

THE UNIVERSITY OF NEWCASTLE
SCHOOL OF ELECTRICAL ENGINEERING AND COMPUTING



ADVANCED DATABASES
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Item Sales and Ordering Patterns

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1 Introduction

1.1 DashBoards

This report explores the buying trends of WW1's customers by year. The data is presented in two different dashboards. The first dashboard is the item Sales Dashboard, this looks at most bought items, the amount of items by region, along side profit per item and the total dollar revenue amount sold for an item. The last 3 diagrams only look at the top ten items for either respective view.

The second dashboard is the item Purchase Dashboard, This looks at most Purchased items, most purchased items by Supplier, Suppliers and corresponding post codes and the volume of purchases by month.

For further Drill downs of each of these metrics Refer to the dashboard in power BI for a closer look at each item.

1.2 Limitations

When comparing where WW1 customers are and where WW1 Suppliers are we are unable to compare the two because data provided for supplies location are a postcode which is not a data set of the cities dimension given to us by WW1.

2 Item Sales Trends by Year

For Items Sales charts are all on a year specific Dashboard- 2013 figure: 1, 2014 figure: 2, 2015 figure: 3 and 2016 figure: 4.

2.1 Stock Items By Sales Count

Looking at each year's items by the quantity that are sold, refer to 2013 figure: 5, 2014 figure: 6, 2015 figure: 7 and 2016 figure: 8. Starts to show that there is no trend popular items over the four years of data. The top 10 items that WW1 ships per year based on quantity are not the same. There is only one recurring item across all items which is the "DBA Joke mug - it depends (white)". In the past 2 years "10 mm Static Bubble Wrap (blue) 10m" has appeared in the top 10. The top 10 items per quantity year over year tends to be about the same quantity. With only having 5 months of data for 2016, the trend that the most popular items for WW1 will have a quantity between 300-400 items looks to be on track.

2.2 Items By Total Sales

Exploring the Data year over year for Items by total sales price, refer to 2013 figure: 9, 2014 figure: 10, 2015 figure: 11 and 2016 figure: 12. Shows that the same items show up. With further exploration of these items there is a combination of factors why these items show up. The leading factor is item price, these items year over year sell about the same quantity which is why the items move around in the top 10.

2.3 Items Ordered by State & Sales Territories

Understanding where items ordered are being shipped to allows for us to be more strategic with where warehouses which store items are being build to handle the increased amount of items being shipped year over year for WW1. Which is at a increase cadence of 6000 items year over year. For State specific diagrams refer to 2013 13, 2014 figure: 14, 2015 figure: 15 and 2016 figure: 16. For Sales Territories specific diagrams refer to 2013 18, 2014 figure: 18, 2015 figure: 19 and 2016 figure: 20. This data illustrates that the states and sale districts year over year are growing at a very similar rate when it comes to items shipped to them and respectively the Dollar amount each makes increases.

2.4 Profit by Item

Items which create more profit then others allows WW1 to increase their expanding power. The items that bring in the most about of profit for the amount of items per year doesn't change much. The same items year over year show up in the top 10, refer to 2013 21, 2014 figure: 22, 2015 figure: 23 and 2016 figure: 24. Very much like the total sales dollar amount. This is very much based on the fact that profit margin plays more of a factor then the amount of items. Meaning that most the profit that WW1 receives year over year is from fewer items. There are not items with lower profit margins that are selling a lot.

3 Item Purchase Trends by Year

For Items purchased charts are all on a year specific Dashboard - 2013 figure: 25, 2014 figure: 26, 2015 figure: 27 and 2016 figure: 28.

3.1 Ordered Quantity by Month

Ordered Quantities by month to see if WW1 is purchasing more items during particular months, which allows us to explore if there are time periods that might need an increase in the item order threshold. So they items are brought into WW1 warehouse ahead of time and hold a larger stock on hand. The items purchased per month year over year is about the same for 2014 and 2015. Refer to 2013 figure: 29, 2014 figure: 30, 2015 figure: 31 and 2016 figure: 32. Since there are only three complete years to compare year over year data, the only pattern is there is a slight increase in orders towards the end of the year.

3.2 Suppliers by Items

Exploring the items and purchased quantities pin points which suppliers WW1 works with the most. This allows us to understand the which suppliers it might be worth having a warehouse close too. With that said currently WW1 warehouse are at unknown locations which means that the current warehouses might be close to the suppliers. The information points to two main supplies,Refer to 2013 figure: 37, 2014 figure: 38, 2015 figure: 39 and 2016 figure: 40. The main two suppliers are Fabikam,Inc and Litware, Inc. This also show which items are ordered in continuously from these suppliers meaning working on single larger purchase from these supplies might be necessary to decrease the in transit time.

