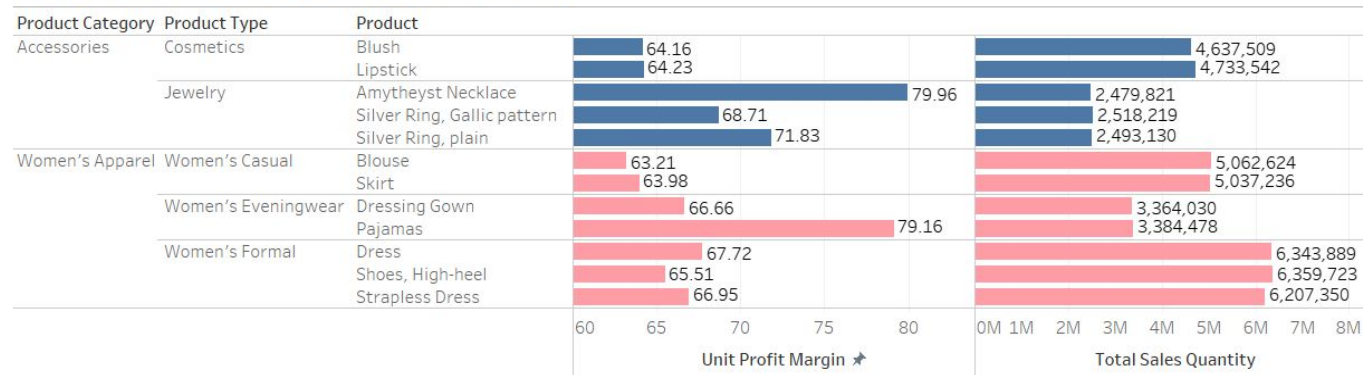# GROUP 8

PRODUCT CATEGORIES: WOMEN'S APPAREL AND ACCESSORIES

Aayush Vikram Shah
Sarita Ghosh
Subhiksha Mukuntharaj
Vaibhav Vasanth Rao
Prathamesh Satyawan Mahankal

Q.1.1. MARKETING STRATEGY: WHICH PRODUCTS SHOULD BE FEATURED?

Profit Margin vs Sales by Product Category

Product Category	Product Type	Product	Unit Profit Margin	Total Sales Quantity
Accessories	Cosmetics	Blush	64.16	4,637,509
		Lipstick	64.23	4,733,542
	Jewelry	Amytheyst Necklace	79.96	2,479,821
		Silver Ring, Gallic pattern	68.71	2,518,219
		Silver Ring, plain	71.83	2,493,130
Women's Apparel	Women's Casual	Blouse	63.21	5,062,624
		Skirt	63.98	5,037,236
	Women's Eveningwear	Dressing Gown	66.66	3,364,030
		Pajamas	79.16	3,384,478
	Women's Formal	Dress	67.72	6,343,889
		Shoes, High-heel	65.51	6,359,723
		Strapless Dress	66.95	6,207,350

Unit Profit Margin: 60 65 70 75 80
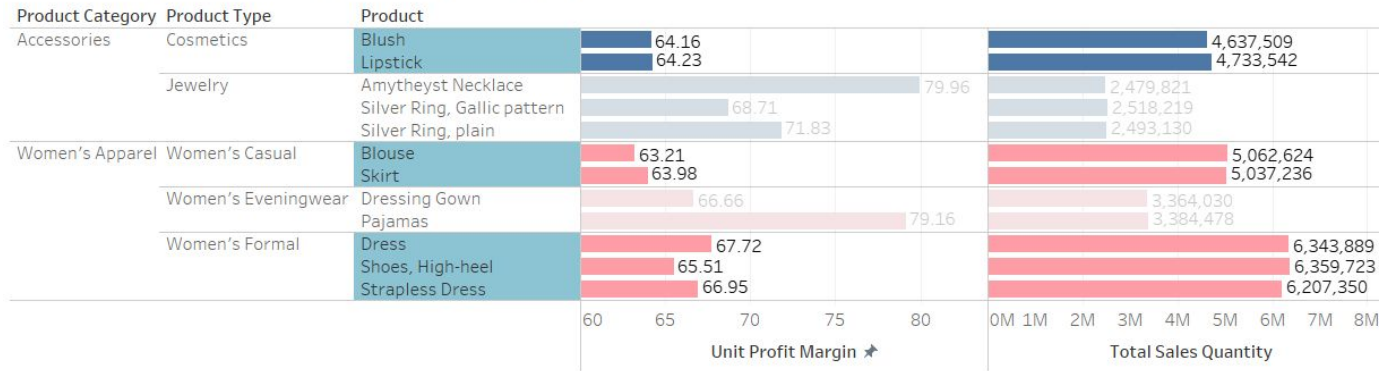Total Sales Quantity: 0M 1M 2M 3M 4M 5M 6M 7M 8M

The plot on the left shows the Unit Profit Margin and the Total Sales Quantity for each product.

Product Category
■ Accessories
■ Women's Apparel

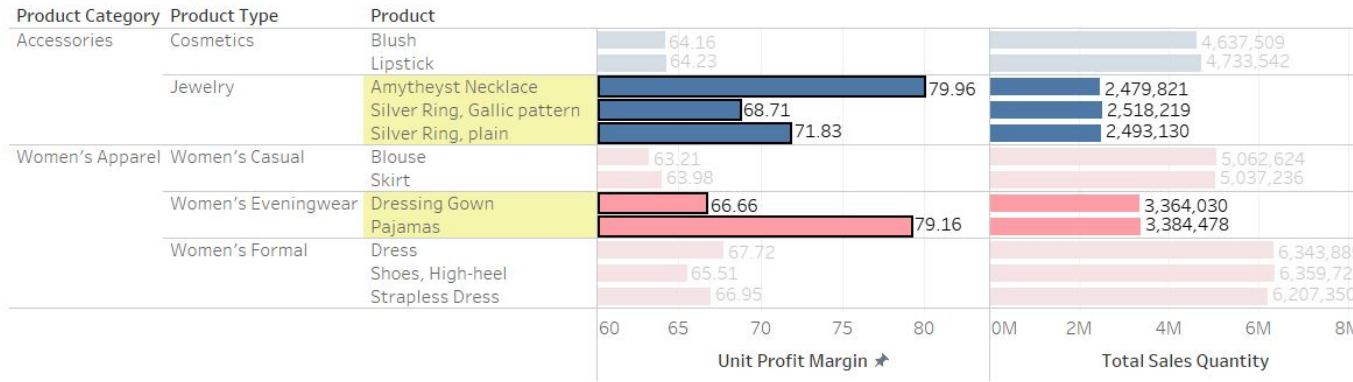# Q.1.1. MARKETING STRATEGY: WHICH PRODUCTS SHOULD BE FEATURED?

