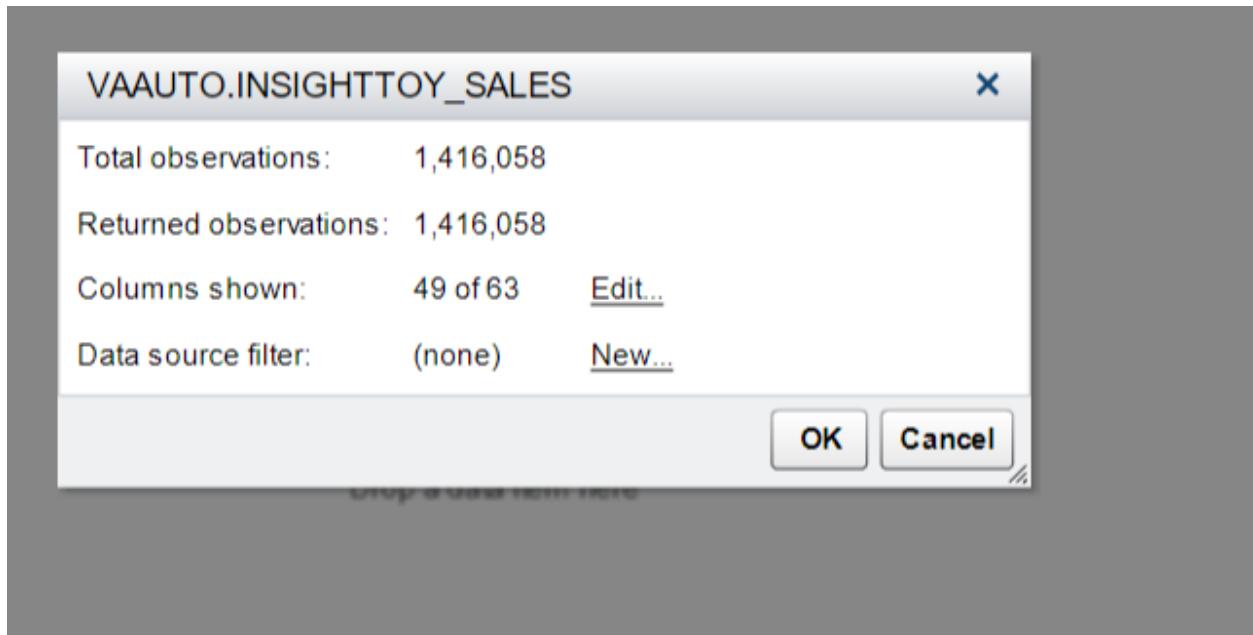**Pooja Agrawal| MSBA 305| HOA# 5 part 2**

Hands on Exercise 1:

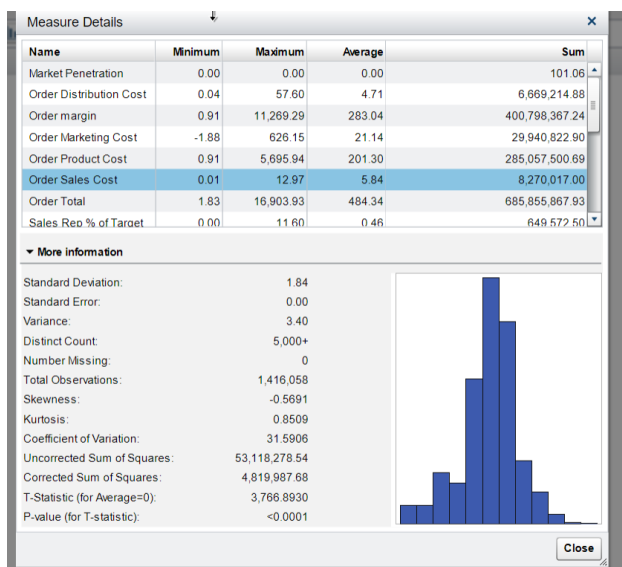**1) How many observations are there in the INSIGHTTOY_SALES dataset?**

The total obesravtions are 1,416,058

VAAUTO.INSIGHTTOY_SALES ✕

Total observations: 1,416,058

Returned observations: 1,416,058

Columns shown: 49 of 63   Edit...

Data source filter: (none)   New...

OK   Cancel

2) How many data items (or variables, or columns) are there?

Data items (Columns):50 of 64 (14 data items were hidden).

**3) Quickly, verify the distributions and main statistics of each measure variable. What are their average values?**

Name	Minimum	Maximum	Average	Sum
Market Penetration	0.00	0.00	0.00	101.06
Order Distribution Cost	0.04	57.60	4.71	6,669,214.88
Order margin	0.91	11,269.29	283.04	400,798,367.24
Order Marketing Cost	-1.88	626.15	21.14	29,940,822.90
Order Product Cost	0.91	5,695.94	201.30	285,057,500.69
Order Sales Cost	0.01	12.97	5.84	8,270,017.00
Order Total	1.83	16,903.93	484.34	685,855,867.93
Sales Rep % of Target	0.00	11.60	0.46	649,572.50

▼ More information

|	
Standard Deviation:	1.84
Standard Error:	0.00
Variance:	3.40
Distinct Count:	5,000+
Number Missing:	0
Total Observations:	1,416,058
Skewness:	-0.5691
Kurtosis:	0.8509
Coefficient of Variation:	31.5906
Uncorrected Sum of Squares:	53,118,278.54
Corrected Sum of Squares:	4,819,987.68
T-Statistic (for Average=0):	3,766.8930
P-value (for T-statistic):	<0.0001

Hands on Exercise 2:

1) Which city in California has the highest Order Total?

Oakland-Order total: 5,797,430
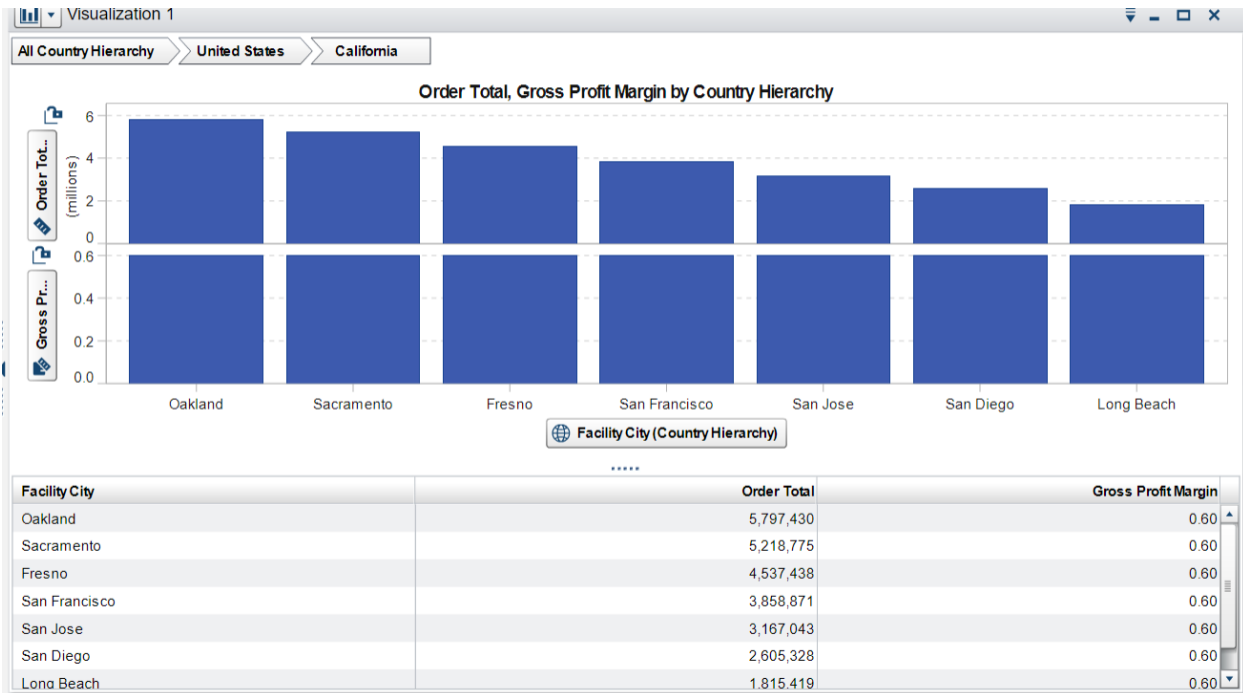
2) Which Brazilian state has the highest Gross Profit Margin?

