Introduction- This analysis comes from a desire to understand the trends in returns from the Superstore. We'll discuss the data a bit more in detail in just a moment. For now though, the CEO wanted to understand what was happening with the high amount of returns that were occuring and what are some ways to help reduce them. In analyzing the data, the goal is to look for the main root causes of the high returns. We'll examine if returns are correlated with higher sales, whether location is a prominent factor, and how the combination of different factors supports the conclusion that the r..

Data description- The data being used in this analysis was a combination of spreadsheet tables that provide the results of Superstore orders and returns. Another table that lists the Regional Managers was not used in the analysis. The tables..

Introduction- This analysis comes from a desire to understand the trends in returns from the Superstore. ..

Data description- The data being used in this analysis was a combination of spreadsheet tables that provide the results of Superstore orders and returns. Another table that lists the Regional Managers was not used in the analysis. The tables consist of a number of columns that illustrate information around the time of the order, customer name, location, category/subcategory/product name and id, as well as numerical values to show sales, profits, discounts, and quantities. In the Returns table we learn about the order id and whether the order was returned or not.

Methodology- Since the main focus of this analysis was to understand the trends in return data, the first ste..

Orders | 12 fields 12420 rows | 100 → rows

Order ID	Ord...	Ship Mode	Customer...	State	Region	Category	Sub-C...	Sales	Profit	Returned	Return...
CA-2020-15...	11/8/2020	Second Class	Claire Gute	Kentucky	South	Furniture	Bookcases	261.96	41.91	null	0
CA-2020-15...	11/8/2020	Second Class	Claire Gute	Kentucky	South	Furniture	Chairs	731.94	219.58	null	0
CA-2020-13...	6/12/20...	Second Class	Darrin Van Huff	California	West	Office Supplies	Labels	14.62	6.87	null	0
US-2019-10...	10/11/20...	Standard Class	Sean O'Donnell	Florida	South	Furniture	Tables	957.58	-383.03	null	0
US-2019-10...	10/11/20...	Standard Class	Sean O'Donnell	Florida	South	Office Supplies	Storage	22.37	2.52	null	0
CA-2018-11...	6/9/2018	Standard Class	Brosina Hoffman	California	West	Furniture	Furnishings	48.86	14.17	null	0
CA-2018-11...	6/9/2018	Standard Class	Brosina Hoffman	California	West	Office Supplies	Art	7.28	1.97	null	0
CA-2018-11...	6/9/2018	Standard Class	Brosina Hoffman	California	West	Technology	Phones	907.15	90.72	null	0
CA-2018-11...	6/9/2018	Standard Class	Brosina Hoffman	California	West	Office Supplies	Binders	18.50	5.78	null	0
CA-2018-11...	6/9/2018	Standard Class	Brosina Hoffman	California	West	Office Supplies	Appliances	114.90	34.47	null	0
CA-2018-11...	6/9/2018	Standard Class	Brosina Hoffman	California	West	Furniture	Tables	1,706.18	85.31	null	0

Examination of the data reveals that using the average rate of return yields more insights than total counts of returns. There's no significant correlation between total sales and returns. Deeper analysis shows 3 major root causes of higher returns: region (East and West), seasonality (Fall and Winter months), and shipping method (same day).
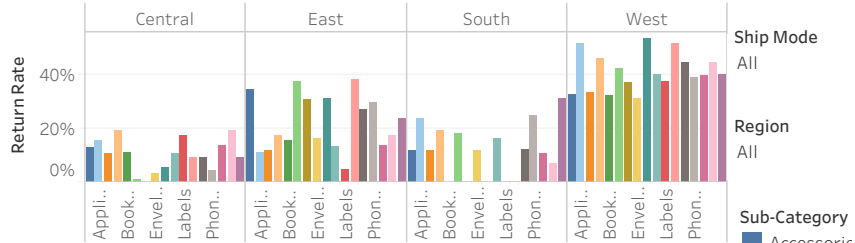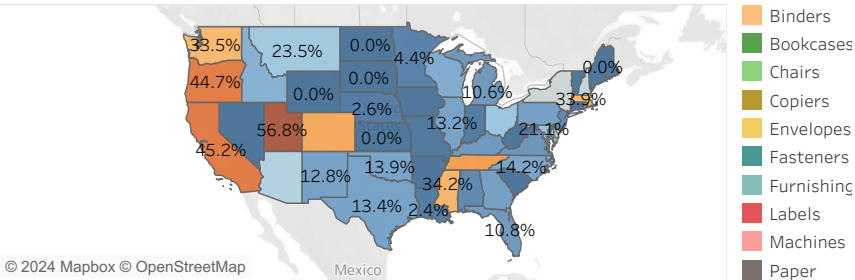
Monthly Return Rates