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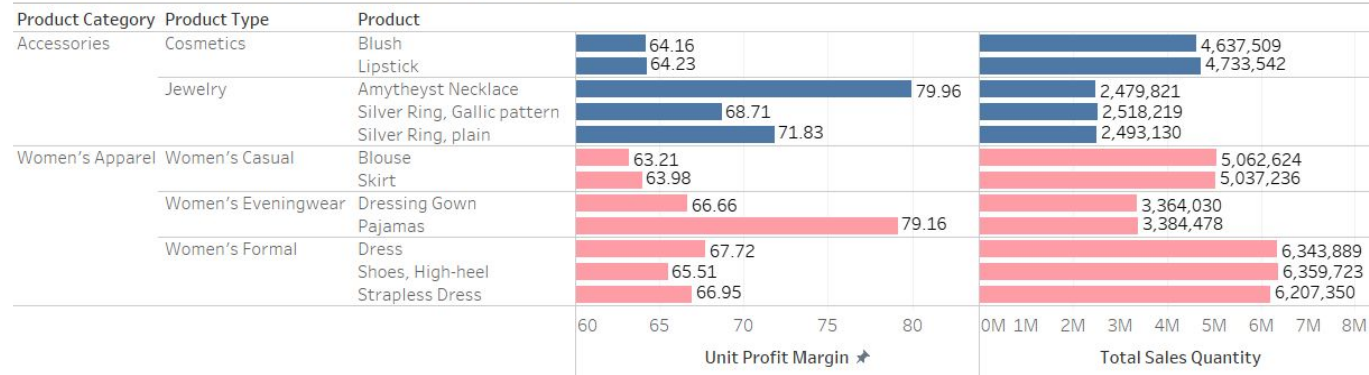
Product Category
- Accessories
- Women's Apparel

Analysis

- High correlation between Product Type and Sales Quantity
- All Products that are doing well in terms of Sales Quantity have a low Profit Margin
- In terms of Sales Quantity, the following Products are doing well:
  - Accessories - Cosmetics (Blush, Lisptick)
  - Women's Apparel - Women's Casual (Blouse, Skirt)
  - Women's Apparel - Women's Formal (Dress, Shoes High Heel, Strapless Dress)

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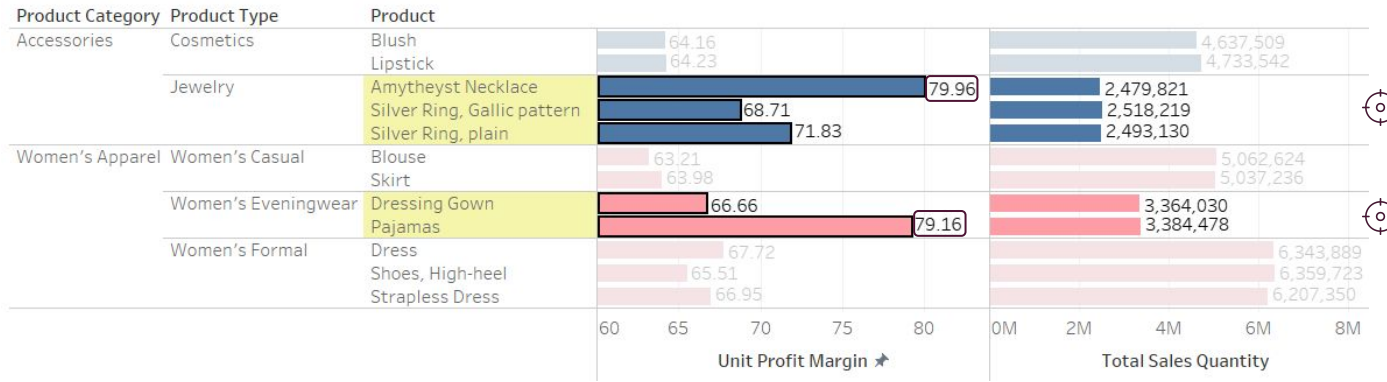
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- In terms of Sales Quantity, the following Products are not performing well:
  - Accessories - Jewelry (Amethyst Necklace, Silver Ring Gallic Pattern, Silver Ring plain)
  - Women's Apparel - Women's Eveningwear (Dressing Gown, Pajamas)

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Unit Profit Margin axis: 60 65 70 75 80
Total Sales Quantity axis: 0M 1M 2M 3M 4M 5M 6M 7M 8M

The plot on the left shows the Unit Profit Margin and the Total Sales Quantity for each product.

Product Category
- Accessories
- Women's Apparel

Overall Trend

- Women's Apparel is doing better than Accessories in terms of Sales Quantity

Analysis

- High correlation between Product Type and Sales Quantity
- All Products that are doing well in terms of Sales Quantity have a low Profit Margin
- In terms of Sales Quantity, the following Products are doing well:
  - Accessories - Cosmetics (Blush, Lisptick)
  - Women's Apparel - Women's Casual (Blouse, Skirt)
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Q.1.2. MARKETING STRATEGY: WHAT SHOULD BE DONE IN THE NEXT YEAR TO MAXIMISE PROFITS?

Profit Margin vs Sales by Product Category

The plot on the left shows the Unit Profit Margin and the Total Sales Quantity for each product.

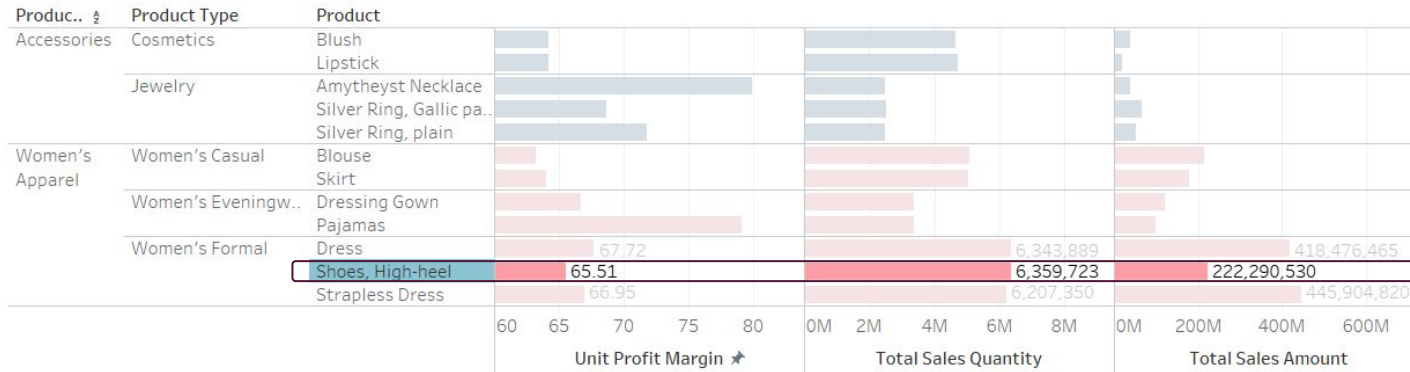| Product Category	Product Type	Product	Unit Profit Margin	Total Sales Quantity
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Product Category
- Accessories
- Women's Apparel