Minas Gerais and Rio de Janeiro : 60%
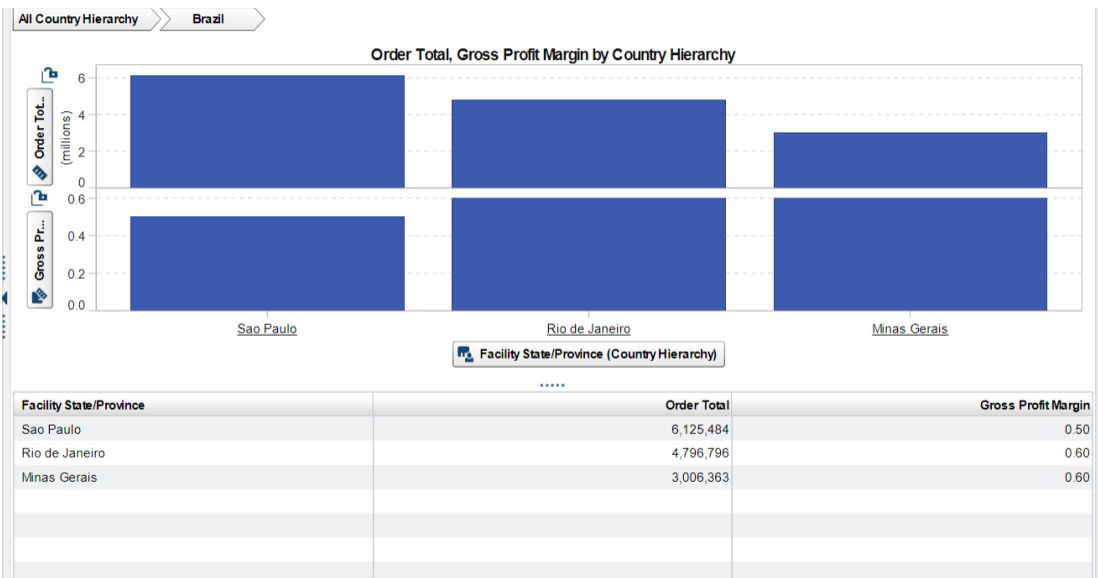
3) What is the Order Total and Gross Profit Margin in the city of Beijing?

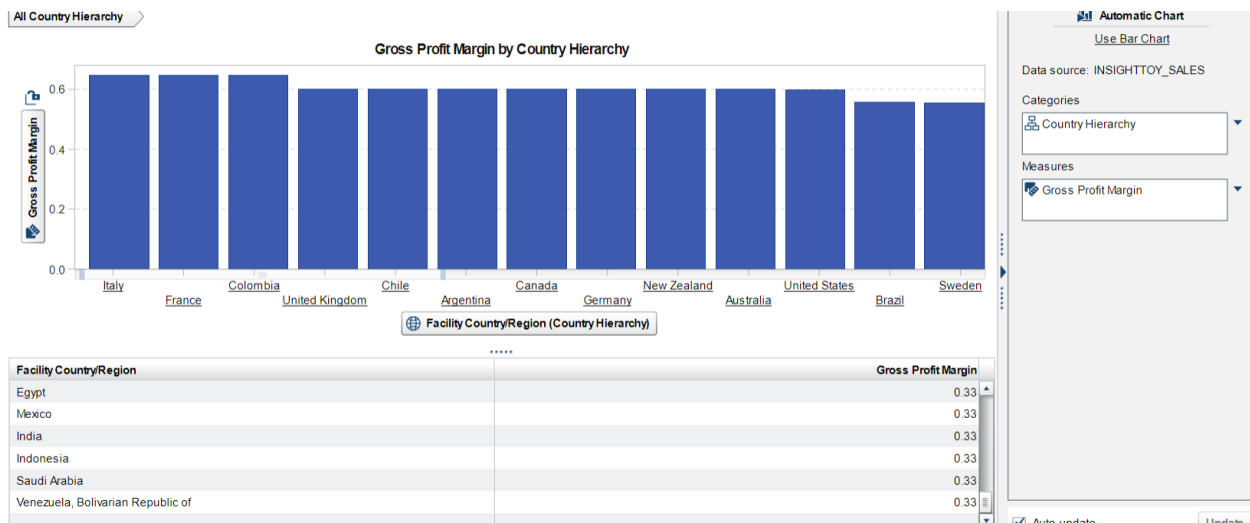| Facility State/Province	Order Total	Gross Profit Margin
Beijing	428,476	0.40

4) What is the Order Total and Gross Profit Margin in the province of Gauteng (South Africa)?

Gauteng- Order total: 824,144 and Gross Profit Margin: 50%

Order Total, Gross Profit Margin by Country Hierarchy

Facility State/Province	Order Total	Gross Profit Margin
Western Cape	1,263,365	0.50
Gauteng	824,144	0.50
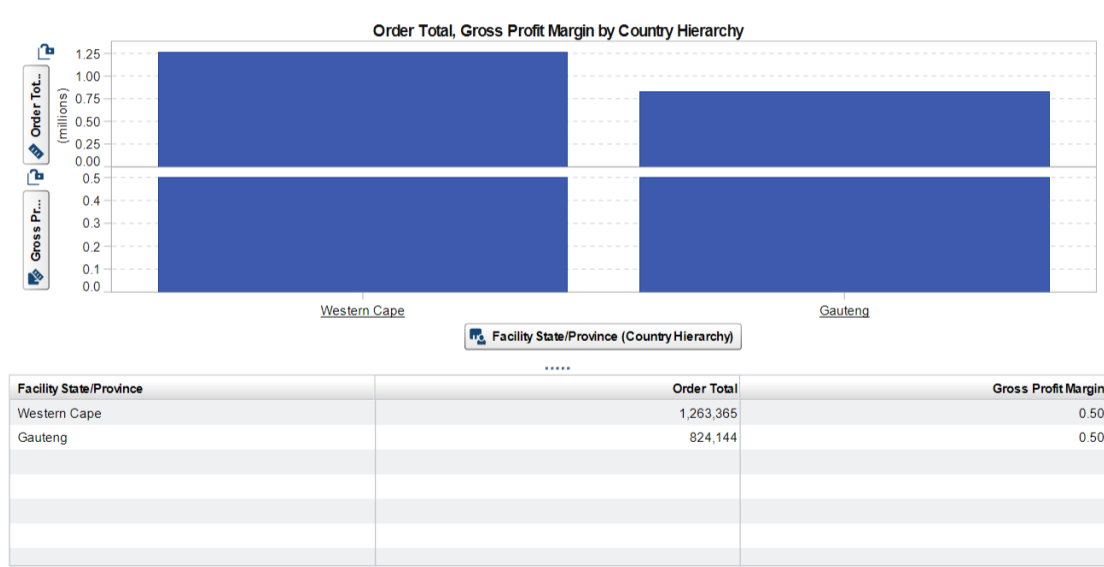
5) Which countries have the lowest Gross Profit Margin in 2013?

India,Mexico, Indonesia, Saudi Arabia, Egypt and Venezuela with 33.3%

Gross Profit Margin by Country Hierarchy

| Facility Country/Region	Gross Profit Margin
Egypt	0.33
Mexico	0.33
India	0.33
Indonesia	0.33
Saudi Arabia	0.33
Venezuela, Bolivarian Republic of	0.33

6) Which are the top 10 cities with highest Order Total in 2013? Tip: You may need to create a different visualization to check this, e.g.: a Crosstab.