4 Appendix

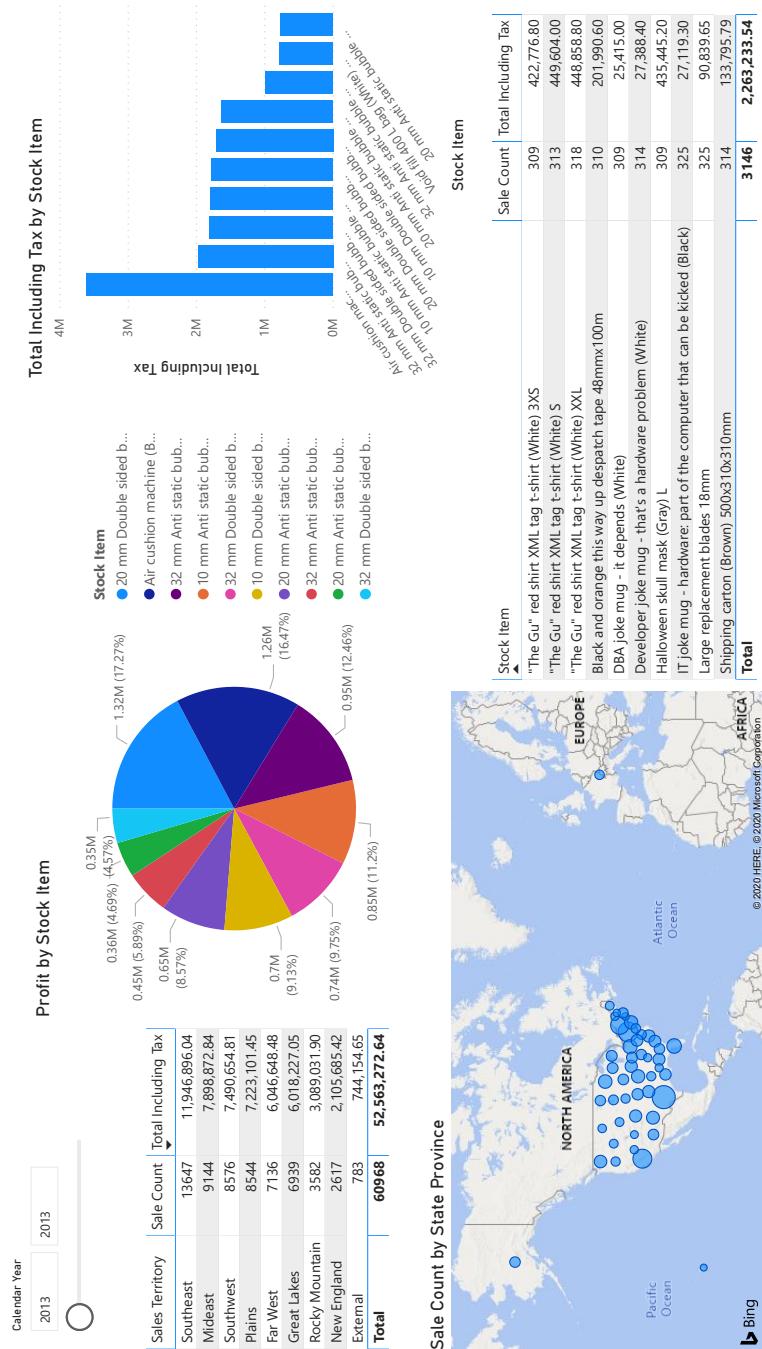


Figure 1: Item Sales 2013 DashBoard

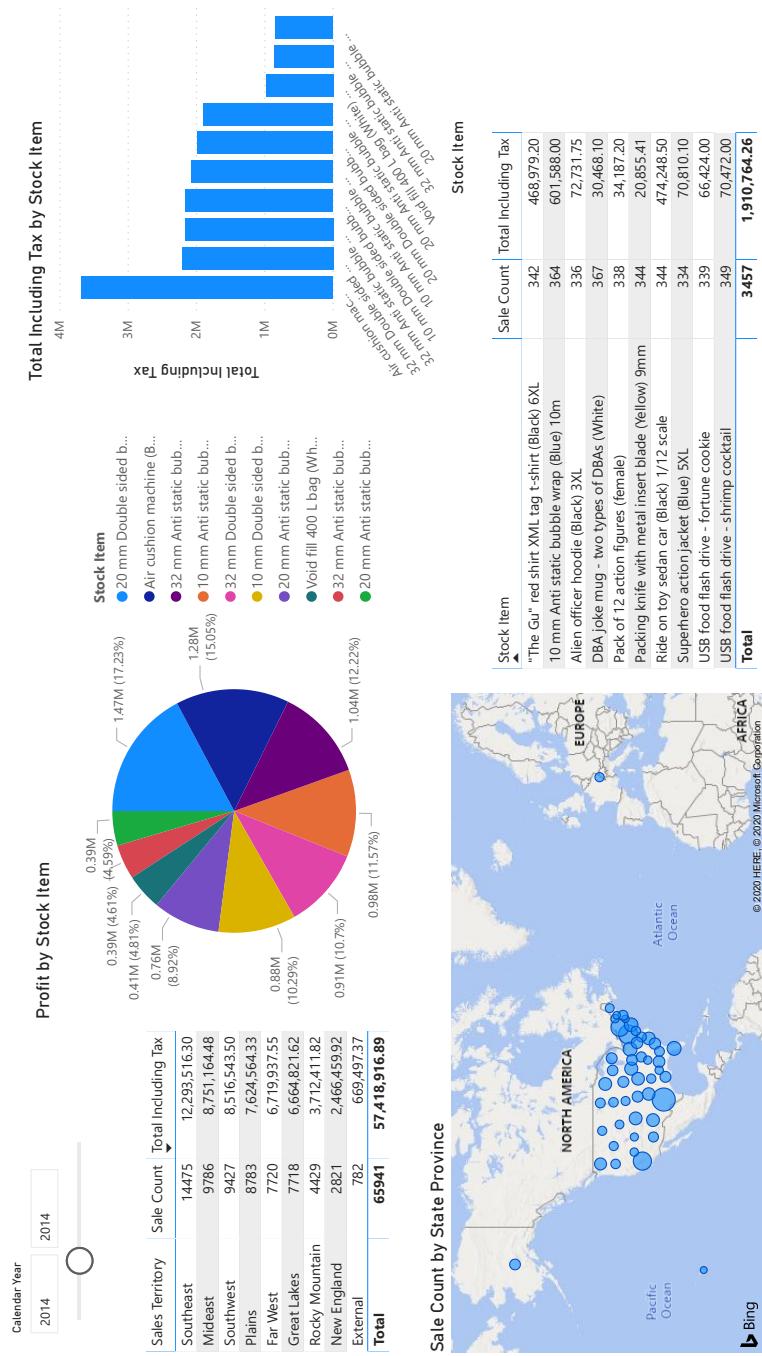


Figure 2: Item Sales 2014 DashBoard

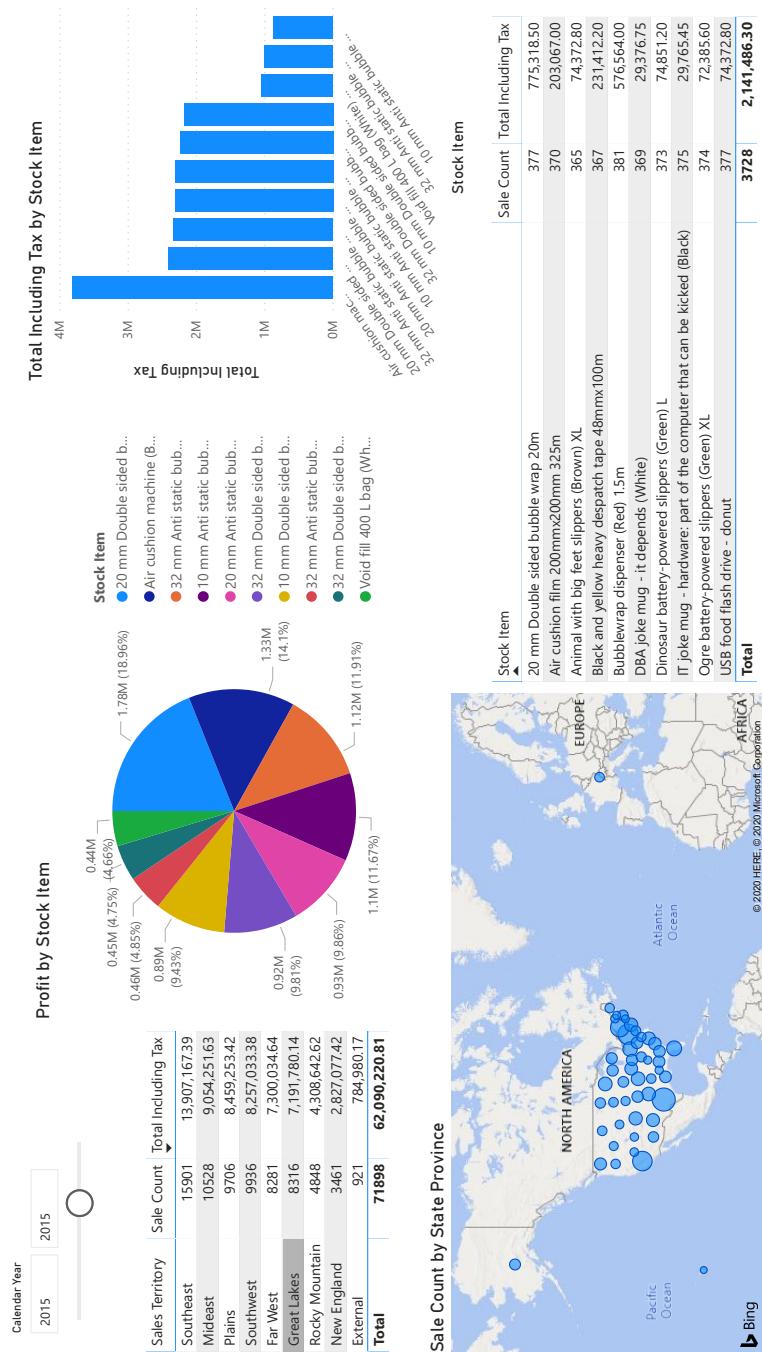


Figure 3: Item Sales 2015 DashBoard

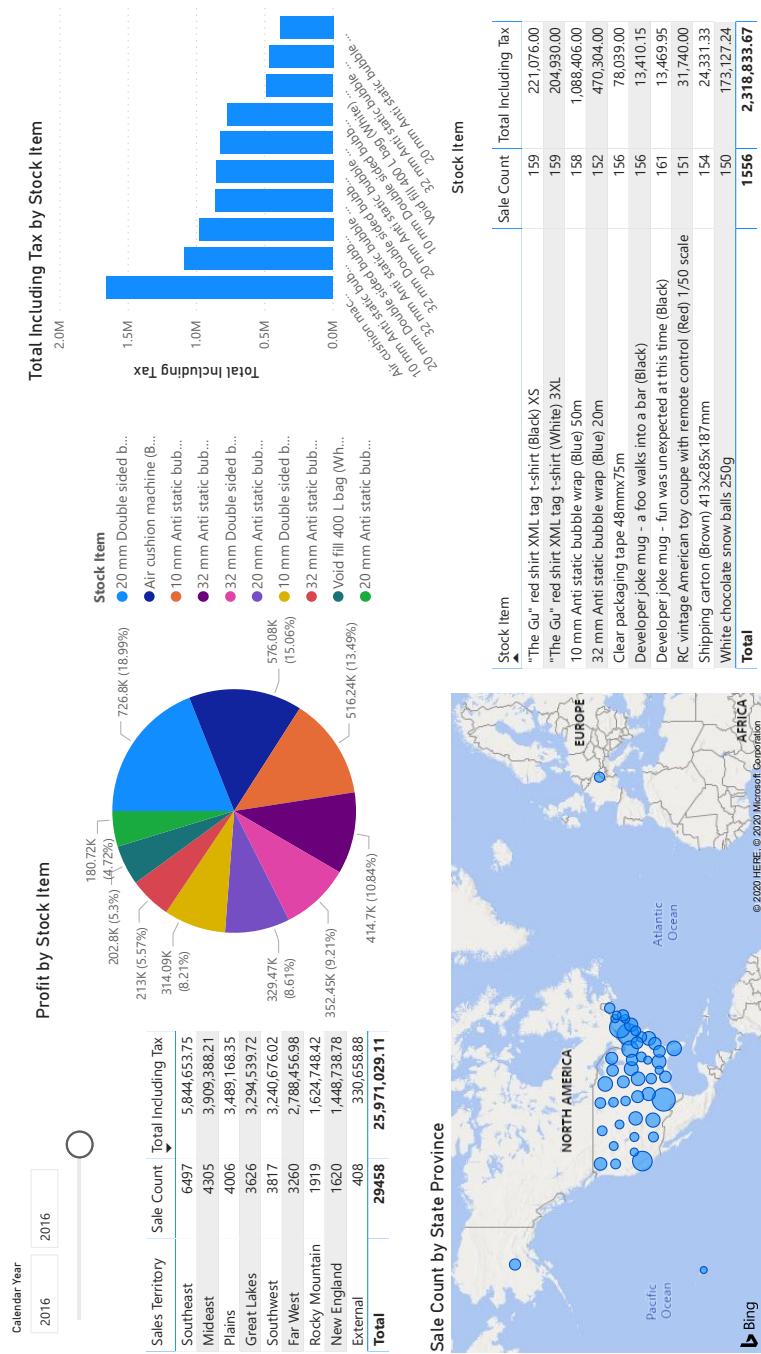


Figure 4: Item Sales 2016 DashBoard

Stock Item	Sale Count	Total Including Tax
IT joke mug - hardware: part of the computer that can be kicked (Black)	325	27,119.30
Large replacement blades 18mm	325	90,839.65
"The Gu" red shirt XML tag t-shirt (White) XXL	318	448,858.80
Developer joke mug - that's a hardware problem (White)	314	27,388.40
Shipping carton (Brown) 500x310x310mm	314	133,795.79
"The Gu" red shirt XML tag t-shirt (White) S	313	449,604.00
Black and orange this way up despatch tape 48mmx100m	310	201,990.60
"The Gu" red shirt XML tag t-shirt (White) 3XS	309	422,776.80
DBA joke mug - it depends (White)	309	25,415.00
Halloween skull mask (Gray) L	309	435,445.20
Total	3146	2,263,233.54

Figure 5: Stock item by Sale Count 2013

Stock Item	Sale Count	Total Including Tax
DBA joke mug - two types of DBAs (White)	367	30,468.10
10 mm Anti static bubble wrap (Blue) 10m	364	601,588.00
USB food flash drive - shrimp cocktail	349	70,472.00
Packing knife with metal insert blade (Yellow) 9mm	344	20,855.41
Ride on toy sedan car (Black) 1/12 scale	344	474,248.50
"The Gu" red shirt XML tag t-shirt (Black) 6XL	342	468,979.20
USB food flash drive - fortune cookie	339	66,424.00
Pack of 12 action figures (female)	338	34,187.20
Alien officer hoodie (Black) 3XL	336	72,731.75
Superhero action jacket (Blue) 5XL	334	70,810.10
Total	3457	1,910,764.26

Figure 6: Stock item by Sale Count 2014

Stock Item	Sale Count	Total Including Tax
Bubblewrap dispenser (Red) 1.5m	381	576,564.00
20 mm Double sided bubble wrap 20m	377	775,318.50
USB food flash drive - donut	377	74,372.80
IT joke mug - hardware: part of the computer that can be kicked (Black)	375	29,765.45
Ogre battery-powered slippers (Green) XL	374	72,385.60
Dinosaur battery-powered slippers (Green) L	373	74,851.20
Air cushion film 200mmx200mm 325m	370	203,067.00
DBA joke mug - it depends (White)	369	29,376.75
Black and yellow heavy despatch tape 48mmx100m	367	231,412.20
Animal with big feet slippers (Brown) XL	365	74,372.80
Total	3728	2,141,486.30

Figure 7: Stock item by Sale Count 2015

Stock Item	Sale Count	Total Including Tax
Developer joke mug - fun was unexpected at this time (Black)	161	13,469.95
"The Gu" red shirt XML tag t-shirt (Black) XS	159	221,076.00
"The Gu" red shirt XML tag t-shirt (White) 3XL	159	204,930.00
10 mm Anti static bubble wrap (Blue) 50m	158	1,088,406.00
Clear packaging tape 48mmx75m	156	78,039.00
Developer joke mug - a foo walks into a bar (Black)	156	13,410.15
Shipping carton (Brown) 413x285x187mm	154	24,331.33
32 mm Anti static bubble wrap (Blue) 20m	152	470,304.00
RC vintage American toy coupe with remote control (Red) 1/50 scale	151	31,740.00
White chocolate snow balls 250g	150	173,127.24
Total	1556	2,318,833.67

