4 closely centered Companies were : **Samsung Electronics Co., Ltd. (0.0505300035932447)**, **Purdue Research Foundation (0.044699618563254925)**, **Board of Regents, University of Texas System (0.040075520091194076)**. So, these companies with high closeness centrality is literally close to other companies. Companies with high closeness have, on average, short paths to many other companies, which can be helpful for disseminating resources quickly. **Hyundai Motor Company (0.030888772960654568)** had a low score which suggests they will need comparatively more steps to get the information reach to other companies.
5. Figure 3 shows the Shortest path from Hyundai Motor Company to their connections

total shape of attributes (71, 10)

Figure 4 indicates that the attribute dataset had missing values in R&D_2012, Employees_2012, Turnover_2012, Total_assets_2012, Turnover_lay and Country_code. Among them R&D_2012 had the highest missing values with 75% and country_code had the least with 15%.

```
[45]: total = df.isnull().sum().sort_values(ascending=False)
percent = ((df.isnull().sum()/df.isnull().count())*100).
        ↳sort_values(ascending=False)
missing_data = pd.concat([total, percent], axis=1, keys=['Total', 'Percent'])

axes = missing_data.plot.bar( subplots=True)

plt.title('Figure 4. Total and percentage of missing values for each column')
axes[1].legend(loc=1)
plt.show()
```

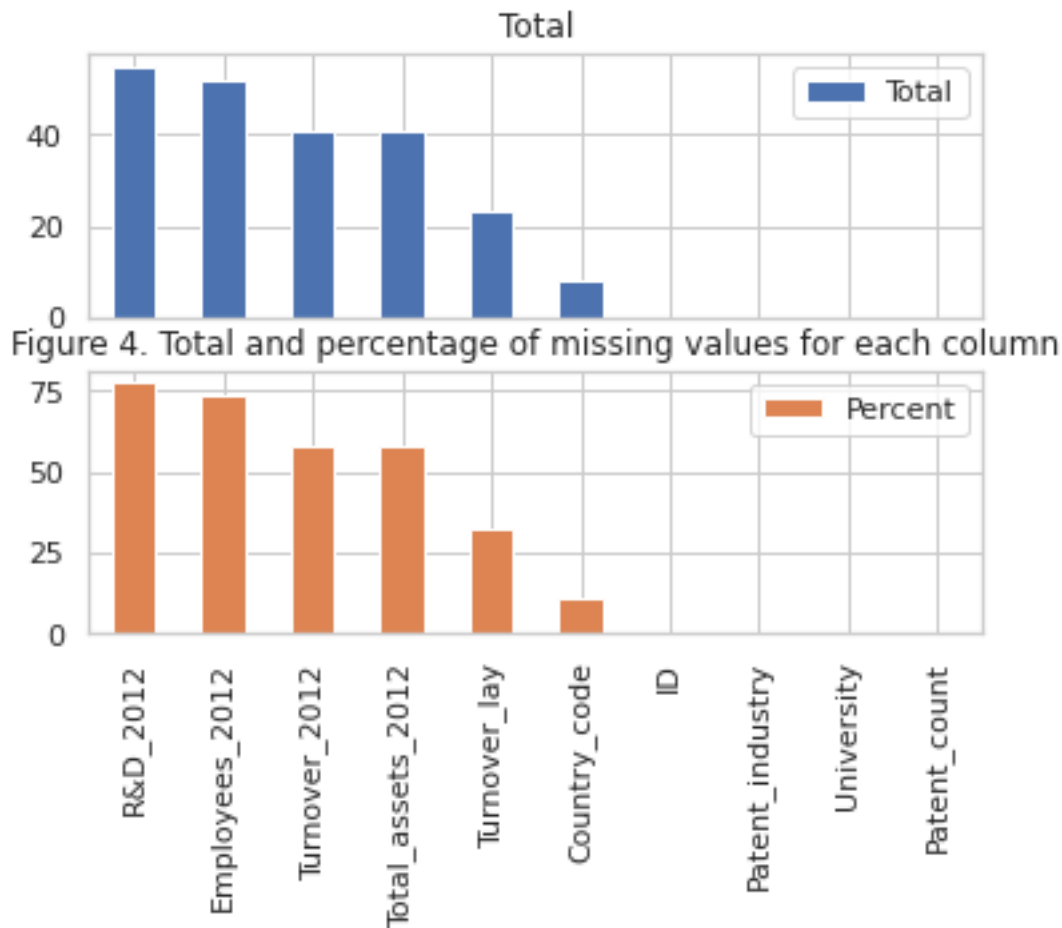
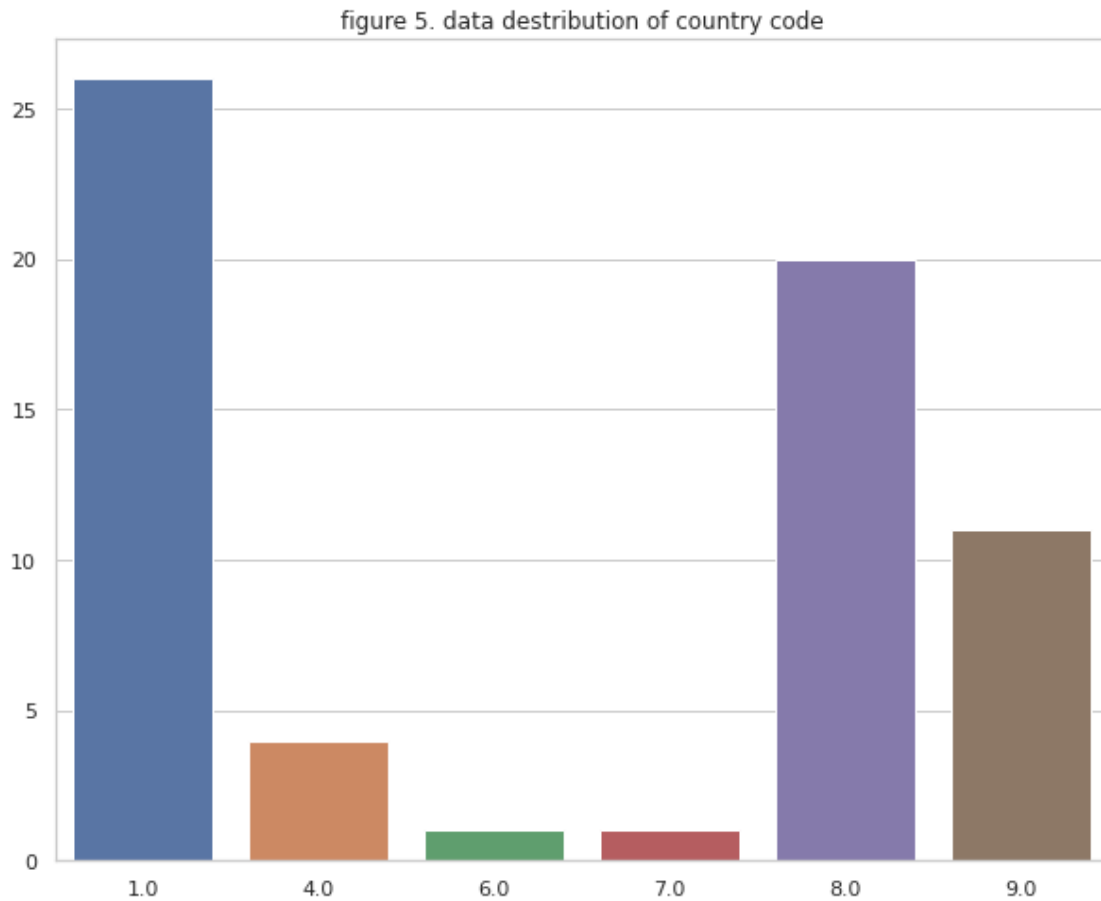


