



STAT 3010 SAS PROJECT

Rebekah Sander

Abstract

This report provides an exploratory data analysis of all Unicorn Companies that exist around the world. The data was collected from 1038 Unicorn Companies and recorded various key information.

12/5/2022

Introduction & Getting to Know the Dataset:

Unicorn companies are companies that are valued at or valued more than \$1 Billion. As of recently, there exists more than 1,200 unicorn companies in the world. This dataset includes specific data on 1038 unicorn companies according to cbinsights.com. An analysis can be conducted on these companies to further understand what makes a unicorn company successful. In addition, we can use an analysis to identify trends between the time, country, and industry. We may see how some trends are explainable and how some may be surprising.

Table 1: Data Dictionary of Analysis Variables for Unicorn Companies

VARIABLE	LABEL	GENERAL TYPE	SPECIFIC TYPE	MEASUREMENT UNITS
Company	Name of the Unicorn Company	Qualitative	Identifier	N/A
Valuation	What the Unicorn Company is Valued at	Quantitative	Discrete	In \$Billions
Country	What country the Unicorn Company started in	Qualitative	Nominal	N/A
Industry	Which industry the Unicorn Company falls under	Qualitative	Nominal	N/A
Founded Year	When the Unicorn Company was founded	Quantitative	Discrete	Year
Total Raised	The amount of money the Unicorn Company has acquired	Quantitative	Discrete	In \$Billions or \$Millions
Financial Stage	Which financial stage the Unicorn Company has progressed to	Qualitative	Nominal	IPO, Acquired, Management, Divestiture, Corporate, Reverse, Asset

Univariate Quantitative Analysis:

1. Table 2: Descriptive Statistics for Quantitative Variables

Variable	Mean	Std Dev	Maximum	Lower Quartile	Median	Upper Quartile	Minimum
valuation	3.29	7.31	140.00	1.08	1.60	3.10	1.00
FoundedYear	2012.71	5.94	2021.00	2011.00	2014.00	2016.00	1919.00
TotalRaisedAmt	578048612.49	736651598.10	7440000000.0	228580000.00	381000000.00	640000000.00	1000000.00

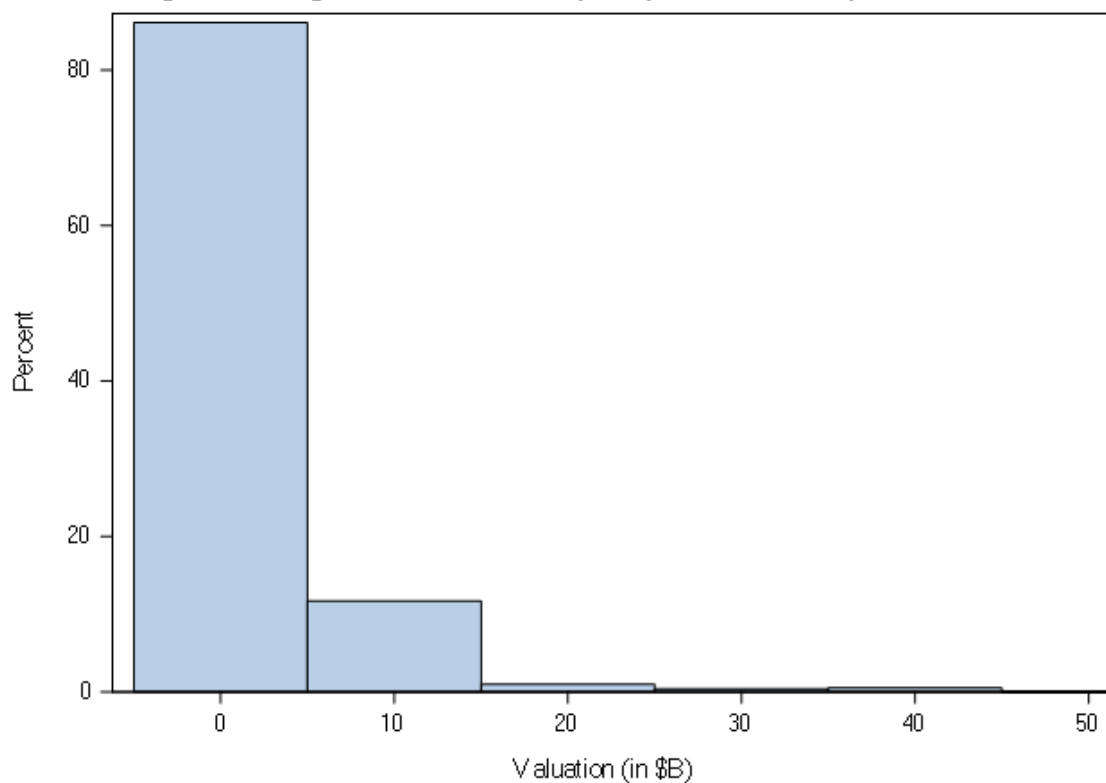
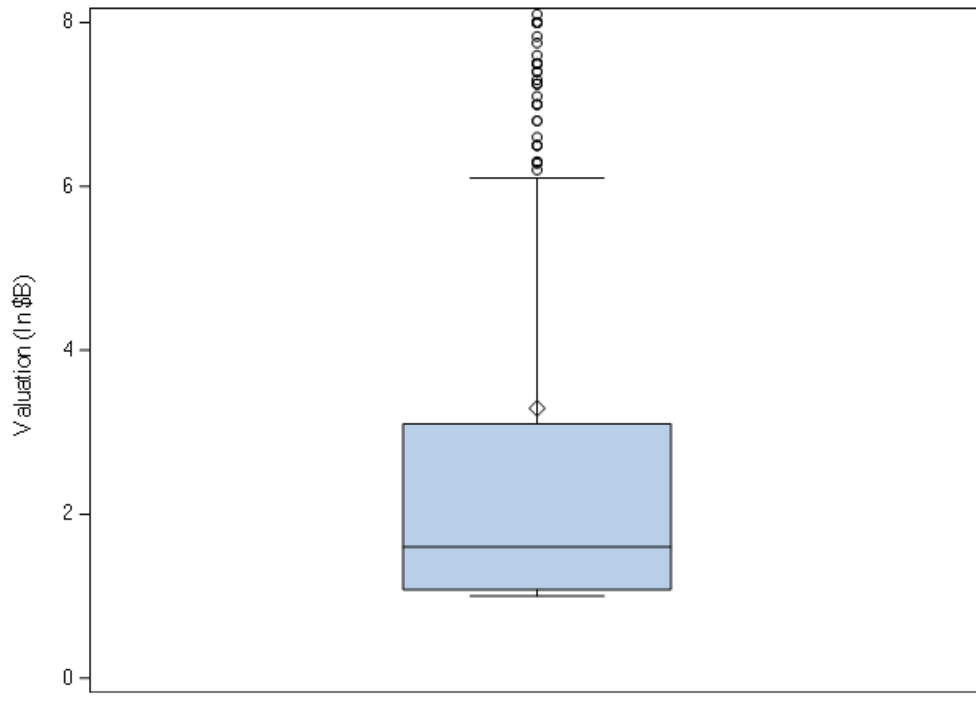
a. Valuation**Figure1: Histogram of the Valuation (in \$B) of Unicorn Companies for n=1038**

Figure 2: Boxplot Of Valuation (in \$B) of Unicorn Companies For n=1038



***NOTE: Some of the outliers have been left out of graphics in order to show the bulk of the data.

For the valuation of unicorn companies around the world, the median is the best representation of central tendency since the data is severely skewed right and unimodal. The median valuation of unicorn companies is \$1.6B. Because there are many outliers in the valuation data, the IQR of 2.02 is the best representation of dispersion.