Recommended Strategy 1 - Capitalize on High Margin Products:

- Focus products that have high profit margins, but are not selling in high quantities
- Who is the target customer? Optimize Marketing Strategy accordingly
- Consider offering discounts/promotions, or even reducing the selling price of these products
- Specific Products to Feature:
    - Accessories - Amethyst Necklace
    - Women's Apparel - Pajamas

Q.1.2. MARKETING STRATEGY: WHAT SHOULD BE DONE IN THE NEXT YEAR TO MAXIMISE PROFITS?

Product Margin vs Product Sales Quantity vs Product Sales Amount

The plot on the left shows the Unit Profit Margin, the Total Sales Quantity, and the Total Sales Amount for each product.

Product Category
- Accessories
- Women's Apparel

Recommended Strategy 1 - Capitalize on High Margin Products:

- Focus products that have high profit margins, but are not selling in high quantities
- Who is the target customer? Optimize Marketing Strategy accordingly
- Consider offering discounts/promotions, or even reducing the selling price of these products
- Specific Products to Feature:
    - Accessories - Amethyst Necklace
    - Women's Apparel - Pajamas

Recommended Strategy 2 - Revise Pricing

- High-heeled shoes are generating almost half the revenue as compared to other Women's Formal products, despite having a similar profit margin and being sold in similar quantities
- This difference in Sales Amount can be attributed to differences in their lower Selling Price
- The company could revise their pricing strategy for such products, and spend more on marketing these products so as to ensure that they sell in similar volumes, albeit with a higher price tag

Q.1.3 & 4. HOW ARE THEY PERFORMING AGAINST TARGET? DO YOU EXPECT THEM TO MEET THEIR 2014 TARGET?


Sales Quantity vs Targets by Product Category
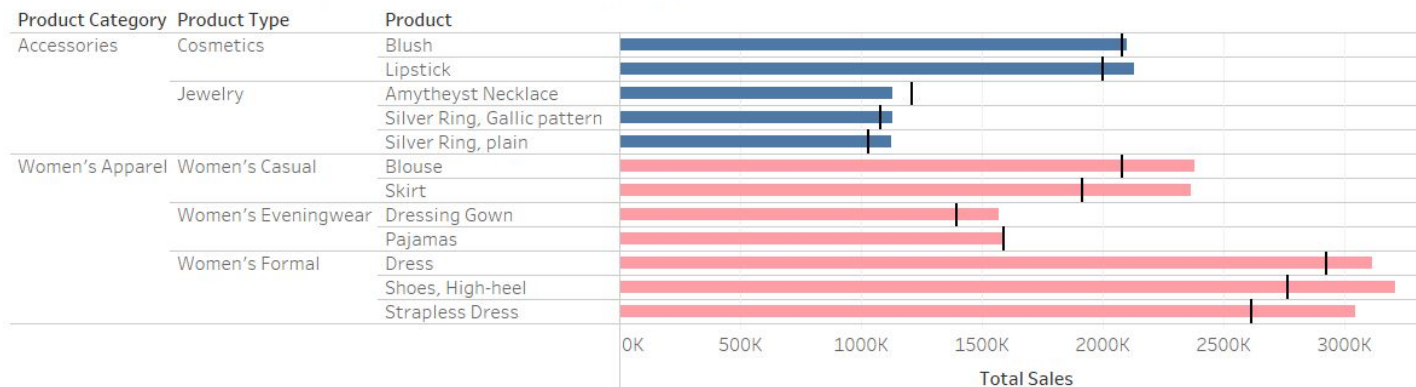
Product Category	Product Type	Product
Accessories	Cosmetics	Blush
		Lipstick
	Jewelry	Amytheyst Necklace
		Silver Ring, Gallic pattern
		Silver Ring, plain
Women's Apparel	Women's Casual	Blouse
		Skirt
	Women's Eveningwear	Dressing Gown
		Pajamas
	Women's Formal	Dress
		Shoes, High-heel
		Strapless Dress

The plot on the left shows the Total Sales Quantity and Sales Quantity Target for each product.

Product Category
- Accessories
- Women's Apparel

Month and Year
- April 2013
- May 2013
- June 2013
- July 2013
- August 2013
- September 2013
- October 2013
- November 2013
- December 2013
- ☑ January 2014
- ☑ February 2014
- ☑ March 2014
- ☑ April 2014
- ☑ May 2014
- ☑ June 2014
- ☑ July 2014
- ☑ August 2014
- ☑ September 2014
- ☑ October 2014
- November 2014
- December 2014

Q.1.3 & 4. HOW ARE THEY PERFORMING AGAINST TARGET? DO YOU EXPECT THEM TO MEET THEIR 2014 TARGET?

The plot on the left shows the Total Sales Quantity and Sales Quantity Target for each product.

Analysis

- Looking at Year-to-Date performance, all products except Amethyst Necklace have achieved/exceeded their targets
- Products such as Shoes and Dress/Strapless Dress have exceeded their targets by a very large margin, and this could potentially make up for the deficit for Amethyst Necklace

Q.1.3 & 4. HOW ARE THEY PERFORMING AGAINST TARGET? DO YOU EXPECT THEM TO MEET THEIR 2014 TARGET?

