# Project 1: Superstore

Skills Leveraged:
- Excel (vlookups, xlookups, pivot tables)
- PowerPoint

The Problem

- We want to observe the impact of returns and discounts on the profits of products in the Furniture and Office category in the Central US in 2019.

- Information gathered could be used to see what we could do better to reduce returns and therefore increase profits.
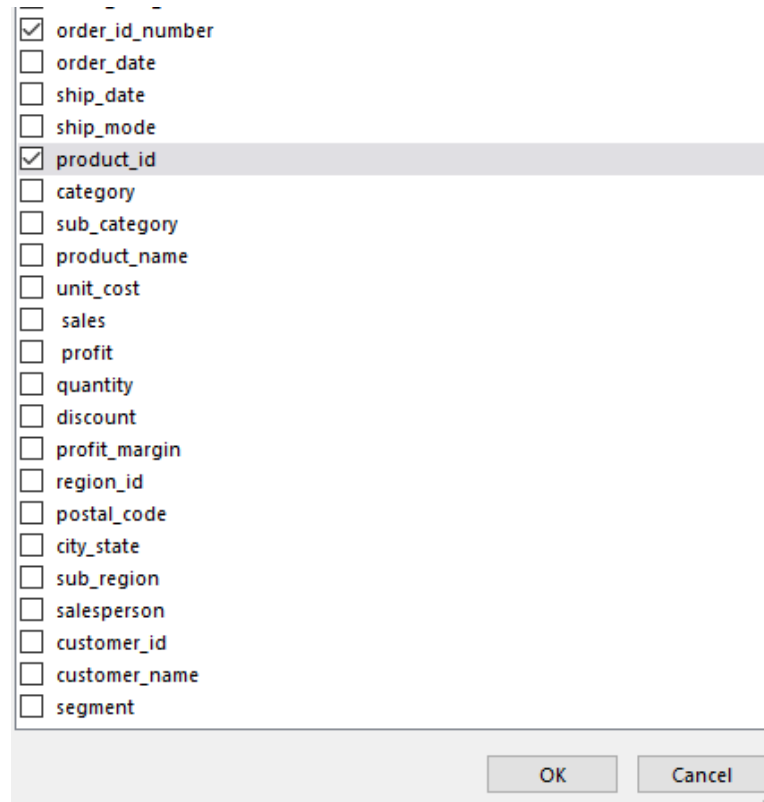
Data Wrangling