August 38.6%	October 28.9%	April 20.7%	March 20.4%
September 33.7%	February 26.3%	May 19.5%	July 18.2%
December 32.5%	January 22.8%	June 19.1%	
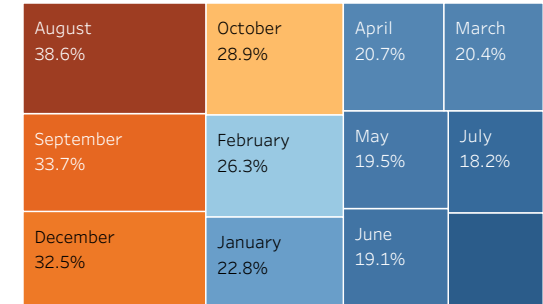
Impact of Shipping mode and Weekday
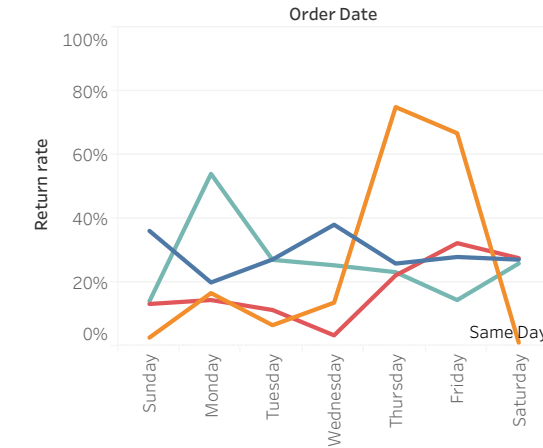
Regional RR by Subcategory

Return Rate by State

© 2024 Mapbox © OpenStreetMap

Category Return Rate

Total Returns vs Sales
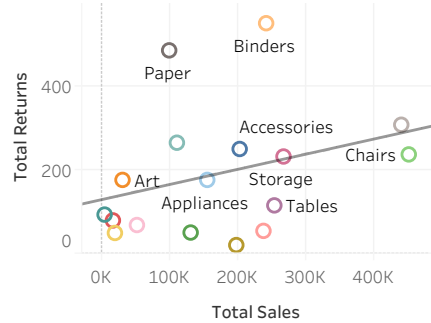
Weekday of Ord
All

Ship Mode
All

Region
All

Sub-Category
- Accessories
- Appliances
- Art
- Binders
- Bookcases
- Chairs
- Copiers
- Envelopes
- Fasteners
- Furnishings
- Labels
- Machines
- Paper
- Phones
- Storage
- Supplies
- Tables

Methodology- Since
the main focus of this
analysis was to
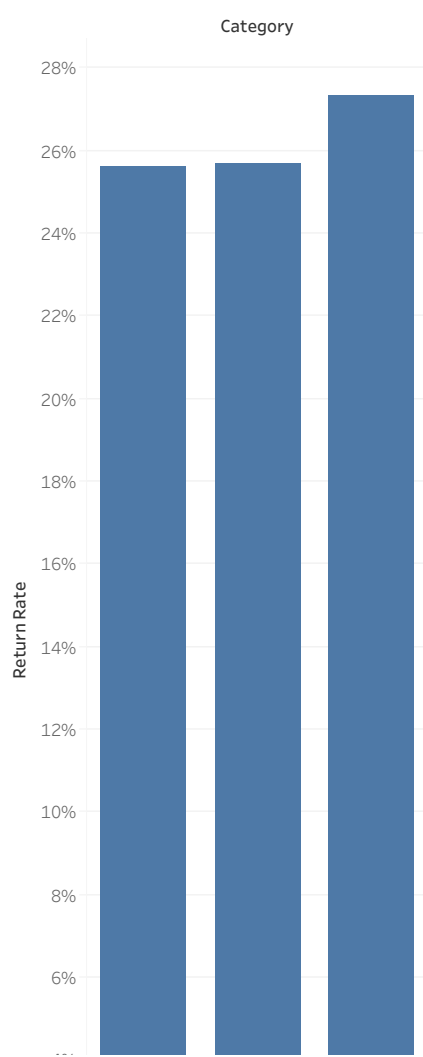understand the trends
in return data, the fir..