Monthwise Sales Quantity by Product Category
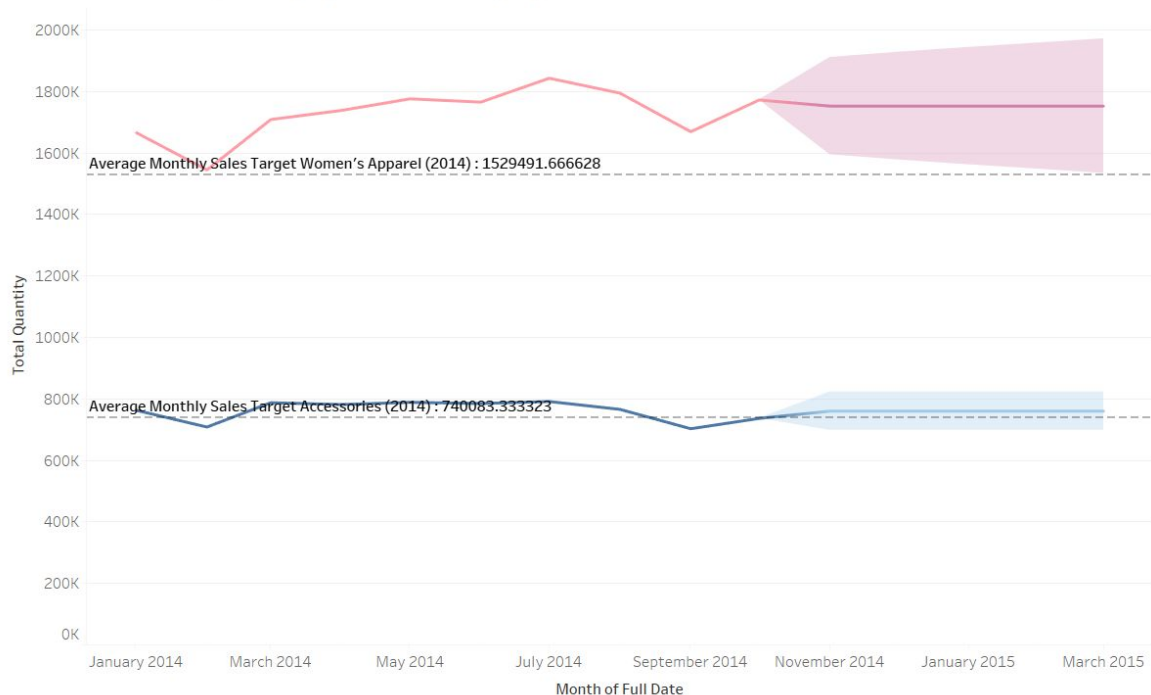
The plot on the left shows the Total Sales Quantity, Average Monthly Sales Quantity Target, and forecasted Sales Quantity for each Product Category.

Product Category
- Accessories, Actual
- Accessories, Estimate
- Women's Apparel, Actual
- Women's Apparel, Estimate

Analysis

- The Women's Apparel product category has been consistently performing well, with Sales Quantities exceeding their targets every month. This product category is on track to achieve/exceed its 2014 target.
- Accessories have fairly constant Sales so far, with Sales Quantities exceeding targets in most months. However, the forecasted values for this category suggest a possibility of targets not being met.
- Overall, the cumulative target for both categories will be met, especially because of the large margin with which Women's Apparel is set to exceed its target.

Q.2 RECOMMEND SEPARATE 2013 AND 2014 BONUS AMOUNTS IF THE TOTAL BONUS POOL FOR 2013 IS $1mn AND FOR 2014 IS $2mn
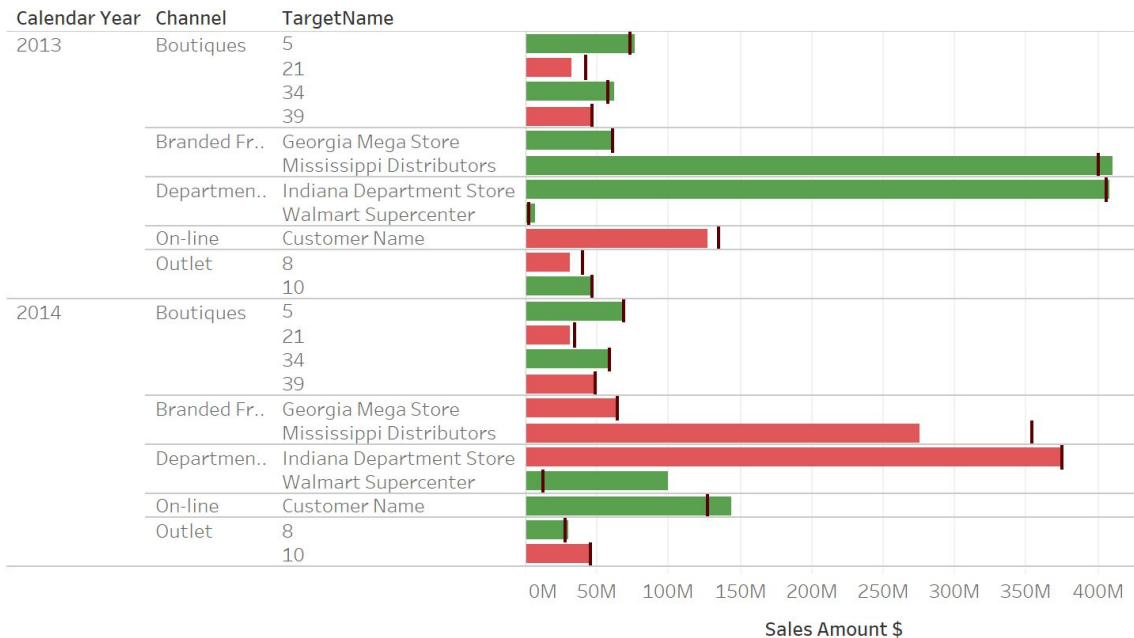
Details:

- The plot on the left shows the Total Sales Amount for each of the two years - 2013 and 2014, and for and each TargetName within every Channel.
- These Sales Amount are then compared to the individual targets for each of these TargetNames.
- The Sales Amounts for TargetNames that meet their individual targets are shown in green while the ones that don't are shown in red.

** Disclaimer: The targets and sales amounts for the 2014 data are only available till October. **

Analysis

- The number of target names failing to meet their targets increase from 2013 to 2014.
- Out of the four Resellers in our list, all manage to reach their individual targets in 2013. While only one of the four manages to reach its target in 2014.

Distribution of the bonus - Why Only TargetName-wise And Not Channel-wise?