Figure 5. indicates that the dataset had the highest number of companies situated at Country code 1 and the lowest at Country code 6.


```
[46]: plt.figure(figsize=(10,8))
plt.title('figure 5. data distribution of country code')
# Country_code
sns.barplot(x=df.Country_code.value_counts().index, y=df.Country_code.
↪value_counts().values)
plt.show()
```



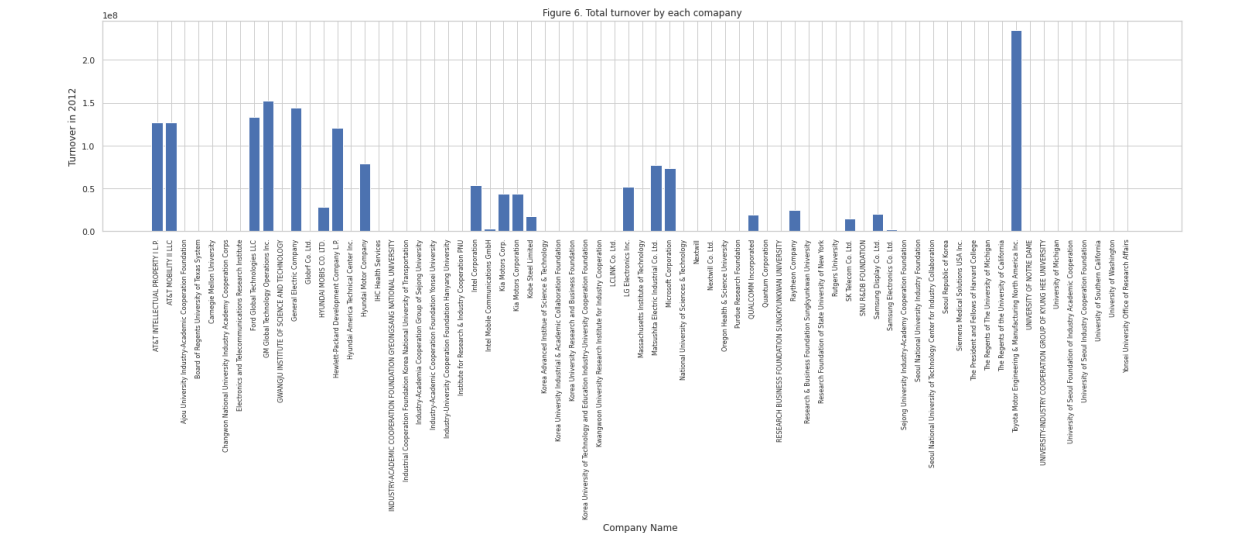
```
[47]: samsunge_df = df[df['ID']=='Hyundai Motor Company']

samsunge_df
```