Analysis- Initial analysis was to look for trends from the data on returns at the Superstore. The initial step was to be
able to calculate returns. When looking at total returns against total sales by subcategories we see no significant
correlation. The trend line details an Rsquared of 0.1 and p-value of 0.2. By looking at the average return rate we can
draw better conclusions around the root causes for higher returns.

Working from larger to
smaller, the next step was
to examine locality and its
impact on returns. Here,
it's seen that two partic..

Total Returns vs Sales
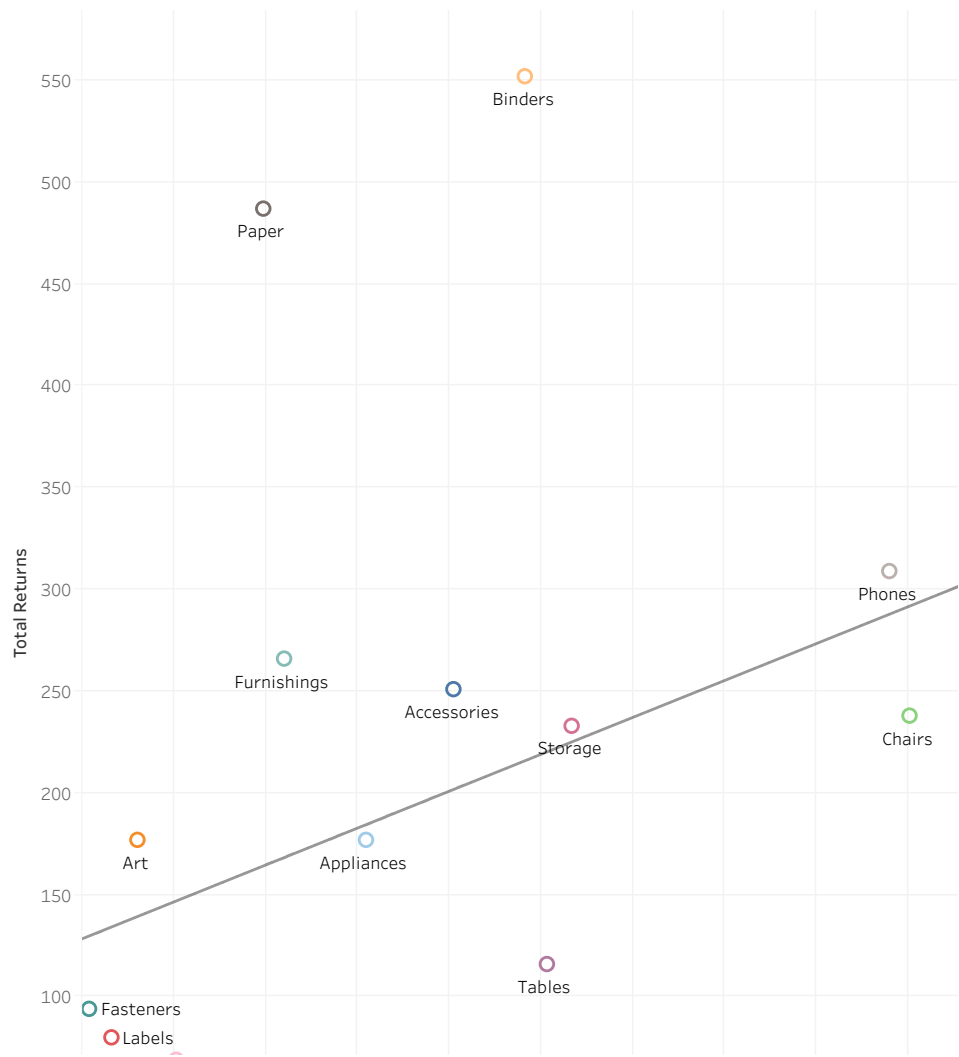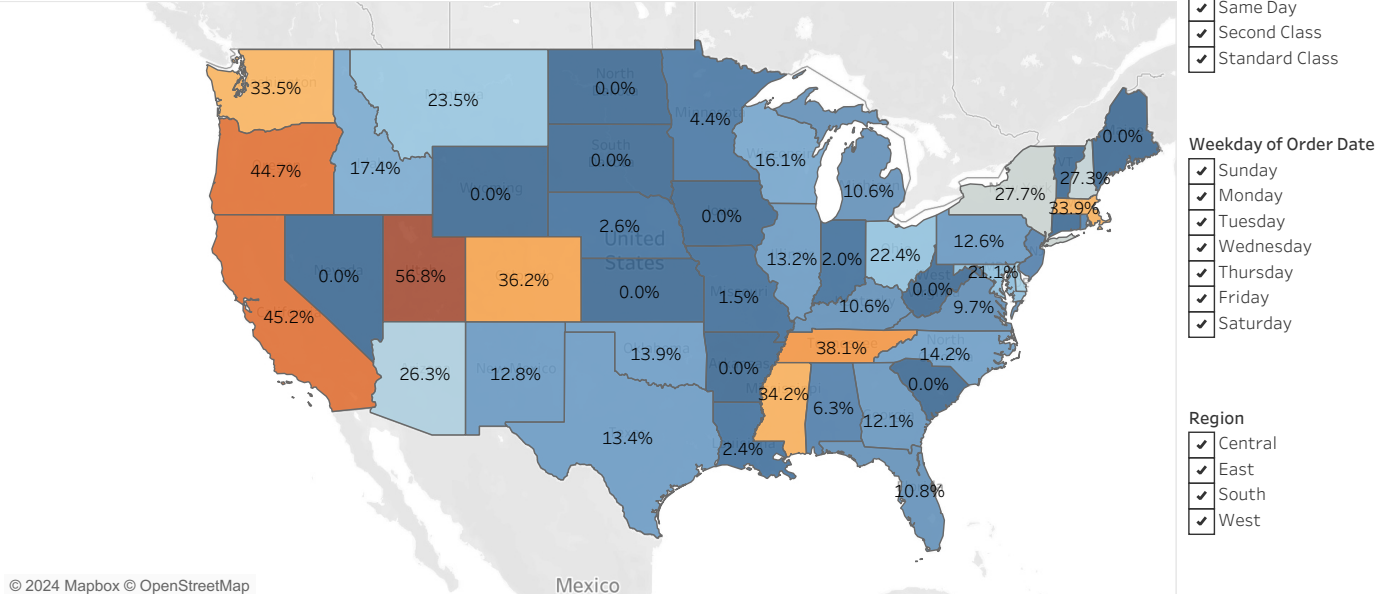

