



Unveiling sales insights for TechieWorld Superstore's strategic decisions

Rajashree Hajare

Project Outline

- **TechieWorld Superstore** is an imaginary company providing office essentials to people of United States
- The company began in 2010 and since then it has been aggressively advertising to reach its target sales
- However, there has been not significant rise in the profit.
- **Situation:** TechieWorld team comes to our company's data analyst team for support in expand their business.
- **Problem statement:** Dive deep into 4-year sales history dataset and share the insights to help expand their business strategically.



How the original data looked...

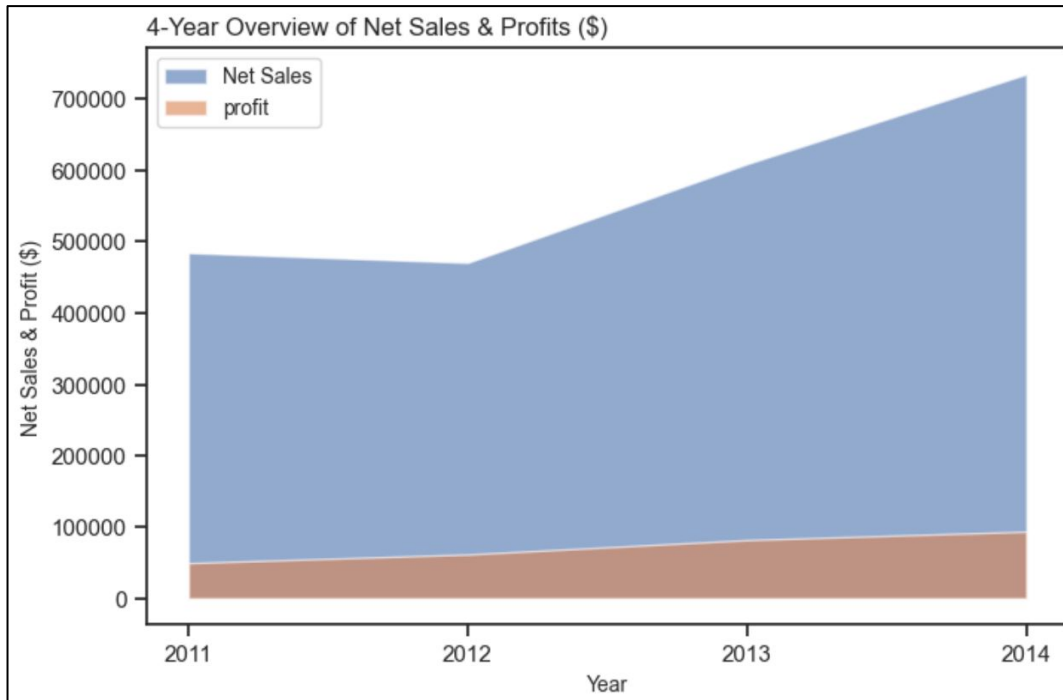
country	customer_id	customer_name	discount	market	ji_lu_shu	order_date	order_id	order_priority	product_id	product_name
United Stat	LS-172304	Lycoris Saunders	0	US	1	2011-01-07T00:00:00	CA-2011-130813	High	OFF-PA-10002	Xerox 225
United Stat	MV-174854	Mark Van Huff	0	US	1	2011-01-21T00:00:00	CA-2011-148614	Medium	OFF-PA-10002	Wirebound Service
United Stat	CS-121304	Chad Sievert	0	US	1	2011-08-05T00:00:00	CA-2011-118962	Medium	OFF-PA-10000	Adams Phone Mes
United Stat	CS-121304	Chad Sievert	0	US	1	2011-08-05T00:00:00	CA-2011-118962	Medium	OFF-PA-10001	Xerox 1913
United Stat	AP-109154	Arthur Prichep	0	US	1	2011-09-29T00:00:00	CA-2011-146969	High	OFF-PA-10002	Xerox 223
United Stat	JF-154904	Jeremy Farry	0	US	1	2011-10-19T00:00:00	CA-2011-117317	Critical	OFF-PA-10004	Spiral Phone Mess
United Stat	WB-218504	William Brown	0	US	1	2011-11-04T00:00:00	CA-2011-125829	Medium	OFF-PA-10000	Xerox 2000
United Stat	JA-159704	Joseph Airdo	0	US	1	2011-11-12T00:00:00	CA-2011-151295	High	OFF-PA-10001	Xerox 1974
United Stat	SP-209204	Susan Pistek	0	US	1	2011-11-22T00:00:00	CA-2011-135090	High	OFF-PA-10002	Xerox 1895
United Stat	RL-196154	Rob Lucas	0	US	1	2011-12-05T00:00:00	CA-2011-133830	Medium	OFF-PA-10001	Xerox 1933
United Stat	KD-163454	Katherine Ducich	0	US	1	2011-12-13T00:00:00	CA-2011-113579	High	OFF-PA-10001	White GlueTop Sc
United Stat	JM-161954	Justin MacKendrick	0	US	1	2012-02-15T00:00:00	CA-2012-116092	Medium	OFF-PA-10004	Xerox 1959
United Stat	JM-161954	Justin MacKendrick	0	US	1	2012-02-15T00:00:00	CA-2012-116092	Medium	OFF-PA-10000	Xerox 22
United Stat	RD-195854	Rob Dowd	0	US	1	2012-02-16T00:00:00	CA-2012-121776	High	OFF-PA-10001	Xerox 1881