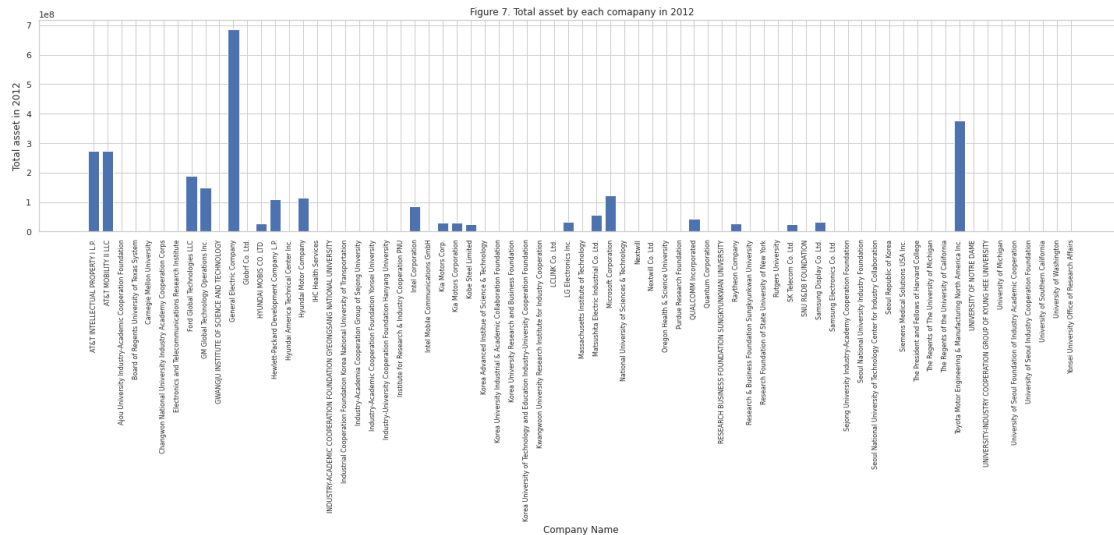
```
[47]:
```

	ID	Patent_industry	University	Patent_count	\
70	Hyundai Motor Company	2	0	3839	
	Turnover_lay	Turnover_2012	Total_assets_2012	Employees_2012	R&D_2012 \
70	90029031.0	78899421.0	113523083.0	NaN	641328.0
	Country_code				
70	8.0				

```
keys = [company for company, df in df.groupby(['ID'])]
plt.figure(figsize=(25,5))
plt.bar(keys,df.groupby(['ID']).sum()['Turnover_2012'])
plt.ylabel('Turnover in 2012')
plt.xlabel('Company Name ')
plt.xticks(keys, rotation='vertical', size=8)
plt.title('Figure 6. Total turnover by each comapany')
plt.show()
```