- Handling nulls through the use of the Find & Select function to search for blank cells. Blanks were filled in with a dash '-'
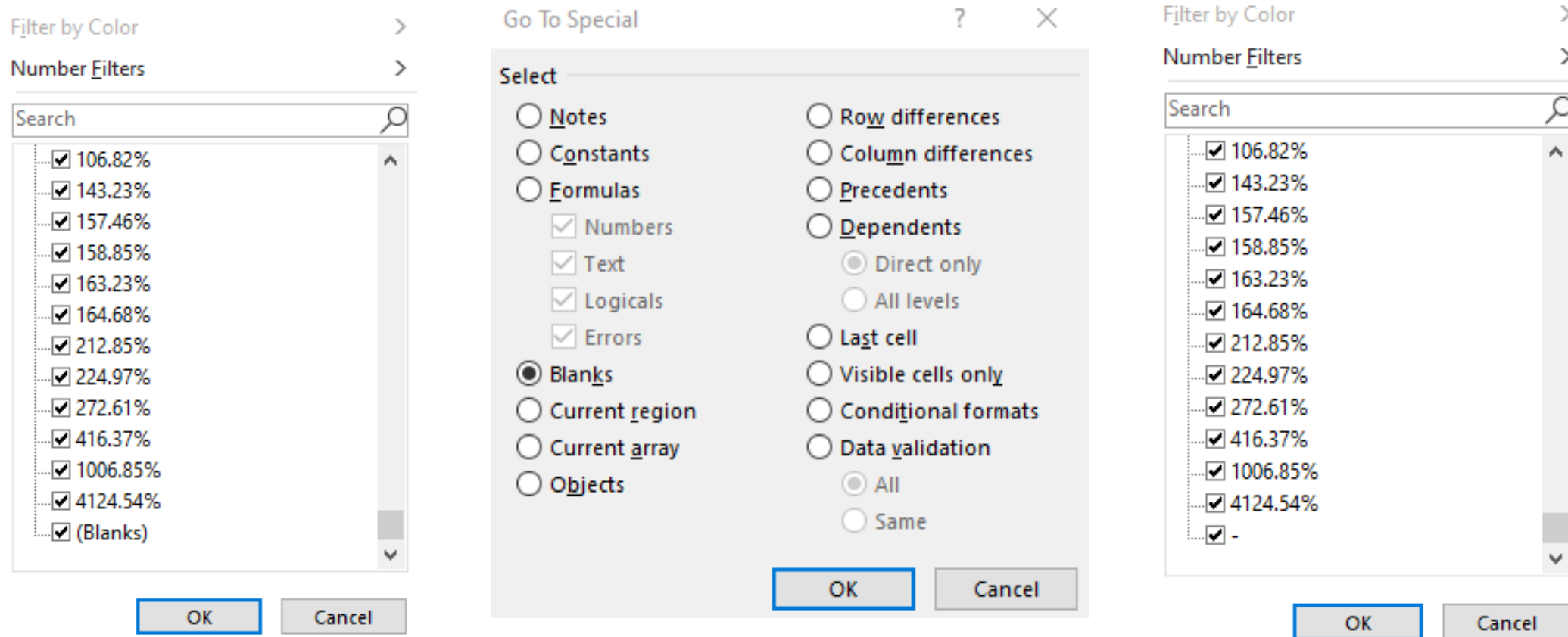
Data Wrangling

- The Remove Duplicates function in the Data menu was used to remove duplicate entries in the order_id_number and product_id column.

Data Wrangling

- Added new column order_id so that the orders and returns worksheet had a field in common. This column will be used in vlookup and index/match functions later on.

- Used index/match and if functions to bring over return reasons from the returns worksheet, data is stored in a new return_reason and returned column.

1	order_id	order_info ▾	order_id_nu ▾
2	=B2&"-"&C2	AE-2019	1231682

Data Wrangling

- Formatted each column according to their data type, i.e. order_date as date and profit as currency £.

Data Analysis

	Orders	Returns
Count of observations	24059	1209
Count of features	12	2

Categorical	Numerical
• order_id • order_info_id • category • sub_region • state • return_reason • product_name	• order_id_number • order_date • profit • returned • discount

Interpreting Data

- 5.6% decrease of sales in furniture.
- 4.9% decrease of profits in office supplies

Sales before and after refunds

	Furniture	Office Supplies
total sales	4625	14756
sales after refunds	4364	14033

Interpreting Data

- 13.5% decrease of profits in furniture.

- 5.5% decrease of profits in office supplies

	% of sales refunded	% of profit loss
Furniture	5.6	13.5
Office Supplies	4.9	5.5

Profits before and after refunds

Interpreting Data

- Most common reason that's given is wrong items being sent.
- Followed by wrong color.
- Signs of human error.