Facility City ▾	Gross Profit Margin	Order Total
Portland	0.57	613,965
Pittsburgh	0.67	739,051
Philadelphia	0.67	320,785
Manchester	0.59	514,242
London	0.60	366,589
Las Vegas	0.56	366,365
Caracas	0.33	562,041
Boise	0.56	507,866
Bogota	0.65	884,337
Baton Rouge	0.67	325,877

Hands on Exercise 3:

1) Which Superhero Figure toy generated the highest *Order Total* and *Order Margin*? And the lowest?

Highest: Ironman. Lowest: Green Hornet
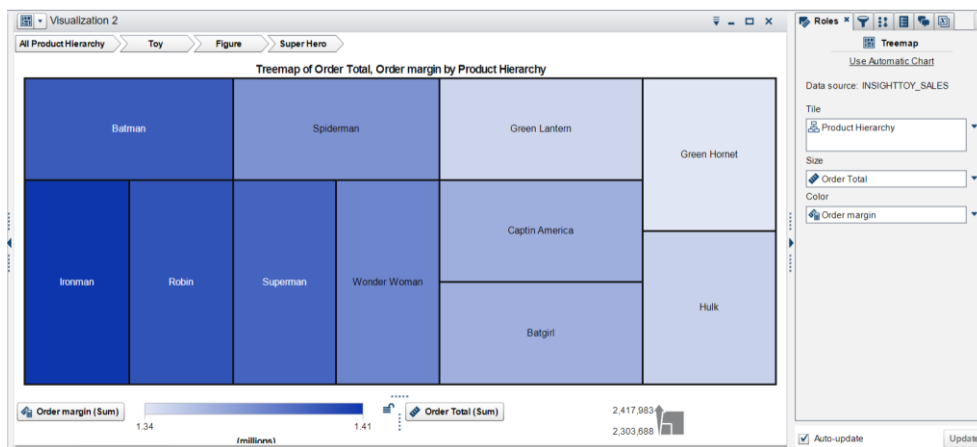
2) What are *Order Total* and *Order Margin* of small cats plush?

Small Cats plush: Order Total: 271,848. Order Margin: 155,007

Treemap of Order Total, Order margin by Product Hierarchy

All Product Hierarchy > Toy > Plush
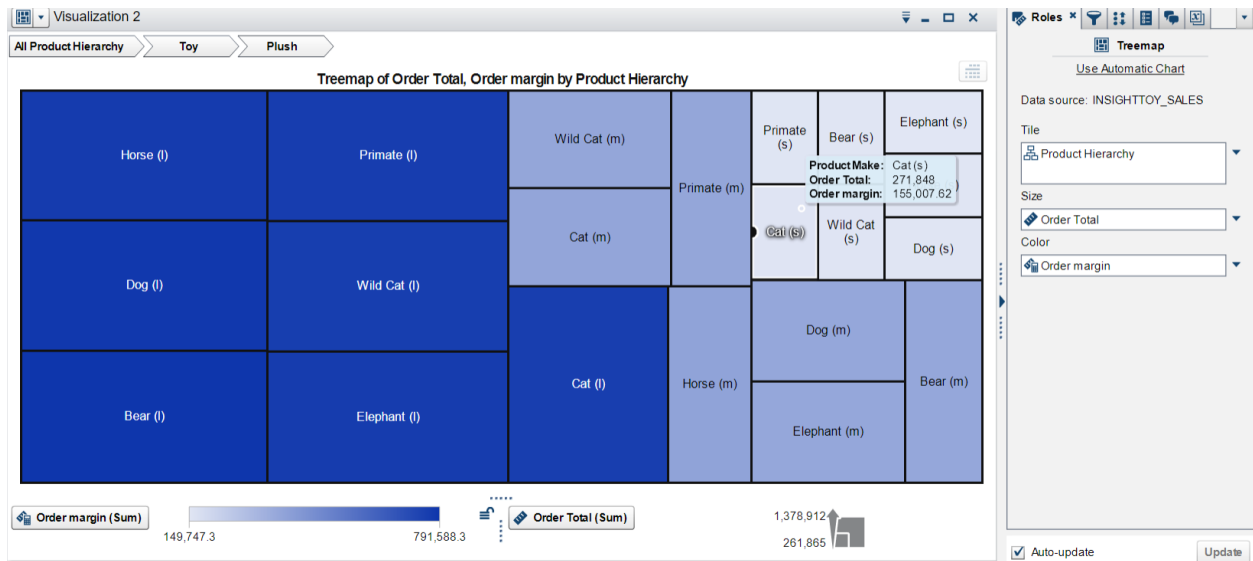
3) Apparently our Novelty Thrift Clip(s) are not generating much revenues. Are there some styles generating higher revenues?

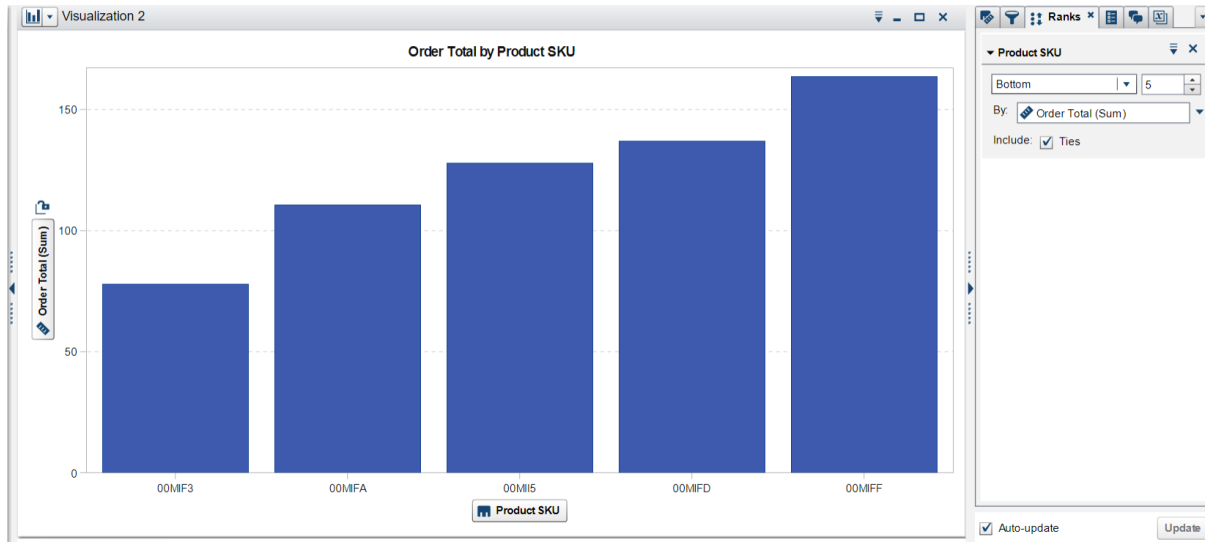Treemap of Order Total, Order margin by Product Hierarchy