b. FoundedYear

Figure3: Histogram of the Founded Year of Unicorn Companies for n=1038

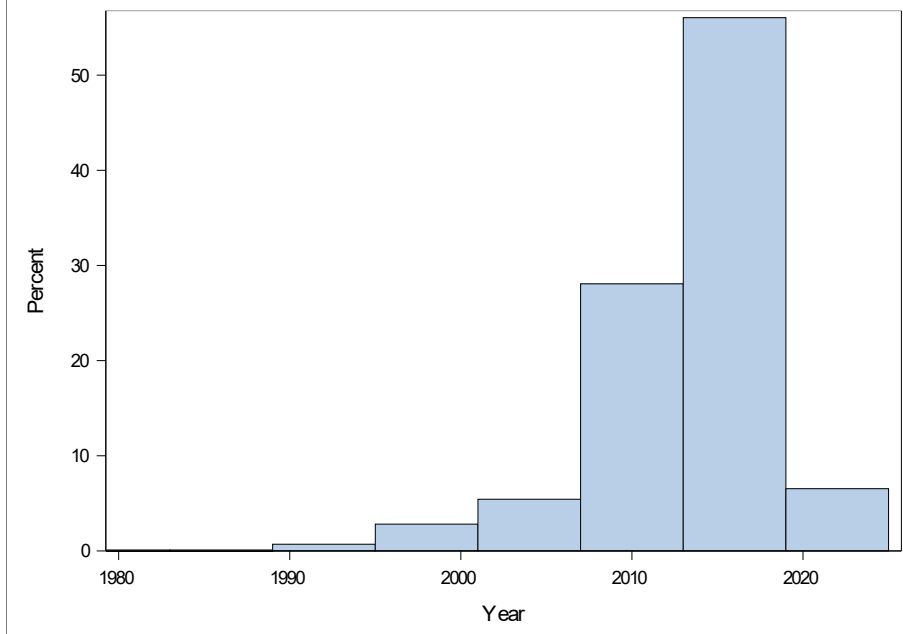
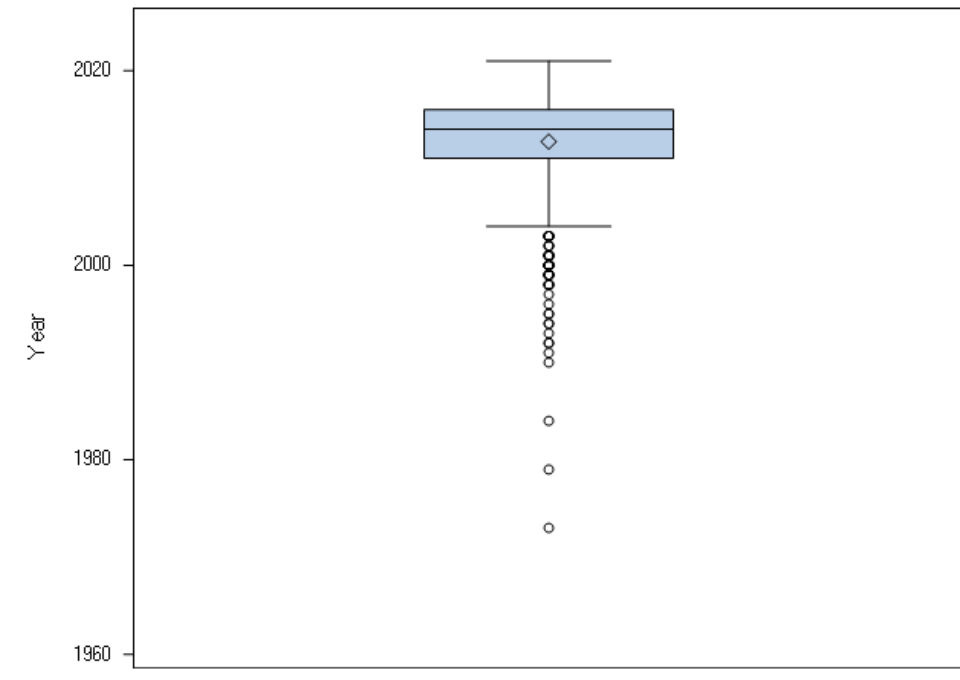


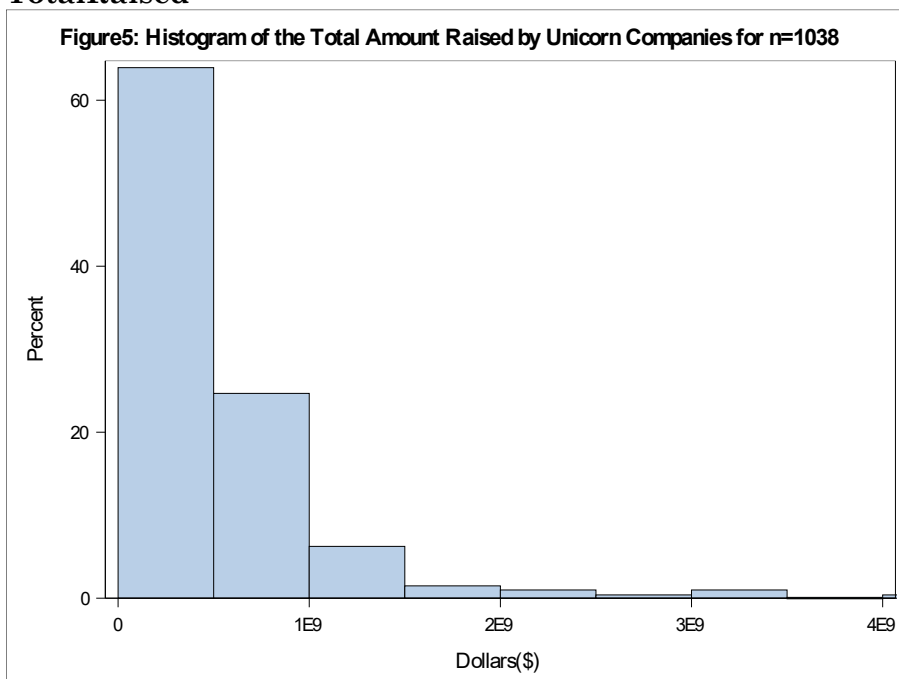
Figure 4: Boxplot Of the Founded Year of Unicorn Companies for n=1038

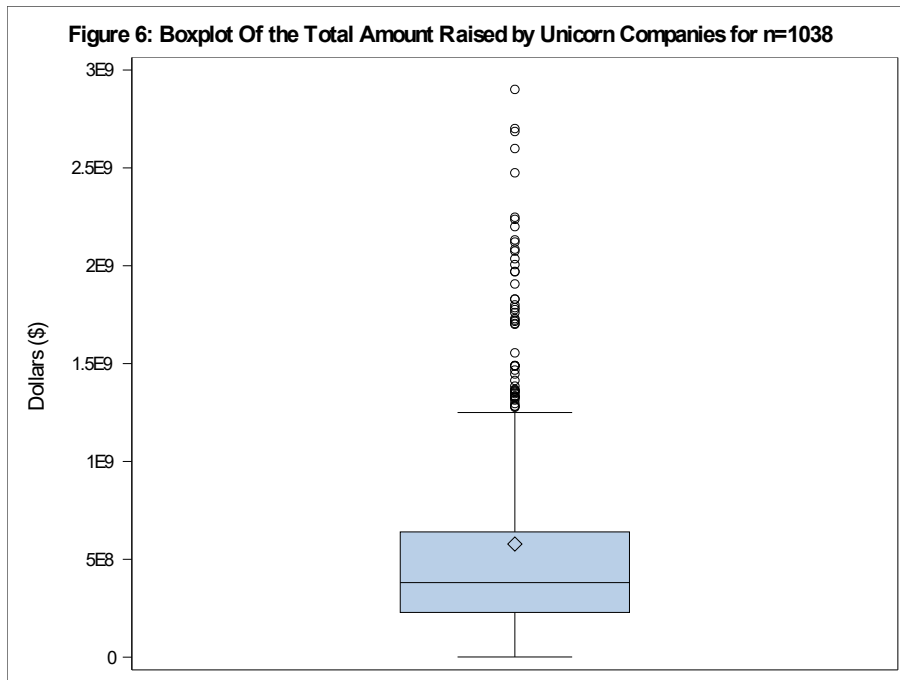


***NOTE: Some of the outliers have been left out of graphics in order to show the bulk of the data.

For the founded year of unicorn companies around the world, the median is the best representation of central tendency since the data is severely skewed left and unimodal. The median valuation of unicorn companies is 2014. Because there are many outliers in the founded year data, the IQR of 5 is the best representation of dispersion.