Category Return Rate

Analysis- Initial
analysis was to look
for trends from the
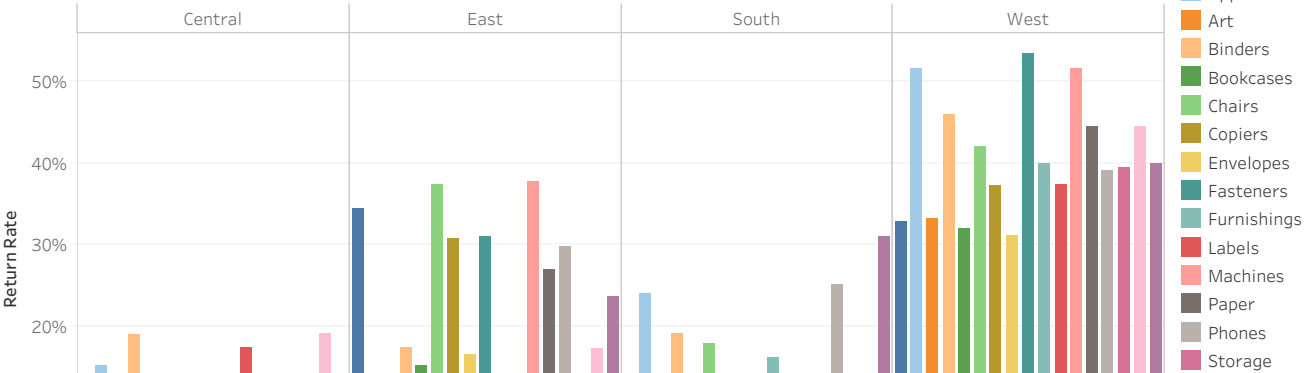data on returns at the
Superstore. The initia..