All Product Hierarchy > Novelty > Thrift

4) We are doing very well with our third generation of Board Games. Which one generated the highest *Order Total* and *order Margin*?
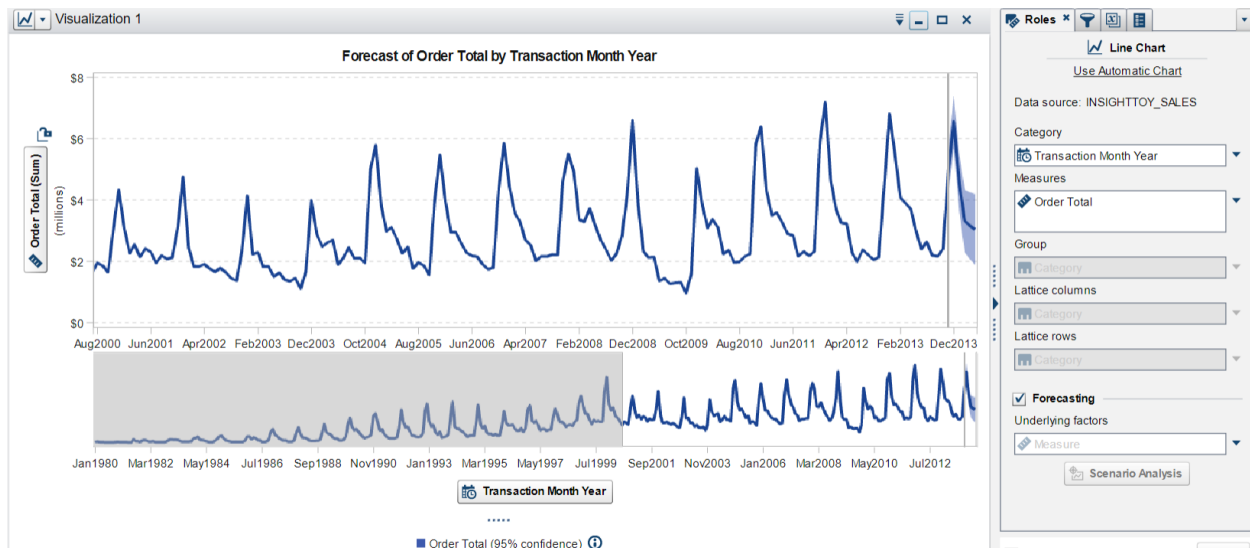
Rise and Fall
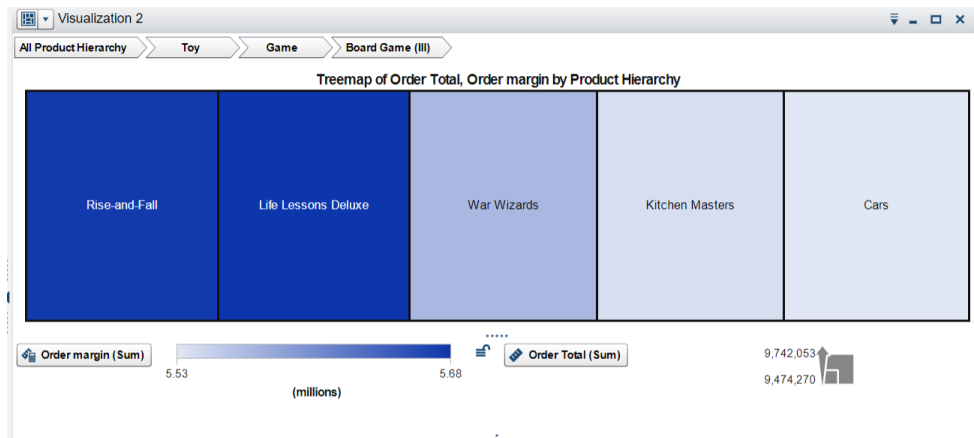
5) Which are the top 5 products (*Product SKU*) in terms of revenue (*Order Total*) in 2013? And the bottom 5 products? Tip: Create a Bar chart.
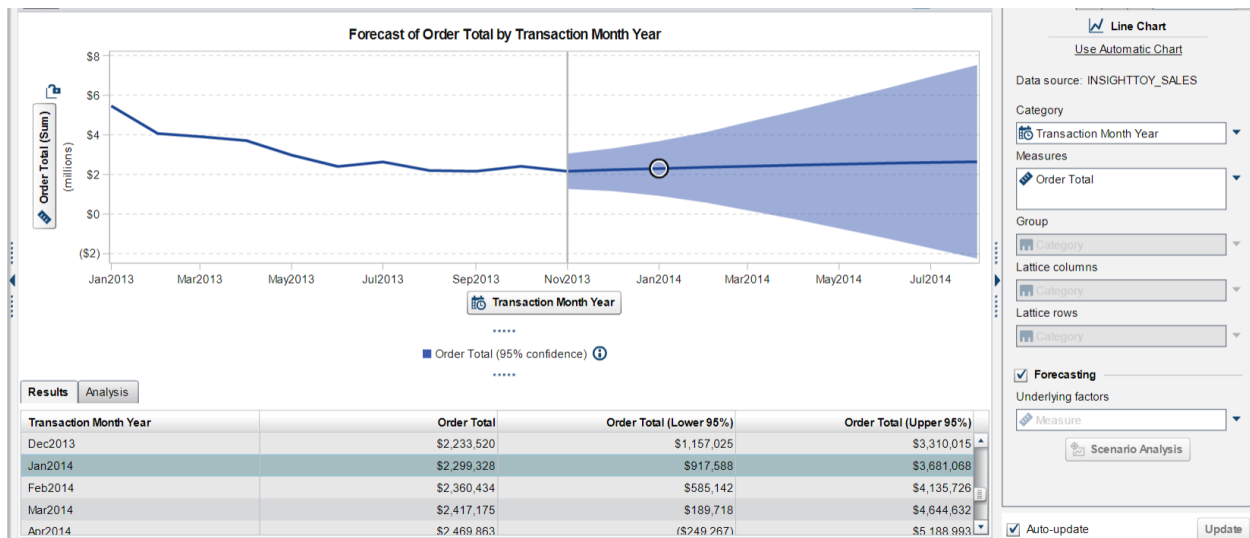
Hands-on Exercise 4:

1) What is the forecast of *Order Total* for the next 24 months? Tip: Exclude *Order Product Cost* and change the Forecast duration on Properties.

**2) Which method was used to generate this forecast?**

Winters method (additive)

3) Accordingly, to this forecast, what would be the *Order Total* in December 2013? And December 2014?

Forecast of Order Total by Transaction Month Year

Transaction Month Year	Order Total	Order Total (Lower 95%)	Order Total (Upper 95%)
Dec2013	$2,233,520	$1,157,025	$3,310,015
Jan2014	$2,299,328	$917,588	$3,681,068
Feb2014	$2,360,434	$585,142	$4,135,726
Mar2014	$2,417,175	$189,718	$4,644,632
Apr2014	$2,469,863	($249,267)	$5,188,993

Hands-on Exercise 5:

1) We want to increase our forecast of *Order Total* by $ 1 million every month for the next 24 months. How much we should invest in Marketing in order to achieve this goal?
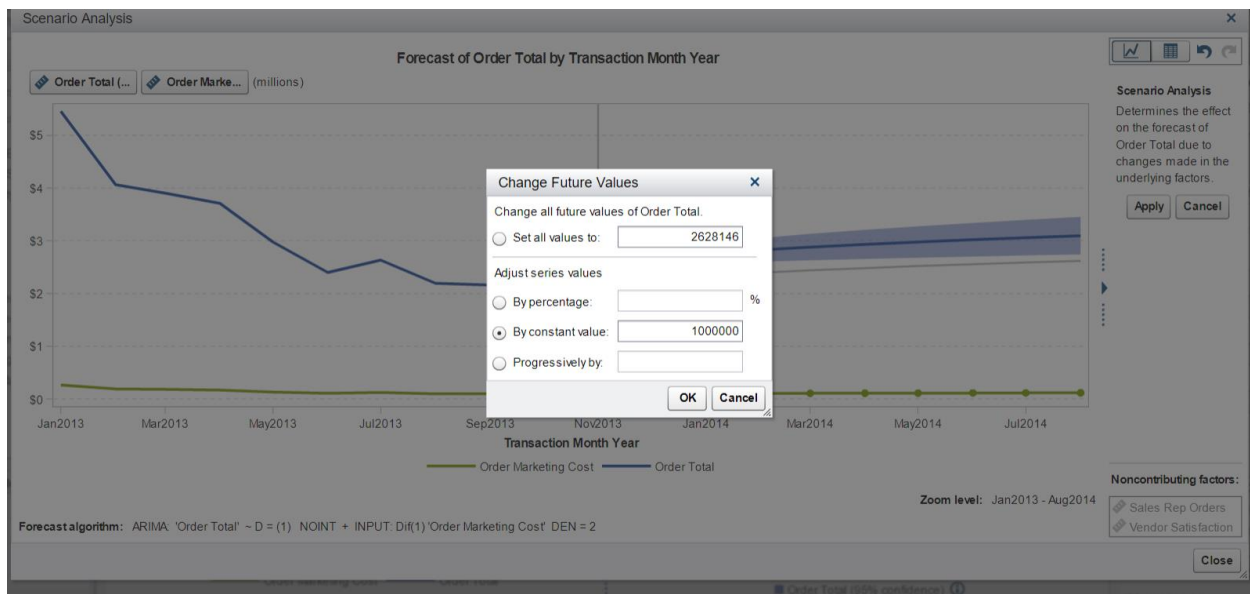
Transaction Month Year	Order Total	Order Marketing Cost		
Nov2013	$3,628,146	170,605.76		
Dec2013	$3,713,064	165,831.80		**Goal Seeking**
Jan2014	$3,772,935	170,725.77		Optimizes the values
Feb2014	$3,829,804	173,495.02		of the underlying
Mar2014	$3,883,384	176,062.07		factors to achieve the
Apr2014	$3,933,131	178,441.68		desired forecast of
May2014	$3,979,227	180,647.53		Order Total.
Jun2014	$4,021,952	182,692.31		Bounds...
Jul2014	$4,061,557	184,587.79		**Scenario Analysis**
Aug2014	$4,098,270	186,344.86		Determines the effect
				on the forecast of

Hands-on Exercise 6:

1) Which are the 3 measures with the strongest correlations with Vendor Satisfaction? What are their correlations?