c. TotalRaised





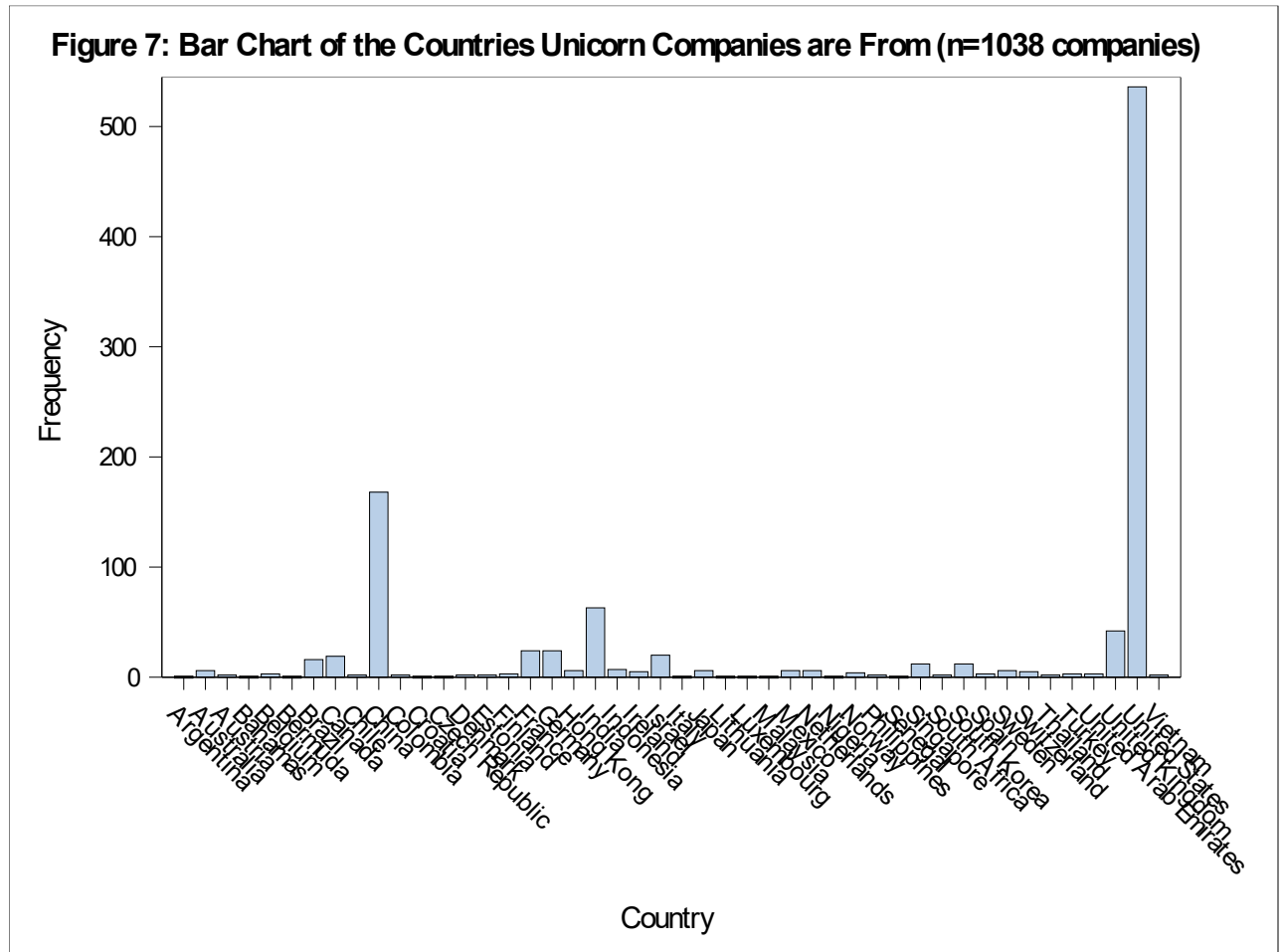
***NOTE: Some of the outliers have been left out of graphics in order to show the bulk of the data.

For the total amount raised by unicorn companies around the world, the median is the best representation of central tendency since the data is severely skewed right and unimodal. The median total amount raised by unicorn companies is \$381M. Because there are many outliers in the valuation data, the IQR of \$411,420,000 is the best representation of dispersion.

Univariate Categorical Analysis:

2. a. Table 3: Frequency Table of Country a Unicorn Company is from (n=1038)

Country	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Argentina	1	0.10	1	0.10
Australia	6	0.58	7	0.68
Austria	2	0.19	9	0.87
Bahamas	1	0.10	10	0.96
Belgium	3	0.29	13	1.25
Bermuda	1	0.10	14	1.35
Brazil	16	1.54	30	2.89
Canada	19	1.83	49	4.73
Chile	2	0.19	51	4.92
China	168	16.20	219	21.12
Colombia	2	0.19	221	21.31
Croatia	1	0.10	222	21.41
Czech Republic	1	0.10	223	21.50
Denmark	2	0.19	225	21.70
Estonia	2	0.19	227	21.89
Finland	3	0.29	230	22.18
France	24	2.31	254	24.49
Germany	24	2.31	278	26.81
Hong Kong	6	0.58	284	27.39
India	63	6.08	347	33.46
Indonesia	7	0.68	354	34.14
Ireland	5	0.48	359	34.62
Israel	20	1.93	379	36.55
Italy	1	0.10	380	36.64
Japan	6	0.58	386	37.22
Lithuania	1	0.10	387	37.32
Luxembourg	1	0.10	388	37.42
Malaysia	1	0.10	389	37.51
Mexico	6	0.58	395	38.09
Netherlands	6	0.58	401	38.67
Nigeria	1	0.10	402	38.77
Norway	4	0.39	406	39.15
Philippines	2	0.19	408	39.34
Senegal	1	0.10	409	39.44
Singapore	12	1.16	421	40.60
South Africa	2	0.19	423	40.79
South Korea	12	1.16	435	41.95
Spain	3	0.29	438	42.24



For unicorn companies around the world, the distribution of countries each company is from is unequally distributed. We observe a significant mode being from the United States and a the second most significant mode being from China.

b. Table 4: Frequency Table of Industry of a Unicorn Company (n=1038)

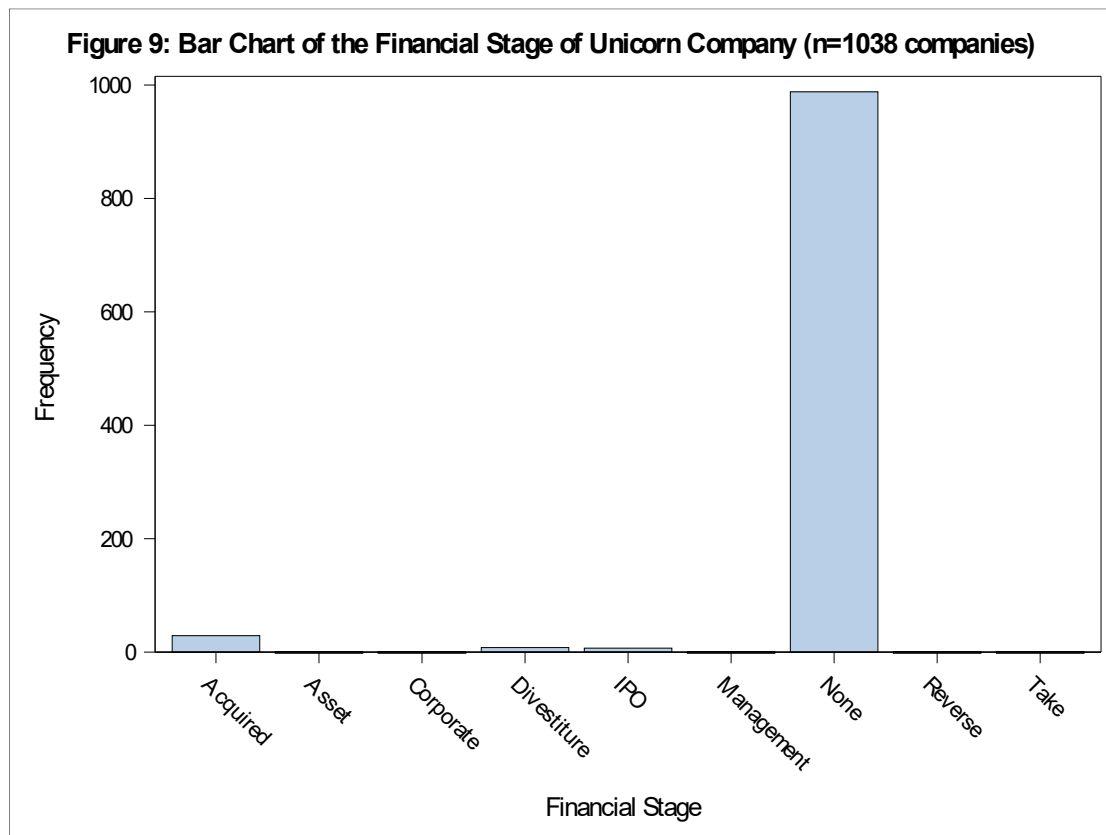
Industry	Frequency	Percent	Cumulative Frequency	Cumulative Percent
500 Global, Rakuten Ventures, Golden Gate Ventures	1	0.10	1	0.10
Andreessen Horowitz, DST Global, IDG Capital	1	0.10	2	0.19
Artificial Intelligence	78	7.52	80	7.71
Auto & transportation	29	2.80	109	10.51
B Capital Group, Monk's Hill Ventures, Dynamic Parcel Distribution	1	0.10	110	10.61
Consumer & retail	25	2.41	135	13.02
Cybersecurity	49	4.73	184	17.74
Data management & analytics	41	3.95	225	21.70
Dragonfly Capital, Qiming Venture Partners, DST Global	1	0.10	226	21.79
E-commerce & direct-to-consumer	107	10.32	333	32.11
Edtech	28	2.70	361	34.81
Fintech	206	19.86	567	54.68
Hardware	33	3.18	600	57.86
Health	69	6.65	669	64.51
Hopu Investment Management, Boyu Capital, DC Thomson Ventures	1	0.10	670	64.61
Internet software & services	192	18.51	862	83.12
Jungle Ventures, Accel, Venture Highway	1	0.10	863	83.22
Kuang-Chi	1	0.10	864	83.32
Mobile & telecommunications	37	3.57	901	86.89
Mundi Ventures, Doqing Capital Partners, Activant Capital	1	0.10	902	86.98
Other	56	5.40	958	92.38
Sequoia Capital China, ING, Alibaba Entrepreneurs Fund	1	0.10	959	92.48
Sequoia Capital China, Shunwei Capital Partners, Qualgro	1	0.10	960	92.57
Sequoia Capital, Thoma Bravo, Softbank	1	0.10	961	92.67
SingTel Innov8, Alpha JWC Ventures, Golden Gate Ventures	1	0.10	962	92.77
Supply chain, logistics, & delivery	57	5.50	1019	98.26
Temasek, Guggenheim Investments, Qatar Investment Authority	1	0.10	1020	98.36
Tiger Global Management, Tiger Brokers, DCM Ventures	1	0.10	1021	98.46
Travel	14	1.35	1035	99.81
Vertex Ventures SE Asia, Global Founders Capital, Visa Ventures	1	0.10	1036	99.90
Vision Plus Capital, GSR Ventures, ZhenFund	1	0.10	1037	100.00