Working from larger to smaller, the next step was to examine locality and its impact on returns. Here, it's seen that two
particular regions, the East and West, make up the bulk of the return rate. Notice there are no specific subcategories
that stand out as major outliers for returns, but that returns are fairly uniform. Even when looking at specific customers
and filtering for region 198 of 246 with more than 1 order come from the East and West regions.

Further trends emerge
when looking at
breakdowns based on
timing (seasonality and
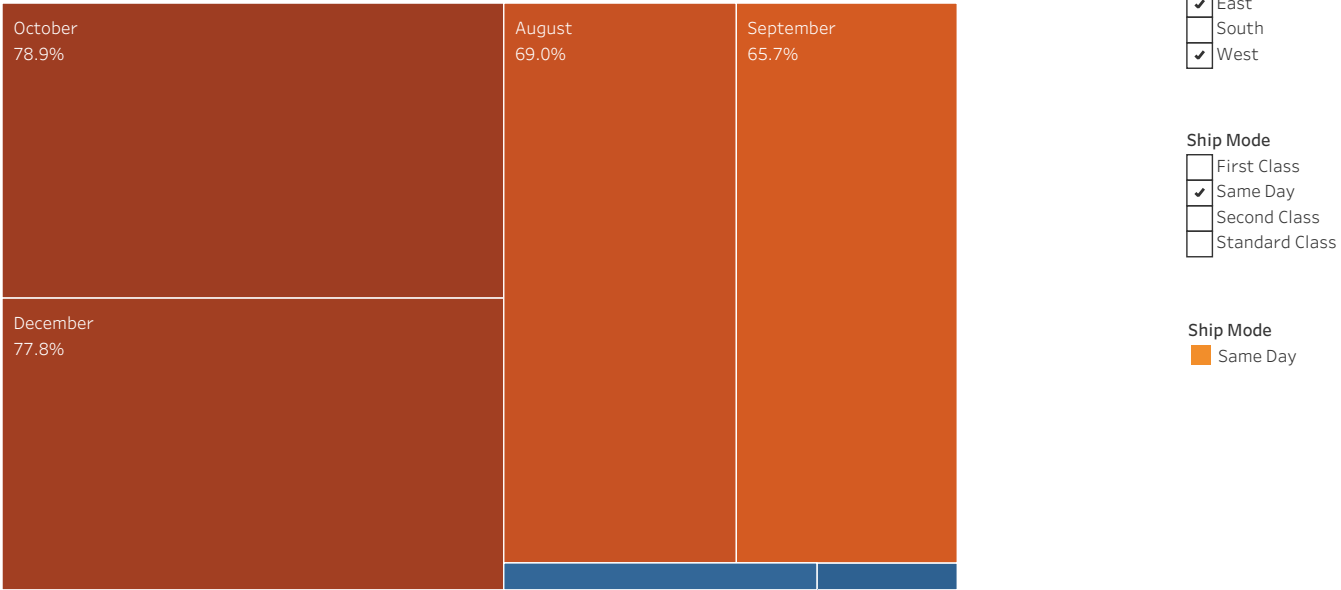inter-week). Shipping me..

Return Rate by State

Ship Mode
- ✔ First Class
- ✔ Same Day
- ✔ Second Class
- ✔ Standard Class

Weekday of Order Date
- ✔ Sunday
- ✔ Monday
- ✔ Tuesday
- ✔ Wednesday
- ✔ Thursday
- ✔ Friday
- ✔ Saturday

Region
- ✔ Central
- ✔ East
- ✔ South
- ✔ West

Regional RR by Subcategory

Sub-Category
- Accessories
- Appliances
- Art
- Binders
- Bookcases
- Chairs
- Copiers
- Envelopes
- Fasteners
- Furnishings
- Labels
- Machines
- Paper
- Phones
- Storage

Monthly Return Rates

| October 78.9% | August 69.0% | September 65.7% |

December 77.8%

Region
- [ ] Central
- [✔] East
- [ ] South
- [✔] West

Ship Mode
- [ ] First Class
- [✔] Same Day
- [ ] Second Class
- [ ] Standard Class