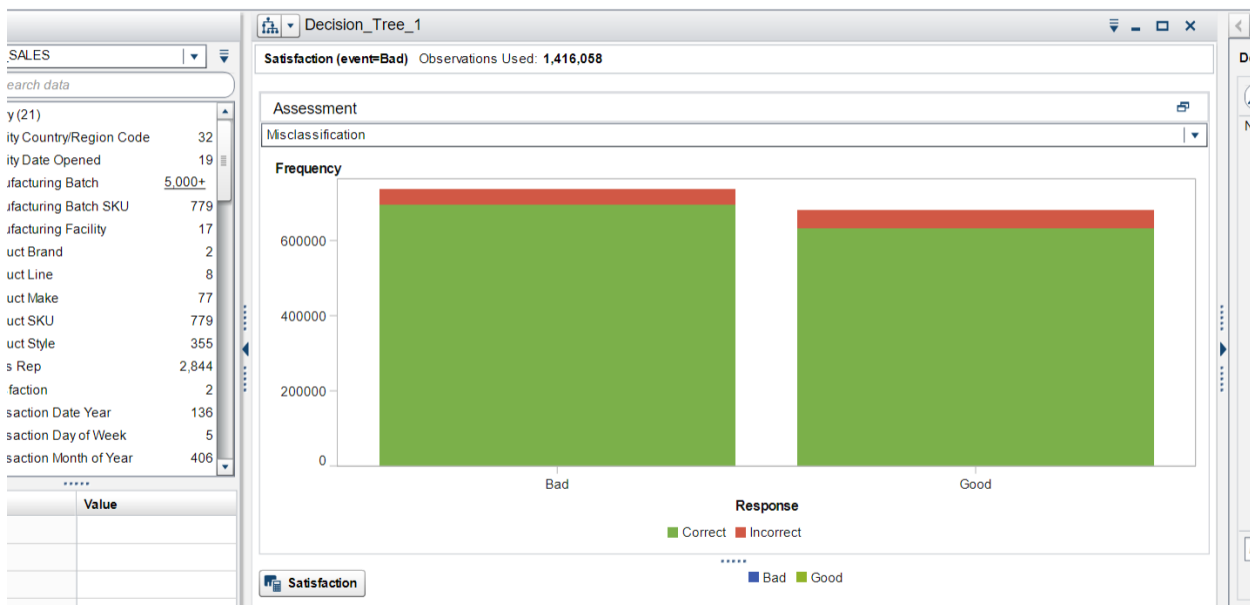Sales Rep Rating: 0.973025613, Order Sales Cost: -0.908325046, Vendor Distance: -0.187537346
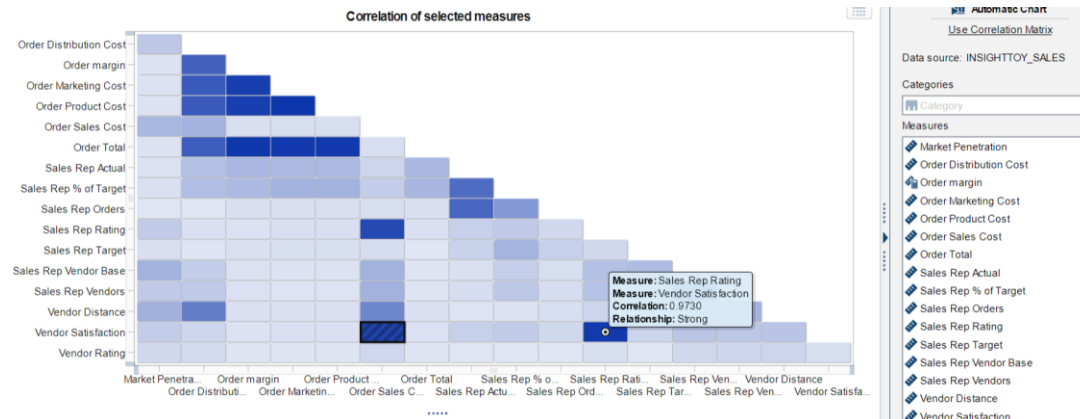
**Hands-on Exercise 7:**
1) How many leaves do we have?

2) View the Leaf Statistics. Which is the purest leaf? What is rule associated with that leave?

3) View the ROC chart. What is the KS Statistic?
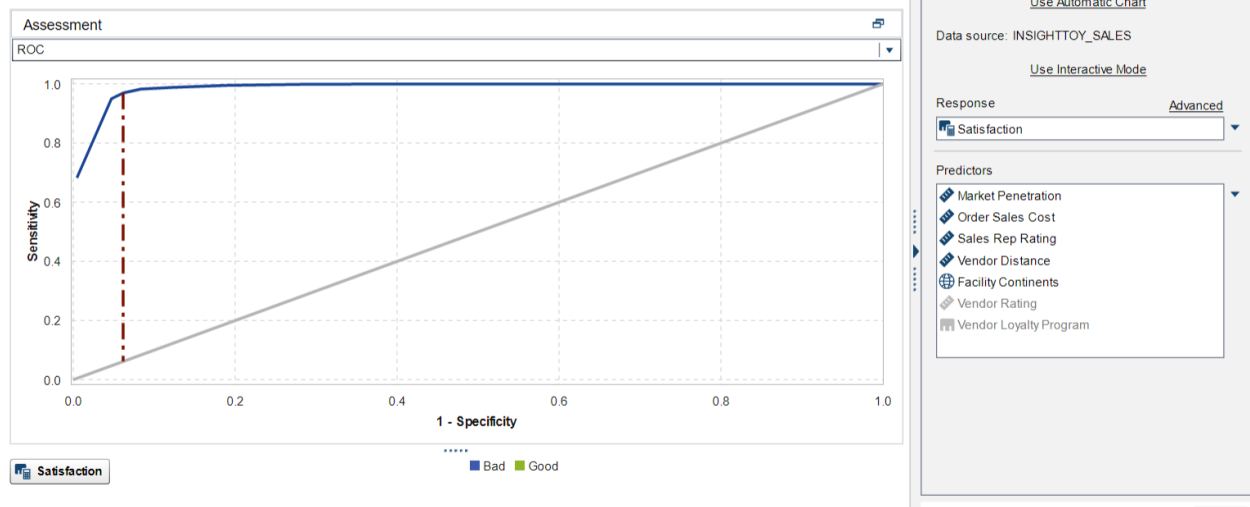
4) View the Misclassification Chart. How many false negatives are there?
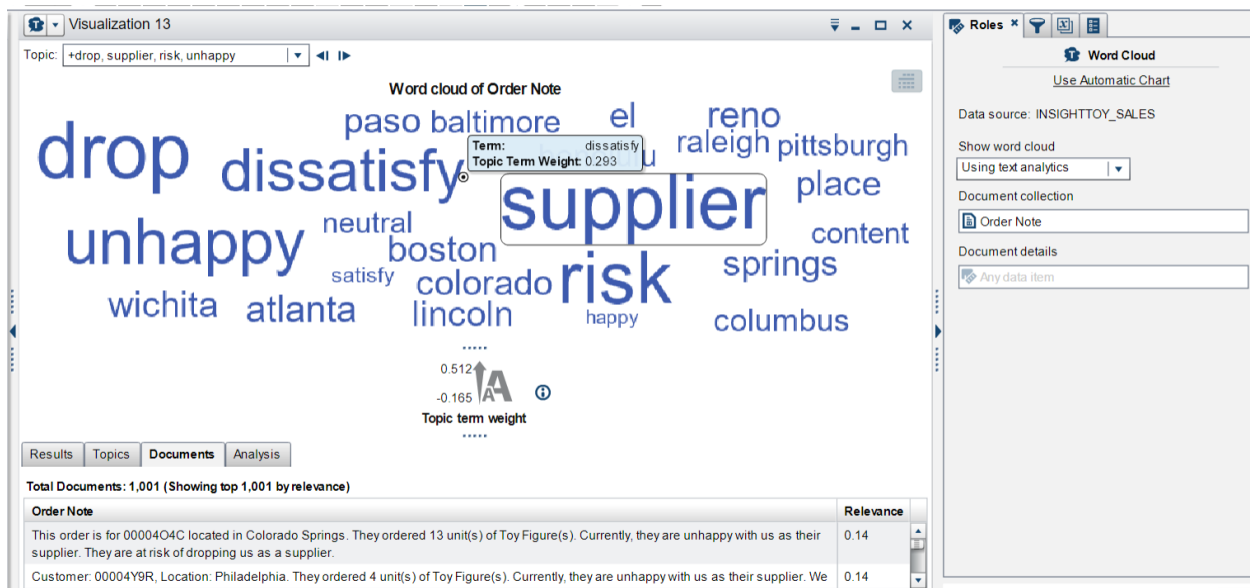
Hands-on Exercise 8:

1) Verify the term *dissatisfy*. What is its Topic Term Weight on the first topic? View some Documents where it is present.
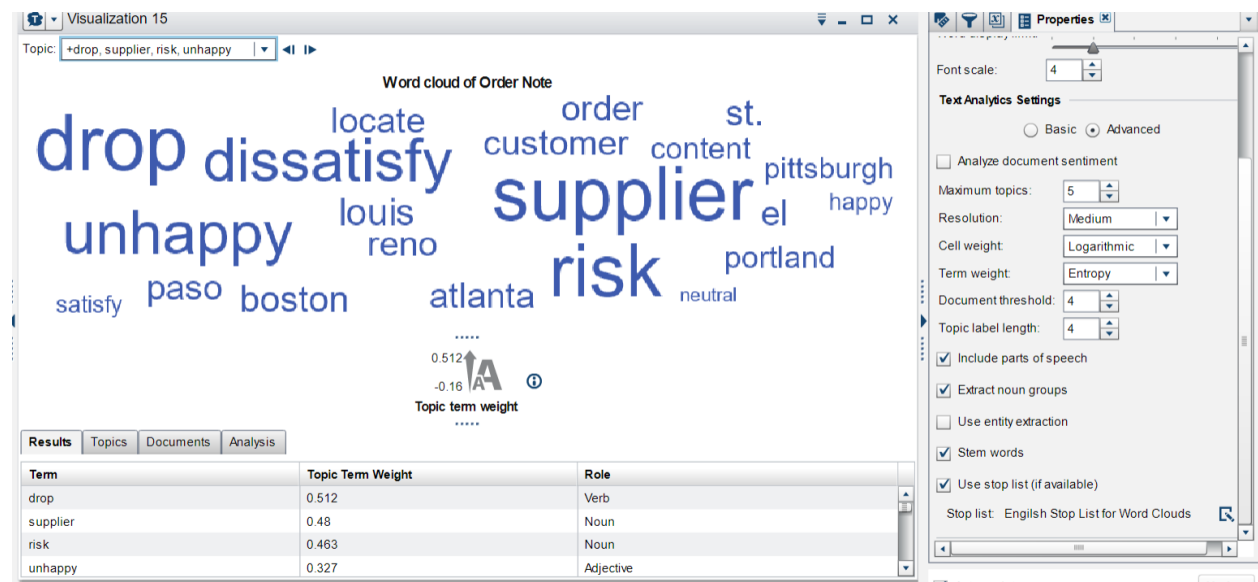
Dissatisfy: Term weight- 0.046
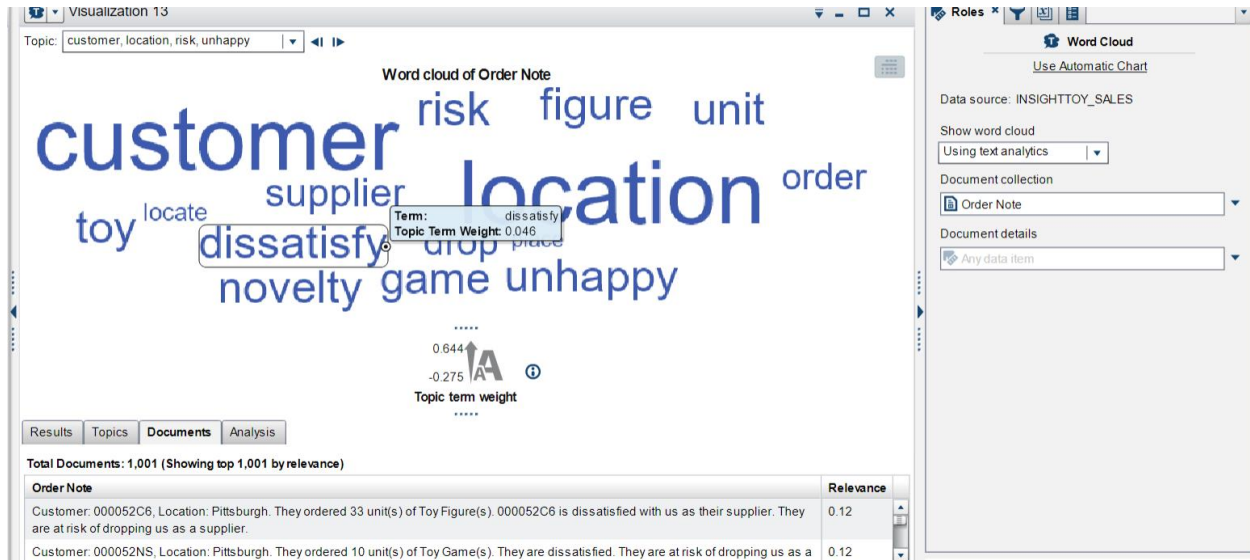
2) Is this term *dissatisfy* also presented on other topics? If so, what is its Topic Term Weight?

The term dissatisfy is also present on (+drop, supplier, risk, unhappy). Topic term weight-0.293
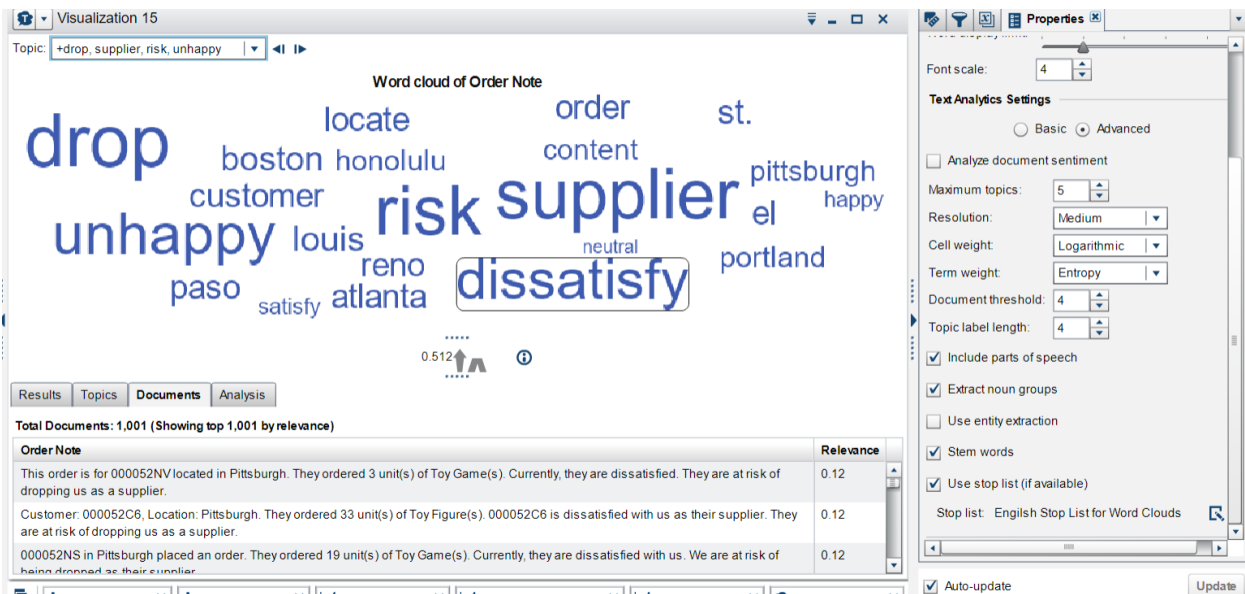
Hands-on Exercise 9:
1) How many topics were found?