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c.

Table 5: Frequency Table of the Financial Stage of a Unicorn Company (n=1038)

FinancialStage	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Acquired	29	2.80	29	2.80
Asset	1	0.10	30	2.89
Corporate	1	0.10	31	2.99
Divestiture	8	0.77	39	3.76
IPO	7	0.68	46	4.44
Management	1	0.10	47	4.53
None	988	95.27	1035	99.81
Reverse	1	0.10	1036	99.90
Take	1	0.10	1037	100.00



For unicorn companies around the world, the distribution of the financial stage each company has acquired is unequally distributed. Although much of the companies have not listed a financial stage they are under, we see a mode in acquired.

Bivariate Analysis 2 Categorical:

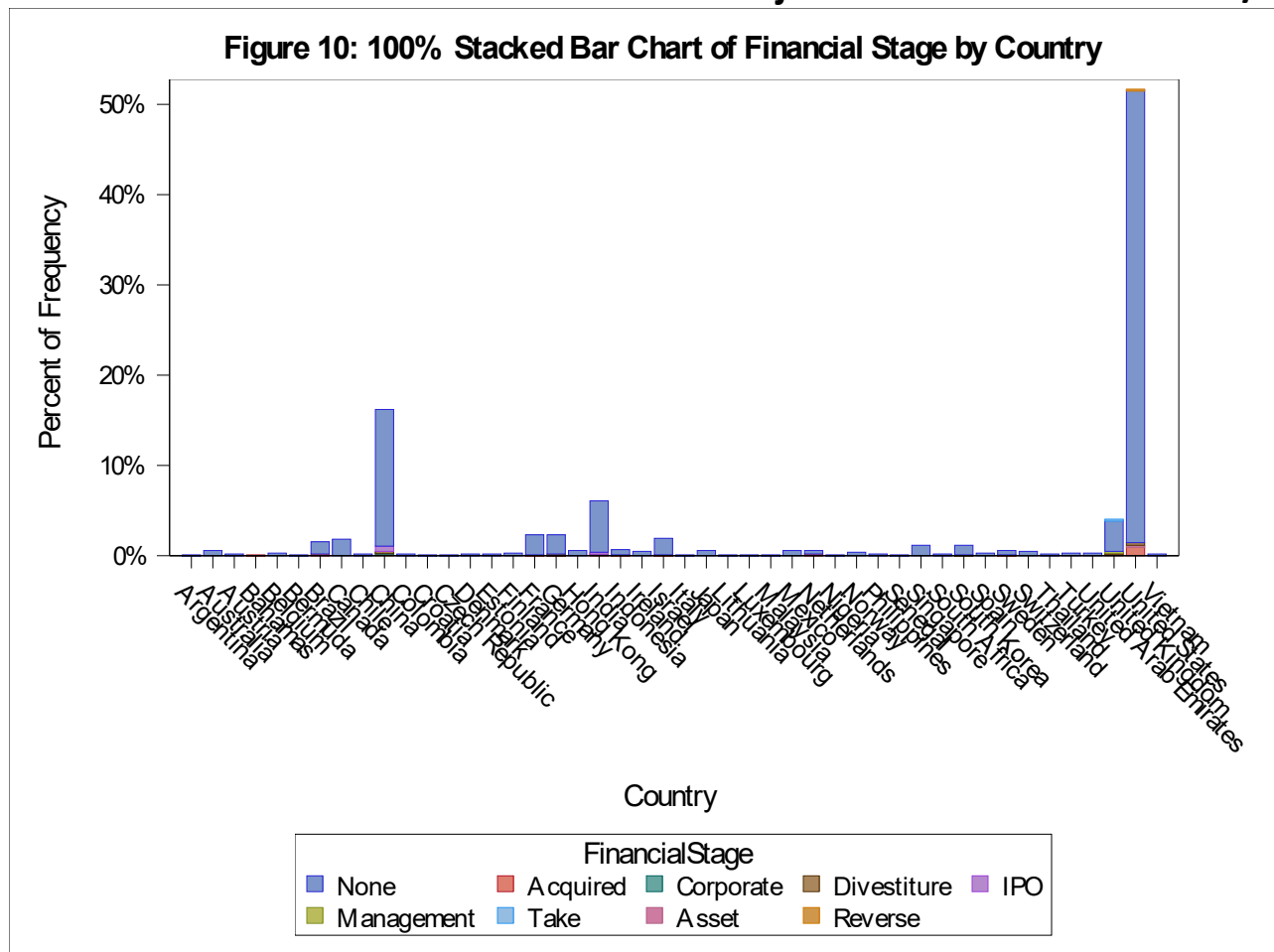
a. Table 6: Contingency Table of Country by Financial Stage

Country	FinancialStage									
Frequency Percent Row Pct Col Pct	Acquired	Asset	Corporate	Divestiture	IPO	Management	None	Reverse	Take	Total
Argentina	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 100.00 0.10	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10
Australia	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	6 0.58 100.00 0.61	0 0.00 0.00 0.00	0 0.00 0.00 0.00	6 0.58
Austria	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19 100.00 0.20	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19
Bahamas	1 0.10 100.00 3.45	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10
Belgium	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	3 0.29 100.00 0.30	0 0.00 0.00 0.00	0 0.00 0.00 0.00	3 0.29
Bermuda	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 100.00 0.10	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10
Brazil	2 0.19 12.50 6.90	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	14 1.35 87.50 1.42	0 0.00 0.00 0.00	0 0.00 0.00 0.00	16 1.54
Canada	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	19 1.83 100.00 1.92	0 0.00 0.00 0.00	0 0.00 0.00 0.00	19 1.83
Chile	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19 100.00 0.20	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19
China	3 0.29 1.79 10.34	0 0.00 0.00 0.00	1 0.10 0.60 100.00	1 0.10 0.60 12.50	6 0.58 3.57 85.71	0 0.00 0.00 0.00	157 15.14 93.45 15.89	0 0.00 0.00 0.00	0 0.00 0.00 0.00	168 16.20
Colombia	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19 100.00 0.20	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19