Figure 8: Stock item by Sale Count 2016

Total Including Tax by Stock Item

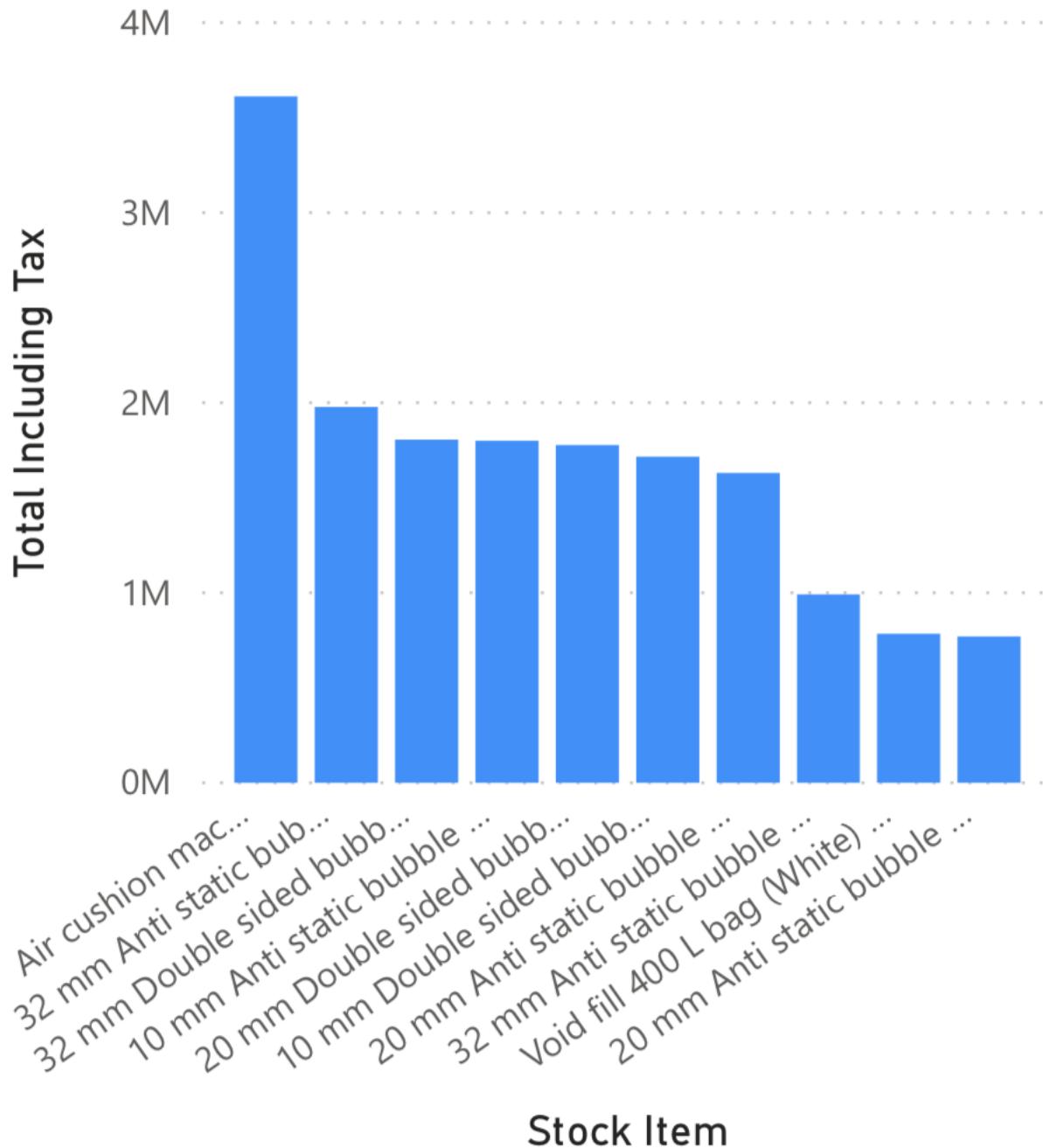


Figure 9: Total Sales by item 2013

Total Including Tax by Stock Item

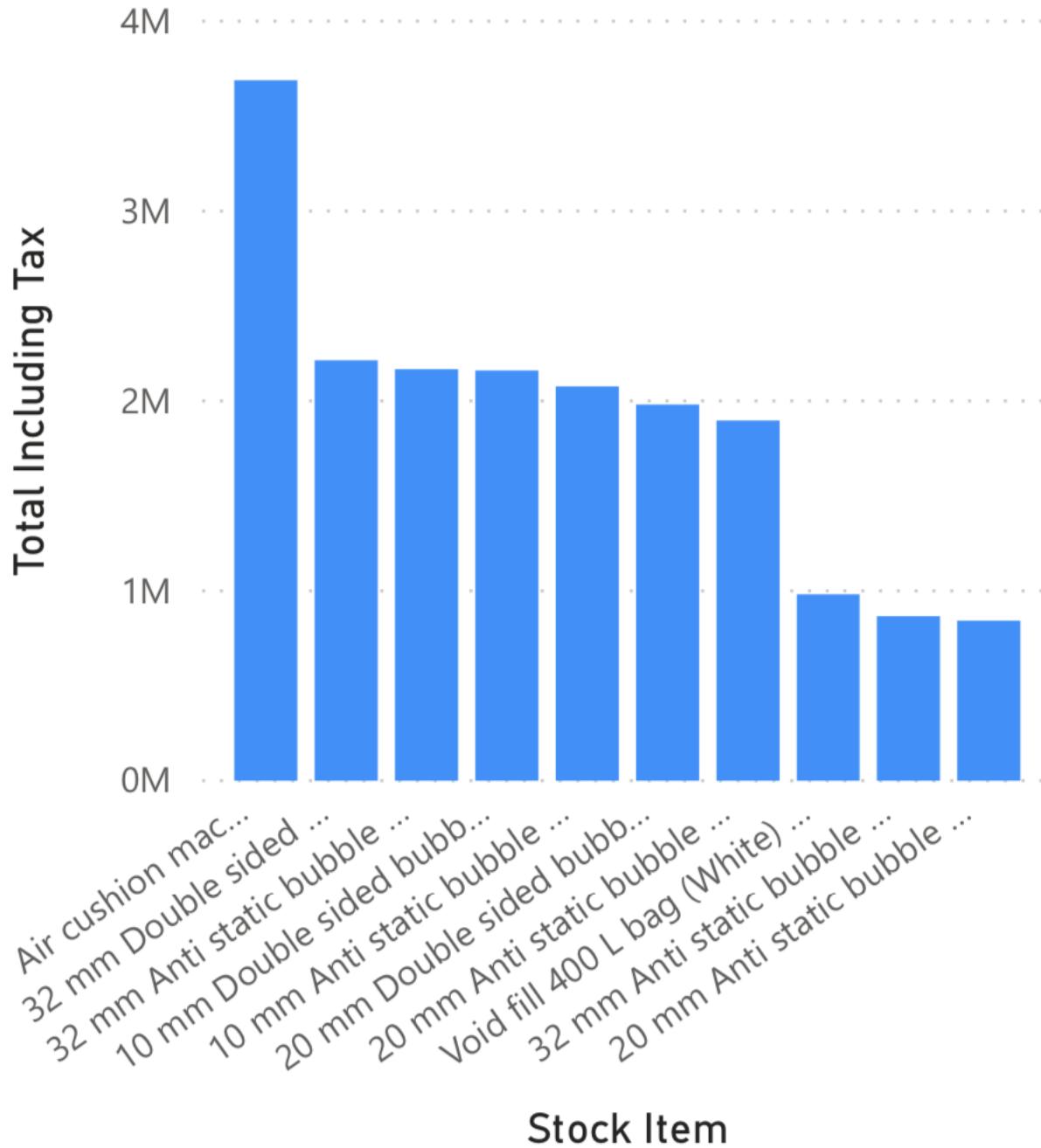


Figure 10: Total Sales by item 2014

Total Including Tax by Stock Item

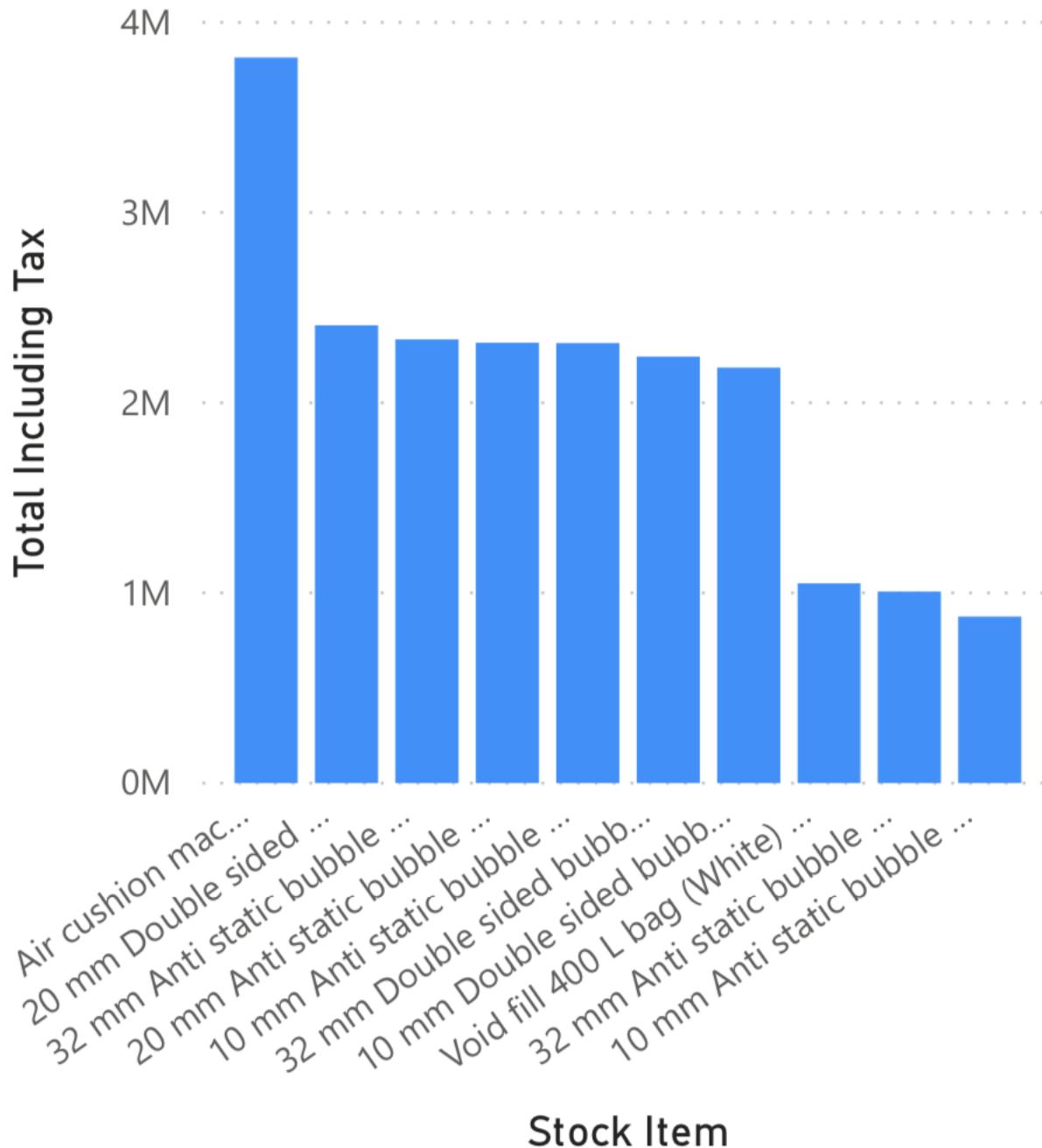


Figure 11: Total Sales by item 2015

Total Including Tax by Stock Item

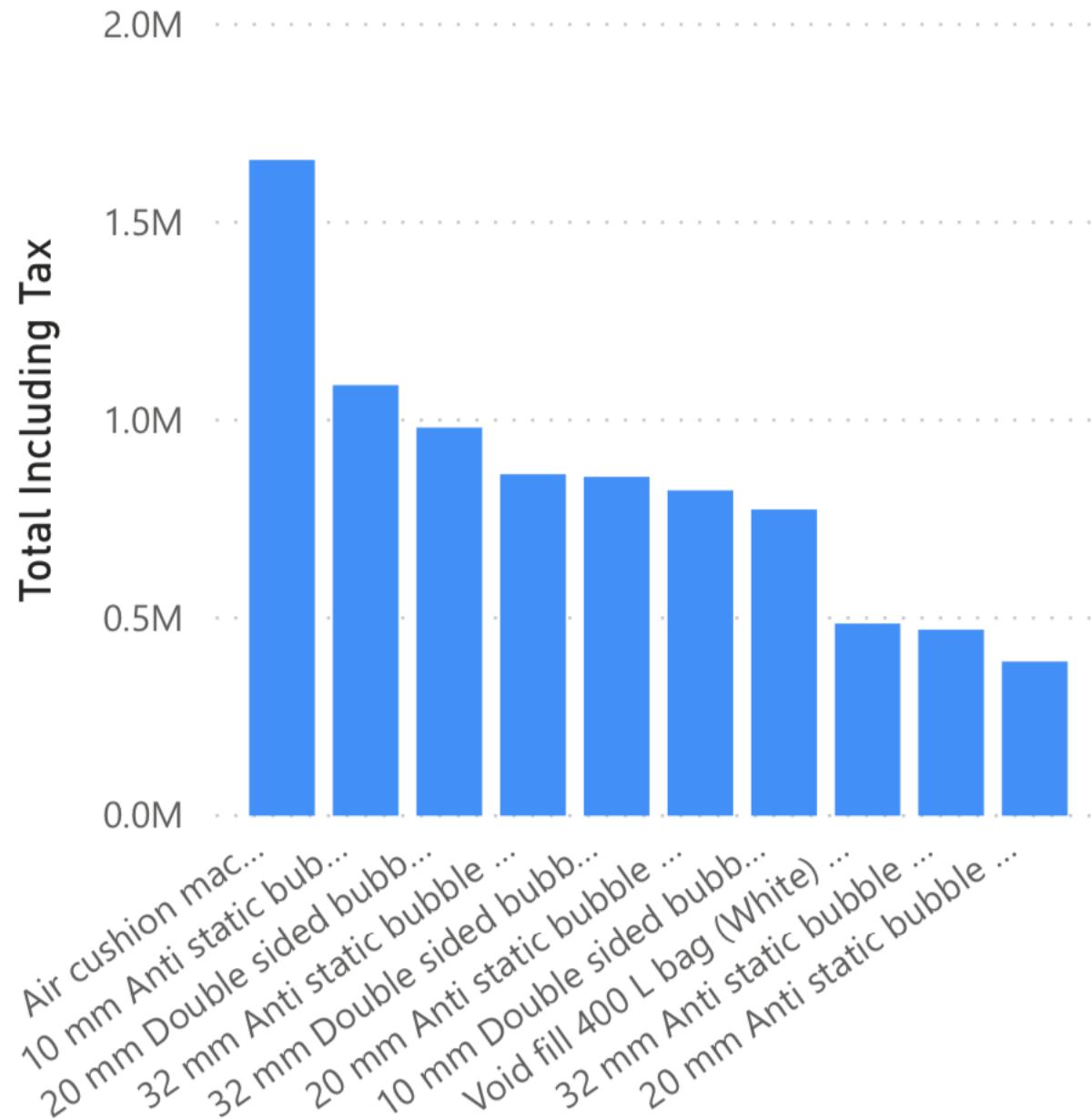


Figure 12: Total Sales by item 2016

Sale Count by State Province



Figure 13: Sale Count by State 2013

Sale Count by State Province



Figure 14: Sale Count by State 2014

Sale Count by State Province



Figure 15: Sale Count by State 2015

Sale Count by State Province



Figure 16: Sale Count by State 2016

Sales Territory	Sale Count	Total Including Tax
Southeast	13647	11,946,896.04
Mideast	9144	7,898,872.84
Southwest	8576	7,490,654.81
Plains	8544	7,223,101.45
Far West	7136	6,046,648.48
Great Lakes	6939	6,018,227.05
Rocky Mountain	3582	3,089,031.90
New England	2617	2,105,685.42
External	783	744,154.65
Total	60968	52,563,272.64