3 topics: (toy, figure, game, order), (supplier, +drop, risk, unhappy), (novelty, bead, gift, order).

2) Which topic present more documents with negative sentiments? Which are the top 5 terms (regarding Topic Term Weight) on this topic?

(supplier, +drop, risk, unhappy)

Term	Topic Term Weight	Role
drop	0.512	Verb
supplier	0.48	Noun
risk	0.463	Noun
unhappy	0.327	Adjective

3) Select the term *dissatisfy* and inspect the documents with higher negative sentiments.
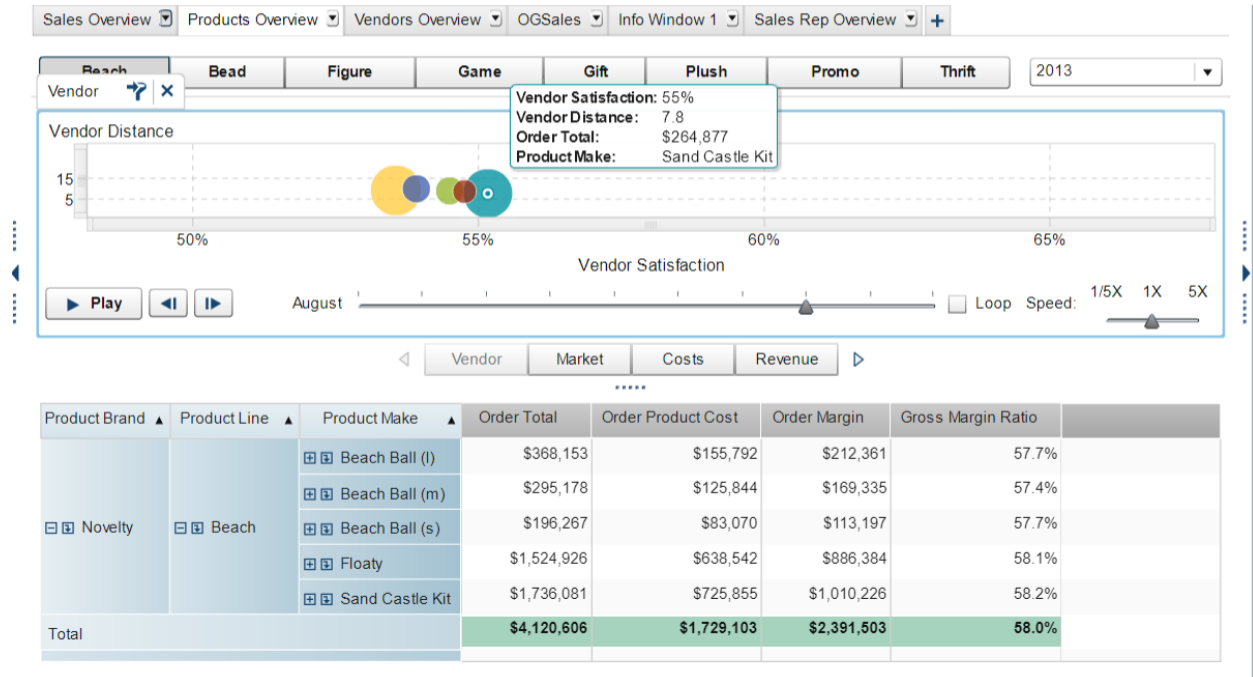

Hands-on Exercise 10:

1) In 2013, what was the revenue (*Order Total*) in Brazil? Which proportion is it in South America? On which month it reached the lowest point? And which product line presented the highest *Gross Margin Ratio*?