- While going through the first graph on the right, we can see that the channel 'Departmental Stores' made even higher profits in 2014 than they did in 2013.
- A decision to provide bonus to all resellers in this channel would not be fair. The reason for this can be seen in the second graph on the right.
- While both Indiana Departmental Store and Walmart Supercenter surpass their targets in 2013, only Walmart manages to repeat this feat in 2014.
- Going by the success of the channel while distributing bonus disregards the margin Walmart exceeds its target by
- Distributing the bonus among the targetnames based on their performance thus makes more sense.
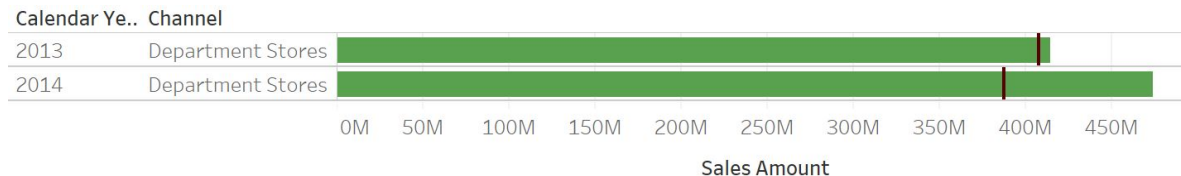
Q.2 RECOMMEND SEPARATE 2013 AND 2014 BONUS AMOUNTS - CALCULATIONS FOR DETERMINING BONUSES

- We currently have Sales Amounts and Target Sales Amounts for each of the Year-Channel-TargetName pair.
- We can calculate the difference between these two values, and keep only the values that are positive (disregarding all the instances where a particular targetname does not achieve its target) and keep all the remaining values as 0.
- Now for every target name, we take its positive difference and divide it by the total of all the positive differences combined.
- Finally, we multiply this value with the total amount of the bonus pool.
- This gives us the individual bonus amount for that target name.

Formula

Considering only positive differences

Individual Bonus per Target Name =

$$\frac{\text{(Sales Amount Difference For A TargetName)}}{\text{(Sum of all Sales Amount Differences)}} \times \text{Total Bonus}$$

Q.2 RECOMMEND SEPARATE 2013 AND 2014 BONUS AMOUNTS IF THE TOTAL BONUS POOL FOR 2013 IS $1mn AND FOR 2014 IS $2mn

2013 (Bonus Pool: $1mn)

Channel	TargetName	SalesAmount	TargetSales..	SalesDiffer..	PositiveDiff..	Percentage	Bonus
Boutiques	5	76,448,438	72,827,000	3,621,438	3,621,438	12.58%	125,751
	21	32,546,862	41,528,000	-8,981,138	0	0.00%	0
	34	62,245,946	57,305,000	4,940,946	4,940,946	17.16%	171,569
	39	46,123,021	46,847,000	-723,979	0	0.00%	0
Branded Franchise	Georgia Mega Store	61,433,024	60,500,000	933,024	933,024	3.24%	32,398
	Mississippi Distributors	410,915,216	400,000,000	10,915,215	10,915,215	37.90%	379,019
Department Stores	Indiana Department Store	407,735,647	405,500,000	2,235,647	2,235,647	7.76%	77,630
	Walmart Supercenter	6,955,048	1,787,671	5,167,377	5,167,377	17.94%	179,432
On-line	Customer Name	127,246,137	135,500,250	-8,254,113	0	0.00%	0
Outlet	8	30,664,139	40,262,000	-9,597,861	0	0.00%	0
	10	47,916,947	46,932,000	984,947	984,947	3.42%	34,201

2014 (Bonus Pool: $2mn)

Channel	TargetName	SalesAmount	TargetSales..	SalesDiffer..	PositiveDiff..	Percentage	Bonus
Boutiques	5	68,719,159	68,295,890	423,269	423,269	0.40%	7,902
	21	31,256,024	34,148,362	-2,892,338	0	0.00%	0
	34	59,692,914	58,717,808	975,106	975,106	0.91%	18,204
	39	48,251,213	48,864,044	-612,831	0	0.00%	0
Branded Franchise	Georgia Mega Store	63,307,492	63,715,068	-407,576	0	0.00%	0
	Mississippi Distributors	275,056,623	354,389,041	-79,332,418	0	0.00%	0
Department Stores	Indiana Department Store	374,659,749	374,794,521	-134,772	0	0.00%	0
	Walmart Supercenter	99,508,971	12,657,534	86,851,437	86,851,437	81.07%	1,621,449
On-line	Customer Name	143,880,335	127,222,334	16,658,001	16,658,001	15.55%	310,992
Outlet	8	29,913,954	27,693,567	2,220,387	2,220,387	2.07%	41,453
	10	44,225,655	45,183,978	-958,323	0	0.00%	0

- Among all the resellers that get bonuses, majority is distributed to the Mississippi Distributors.
- Walmart and Boutique 34 get the next best share of the remaining bonus, while Boutique 5 and Indiana Department Store follow them..

- Unsurprisingly, Walmart Supercenter gets the highest share of the $2mn bonus.
- The online channel receives the next highest share of the bonus.
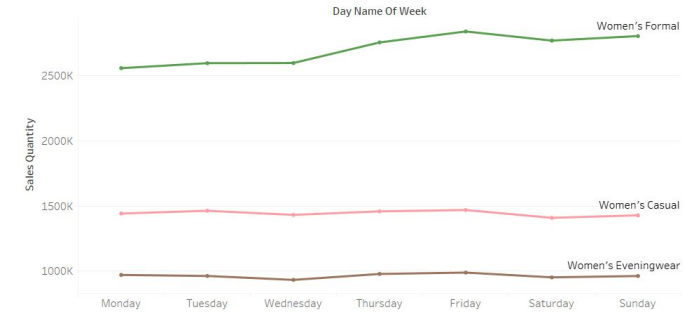- Remaining bonus is distributed between two Boutiques and an Outlet

** The calculations for 2014 are only till October

Q.3.1. ASSESS PRODUCT SALES BY DAY OF THE WEEK FOR WOMEN'S APPAREL

Sales Qty and Profit vs Day of the Week for Women's Apparel

Peak Sale and Profit on **Friday**

Measure Names
- Sales Quantity
- Sales Total Profit

Women's Apparel Sales Qty trend by Day of the Week and Ptoduct Type

Women's Formal

Women's Casual

Women's Eveningwear

Analysis For Women's Apparel:
- Maximum sales happen on Fridays!
- We see a dip in Sale on midweek, from Monday to Wednesday.
- Sales and Profit go hand in hand.
- Women's Casual and Eveningwear have very low quantity variance throughout the week.
- Women's Formal sales increase in weekend.

Recommendations:
- Special exhibit/demo for Women's Casual and Eveningwear on weekends.
- Start some midweek promotion for all women's apparel to attract more consumers.