Figure 17: Sale Count by Sales Territory 2013

Sales Territory	Sale Count	Total Including Tax
Southeast	14475	12,293,516.30
Mideast	9786	8,751,164.48
Southwest	9427	8,516,543.50
Plains	8783	7,624,564.33
Far West	7720	6,719,937.55
Great Lakes	7718	6,664,821.62
Rocky Mountain	4429	3,712,411.82
New England	2821	2,466,459.92
External	782	669,497.37
Total	65941	57,418,916.89

Figure 18: Sale Count by Sales Territory 2014

Sales Territory	Sale Count	Total Including Tax
Southeast	15901	13,907,167.39
Mideast	10528	9,054,251.63
Southwest	9936	8,257,033.38
Plains	9706	8,459,253.42
Great Lakes	8316	7,191,780.14
Far West	8281	7,300,034.64
Rocky Mountain	4848	4,308,642.62
New England	3461	2,827,077.42
External	921	784,980.17
Total	71898	62,090,220.81

Figure 19: Sale Count by Sales Territory 2015

Sales Territory	Sale Count	Total Including Tax
Southeast	6497	5,844,653.75
Mideast	4305	3,909,388.21
Plains	4006	3,489,168.35
Southwest	3817	3,240,676.02
Great Lakes	3626	3,294,539.72
Far West	3260	2,788,456.98
Rocky Mountain	1919	1,624,748.42
New England	1620	1,448,738.78
External	408	330,658.88
Total	29458	25,971,029.11