United Stat	AB-101654	Alan Barnes	0	US	1	2012-03-28T00:00:00	CA-2012-131534	Medium	OFF-PA-10000	Xerox 1977
United Stat	AR-105404	Andy Reiter	0	US	1	2012-04-11T00:00:00	US-2012-136987	Medium	OFF-PA-10003	Staples
United Stat	LH-171554	Logan Haushalter	0	US	1	2012-06-19T00:00:00	CA-2012-121965	Medium	OFF-PA-10004	Xerox 231
United Stat	AR-105104	Andrew Roberts	0	US	1	2012-08-31T00:00:00	CA-2012-112319	High	OFF-PA-10003	Xerox 226
United Stat	NG-184304	Nathan Gelder	0	US	1	2012-11-22T00:00:00	CA-2012-137708	High	OFF-PA-10000	Xerox 1887
United Stat	NG-184304	Nathan Gelder	0	US	1	2012-11-22T00:00:00	CA-2012-137708	High	OFF-PA-10000	Xerox 1971
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United Stat	KM-167204	Kunst Miller	0	US	1	2012-11-24T00:00:00	CA-2012-135545	Medium	OFF-PA-10003	Xerox 1943
United Stat	AI-108554	Arianne Irving	0	US	1	2012-12-20T00:00:00	CA-2012-158918	Medium	OFF-PA-10004	Staples
United Stat	CL-125654	Clay Ludtke	0	US	1	2012-12-30T00:00:00	CA-2012-135580	Medium	OFF-PA-10000	Xerox 1929
United Stat	SW-202454	Scot Wooten	0	US	1	2013-03-13T00:00:00	US-2013-119270	Medium	OFF-PA-10004	Hammermill Color
United Stat	CC-122204	Chris Cortes	0	US	1	2013-03-29T00:00:00	CA-2013-131380	Critical	OFF-PA-10001	Xerox 1983
United Stat	LC-171404	Logan Currie	0	US	1	2013-04-09T00:00:00	CA-2013-130477	High	OFF-PA-10002	Xerox 1923
United Stat	LC-171404	Logan Currie	0	US	1	2013-04-09T00:00:00	CA-2013-130477	High	OFF-PA-10000	Xerox 1931
United Stat	JF-152954	Jason Fortune-	0	US	1	2013-04-13T00:00:00	CA-2013-163594	Medium	OFF-PA-10000	Xerox 206
United Stat	JO-152804	Jas O'Carroll	0	US	1	2013-04-20T00:00:00	US-2013-115819	Medium	OFF-PA-10002	Adams Telephone
United Stat	TB-216254	Trudy Brown	0	US	1	2013-05-09T00:00:00	CA-2013-111696	High	OFF-PA-10002	Xerox 1920
United Stat	TT-210704	Ted Trevino	0	US	1	2013-05-12T00:00:00	CA-2013-162733	Medium	OFF-PA-10002	Xerox 1920
United Stat	DO-134354	Denny Ordway	0	US	1	2013-05-17T00:00:00	CA-2013-133144	Medium	OFF-PA-10004	Xerox 196
United Stat	LS-172454	Lynn Smith	0	US	1	2013-05-28T00:00:00	CA-2013-136994	Medium	OFF-PA-10000	Wirebound Messa
United Stat	CL-125654	Clay Ludtke	0	US	1	2013-05-29T00:00:00	CA-2013-134803	Low	OFF-PA-10003	Xerox 1991
United Stat	OT-187304	Olvera Toch	0	US	1	2013-06-11T00:00:00	CA-2013-113243	Medium	OFF-PA-10003	Xerox 226
United Stat	BD-113204	Bill Donatelli	0	US	1	2013-06-17T00:00:00	CA-2013-148593	Medium	OFF-PA-10001	Wirebound Messa