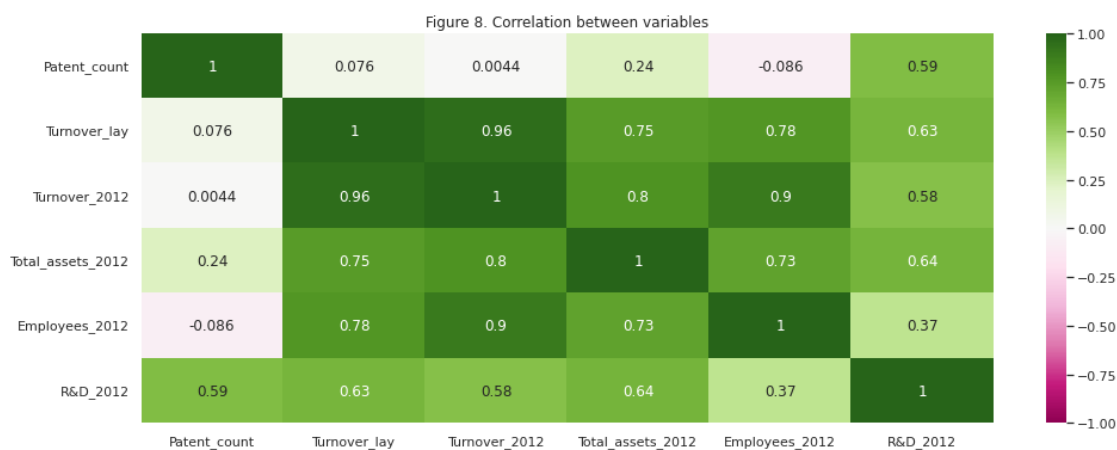


```
keys = [company for company, df in df.groupby(['ID'])]
plt.figure(figsize=(25,5))
plt.bar(keys,df.groupby(['ID']).sum()['Total_assets_2012'])
plt.ylabel('Total asset in 2012')
plt.xlabel('Company Name ')
plt.xticks(keys, rotation='vertical', size=8)
plt.title('Figure 7. Total asset by each comapany in 2012')
plt.show()
```



```
[73]: data = df[['Patent_count', 'Turnover_lay', 'Turnover_2012', 'Total_assets_2012',
    ↪ 'Employees_2012', 'R&D_2012']]
plt.figure(figsize=(16, 6))
corr = data.corr()
heatmap = sns.heatmap(data.corr(), vmin=-1, vmax=1, cmap="PiYG", annot=True)
heatmap.set_title('Correlation Heatmap', fontdict={'fontsize':12}, pad=12);
plt.title('Figure 8. Correlation between variables')

plt.show()
```



```
[74]: ax = sns.regplot(x=df['Turnover_2012'],y=df['Turnover_lay'],color='c')

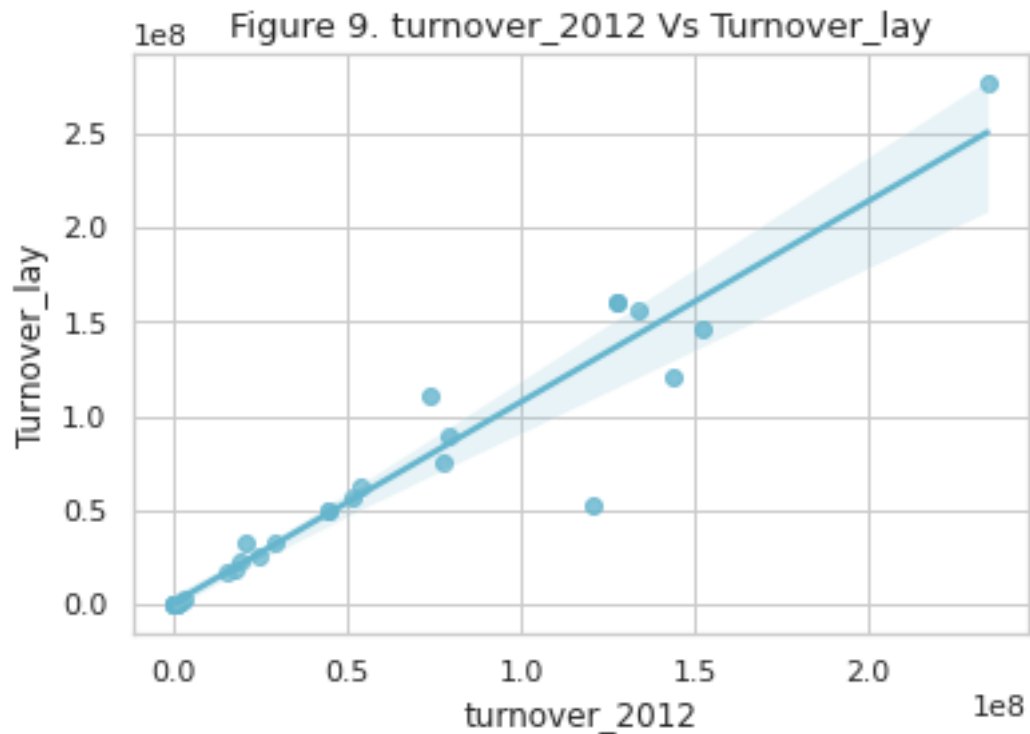
      #setup the title and the labels of the scatter plot.
```

```

ax.set_title("Figure 9. turnover_2012 Vs Turnover_lay",fontsize=13)
ax.set_xlabel("turnover_2012",fontsize=12)
ax.set_ylabel("Turnover_lay",fontsize=12)

#setup the figure size.
sns.set(rc={'figure.figsize':(6,4)})
sns.set_style("whitegrid")