Figure 20: Sale Count by Sales Territory 2016

Profit by Stock Item

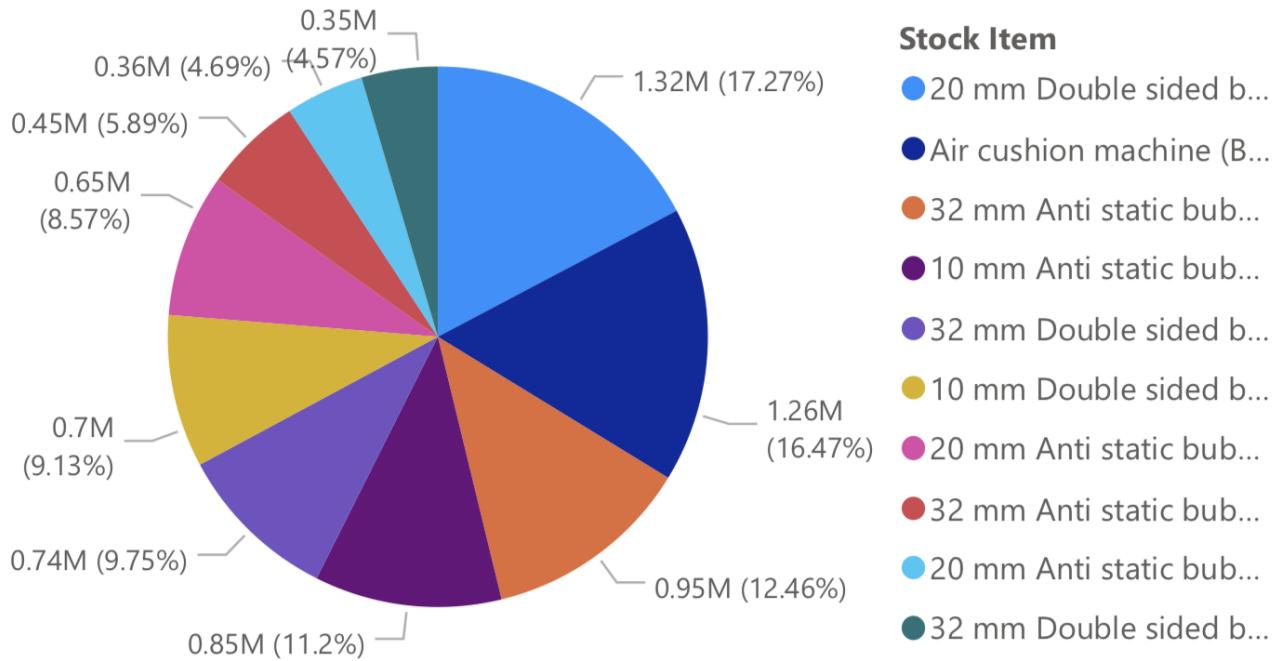


Figure 21: Profit by Stock Item 2013

Profit by Stock Item

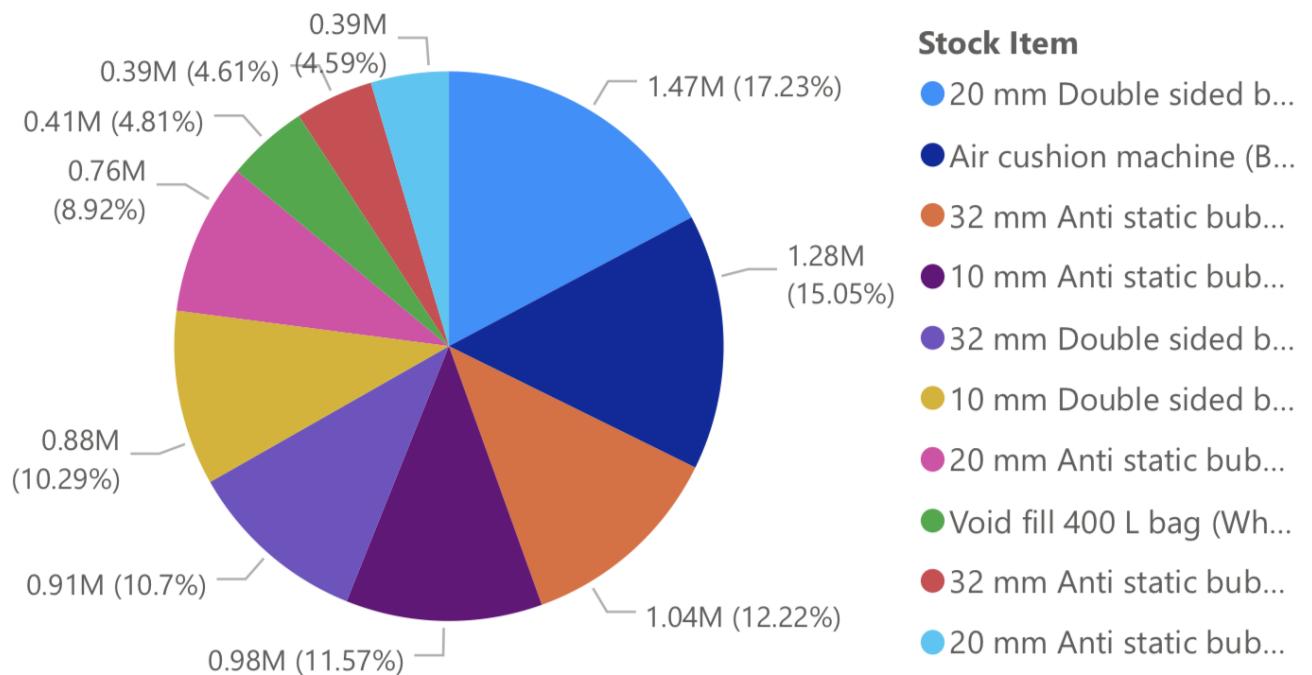


Figure 22: Profit by Stock Item 2014

Profit by Stock Item

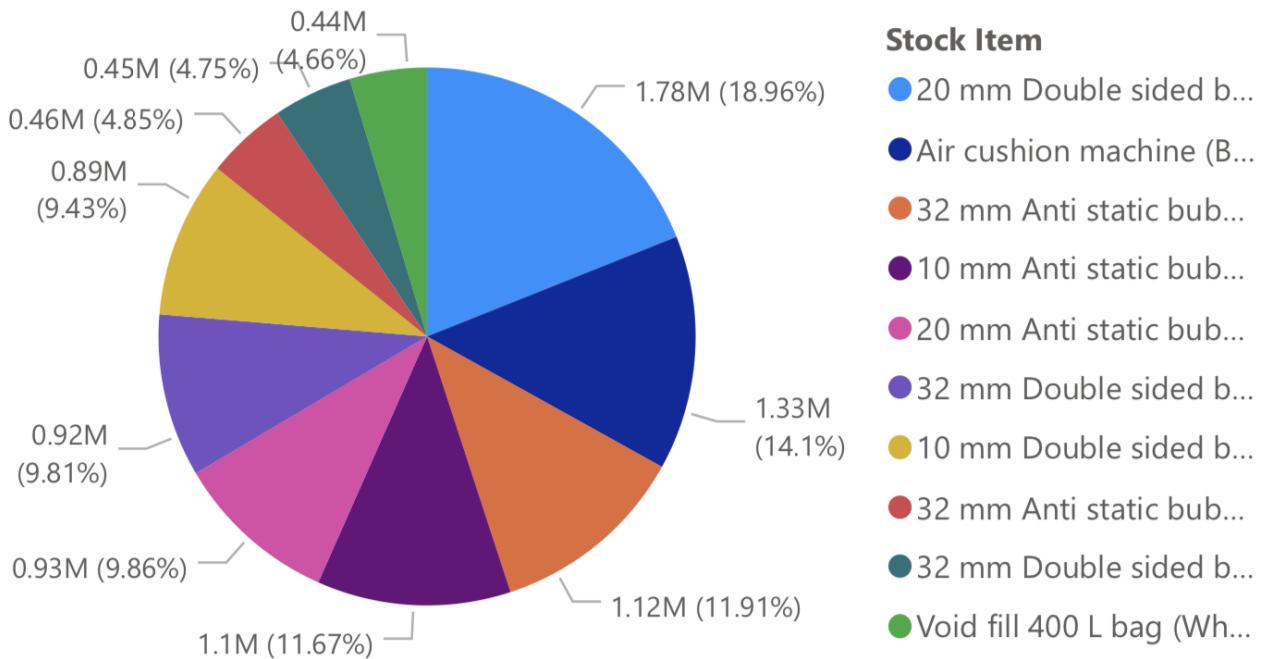


Figure 23: Profit by Stock Item 2015

Profit by Stock Item

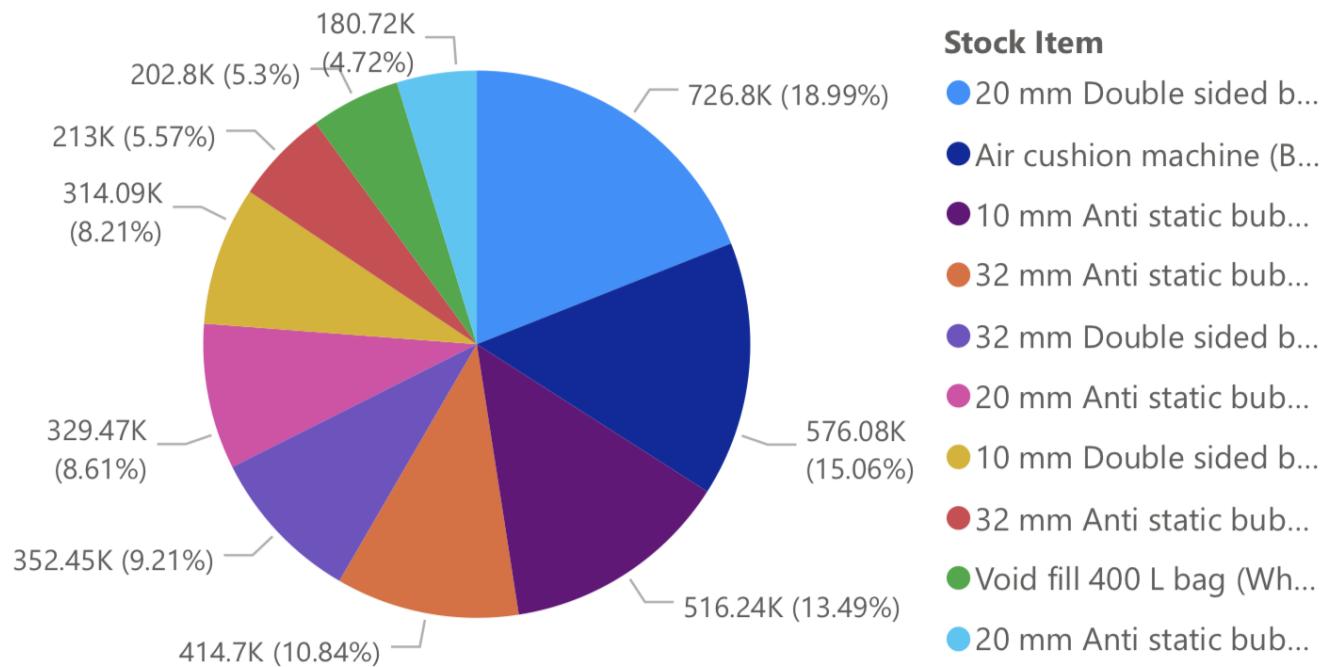


Figure 24: Profit by Stock Item 2016

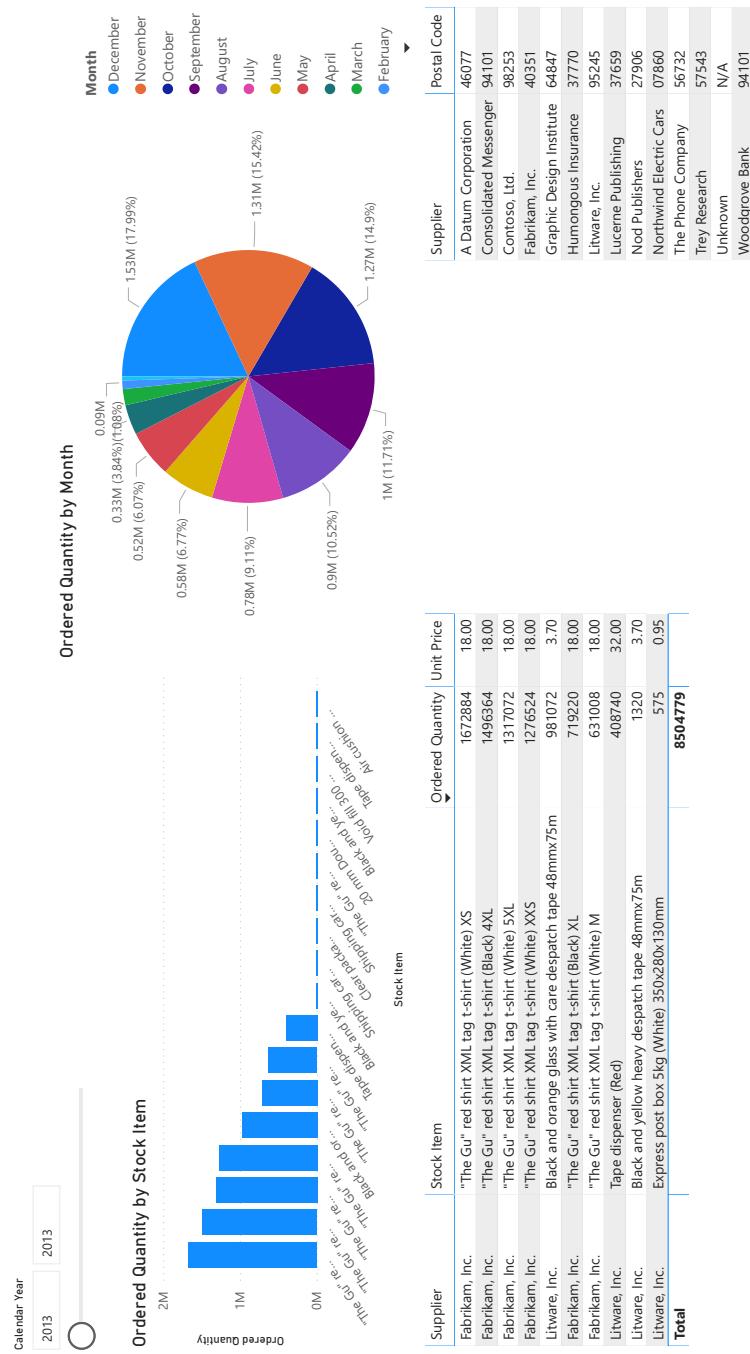


Figure 25: Item Purchase 2013 DashBoard

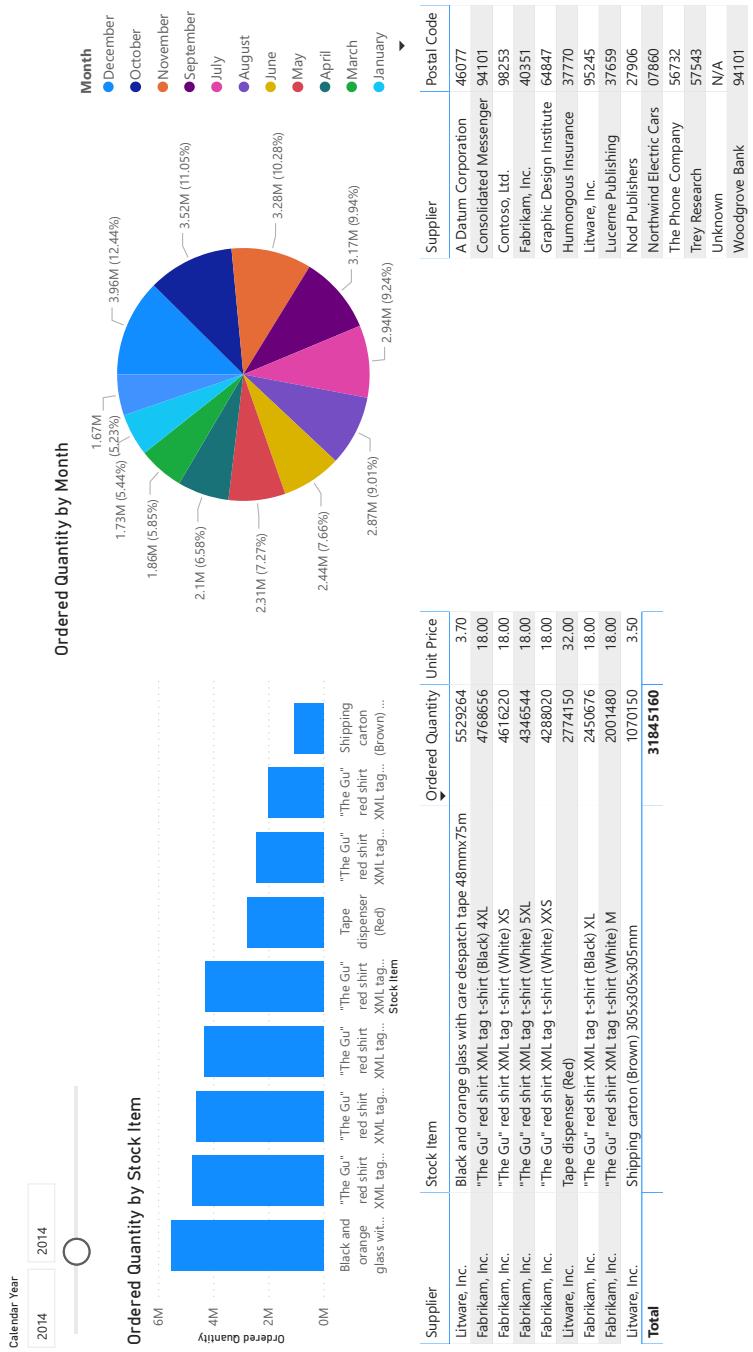


Figure 26: Item Purchase 2014 DashBoard

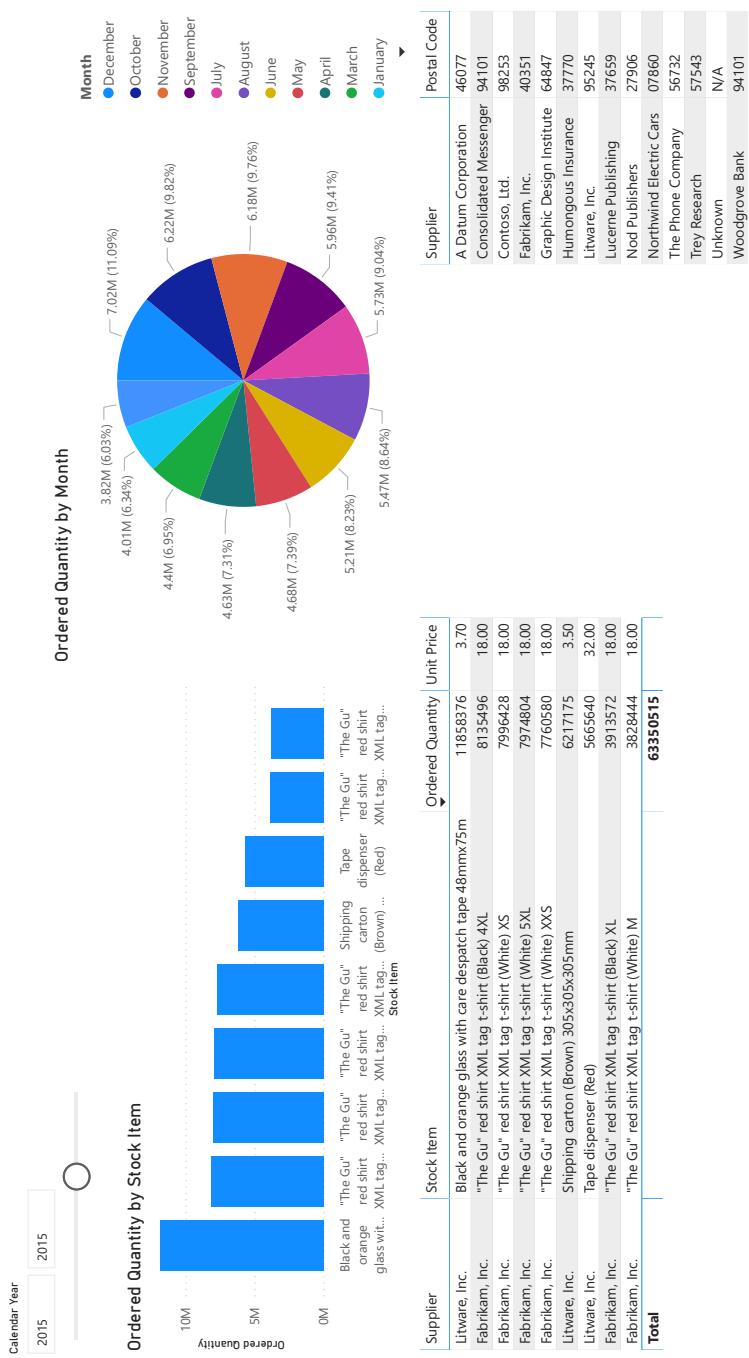


Figure 27: Item Purchase 2015 DashBoard

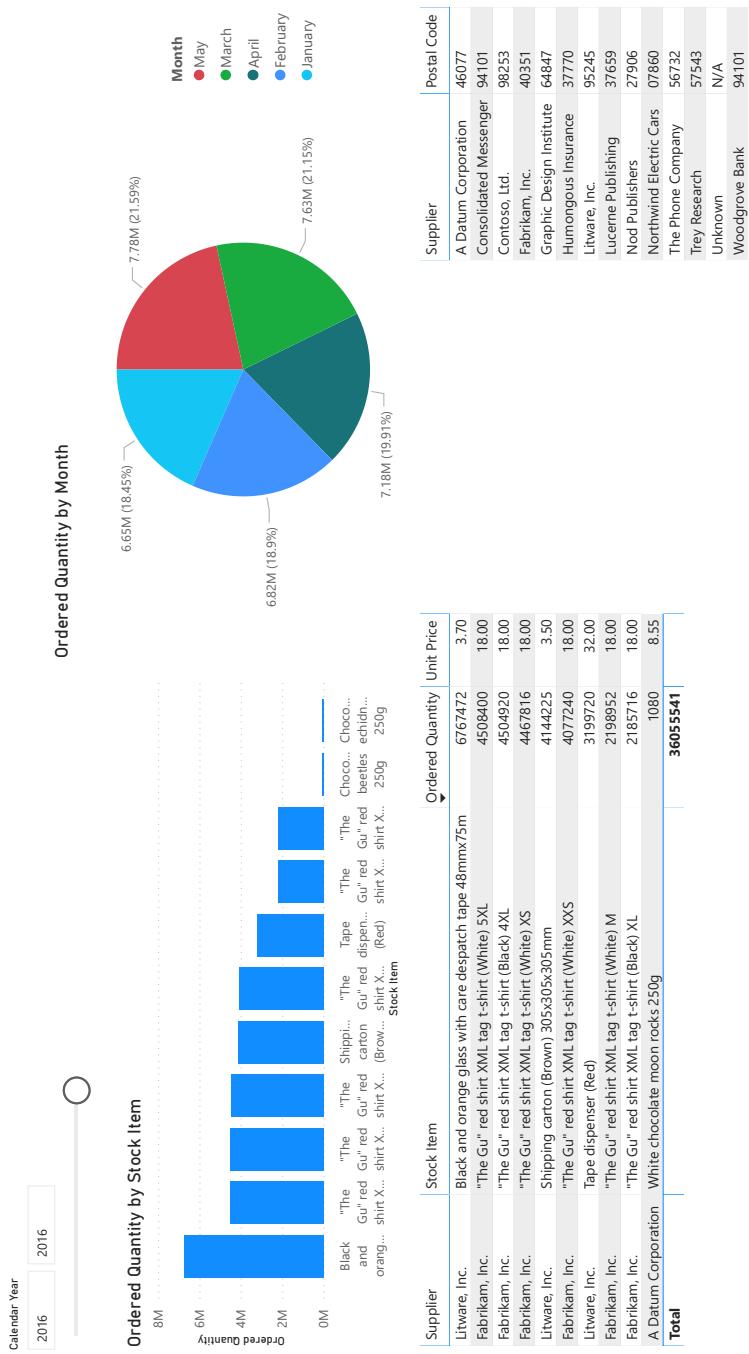


Figure 28: Item Purchase 2016 DashBoard

Ordered Quantity by Month

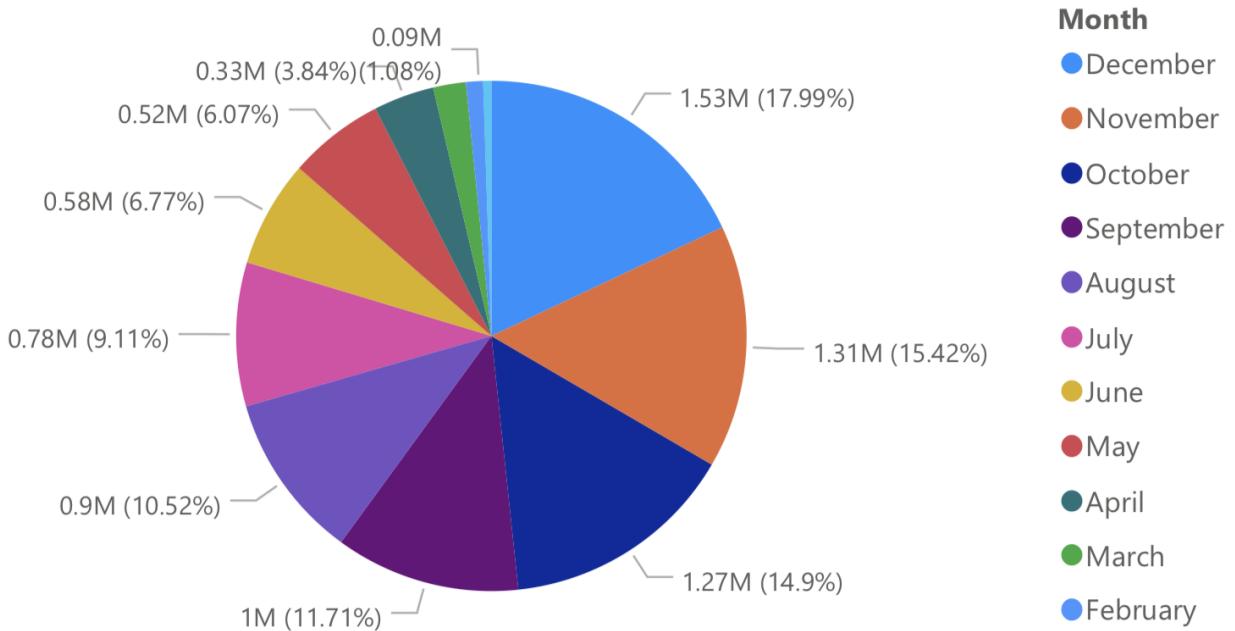


Figure 29: Ordered Quantity by Month 2013

Ordered Quantity by Month

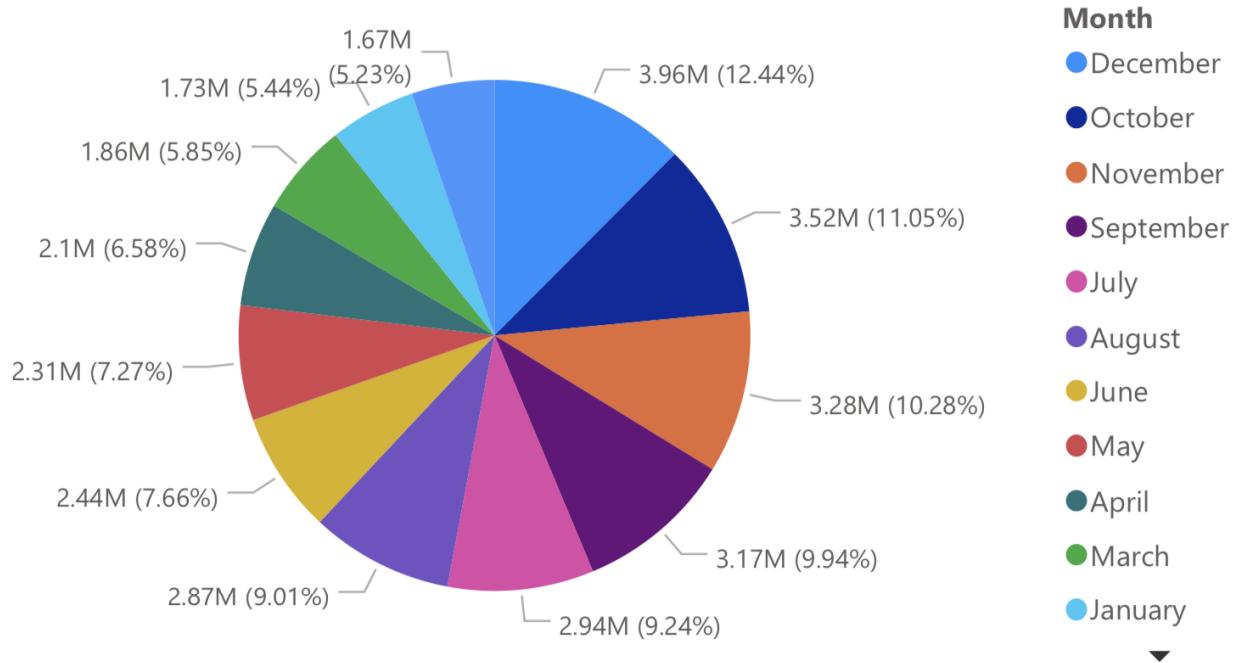


Figure 30: Ordered Quantity by Month 2014

Ordered Quantity by Month

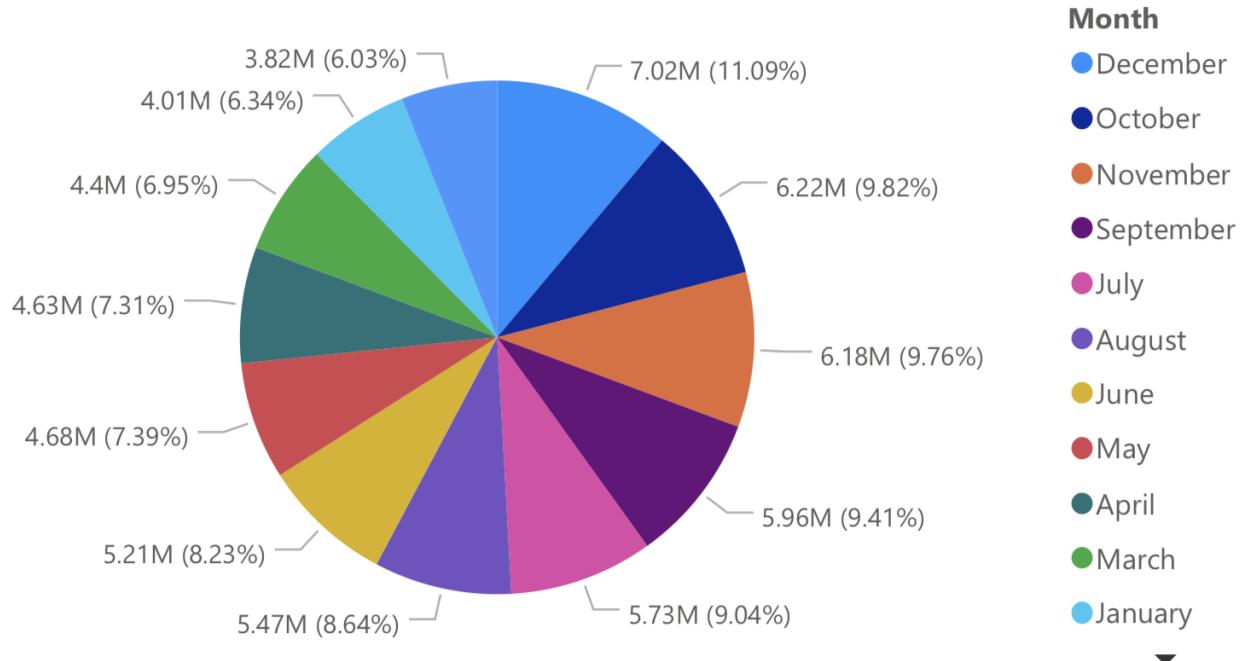


Figure 31: Ordered Quantity by Month 2015

Ordered Quantity by Month

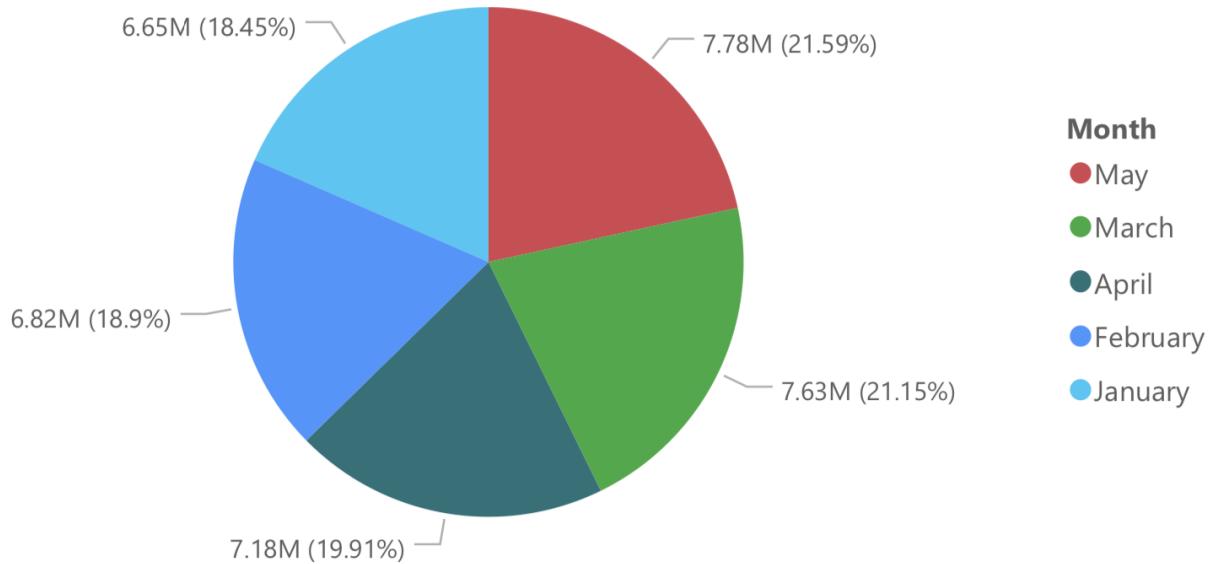


Figure 32: Ordered Quantity by Month 2016

Ordered Quantity by Stock Item