- **Shape** : 9994 rows 26 columns
- **Data types**: object / string - 23 columns
integer - 3 columns
- Relatively **clean data** with very few blanks
- The most **challenging part** is the product_name with >1000 possible options

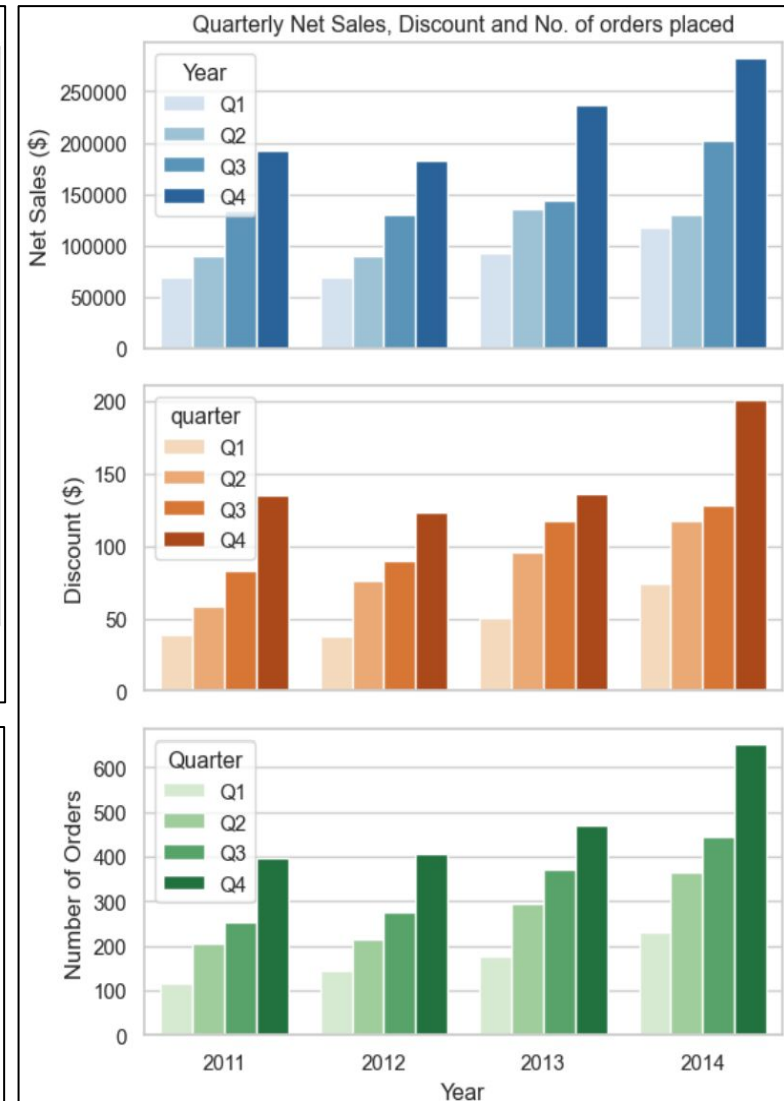
Data wrangling steps

- **Structuring data :** column rename
column rearrangement
changing order_date and shipment_date using Datetime
- **Cleaning data :** remove NaN/ missing data
removing unwanted columns
export cleaned data file to csv
- **Data verification :** confirmed and verified data using google sheets