Reasons for returns

- Not Given
- Wrong Item
- Wrong Color
- Not Needed

35.87%
34.35%
15.45%
14.33%
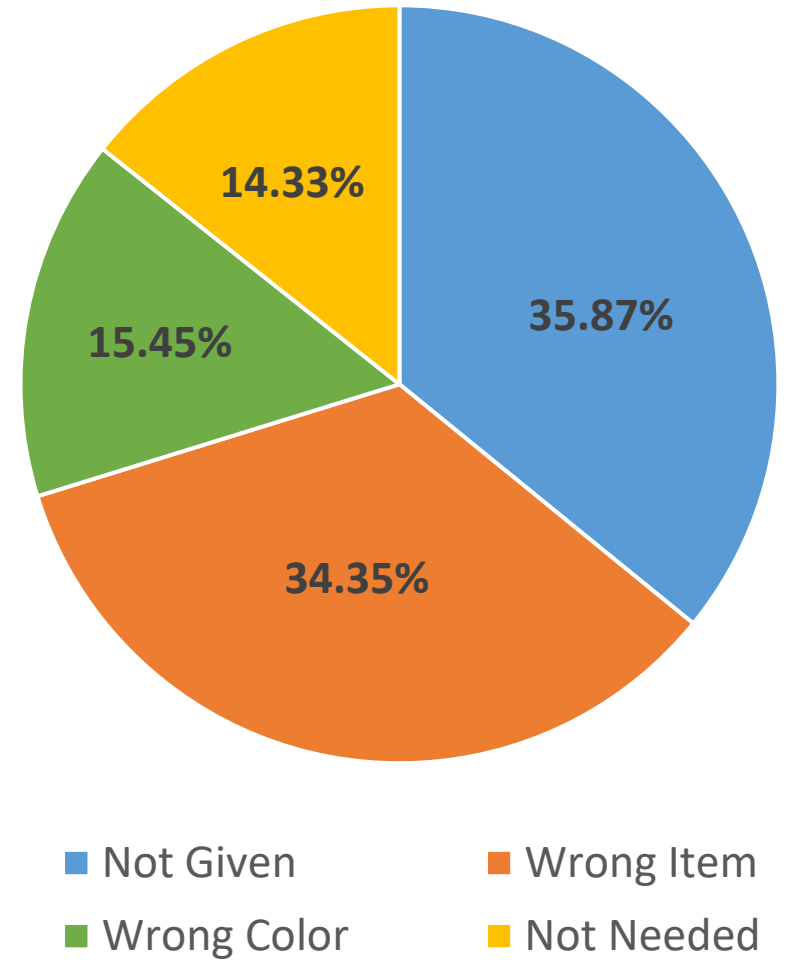
Interpreting Data

- Large number of returns happen between 25% and 35% discount.
- Possible explanation:
  - Seeing a discount -> Impulse buy leading to second thoughts after.