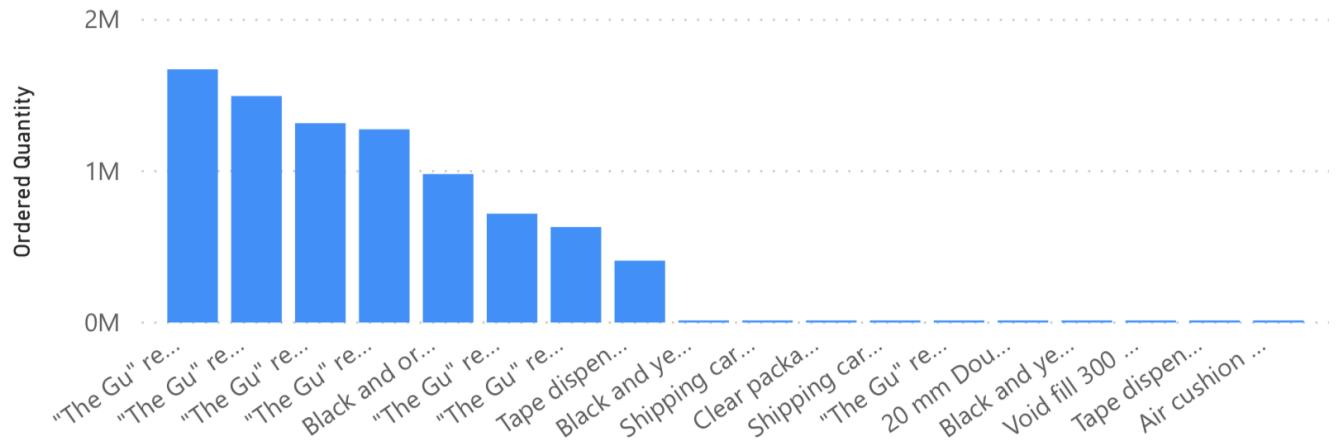


Figure 33: Ordered Quantity by Item 2013

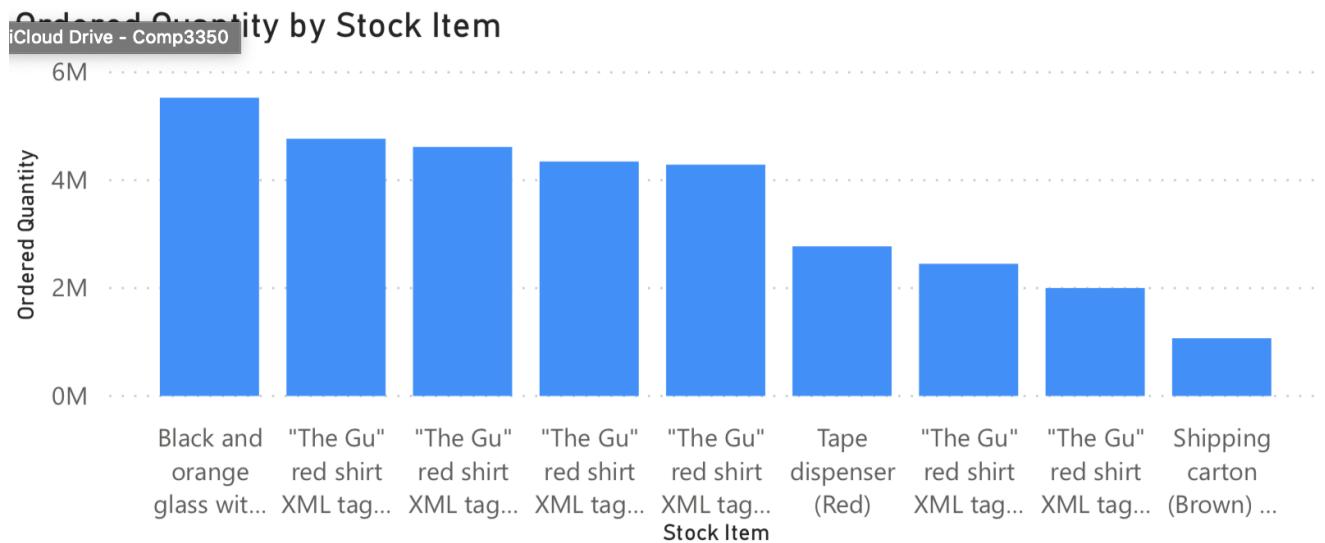


Figure 34: Ordered Quantity by Item 2014

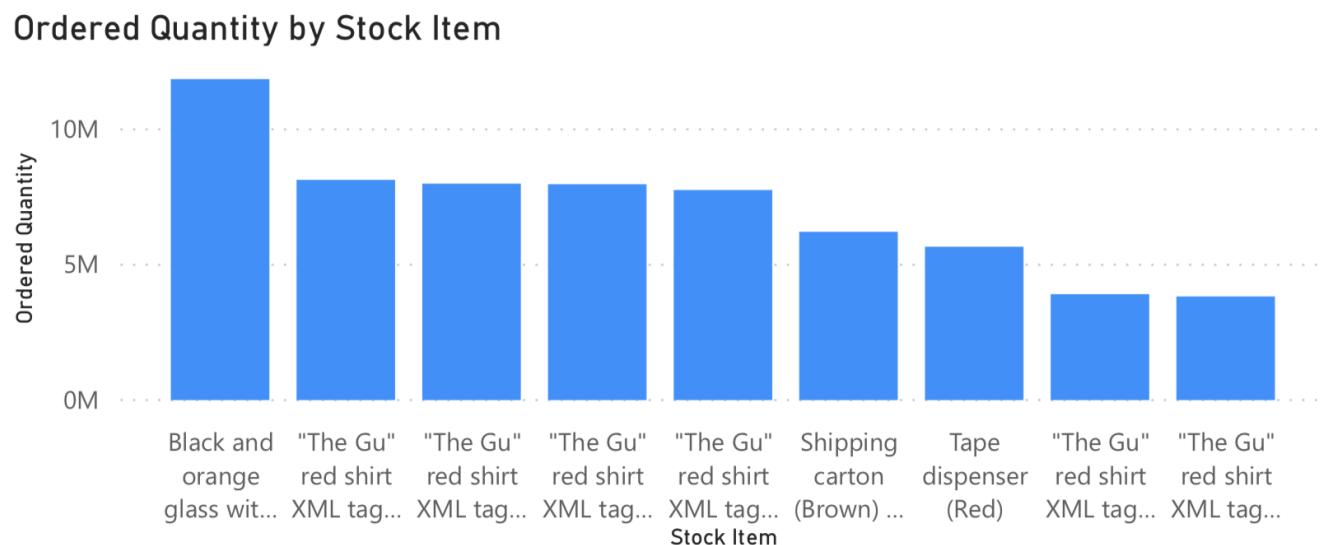


Figure 35: Ordered Quantity by Item 2015

Ordered Quantity by Stock Item

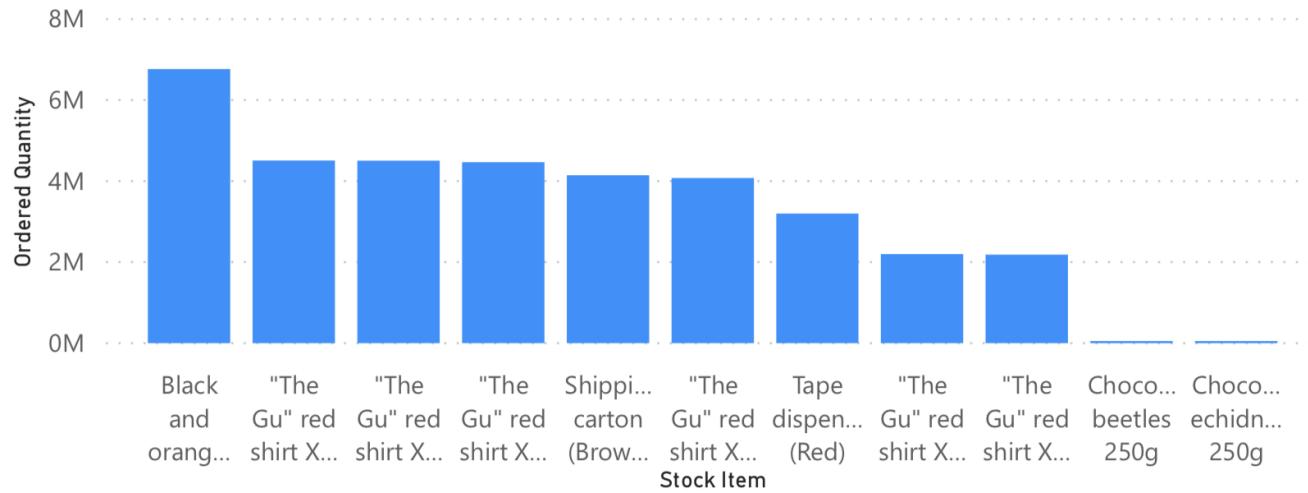


Figure 36: Ordered Quantity by Item 2016

Supplier	Stock Item	Ordered Quantity	Unit Price
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) XS	1672884	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (Black) 4XL	1496364	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) 5XL	1317072	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) XXS	1276524	18.00
Litware, Inc.	Black and orange glass with care despatch tape 48mmx75m	981072	3.70
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (Black) XL	719220	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) M	631008	18.00
Litware, Inc.	Tape dispenser (Red)	408740	32.00
Litware, Inc.	Black and yellow heavy despatch tape 48mmx75m	1320	3.70
Litware, Inc.	Express post box 5kg (White) 350x280x130mm	575	0.95
Total		8504779	

Figure 37: Suppliers by item by quantity 2013

Supplier	Stock Item	Ordered Quantity	Unit Price
Litware, Inc.	Black and orange glass with care despatch tape 48mmx75m	5529264	3.70