Croatia	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 100.00 0.10	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10
Czech Republic	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 100.00 0.10	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10
Denmark	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19 100.00 0.20	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19
Estonia	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19 100.00 0.20	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19
Finland	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	3 0.29 100.00 0.30	0 0.00 0.00 0.00	0 0.00 0.00 0.00	3 0.29
France	1 0.10 4.17 3.45	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	23 2.22 95.83 2.33	0 0.00 0.00 0.00	0 0.00 0.00 0.00	24 2.31
Germany	1 0.10 4.17 3.45	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 4.17 12.50	0 0.00 0.00 0.00	0 0.00 0.00 0.00	22 2.12 91.67 2.23	0 0.00 0.00 0.00	0 0.00 0.00 0.00	24 2.31
Hong Kong	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	6 0.58 100.00 0.61	0 0.00 0.00 0.00	0 0.00 0.00 0.00	6 0.58
India	2 0.19 3.17 6.90	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 1.59 12.50	1 0.10 1.59 14.29	0 0.00 0.00 0.00	59 5.69 93.65 5.97	0 0.00 0.00 0.00	0 0.00 0.00 0.00	63 6.08
Indonesia	1 0.10 14.29 3.45	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	6 0.58 85.71 0.61	0 0.00 0.00 0.00	0 0.00 0.00 0.00	7 0.68
Ireland	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	5 0.48 100.00 0.51	0 0.00 0.00 0.00	0 0.00 0.00 0.00	5 0.48

Israel	1 0.10 5.00 3.45	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	19 1.83 95.00 1.92	0 0.00 0.00 0.00	0 0.00 0.00 0.00	20 1.93
Italy	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 100.00 0.10	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10
Japan	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	6 0.58 100.00 0.61	0 0.00 0.00 0.00	0 0.00 0.00 0.00	6 0.58
Lithuania	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 100.00 0.10	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10
Luxembourg	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 100.00 0.10	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10
Malaysia	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 100.00 0.10	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10
Mexico	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	6 0.58 100.00 0.61	0 0.00 0.00 0.00	0 0.00 0.00 0.00	6 0.58
Netherlands	2 0.19 33.33 6.90	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	4 0.39 66.67 0.40	0 0.00 0.00 0.00	0 0.00 0.00 0.00	6 0.58
Nigeria	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 100.00 0.10	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10
Norway	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	4 0.39 100.00 0.40	0 0.00 0.00 0.00	0 0.00 0.00 0.00	4 0.39
Philippines	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19 100.00 0.20	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19

Senegal	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 100.00 0.10	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10
Singapore	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	12 1.16 100.00 1.21	0 0.00 0.00 0.00	0 0.00 0.00 0.00	12 1.16
South Africa	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19 100.00 0.20	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19
South Korea	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 8.33 12.50	0 0.00 0.00 0.00	0 0.00 0.00 0.00	11 1.06 91.67 1.11	0 0.00 0.00 0.00	0 0.00 0.00 0.00	12 1.16
Spain	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	3 0.29 100.00 0.30	0 0.00 0.00 0.00	0 0.00 0.00 0.00	3 0.29
Sweden	1 0.10 16.67 3.45	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	5 0.48 83.33 0.51	0 0.00 0.00 0.00	0 0.00 0.00 0.00	6 0.58
Switzerland	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	5 0.48 100.00 0.51	0 0.00 0.00 0.00	0 0.00 0.00 0.00	5 0.48
Thailand	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19 100.00 0.20	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19
Turkey	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	3 0.29 100.00 0.30	0 0.00 0.00 0.00	0 0.00 0.00 0.00	3 0.29
United Arab Emirates	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	3 0.29 100.00 0.30	0 0.00 0.00 0.00	0 0.00 0.00 0.00	3 0.29
United Kingdom	3 0.29 7.14 10.34	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.10 2.38 12.50	0 0.00 0.00 0.00	1 0.10 2.38 100.00	36 3.47 85.71 3.64	0 0.00 0.00 0.00	1 0.10 2.38 100.00	42 4.05
United States	11 1.06 2.05 37.93	1 0.10 0.19 100.00	0 0.00 0.00 0.00	3 0.29 0.56 37.50	0 0.00 0.00 0.00	0 0.00 0.00 0.00	520 50.14 97.01 52.63	1 0.10 0.19 100.00	0 0.00 0.00 0.00	536 51.69
Vietnam	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19 100.00 0.20	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.19
Total	29 2.80	1 0.10	1 0.10	8 0.77	7 0.68	1 0.10	988 95.27	1 0.10	1 0.10	1037 100.00

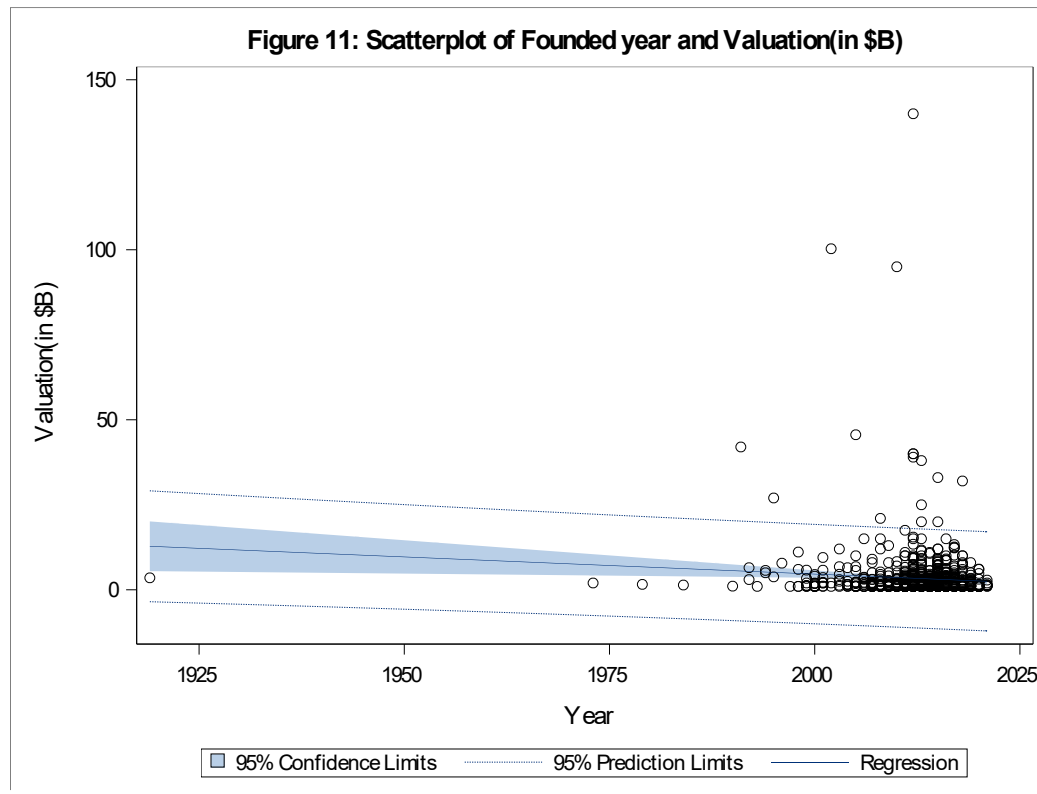


According to figure 10, we see much of the data is under “none”. Within the modes though, we see the Acquired financial stage being the next majority under the United States and the IPO financial stage being the next majority under China.

Bivariate Analysis 2 Quant:

a. Table 7: Table showing correlation coefficient

Pearson Correlation Coefficients Prob > r under H0: Rho=0 Number of Observations		
	FoundedYear	valuation
FoundedYear	1.00000 994	-0.08058 0.0110 994
valuation	-0.08058 0.0110 994	1.00000 1037



b.

According to table 7, there is a correlation coefficient of -0.08. This tells us that there is a weak negative correlation between the founded year and a unicorn company's valuation. In figure 11, we can more clearly see this relationship as the line of best fit is only slightly declining. We see the majority of the valuation data being near the years that are more recent times.