```



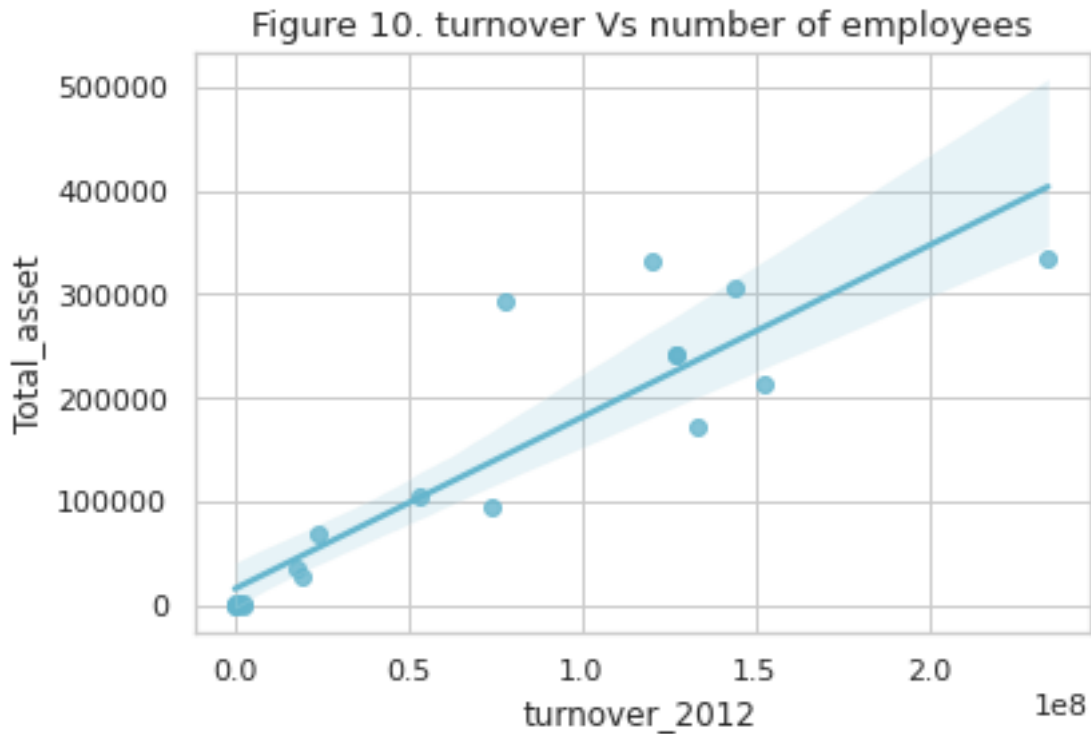
```

[75]: ax = sns.regplot(x=df['Turnover_2012'],y=df['Employees_2012'],color='c')

#setup the title and the labels of the scatter plot.
ax.set_title("Figure 10. turnover Vs number of employees",fontsize=13)
ax.set_xlabel("turnover_2012",fontsize=12)
ax.set_ylabel("Total_asset",fontsize=12)

#setup the figure size.
sns.set(rc={'figure.figsize':(6,4)})
sns.set_style("whitegrid")

```



0.5 Discuss the implication of industry and country environments on the innovation strategy of the firm (400 words)

[54]:

Appendix

[54]:

[65]:

```
# degree centrality
most_influential = nx.degree_centrality(us_graph)
for w in sorted(most_influential, key=most_influential.get, reverse=True):
    print(w, most_influential[w])
```

Samsung Electronics Co., Ltd. 0.0396694214876033
 Sony Corporation 0.024793388429752067
 Electronics and Telecommunications Research Institute 0.01983471074380165
 Industrial Technology Research Institute 0.01818181818181818
 STMICROELECTRONICS S.R.L. 0.01818181818181818
 AU Optronics Corp. 0.01487603305785124
 Kabushiki Kaisha Toshiba 0.013223140495867768
 Toyota Jidosha Kabushiki Kaisha 0.013223140495867768
 Airbus Operations SAS 0.013223140495867768

Honda Motor Co., Ltd. 0.011570247933884297
 Centre National de la Recherche Scientifique (CNRS) 0.011570247933884297
 Denso Corporation 0.011570247933884297
 Xiangping Meng 0.011570247933884297
 Qiuye Sun 0.011570247933884297
 Northeastern University 0.011570247933884297
 Yan Zhao 0.011570247933884297
 Jing Guo 0.011570247933884297
 Qingqi Zhao 0.011570247933884297
 Jianguo Zhou 0.011570247933884297
 Tieyan Zhang 0.011570247933884297
 Panasonic Corporation 0.011570247933884297
 Hyundai Motor Company 0.011570247933884297
 Hon Hai Precision Industry Co., Ltd. 0.011570247933884297
 General Electric Company 0.011570247933884297
 Fujitsu Limited 0.009917355371900825
 Purdue Research Foundation 0.009917355371900825
 Chunghwa Picture Tubes, Ltd. 0.009917355371900825
 Taiwan TFT LCD Association 0.009917355371900825
 HannStar Display Corp. 0.009917355371900825
 Chi Mei Optoelectronics Corp. 0.009917355371900825
 TPO Displays Corp. 0.009917355371900825
 The Regents of The University of Michigan 0.009917355371900825
 State Grid Corporation of China 0.008264462809917356
 Hitachi, Ltd. 0.008264462809917356
 Industry-Academic Cooperation Foundation, Yonsei University 0.008264462809917356
 Sharp Kabushiki Kaisha 0.008264462809917356
 Massachusetts Institute of Technology 0.008264462809917356
 Gigle Networks SL 0.008264462809917356
 Sonic Technologies 0.008264462809917356
 HisiliconTechnologies Ltd. 0.008264462809917356
 Qualcomm Atheros, Inc. 0.008264462809917356
 International Business Machines Corporation 0.008264462809917356
 AT&T INTELLECTUAL PROPERTY I, L.P. 0.008264462809917356
 Peking University 0.006611570247933884
 Peking University Founder Group Co., Ltd. 0.006611570247933884
 NEC Corporation 0.006611570247933884
 SNU R&DB FOUNDATION 0.006611570247933884
 Samsung Display Co., Ltd. 0.006611570247933884
 Carnegie Mellon University 0.006611570247933884
 Fraunhofer-Gesellschaft zur Foerderung der angewandten Forschung e.V.
 0.006611570247933884
 Dolby International AB 0.006611570247933884
 S.T. Corporation 0.006611570247933884
 The Board of Trustees of the Leland Stanford Junior University
 0.006611570247933884
 Tsinghua University 0.006611570247933884
 Electric Power Research Institute of State Grid Zhejiang Electric Power Company