Q.3.2. ASSESS PRODUCT SALES BY DAY OF THE WEEK FOR ACCESSORIES

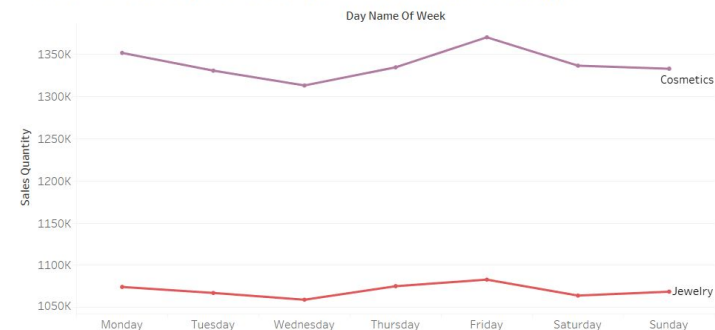Sales Qty and Profit vs Day of the Week for Accessories
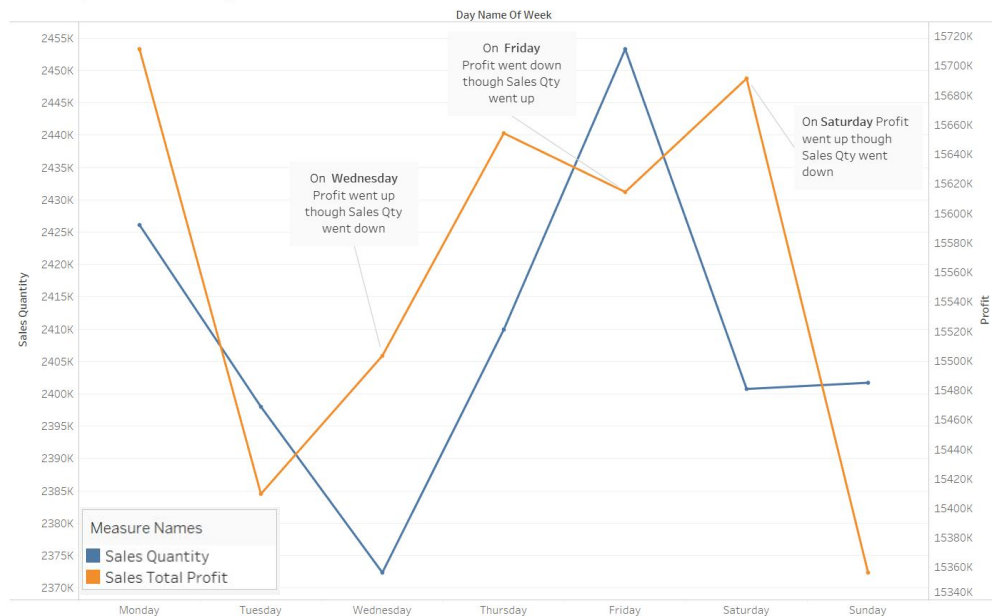
Analysis For Accessories:
- Maximum sales happen on Fridays!
- Profit peaks on Mondays!
- Contrasting trends between Sales Quantity and Profit in multiple days.

Two Possible Reasons of contrasting trend:
- High Profit Product(Jewelry) might be selling more on high profit days. But our analysis says that the trends are not contrasting for jewelry and cosmetics.

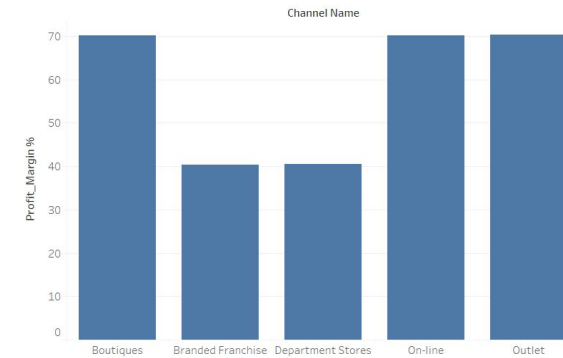Accessories Sales Qty trend by Day of the Week and Product Type

- There could be a dependency on the different channels that sell Accessories.(We are focusing on it in the next slide)

Q.3.2. CHANNEL BASED ANALYSIS FOR ACCESSORIES

Accessories Sales Qty and Profit trend by Day of the Week

On **Saturday** Sales Qty decreased by 58988 for **Department Stores**

On **Saturday** Sales Qty increased by 29741 for **On-line Channel**

Channel Name
- Boutiques
- Branded Franchise
- Department Stores
- On-line
- Outlet

Total Qty decreased on Saturday

○ ↑ Upward Trend
○ ↓ Downward Trend

On **Saturday** Profit decreased by $310668 for **Department Stores**

Total Profit increased on Saturday

On **Saturday** Profit increased by $326496 for **On-line Channel**

Profit Margin of different Channels for Accessories


Analysis:
- Sales Quantity or Profit variance is high for Departmental stores and Online Channel.
- Departmental Stores sell around 6 times compared to Online Channel in terms of Quantity.
- Whereas, Departmental Stores' profit is just twice than the same of Online Channel.
- Online Channel has high profit margin, as a result Sales quantity increase in Online Channels on Saturdays result in high profit even though the total Sales Quantity is low on Saturdays.

Recommendations:
- Promotional Discounts on Departmental Stores on Weekends.
- Monthly midweek reward day for Online Channel(Tuesday) and Departmental Stores(Wednesday).
- Making sure the websites are up and running on Saturdays and Mondays for On-line channel to handle high traffic.

Q.4.1 LEVERAGING LOCATIONS, CHANNELS, STORES AND RESELLERS TO MAXIMIZE SALES

Share in the market by Channel
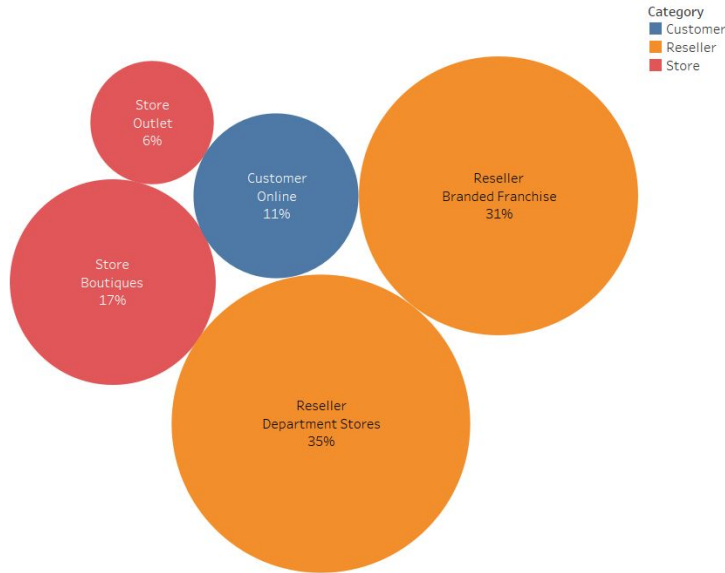
Largest Market Share:
Reseller has almost 66% of the Total Sales Amount