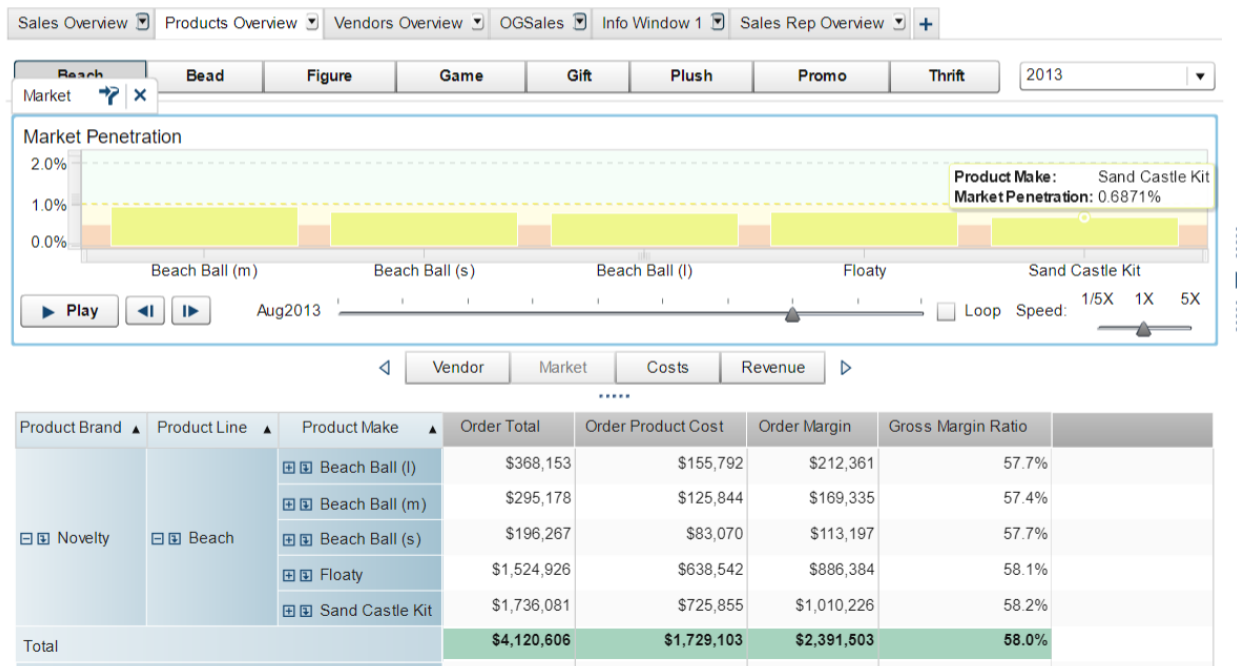Brazil _ $960,769 order total. 19.3%, August: $13,090. Game: 56%
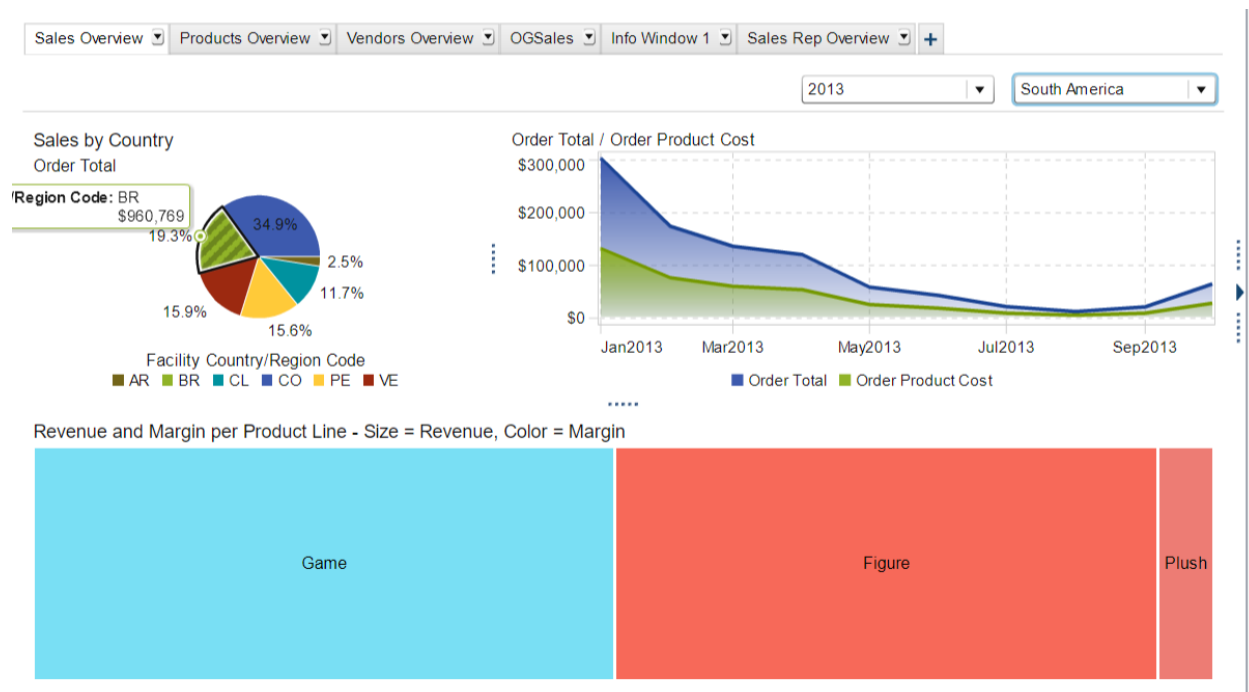
2) In August 2013, which Beach Product had the best Vendor Satisfaction rate? What was the Revenue (*Order Total*) and Market Penetration with that product then?
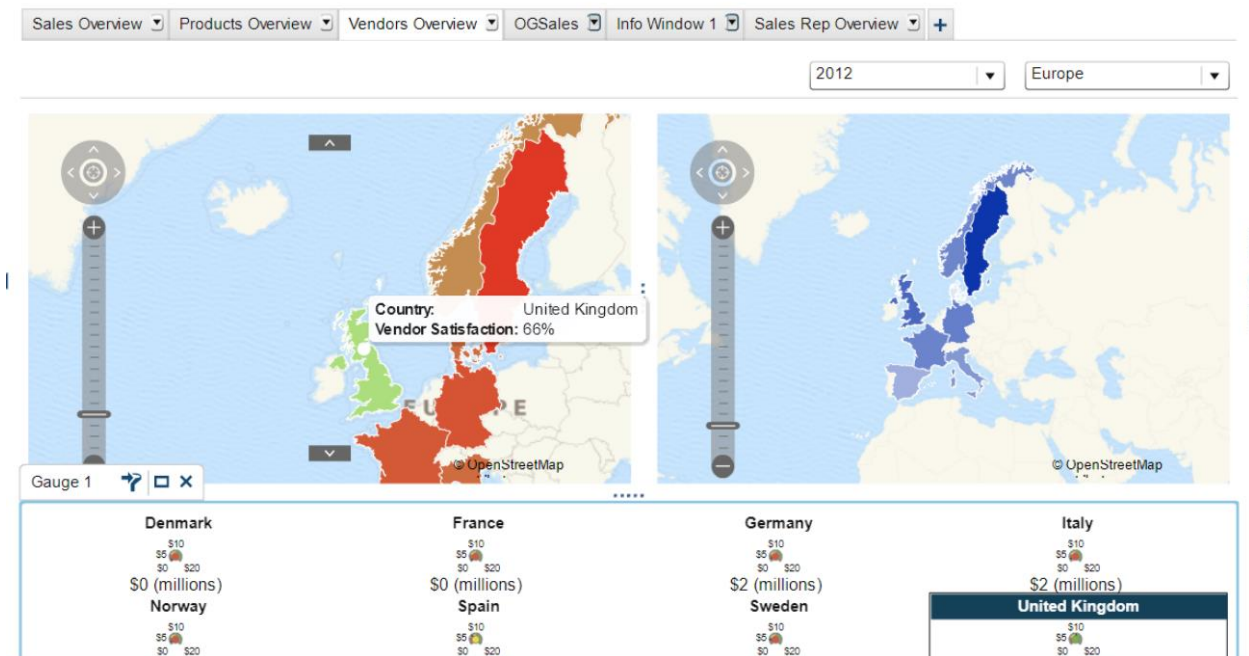
Sand Castle kit – 55%. $264,887


Market Penetration: 0.6871%

3) In Europe, 2012, which country presented the highest Vendor Satisfaction? And Vendor Rating? And where Sales Representatives generated the highest revenues?

Hands-on Exercise 11:
1) Create a new section with a Time Series Plot to show *Sales Rep Actual (Year to Date)* by *Transaction Date*, group by Sales Rep. Change the Section to be displayed as Info Window.
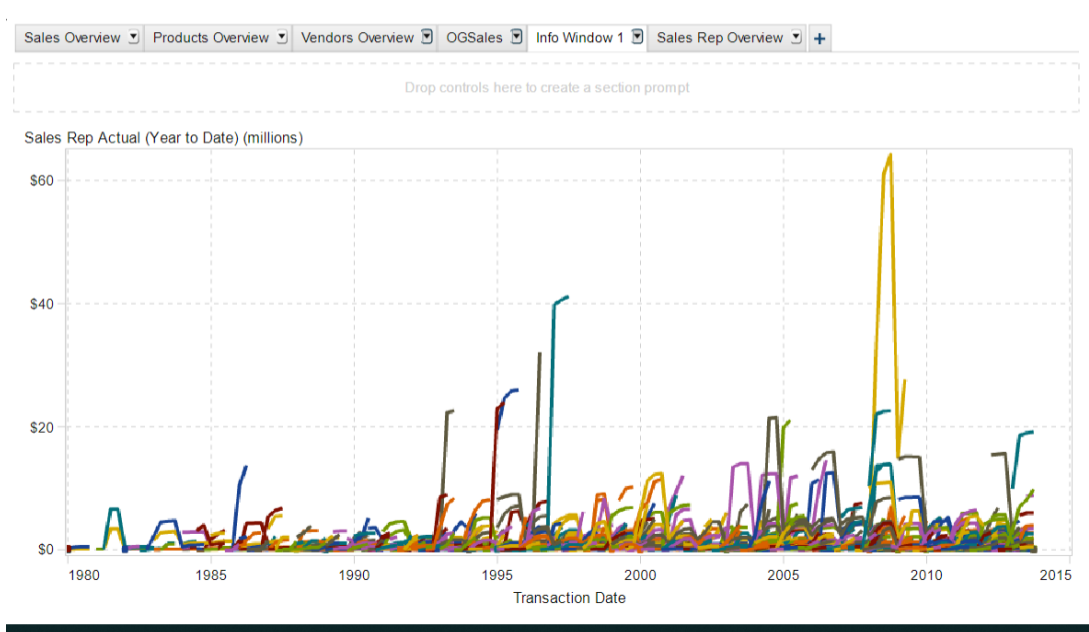
Hands-on Exercise 12:

1) In 2013, which Brazilian Sales Representatives were above their sales target? Which are their values for Actual, Target and Orders? What are their Ratings? What were their *Actual Sales (Year to Date)* before the Carnival (February 9, 2013)?