0.004958677685950413
 SHANDONG LUNENG INTELLIGENCE TECHNOLOGY CO., LTD 0.004958677685950413
 State Grid Shandong Province Electric Power Company 0.004958677685950413
 EATON CORPORATION 0.004958677685950413
 Paccar Inc 0.004958677685950413
 The United States of America as represented by the Secretary of the Navy
 0.004958677685950413
 BOE TECHNOLOGY GROUP CO., LTD. 0.004958677685950413
 Airbus Operations GmbH 0.004958677685950413
 National Chiao Tung University 0.004958677685950413
 AISIN SEIKI KABUSHIKI KAISHA 0.004958677685950413
 Peking University Founder R & D Center 0.004958677685950413
 Beijing Founder Electronics Co., Ltd. 0.004958677685950413
 GLORIOLE ELECTROPTIC TECHNOLOGY CORP. 0.004958677685950413
 Postech Academy-Industry Foundation 0.004958677685950413
 Korea University Research and Business Foundation 0.004958677685950413
 National University Corporation Nagoya University 0.004958677685950413
 Nanyang Technological University 0.004958677685950413
 BlackBerry Limited 0.004958677685950413
 Certicom Corp. 0.004958677685950413
 Fujitsu Ten Limited 0.004958677685950413
 Aisin AW Co., Ltd. 0.004958677685950413
 University of Central Florida Research Foundation, Inc. 0.004958677685950413
 Cal-Comp Electronics & Communications Company Limited 0.004958677685950413
 MStar Software R&D, Ltd. 0.004958677685950413
 MStar Semiconductor, Inc. 0.004958677685950413
 Voiceage Corporation 0.004958677685950413
 Koninklijke Philips Electronics N.V. 0.004958677685950413
 Research Foundation of State University of New York 0.004958677685950413
 Mitsubishi Electric Corporation 0.004958677685950413
 Samsung Techwin Co., Ltd. 0.004958677685950413
 LG Electronics Inc. 0.004958677685950413
 CHI MEI VISUAL TECHNOLOGY CORPORATION 0.004958677685950413
 CHI MEI MATERIALS TECHNOLOGY CORPORATION 0.004958677685950413
 FINITY LABORATORIES 0.004958677685950413
 KLASER TECHNOLOGY INC. 0.004958677685950413
 Inventec Appliances Corp. 0.004958677685950413
 UNIVERSITY OF NOTRE DAME 0.004958677685950413
 Panasonic Liquid Crystal Display Co., Ltd. 0.004958677685950413
 The University of North Carolina at Chapel Hill 0.003305785123966942
 ETH Zürich 0.003305785123966942
 Politecnico di Milano 0.003305785123966942
 Cummins Inc. 0.003305785123966942
 Cummins Intellectual Property, Inc. 0.003305785123966942
 National Institute of Standards and Technology 0.003305785123966942
 George Mason Intellectual Properties, Inc. 0.003305785123966942
 Motex Products Co., Ltd. 0.003305785123966942
 Industry-Univ. Cooperation Foundation of Korea Aerospace Univ.

0.003305785123966942
 Kookmin Univ. Industry Academy Cooperation Foundation 0.003305785123966942
 National Chengchi University 0.003305785123966942
 Kun Shan University 0.003305785123966942
 Kaohsiung Medical University 0.003305785123966942
 KABUSHIKI KAISHA TOYOTA CHUO KENKYUSHO 0.003305785123966942
 The Furukawa Electric Co., Ltd. 0.003305785123966942
 Sôny Electronics Inc. 0.003305785123966942
 Sony Computer Entertainment Inc. 0.003305785123966942
 Ividen USA R&D Inc. 0.003305785123966942
 IBIDEN CO., LTD. 0.003305785123966942
 The Ritsumeikan Trust 0.003305785123966942
 Schlumberger Technology Corporation 0.003305785123966942
 Chevron U.S.A. Inc. 0.003305785123966942
 TA-I Technology Co., Ltd. 0.003305785123966942
 SHEN ZHEN WONDERWIN TECHNOLOGY CO., LTD. 0.003305785123966942
 Beijing Founder Apabi Technology Ltd. 0.003305785123966942
 Korea Advanced Institute of Science & Technology 0.003305785123966942
 Board of Regents, University of Texas System 0.003305785123966942
 Universite de Rennes 1 0.003305785123966942
 Universite Bordeaux I 0.003305785123966942
 COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES
 0.003305785123966942
 Toshiba Medical Systems Corporation 0.003305785123966942
 Johns Hopkins Univ. 0.003305785123966942
 Shenzhen Futaihong Precision Industry Co., Ltd. 0.003305785123966942
 Ramot at Tel-Aviv University Ltd. 0.003305785123966942
 GM Global Technology Operations, Inc. 0.003305785123966942
 The United States of America as represented by the Administrator of the National
 Aeronautics and Space Administration 0.003305785123966942
 Hewlett-Packard Development Company, L.P. 0.003305785123966942
 MStar France SAS 0.003305785123966942
 MStar Semiconductor Inc. (Cayman Islands) 0.003305785123966942
 Telcordia Technologies, Inc. 0.003305785123966942
 Rutgers University 0.003305785123966942
 National Disaster Management Institute 0.003305785123966942
 UDP Technology Ltd. 0.003305785123966942
 University of Tennessee Research Foundation 0.003305785123966942
 UT-Battelle, LLC 0.003305785123966942
 Kawasaki Jukogyo Kabushiki Kaisha 0.003305785123966942
 The University of Tokyo 0.003305785123966942
 Intermolecular, Inc. 0.003305785123966942
 SanDisk 3D LLC 0.003305785123966942
 Japan Aviation Electronics Industry, Ltd. 0.003305785123966942
 Audi AG 0.003305785123966942
 SAE Magnetics (H.K.) Ltd. 0.003305785123966942
 Toyota Motor Europe NV 0.003305785123966942
 Eidgenoessische Technische Hochschule Zurich 0.003305785123966942