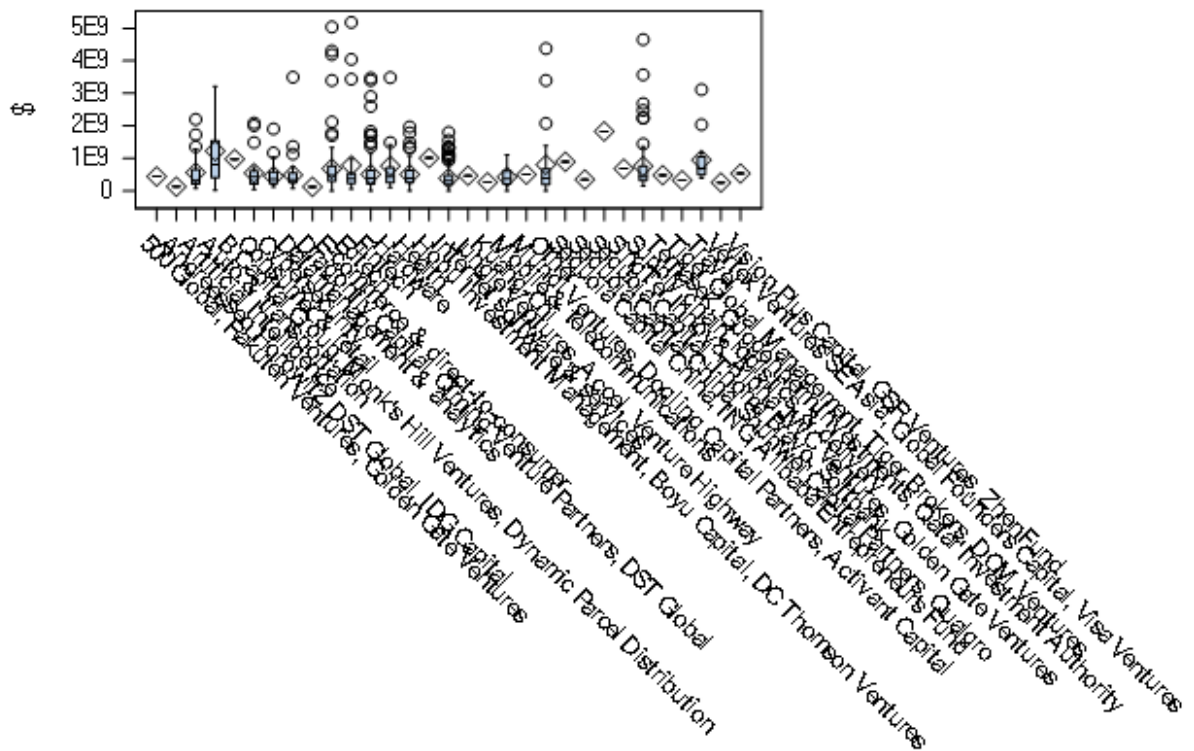
Bivariate Analysis 1 Cat 1 Quant:

c. Table 8: Stratified Table of Descriptive Statistics

Analysis Variable : TotalRaisedAmt							
Industry	N Obs	Mean	Std Dev	Maximum	Lower Quartile	Median	Upper Quartile
500 Global, Rakuten Ventures, Golden Gate Ventures	1	443000000.00	.	443000000.00	443000000.00	443000000.00	443000000.00
Andreessen Horowitz, DST Global, IDG Capital	1	131460000.00	.	131460000.00	131460000.00	131460000.00	131460000.00
Artificial Intelligence	78	565720394.74	898552963.84	7440000000.0	209005000.00	314785000.00	654315000.00
Auto & transportation	29	1227965000.0	1288641671.0	5987000000.0	402335000.00	805645000.00	1547000000.0
B Capital Group, Monk's Hill Ventures, Dynamic Parcel Distribution	1	976500000.00	.	976500000.00	976500000.00	976500000.00	976500000.00
Consumer & retail	25	549470833.33	556148977.69	2085000000.0	208990000.00	434565000.00	609420000.00
Cybersecurity	49	456191836.73	330177497.33	1907000000.0	228000000.00	364200000.00	583000000.00
Data management & analytics	41	487220512.82	556982132.18	3497000000.0	260350000.00	345500000.00	553000000.00
Dragonfly Capital, Qiming Venture Partners, DST Global	1	126550000.00	.	126550000.00	126550000.00	126550000.00	126550000.00
E-commerce & direct-to-consumer	107	687389813.08	803134890.05	5040000000.0	293610000.00	476000000.00	766700000.00
Edtech	28	786432857.14	1253927644.4	5183000000.0	231655000.00	381210000.00	537480000.00
Fintech	206	509789441.62	509220115.42	3472000000.0	217300000.00	383410000.00	625150000.00
Hardware	33	769556060.61	1167932370.0	6255000000.0	250830000.00	433610000.00	718000000.00
Health	69	509153030.30	399839484.84	1969000000.0	256060000.00	387010000.00	627800000.00
Hopu Investment Management, Boyu Capital, DC Thomson Ventures	1	1013000000.0	.	1013000000.0	1013000000.0	1013000000.0	1013000000.0
Internet software & services	192	388581170.21	292391678.20	1800000000.0	197740000.00	317215000.00	481070000.00
Jungle Ventures, Accel, Venture Highway	1	470710000.00	.	470710000.00	470710000.00	470710000.00	470710000.00
Kuang-Chi	1	263120000.00	.	263120000.00	263120000.00	263120000.00	263120000.00
Mobile & telecommunications	37	430921142.86	291366702.66	1100000000.0	216070000.00	368600000.00	614490000.00
Mundi Ventures, Doqing Capital Partners, Activant Capital	1	502200000.00	.	502200000.00	502200000.00	502200000.00	502200000.00
Other	56	808624814.81	1366076297.8	6874000000.0	190000000.00	395200000.00	678350000.00
Sequoia Capital China, ING, Alibaba Entrepreneurs Fund	1	896000000.00	.	896000000.00	896000000.00	896000000.00	896000000.00
Sequoia Capital China, Shunwei Capital Partners, Qualgro	1	352320000.00	.	352320000.00	352320000.00	352320000.00	352320000.00
Sequoia Capital, Thoma Bravo, Softbank	1	1829000000.0	.	1829000000.0	1829000000.0	1829000000.0	1829000000.0
SingTel Innov8, Alpha JWC Ventures, Golden Gate Ventures	1	684520000.00	.	684520000.00	684520000.00	684520000.00	684520000.00
Supply chain, logistics, & delivery	57	762031272.73	879483412.28	4653000000.0	319890000.00	433610000.00	769860000.00

Temasek, Guggenheim Investments, Qatar Investment Authority	1	486000000.00	.	486000000.00	486000000.00	486000000.00	486000000.00
Tiger Global Management, Tiger Brokers, DCM Ventures	1	328000000.00	.	328000000.00	328000000.00	328000000.00	328000000.00
Travel	14	951552857.14	754749781.35	3114000000.0	5000000000.00	694285000.00	1040000000.0
Vertex Ventures SE Asia, Global Founders Capital, Visa Ventures	1	259100000.00	.	259100000.00	259100000.00	259100000.00	259100000.00
Vision Plus Capital, GSR Ventures, ZhenFund	1	536000000.00	.	536000000.00	536000000.00	536000000.00	536000000.00

Figure 12 Side By Side BoxPlots of Total Amount Raised By Industry



d.

Industry

According to table 8 and figure 12, we can see that more technology companies have more total amount raised. Specifically, I want to highlight that artificial intelligence has the maximum total amount raised. I believe this is because artificial intelligence is one of those industries that everyone wants to progress as it can unlock tons of possibilities for humans.

Variable Creation:

Using the FoundedYear variable, I created a categorical variable named CatFoundedYear.