Second Largest Market Share:
Store has the second highest share of approximately 23%

Smallest Market Share:
Customer has almost 11% of the Total Sales Amount

Q.4.2 SALES THROUGH THE YEARS BY CHANNEL

Comparison of sales throughout the years by Channel

Analysis:

- Even though Reseller has the maximum share, only Department Stores sees an increase in the revenue from 2013 to 2014
- The online channel also sees an improvement in the total sales from 2013 to 2014
- Store doesn't see a change in it's total sales amount over the years.

Q.4.3 SALES AND GROWTH RATE BY LOCATION

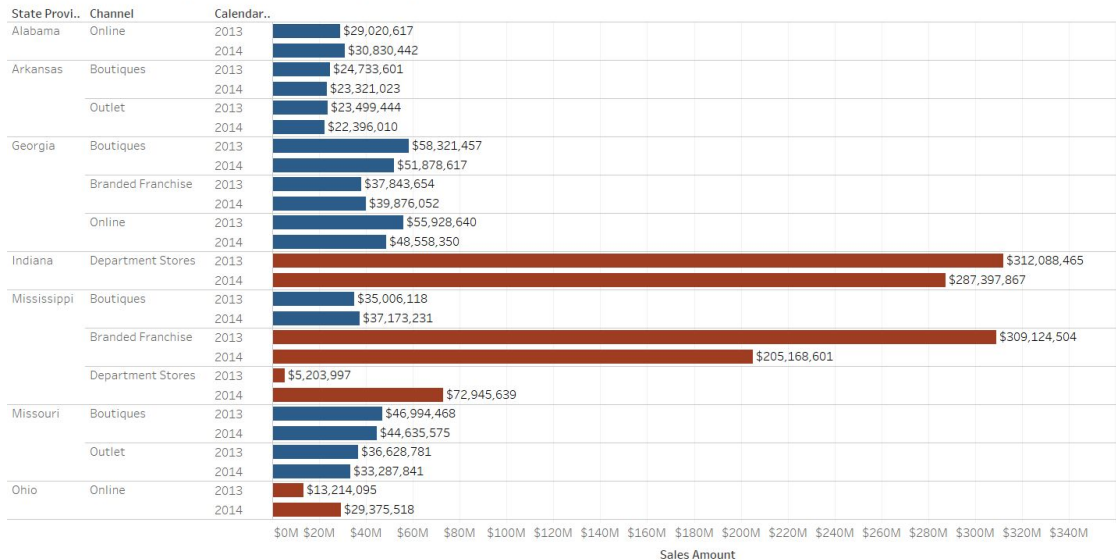Growth Rate and Sales Amount by Location
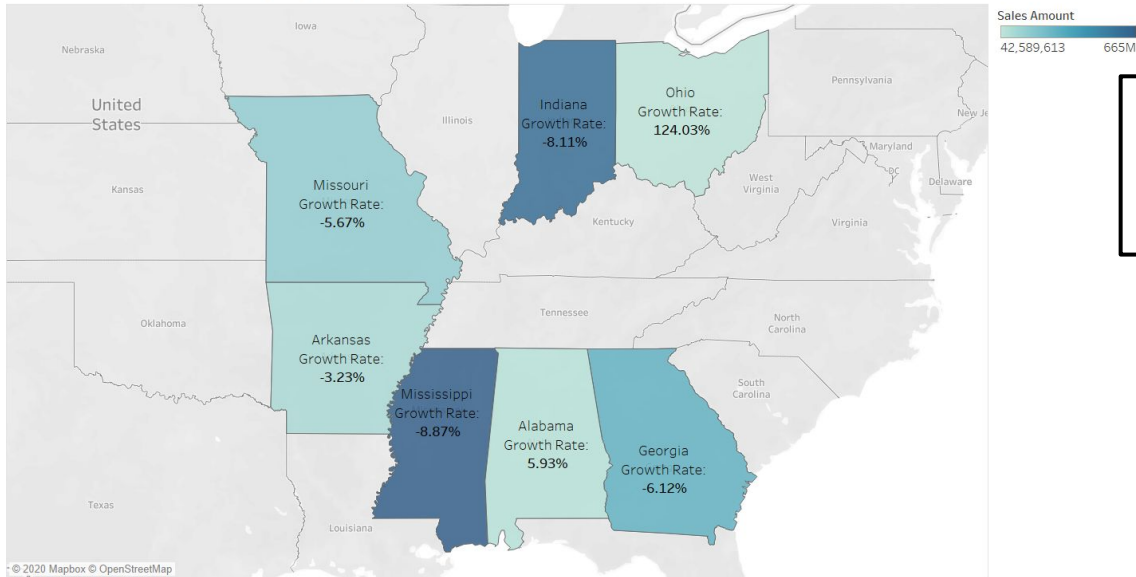
Growth Rate =

$$\frac{\text{(Sales Amount in 2014 - Sales Amount in 2013)}}{\text{Sales Amount in 2013}}$$

Analysis:

- We can observe that Indiana and Mississippi are the two states that have the largest share in the Market
- Even though they have the largest shares, they see a decline in the growth rate
- The growth rate has increased exponentially for Ohio

Q.4.4 SALES BY LOCATION AND CHANNEL

Comparison of Sales by Location and Channel

State Provi..	Channel	Calendar..	
Alabama	Online	2013	$29,020,617
		2014	$30,830,442
Arkansas	Boutiques	2013	$24,733,601
		2014	$23,321,023
	Outlet	2013	$23,499,444
		2014	$22,396,010
Georgia	Boutiques	2013	$58,321,457
		2014	$51,878,617
	Branded Franchise	2013	$37,843,654
		2014	$39,876,052
	Online	2013	$55,928,640
		2014	$48,558,350
Indiana	Department Stores	2013	$312,088,465
		2014	$287,397,867
Mississippi	Boutiques	2013	$35,006,118
		2014	$37,173,231
	Branded Franchise	2013	$309,124,504
		2014	$205,168,601
	Department Stores	2013	$5,203,997
		2014	$72,945,639
Missouri	Boutiques	2013	$46,994,468
		2014	$44,635,575
	Outlet	2013	$36,628,781
		2014	$33,287,841
Ohio	Online	2013	$13,214,095
		2014	$29,375,518