K.U. Leuven Research & Development 0.003305785123966942
IMEC 0.003305785123966942
Osaka University 0.003305785123966942
National Institute of Information and Communications Technology
0.003305785123966942
Hitachi-LG Data Storage Korea, Inc. 0.003305785123966942
Kia Motors Corp. 0.003305785123966942
HYUNDAI MOBIS CO., LTD. 0.003305785123966942
Hitachi Displays, Ltd. 0.003305785123966942
Nissan Motor Co., Ltd. 0.003305785123966942
AOL Inc. 0.003305785123966942
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Siemens Aktiengesellschaft 0.003305785123966942
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Sony DADC Austria AG 0.003305785123966942
Sony DADC Corporation 0.003305785123966942
Kia Motors Corporation 0.003305785123966942
Hyundai America Technical Center, Inc. 0.003305785123966942
Mekiki Creates Co., Ltd. 0.003305785123966942
SIEMENS ENERGY, INC. 0.003305785123966942
Inventec Appliances (Pudong) Corporation 0.003305785123966942
Inventec Appliances (Nanchang) Corporation 0.003305785123966942
Nextwill Co., Ltd. 0.003305785123966942
Seoul, Republic of Korea 0.003305785123966942
Hitachi High-Technologies Corporation 0.003305785123966942
Hitach Solutions, Ltd. 0.003305785123966942
Xerox Corporation 0.003305785123966942
KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS 0.003305785123966942
Verizon Patent and Licensing Inc. 0.003305785123966942
NHK Spring Co., Ltd. 0.003305785123966942
Microsoft Corporation 0.003305785123966942
University of Washington 0.003305785123966942
National Sun Yat-Sen University 0.003305785123966942
NTT Electronics Corporation 0.003305785123966942
TOSHIBA TEC KABUSHIKI KAISHA 0.003305785123966942
Airbus Operations Limited 0.003305785123966942
Volvo Car Corporation 0.003305785123966942
Huawei Technologies Co., Ltd. 0.003305785123966942
Intel Corporation 0.003305785123966942
Digiwell Technology Inc. 0.003305785123966942
IVS, Inc. 0.003305785123966942
George Tang Industrial Corp. 0.003305785123966942
West Corporation 0.003305785123966942
Sumitomo Electric Industries, Ltd. 0.003305785123966942
Innocom Technology (Shenzhen) Co., Ltd. 0.003305785123966942
Robert Bosch GmbH 0.003305785123966942
Mazda Motor Corporation 0.003305785123966942
Seiko Epson Corporation 0.003305785123966942

Emirates Telecommunications Corporation 0.003305785123966942
 British Telecommuncations, plc 0.003305785123966942
 Khalifa University of Science, Technology & Research (KUSTAR)
 0.003305785123966942
 EMC Corporation 0.003305785123966942
 The Regents of the University of California 0.003305785123966942
 Consejo Superior de Investigaciones Cientificas 0.003305785123966942
 UNIVERSIDAD DE SANTIAGO DE CHILE 0.003305785123966942
 Universidad de Sevilla 0.003305785123966942
 Toyota Motor Engineering & Manufacturing North America, Inc.
 0.003305785123966942
 UNIVERSIDADE DO PORTO 0.003305785123966942
 The President and Fellows of Harvard College 0.003305785123966942
 Singapore Health Services Pte Ltd. 0.003305785123966942
 Tan Tock Seng Hospital Pte Ltd. 0.003305785123966942
 STMicroelectronics International N.V. 0.003305785123966942
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 Qingdao Eastsoft Communication Technology Co., Ltd. 0.001652892561983471
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 Continental Automotive GmbH 0.001652892561983471

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Sharp Corporation 0.001652892561983471
KONINKLIJKE PHILIPS N.V. 0.001652892561983471
Kannax Co. 0.001652892561983471

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[66]: # eigenvector centrality
most_important_link = nx.eigenvector_centrality(us_graph, max_iter=500)
for w in sorted(most_important_link, key=most_important_link.get, reverse=True):
    print(w, most_important_link[w])
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Northeastern University 0.3535528214423834
Yan Zhao 0.3535528214423834
Jing Guo 0.3535528214423834
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 KONINKLIJKE PHILIPS N.V. 6.493739755043791e-41