Returns in each discount category

Discount	Returns
0%	2
5%	102
10%	114
15%	146
20%	42
25%	208
30%	161
35%	239
40%	66
45%	59
50%	48
55%	17
60%	4
65%	1
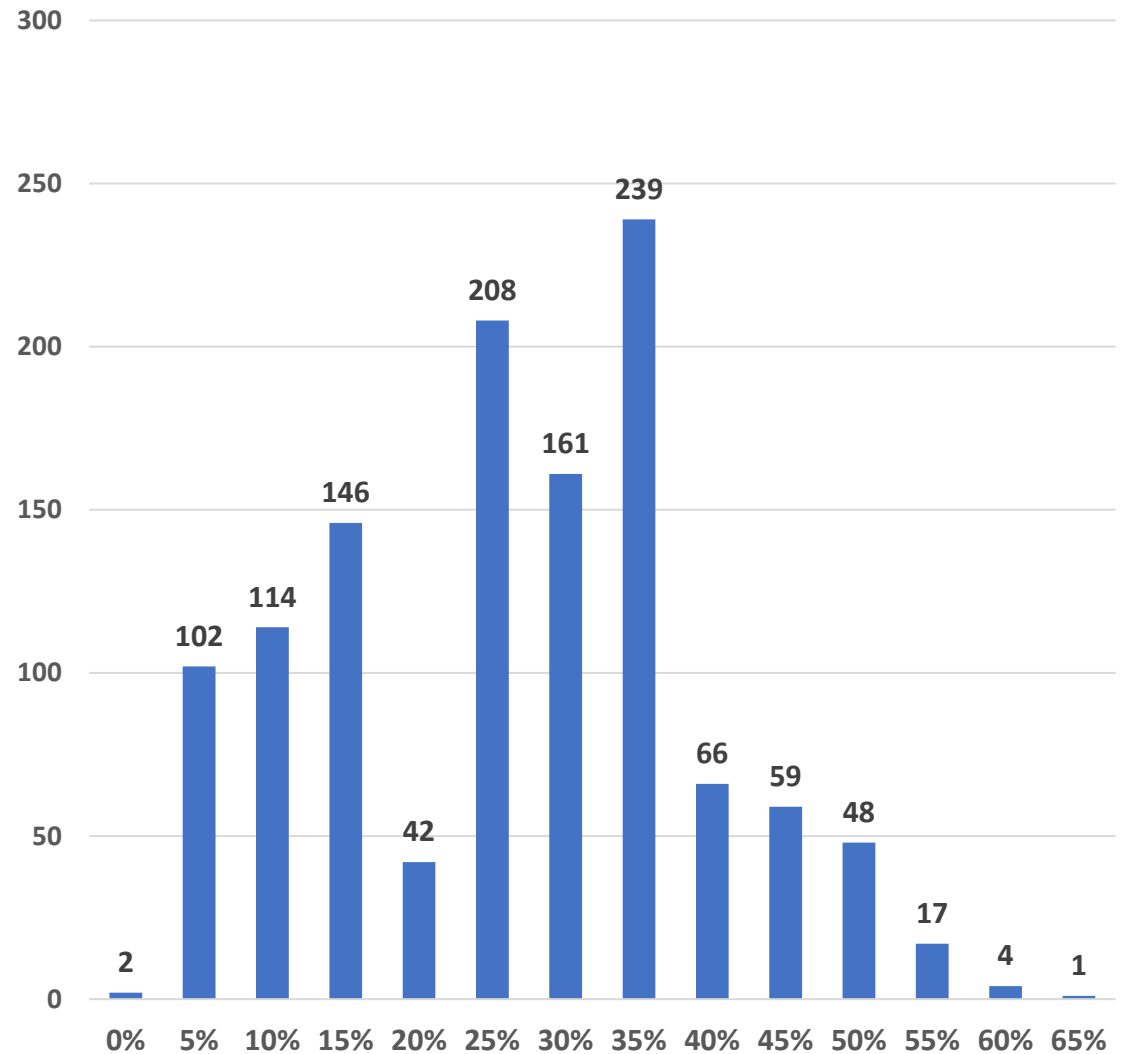
Interpreting Data

- Can also be explained by the high number of sales in the 25% to 35% range.