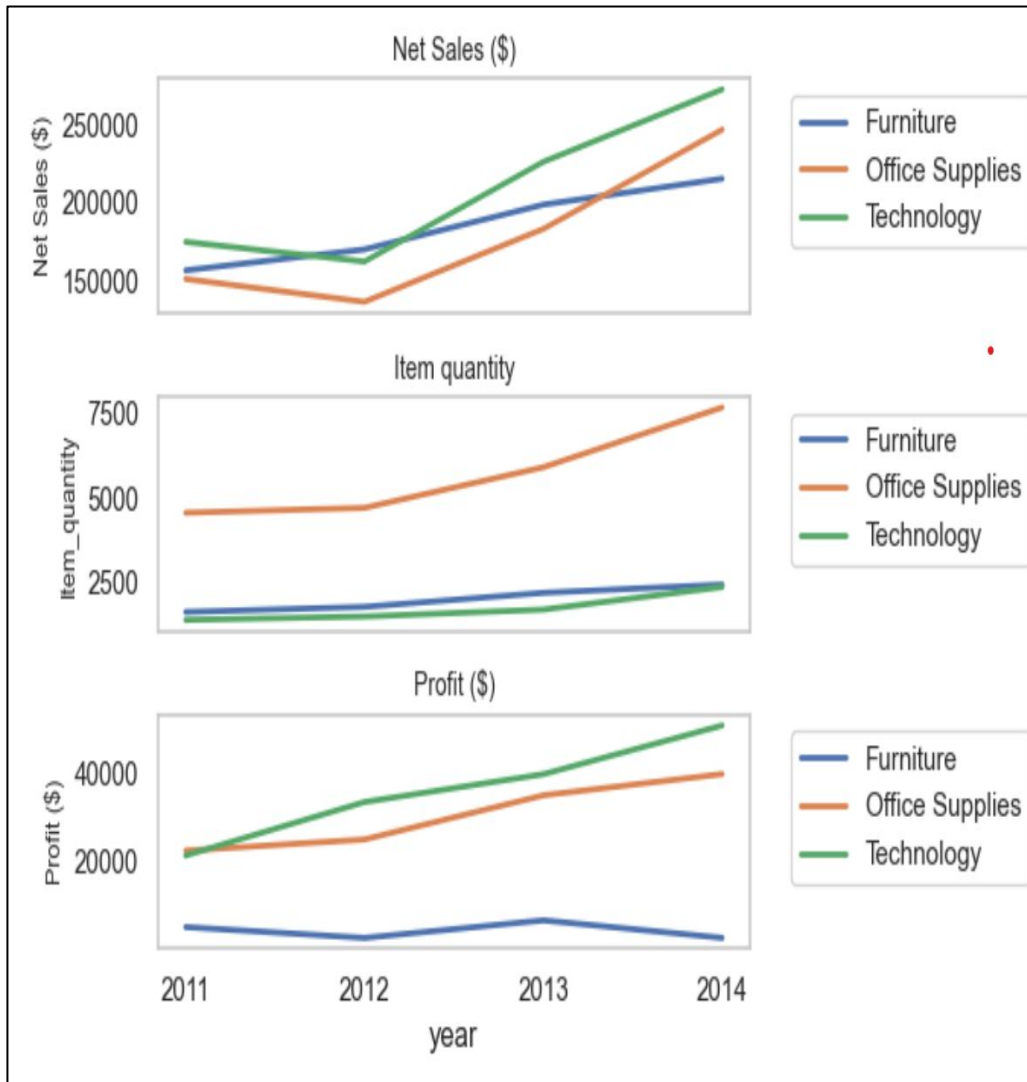
Findings: Annual Performance



- **Over the 4-years**, there is a steady rise in profit and Net Sales
- Net Sales shows sudden rise post 2012 but the rise does not seem to correspond with profits
- **Quarterly variations** in Net Sales, Discount and Number of orders placed is similar
- Q4 – shows highest rise in all 3 categories which is mainly due to festival and/or holiday season. Such seasonality demands for more staff for handling orders and shipment process.