The year can be nice as a categorical variable as we can create meaningful intervals of time. I decided to cut the FoundedYear variable into:

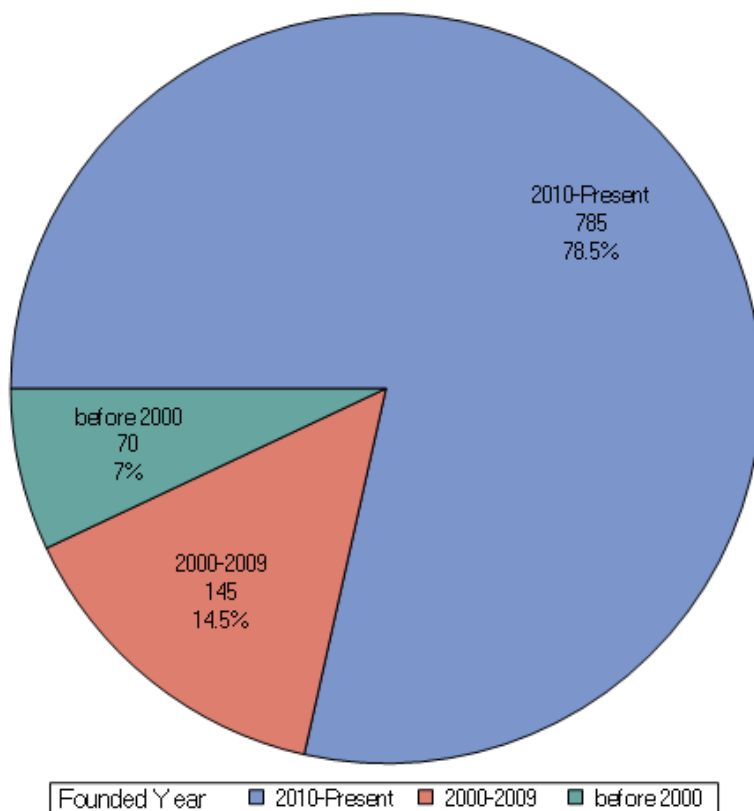
- e. The years before 2000
- f. The years between 2000-2009
- g. The years 2010 and after

a.

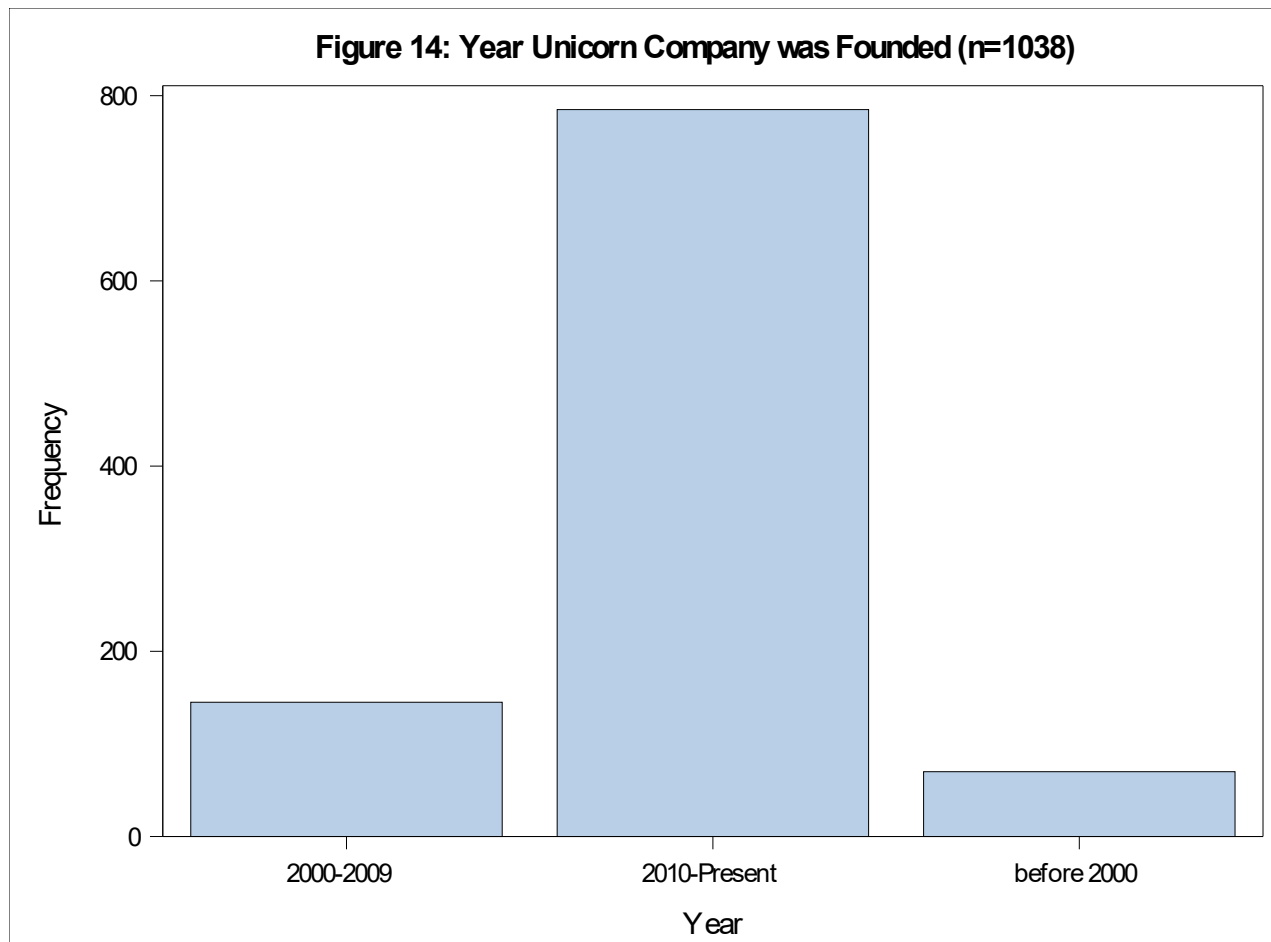
Table 9: Frequency Table of The Year Each Unicorn Company was Founded (n=1038)

CatFoundedYear	Frequency	Percent	Cumulative Frequency	Cumulative Percent
2000-2009	145	14.50	145	14.50
2010-Present	785	78.50	930	93.00
before 2000	70	7.00	1000	100.00
Frequency Missing = 37				

b. **Figure 13: Year Unicorn Company was Founded (n=1038)**



c.



Conclusion:

Through this analysis it has been interesting to find exactly what qualities a unicorn company may have. Through the bivariate analysis, there was not much correlation that we saw, but even that shows us that things are not as we think.

For future research, I would like to see more involvement with the unicorn companies in the research as there are many missing values for each category. I also think it would have been interesting to see which industries may have similar types of investors.

Appendix:

```

SAS® Studio

rsander_SASproject1.sas x
CODE LOG RESULTS OUTPUT DATA
Line #
1 %web_drop_table(WORK.Unicorn_Companies);
2
3
4 FILENAME REFFILE '/home/u62685438/sasuser.v94/data/Unicorn_Companies.csv';
5
6 PROC IMPORT DATAFILE=REFFILE
7   DBMS=CSV
8   OUT=WORK.Unicorn_Companies;
9   GETNAMES=YES;
10  GUESSINGROWS=MAX;
11 RUN;
12
13 PROC CONTENTS DATA=WORK.Unicorn_Companies; RUN;
14
15
16 %web_open_table(WORK.Unicorn_Companies);
17
18 /*Renaming Variable Names*/
19 Data STAT3010.Unicorn_Companies;
20   set WORK.Unicorn_Companies;
21   rename
22     'Valuation ($B)'n=valuation
23     'Select Inverstors'n=SelectInvestors
24     'Date Joined'n=DateJoined
25     'Founded Year'n=FoundedYear
26     'Total Raised'n=TotalRaised
27     'Financial Stage'n=FinancialStage
28     'Investors Count'n=InvestorsCount
29     'Deal Terms'n=DealTerms
30     'Portfolio Exits'n=PortfolioExits
31   ;
32 Run;
33
34
35 /*Recoding within variables to fix typos within data*/
36
37 Proc Format;
38   Value $SFMT 'Acq' = 'Acquired';
39   Value $IFMT 'Finttech' = 'Fintech';
40   Value $IFMT 'Artificial intelligence' = 'Artificial Intelligence';
41 Run; quit;
42
43
44 data stat3010.Unicorn_Companies;
45   set stat3010.unicorn_companies;
46   Format FinancialStage $SFMT. Industry $IFMT.;
47 run;
48
49 Proc Print data=STAT3010.Unicorn_Companies(obs=10);
50 Run;
51
52 ODS RTF file='/home/u62685438/sasuser.v94/output/sampleddata.rtf';
53 Proc Print data=stat3010.Unicorn_Companies;
54 Run;
55 ODS RTF Close;
56