Sales in each discount band
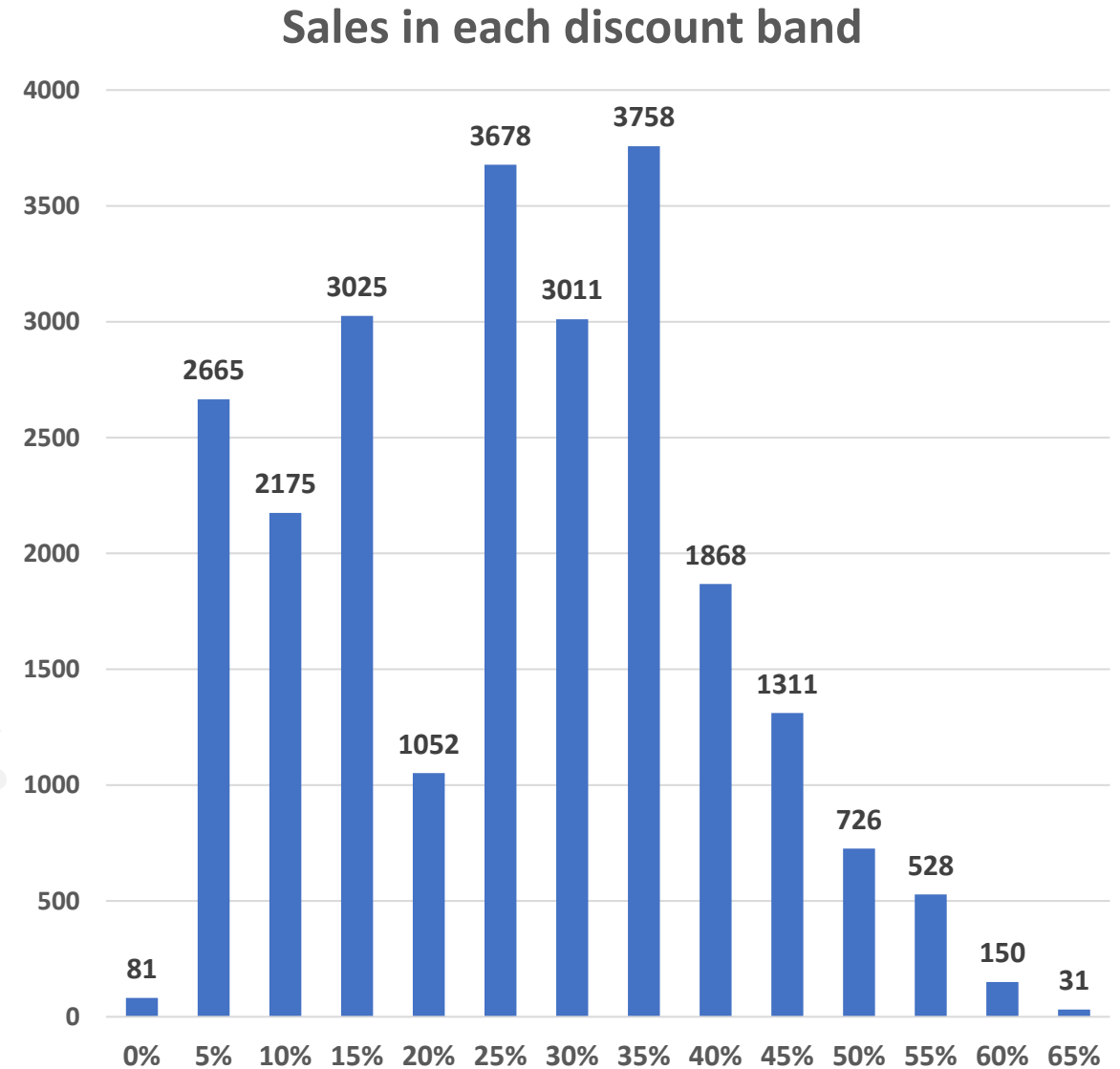
Interpreting Data

- High number of returns are coming from Illinois and Texas.

Where are returns coming from?

State	Percentage
Illinois	23.27%
Indiana	8.43%
Iowa	0.71%
Kansas	0.91%
Michigan	8.64%
Minnesota	4.27%
Missouri	3.76%
Nebraska	1.83%
North Dakota	0.41%
Oklahoma	3.46%
South Dakota	0.51%
Texas	39.13%
Wisconsin	4.67%

Interpreting Data

- This can also be explained as just over 60% of orders came from those 2 locations.

Where are sales made?