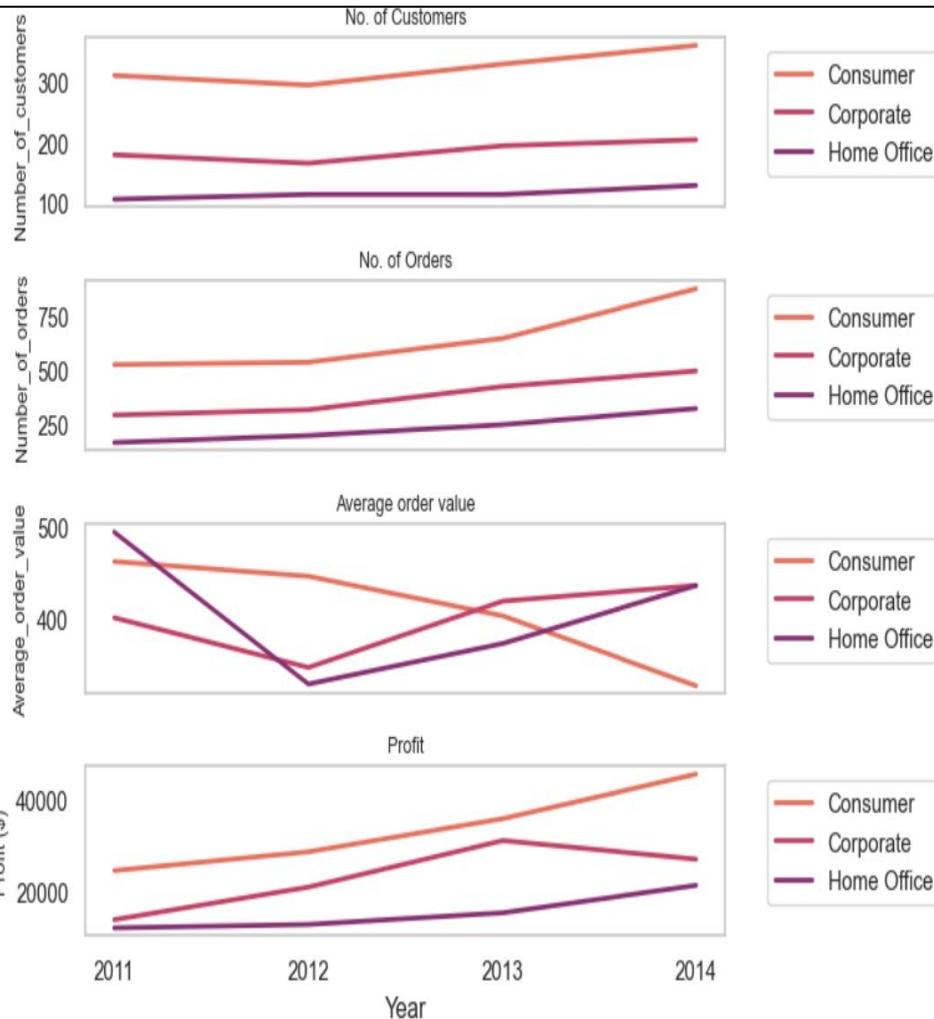


Product Performance



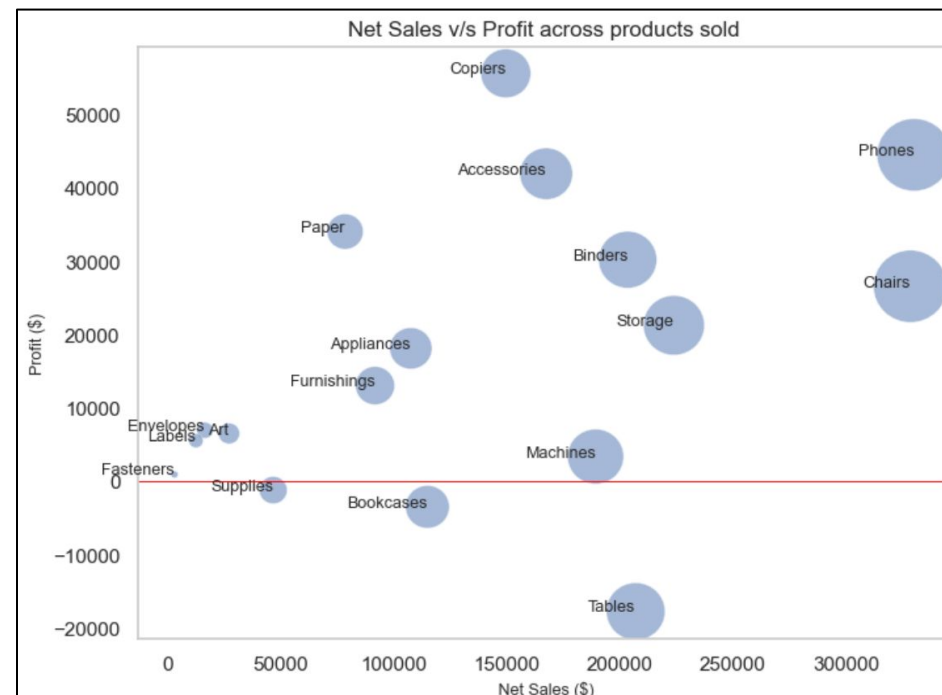
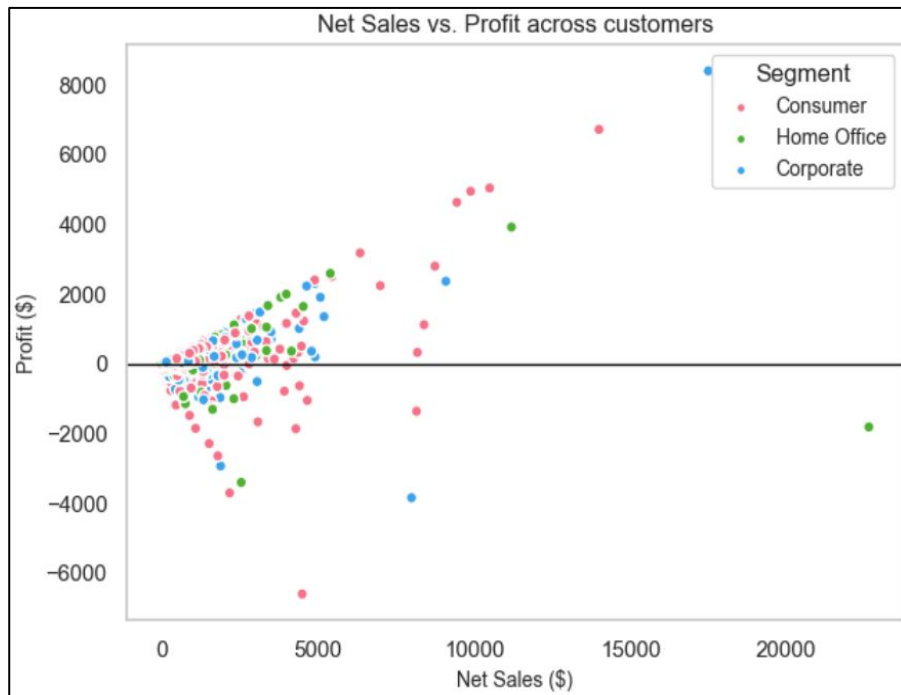
- **Technology category** is the most successful segment, making it strategically important
 - highest sales growth and efficacy
 - steady demand, implying focus on more advertisement
- **Office supplies** seems to do fairly well in terms of sales but profit is limited
 - bulk purchases should be targeted more allowing shipment cost to be reduced
- **Furniture** showed lowest profit and business strategy needs to be re-evaluated

Customer Segmentation



- Focus is on type of customers, their preferences, recency and loyalty
- In 4 years, there is rise in orders and customers but fall in average order value, indicating supply chain efficiency is critical for success
- Fall in rate of new customers indicate:
 - re-evaluation of market trends
 - update existing product lists
 - revise marketing strategies

Sales & profits variations across customers and products



- Majority customers contribute <5000\$ Net sales and < 1500 \$ profit
- In terms of profit: Furniture : **under - performing**: Tables* & bookcases; **Major contributors** : Chairs , furnishings

Office supplies: **under - performing** : supplies; **Major contributors** : Copiers

Technology : **under - performing** : machines*; **Major contributors** : Phones, Accessories

Major obstacles

- Topic selection and finalization of data set available
- Coding...
 - defining functions,
 - use map or apply ,
 - merge or concat or pivot
 - should I reindex particular column or not
 - using visualization tools
- Following up with online help available

Demo

Thank you for the attention...