```

```

57
58 /*****3) Perform a univariate analysis for each of the 5 variables*****/
59
60 ***a. For Quantitative Variables:***
61 *i. Table of Descriptive Statistics;
62 ODS RTF file = '/home/u62685438/sasuser.v94/output/QuantGraphics.rtf';
63 proc means data=stat3010.unicorn_companies() mean std max q1 median q3 min maxdec=2;
64     title1 'Table 2: Descriptive Statistics for Quantitative Variables';
65     var valuation FoundedYear TotalRaisedAmt;
66 run;
67
68 *ii.Histogram;
69 *Valuation;
70 Title "Figure1: Histogram of the Valuation (in $B) of Unicorn Companies for n=1038";
71 Proc sgplot data=stat3010.unicorn_companies;
72     histogram valuation;
73     Xaxis label= "Valuation (in $B)" valueshint max=50 ;
74 Run;
75 Title;
76
77 *FoundedYear;
78 Title "Figure3: Histogram of the Founded Year of Unicorn Companies for n=1038";
79 Proc sgplot data=stat3010.unicorn_companies;
80     histogram FoundedYear;
81     Xaxis label= "Year" valueshint min=1980 max=2025 ;
82 Run;
83 Title;
84
85 *TotalRaised;
86 Title "Figure5: Histogram of the Total Amount Raised by Unicorn Companies for n=1038";
87 Proc sgplot data=stat3010.unicorn_companies;
88     histogram TotalRaisedAmt;
89     Xaxis label= "Dollars($)" valueshint min=0 max=4E9 ;
90 Run;
91 Title;
92
93 *iii. Boxplot;
94 *Valuation;
95 Proc sgplot data = stat3010.unicorn_companies;
96     title1 'Figure 2: Boxplot Of Valuation (in $B) of Unicorn Companies For n=1038';
97     vbox valuation;
98     yaxis label = 'Valuation (In $B)' valueshint min=0 max=8;
99 Run;
100
101 *FoundedYear;
102 Proc sgplot data = stat3010.unicorn_companies;
103     title1 'Figure 4: Boxplot Of the Founded Year of Unicorn Companies for n=1038';
104     vbox FoundedYear;
105     yaxis label = 'Year' valueshint min=1960 max=2025;
106 Run;
107
108 *TotalRaised;
109 Proc sgplot data = stat3010.unicorn_companies;
110     title1 'Figure 6: Boxplot Of the Total Amount Raised by Unicorn Companies for n=1038';
111     vbox TotalRaisedAmt;
112     yaxis label = 'Dollars ($)' valueshint min=12 max=3E9;
113 Run;
114 ODS RTF Close;
115
116
117 ***b. For Categorical Variables:***
118 *i. Frequency Table;
119 ODS RTF file = '/home/u62685438/sasuser.v94/output/CatGraphics.rtf';
120 Proc Freq data = stat3010.Unicorn_Companies;
121     Tables Country Industry FinancialStage;
122 Run;
123

```



```

124 *ii. Pie Chart (if no more than 8 categories);
125 *iii. Bar Chart;
126 *Country;
127 Proc sgplot data=stat3010.unicorn_companies;
128     title 'Figure 7: Bar Chart of the Countries Unicorn Companies are From (n=1038 companies)';
129     vbar Country;
130     xaxis label = 'Country';
131 Run;
132
133 *Industry;
134 Proc sgplot data=stat3010.unicorn_companies;
135     title 'Figure 8: Bar Chart of the Industry of Unicorn Company (n=1038 companies)';
136     vbar Industry;
137     xaxis label = 'Industry';
138 Run;
139
140 *FinancialStage;
141 Proc sgplot data=stat3010.unicorn_companies;
142     title 'Figure 9: Bar Chart of the Financial Stage of Unicorn Company (n=1038 companies)';
143     vbar FinancialStage;
144     xaxis label = 'Financial Stage';
145 Run;
146 ODS RTF Close;
147
148 /*****4) Create a new categorical variable from one of the original quantitative variables*****/
149
150 ***Generate new Variable***
151 Data stat3010.Unicorn1;
152     Set stat3010.unicorn_companies;
153     If FoundedYear < 2000 Then CatFoundedYear = 'before 2000 ';
154     Else if foundedyear=>2000 and foundedyear<=2009 then catfoundedyear = '2000-2009';
155     else if foundedyear > 2010 then catfoundedyear = '2010-Present';
156 Run;
157
158 *a. Frequency Table;
159 ODS RTF file = '/home/u62685438/sasuser.v94/output/NewVariable.rtf';
160 Proc freq data=stat3010.unicorn1;
161     tables catfoundedyear;
162 Run;
163
164 *b. Pie Chart (if no more than 8 categories);
165 Title "Figure 13: Year Unicorn Company was Founded (n=1038)";
166 Proc Template;
167     Define Statgraph pie;
168         BeginGraph;
169             Layout Region;
170                 Piechart Category = CatFoundedYear /
171                     DataLabelLocation = Inside
172                     DataLabelContent = All
173                     CategoryDirection = clockwise
174                     start = 180 name = 'pie';
175                 DiscreteLegend 'pie' /
176                     title = 'Founded Year';
177             Endlayout;
178         Endgraph;
179     end;
180 Run;
181
182 Proc SGRender data = stat3010.unicorn1
183     template = pie;
184 Run;
185 title;
186
187

```

```

187
188 *c. Bar Chart;
189 Proc sgplot data=stat3010.unicorn1;
190     title 'Figure 14: Year Unicorn Company was Founded (n=1038)';
191     vbar CatFoundedYear;
192     xaxis label = 'Year';
193 Run;
194 ODS RTF Close;
195
196
197 /*****5) Perform 3 bivariate analyses to assess a possible relationship
198 ODS RTF file = '/home/u62685438/sasuser.v94/output/Bivariate.rtf';
199 *** You need to analyze 2 categorical variables together***
200 *a. Begin each analysis by stating the research hypothesis. This is a hypothesis
201 *b. Indicate which variable is the explanatory variable & which is the response
202 *c. Provide a bivariate table of statistics to support your analysis.
203 *i. For the 2 categorical analysis, this is a row percent contingency table
204 Proc Sort data=stat3010.unicorn_companies;
205     by Country;
206 Run;
207
208 Proc Freq data=stat3010.unicorn_companies;
209     tables Country*financialstage;
210 run;
211
212 *d. Provide 1 visualization to support your analysis. Be mindful of which variable
213 *i. For the 2 categorical analysis, this is a 100% Stacked Bar Chart.;
214 title1 'Figure 10: 100% Stacked Bar Chart of Financial Stage by Country';
215 proc sgplot data = stat3010.unicorn_companies;
216     vbar Country / group=financialstage stat=pct seglabel;
217 run;
218 title;
219
220
221 ***2 quantitative variables together***
222 *a. Begin each analysis by stating the research hypothesis. This is a hypothesis
223 *b. Indicate which variable is the explanatory variable & which is the response
224 *c. Provide a bivariate table of statistics to support your analysis.
225 *ii. For the 2 quantitative analysis, this is a correlation coefficient (or scatterplot)
226 Proc Corr data=stat3010.unicorn_companies;
227     var FoundedYear Valuation;
228 run;
229
230 *d. Provide 1 visualization to support your analysis. Be mindful of which variable should
231 *ii. For the 2 quantitative analysis, this is a Scatterplot.;
232 proc sgplot data=stat3010.unicorn_companies;
233     Title 'Figure 11: Scatterplot of Founded year and Valuation(in $B)';
234     reg x = FoundedYear y= Valuation / CLM CLI;
235     xaxis label = 'Year';
236     yaxis label = 'Valuation(in $B)';
237 run;
238
239
240 ***1 categorical and 1 quantitative variable together***
241 *a. Begin each analysis by stating the research hypothesis. This is a hypothesis on the
242 *b. Indicate which variable is the explanatory variable & which is the response variable
243 *c. Provide a bivariate table of statistics to support your analysis.
244 *iii. For the 1 quantitative and 1 categorical analysis, this is a stratified table of
245 Proc Means data=stat3010.unicorn_companies Mean STD Max Q1 Median Q3 Min maxdec=2;
246     var TotalRaisedAmt;
247     Class Industry;
248 Run;
249

```

```
249  
250 *d. Provide 1 visualization to support your analysis. Be mindful of which var  
251 *iii. For the 1 quantitative and 1 categorical analysis, this is a Side-by-  
252 Proc sgplot data=stat3010.unicorn_companies;  
253     Title1 'Figure 12: Side By Side BoxPlots of Total Amount Raised';  
254     Title2 'By Industry';  
255     vbox TotalRaisedAmt / category=industry;  
256     yaxis label = '$' valueshint min=0 max=5E9;  
257 Run;  
258 ODS RTF Close;  
259
```