Ship Mode
■ Same Day

Impact of Shipping mode and Weekday
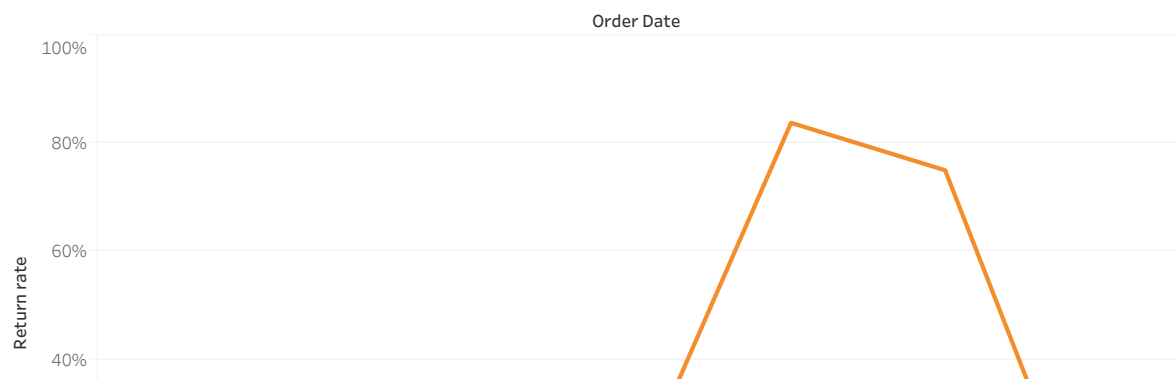
Order Date

Return rate

Further trends emerge when looking at breakdowns based on timing (seasonality and inter-week). Shipping method stands out, where the highest return rate is associated with same-day shipping. Returns peak on Thursday and Friday. Seasonality ..

Conclusion- When excluding the root causes for higher returns as noted previously, the return rate falls into a much more reasonable range acros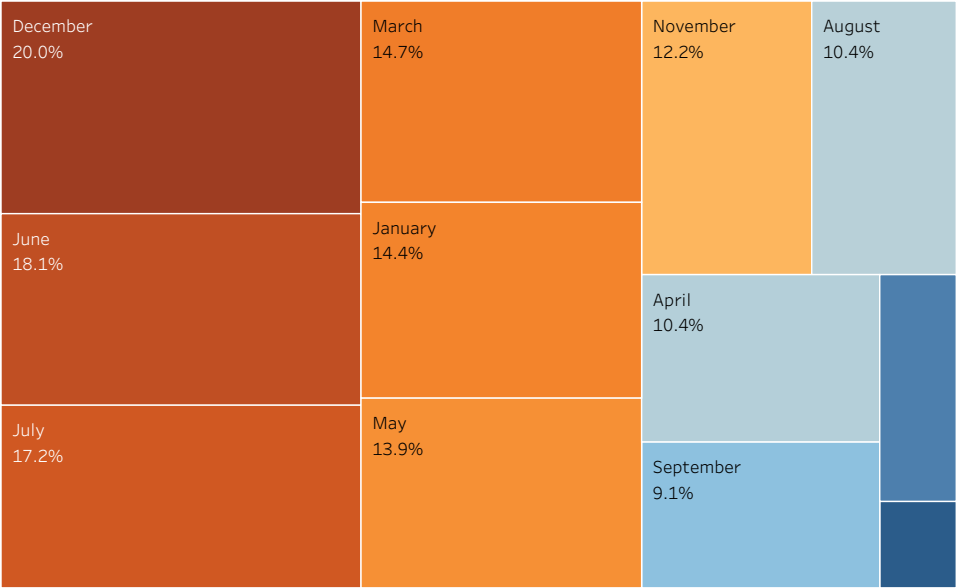s our different dimensions. The results of this analysis suggest we should focus our customer service efforts on the East and West regions to make sure we're directing customers to the right products and making sure that the timeframe for when needed is accurate and doable. There should also be efforts to increase sales across the regions showing lower return rates through promotions or loyalty programs to show appreciation for their ..

Monthly Return Rates

December 20.0%	March 14.7%	November 12.2%	August 10.4%
June 18.1%	January 14.4%	April 10.4%	
July 17.2%	May 13.9%	September 9.1%	

Region
- ☑ Central
- ☐ East
- ☑ South
- ☐ West

Ship Mode
- ☑ First Class
- ☐ Same Day
- ☑ Second Class
- ☑ Standard Class

Ship Mode
- ■ First Class
- ■ Second Class
- ■ Standard Class

Impact of Shipping mode and Weekday

Order Date

Return rate

100%

80%

60%

40%