State	Percentage
Illinois	21.43%
Indiana	6.81%
Iowa	1.52%
Kansas	0.93%
Michigan	10.21%
Minnesota	3.65%
Missouri	2.77%
Nebraska	1.99%
North Dakota	0.45%
Oklahoma	3.23%
South Dakota	0.59%
Texas	41.31%
Wisconsin	5.10%
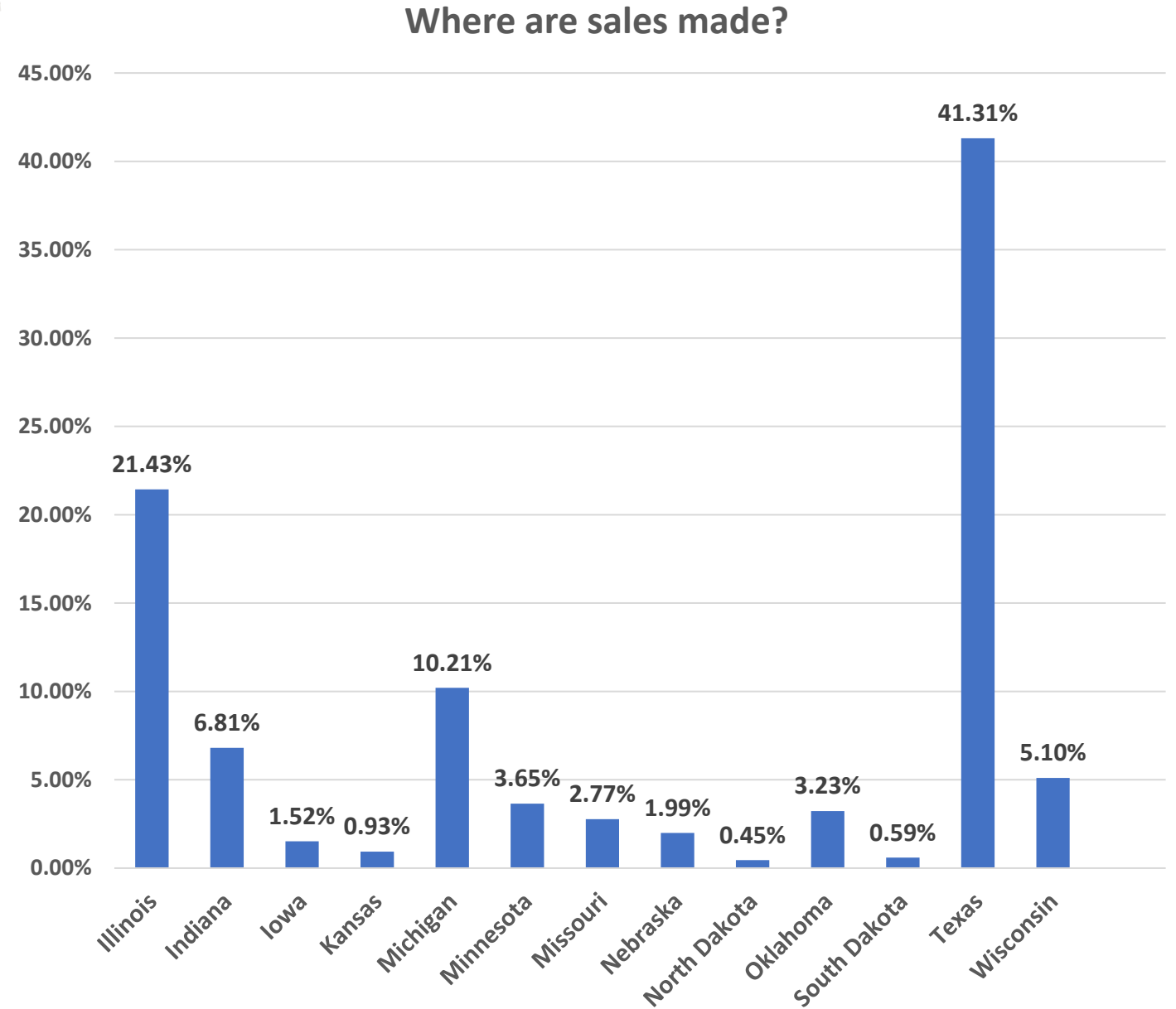
What can be done

- Find what items are being refunded in Furniture that's causing profits to decrease so much.

- Better train staff to note orders more carefully.

- If sales system is electronic, check if it's operating as intended.