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (Black) 4XL	4768656	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) XS	4616220	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) 5XL	4346544	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) XXS	4288020	18.00
Litware, Inc.	Tape dispenser (Red)	2774150	32.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (Black) XL	2450676	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) M	2001480	18.00
Litware, Inc.	Shipping carton (Brown) 305x305x305mm	1070150	3.50
Total		31845160	

Figure 38: Suppliers by item by quantity 2014

Supplier	Stock Item	Ordered Quantity	Unit Price
Litware, Inc.	Black and orange glass with care despatch tape 48mmx75m	11858376	3.70
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (Black) 4XL	8135496	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) XS	7996428	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) 5XL	7974804	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) XXS	7760580	18.00
Litware, Inc.	Shipping carton (Brown) 305x305x305mm	6217175	3.50
Litware, Inc.	Tape dispenser (Red)	5665640	32.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (Black) XL	3913572	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) M	3828444	18.00
Total		63350515	

Figure 39: Suppliers by item by quantity 2015

Supplier	Stock Item	Ordered Quantity	Unit Price
Litware, Inc.	Black and orange glass with care despatch tape 48mmx75m	6767472	3.70
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) 5XL	4508400	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (Black) 4XL	4504920	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) XS	4467816	18.00
Litware, Inc.	Shipping carton (Brown) 305x305x305mm	4144225	3.50
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) XXS	4077240	18.00
Litware, Inc.	Tape dispenser (Red)	3199720	32.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (White) M	2198952	18.00
Fabrikam, Inc.	"The Gu" red shirt XML tag t-shirt (Black) XL	2185716	18.00
A Datum Corporation	White chocolate moon rocks 250g	1080	8.55
Total		36055541	

Figure 40: Suppliers by item by quantity 2016

Supplier	Postal Code
A Datum Corporation	46077
Consolidated Messenger	94101
Contoso, Ltd.	98253
Fabrikam, Inc.	40351
Graphic Design Institute	64847
Humongous Insurance	37770
Litware, Inc.	95245
Lucerne Publishing	37659
Nod Publishers	27906
Northwind Electric Cars	07860
The Phone Company	56732
Trey Research	57543
Unknown	N/A
Woodgrove Bank	94101

Figure 41: Suppliers and postcode