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[68]: # betweenness centrality
best_connector = nx.betweenness centrality(us_graph)
for w in sorted(best_connector, key=best_connector.get, reverse=True):
    print(w, best_connector[w])
  
```

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 STMicroelectronics (Grenoble 2) SAS 0.0
 STMicroelectronics (Research & Development) Limited 0.0
 Kannax Co. 0.0

```

[70]: # closeness_centrality
      closeness = nx.closeness_centrality(us_graph)
      for w in sorted(closeness, key=closeness.get, reverse=True):
          print(w, closeness[w])
  
```

Samsung Electronics Co., Ltd. 0.0505300035932447
 Purdue Research Foundation 0.044699618563254925
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 FURUKAWA AUTOMOTIVE SYSTEMS INC. 0.012651158601121445
 Tsinghua University 0.01199680085310584
 Mitsubishi Electric Corporation 0.011695151653933426
 Universite de Rennes 1 0.011570247933884297
 Universite Bordeaux I 0.011570247933884297
 Xiangping Meng 0.011570247933884297
 Qiuye Sun 0.011570247933884297
 Northeastern University 0.011570247933884297
 Yan Zhao 0.011570247933884297
 Jing Guo 0.011570247933884297
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 Tieyan Zhang 0.011570247933884297
 National Disaster Management Institute 0.0115496895686855
 UDP Technology Ltd. 0.0115496895686855
 SL America 0.011521030289358735
 AU Optronics (Xiamen) Corp. 0.01147488874761602
 AU OPTRONICS (SUZHOU) CORP., LTD. 0.01147488874761602
 Toshiba Corporation 0.011407801490446118
 Hon Hai Precision Industry Co., Ltd. 0.011269722013523666
 Panasonic Liquid Display Co., Ltd. 0.011184987261542285
 Vodafone IP Licensing Limited 0.010848985725018783
 Philip Morris Products Inc. 0.010848985725018783
 Universiti Brunei Darussalam 0.010848985725018783
 MACRONIX INTERNATIONAL CO., LTD. 0.010848985725018783
 Huawei Technologies Co., Ltd. 0.010625737898465172
 Airbus Operations GmbH 0.010450546520927752
 Mazda Motor Corporation 0.010386969142307764
 WASEDA UNIVERSITY 0.010340702019179445
 iTomography Corporation 0.010287831290966087
 Airbus Operations Limited 0.01012396694214876
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0.009817180065113949
 MediaTek Singapore Pte. Ltd 0.009781872375016936
 Ecole Nationale de L'Aviation Civile (E.N.A.C.) 0.009528439474963539
 Airbus SAS 0.009528439474963539
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 UNIVERSITE MONTPELLIER 2 0.009256198347107438
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 State Grid Corporation of China 0.008264462809917356
 Sharp Kabushiki Kaisha 0.008264462809917356
 Omron Corporation 0.008264462809917356
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 GDS Software (ShenZhen) Co., Ltd 0.007912783541410234
 Ambit Microsystems (Shanghai) Ltd. 0.007912783541410234
 Fu Tai Industry (Shenzhen) Co., Ltd. 0.007912783541410234
 Kobo Inc. 0.007912783541410234
 Hong Fu Jin Precision Industry (ShenZhen) Co., Ltd. 0.007912783541410234
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 Voiceage Corporation 0.007151938970120788
 Koninklijke Philips Electronics N.V. 0.007151938970120788
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 Peking University 0.006611570247933884
 Peking University Founder Group Co., Ltd. 0.006611570247933884
 Hitachi-LG Data Storage Korea, Inc. 0.005950413223140496
 Electric Power Research Institute of State Grid Zhejiang Electric Power Company
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 SHANDONG LUNENG INTELLIGENCE TECHNOLOGY CO., LTD 0.0059031877213695395
 State Grid Shandong Province Electric Power Company 0.0059031877213695395
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 Hitachi High-Technologies Corporation 0.00540946656649136
 Hitach Solutions, Ltd. 0.00540946656649136
 Peking University Founder R & D Center 0.005289256198347108
 Beijing Founder Electronics Co., Ltd. 0.005289256198347108
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 Carl Zeiss Microscopy GmbH 0.001652892561983471
 CMS Medical, LLC 0.001652892561983471
 Mistretta Medical, LLC 0.001652892561983471
 KIP CR P1 LP 0.001652892561983471
 Hewlett-Packard Company 0.001652892561983471
 Virginia Electric and Power Company 0.001652892561983471
 Dominion Resources, Inc. 0.001652892561983471
 SafeIn Train GmbH 0.001652892561983471
 Endress + Hauser Wetzler GmbH + Co. KG 0.001652892561983471
 Oregon State University 0.001652892561983471
 LINE CORPORATION 0.001652892561983471
 GEOPIER FOUNDATION COMPANY, INC. 0.001652892561983471
 University of North Carolina 0.001652892561983471
 The Leeds Teaching Hospital NHS Trust 0.001652892561983471
 University Of Sheffield 0.001652892561983471
 Sharp Corporation 0.001652892561983471
 KONINKLIJKE PHILIPS N.V. 0.001652892561983471

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