Sales Amount: $0M $20M $40M $60M $80M $100M $120M $140M $160M $180M $200M $220M $240M $260M $280M $300M $320M $340M
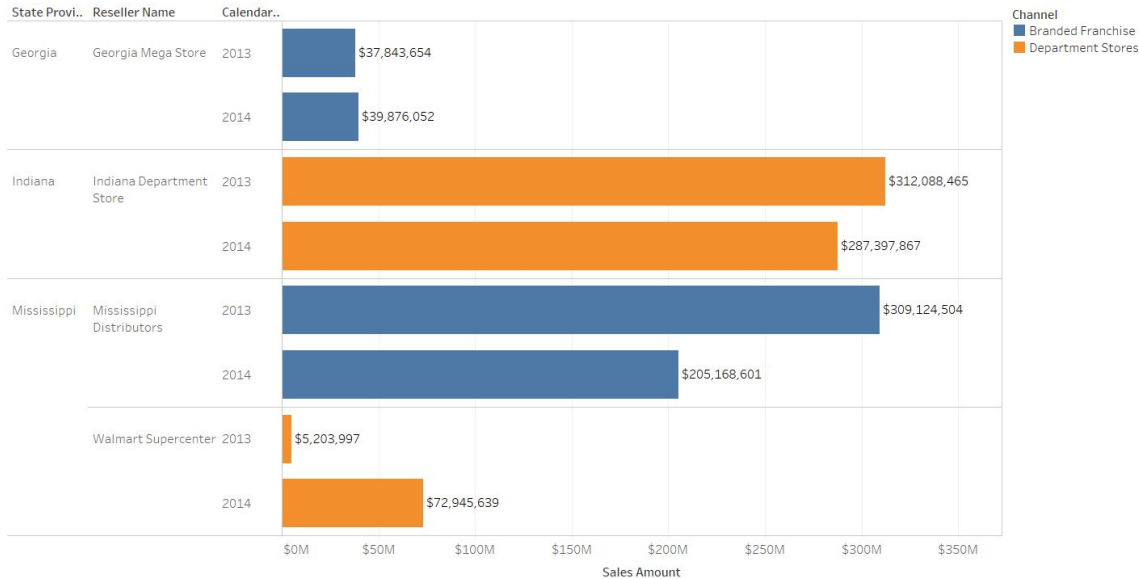
Analysis:

- Department stores even though is doing really well in 2014 against 2013, we can see a significant drop in the Sales Amount in Indiana for Department Stores
- The original increase in sales of the Department Stores can be attributed to the increase of sales in Mississippi
- We can hypothesize that this increase in the sales of Department Store might have been because of a new Departmental store being opened at the end of the year in 2013 in Mississippi
- This might have caused the huge drop in the sales for Branded Franchises
- As seen earlier, we can also see a huge increase in sales in Ohio from 2013 to 2014

Q.4.5 SALES BY LOCATION AND RESELLER

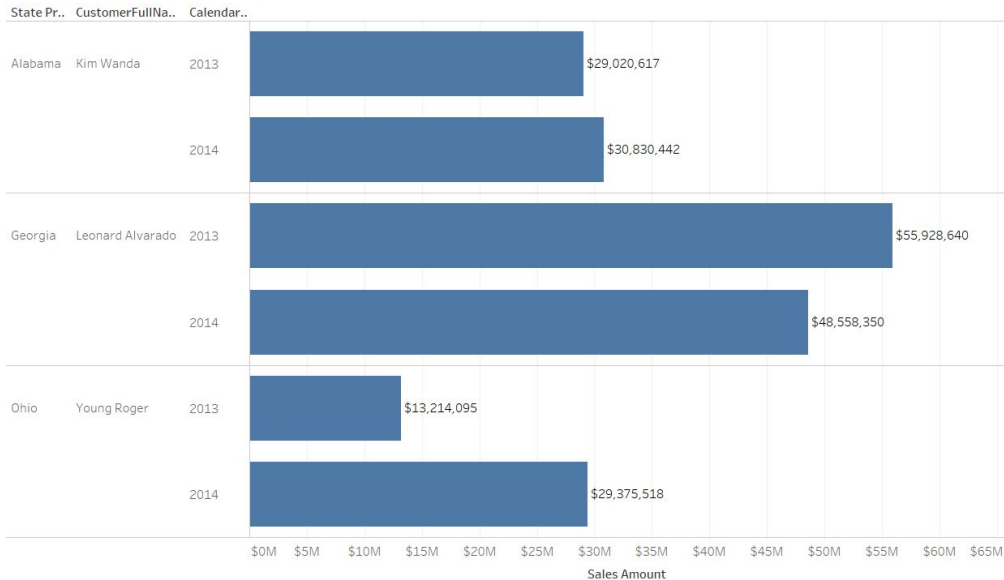## Comparison of Sales by Location and Reseller

Analysis:

- Earlier we saw that Departmental Stores are seeing an increase in growth of sales.
- Here we can confirm that in Mississippi, Walmart Supercenter has caused a huge positive jump in sales
- While the sales of Mississippi Distributors is decreasing at a large rate.
- We have hypothesized that this Departmental Store - Walmart Supercenter has opened up recently and has impacted the sales for Mississippi Distributors.

Q.4.6 SALES BY LOCATION AND CUSTOMER

Comparison of Sales by Location and Customer

State Pr..	CustomerFullNa..	Calendar..	
Alabama	Kim Wanda	2013	$29,020,617
		2014	$30,830,442
Georgia	Leonard Alvarado	2013	$55,928,640
		2014	$48,558,350
Ohio	Young Roger	2013	$13,214,095
		2014	$29,375,518

Sales Amount: $0M $5M $10M $15M $20M $25M $30M $35M $40M $45M $50M $55M $60M $65M

Analysis:

- We earlier had noticed a growth rate of 124% in Ohio.
- This is due to a Customer - Young Roger who is causing a great increase in the Sales Revenue.

Recommendations:

- For Mississippi, we can leverage the Department stores in Reseller channel to make more sales
- For Indiana, we can open up more types of channels like Online and Store as it only has Department Stores currently
- Ohio can continue gaining more customers for Online channel

THANK YOU

QUESTIONS?