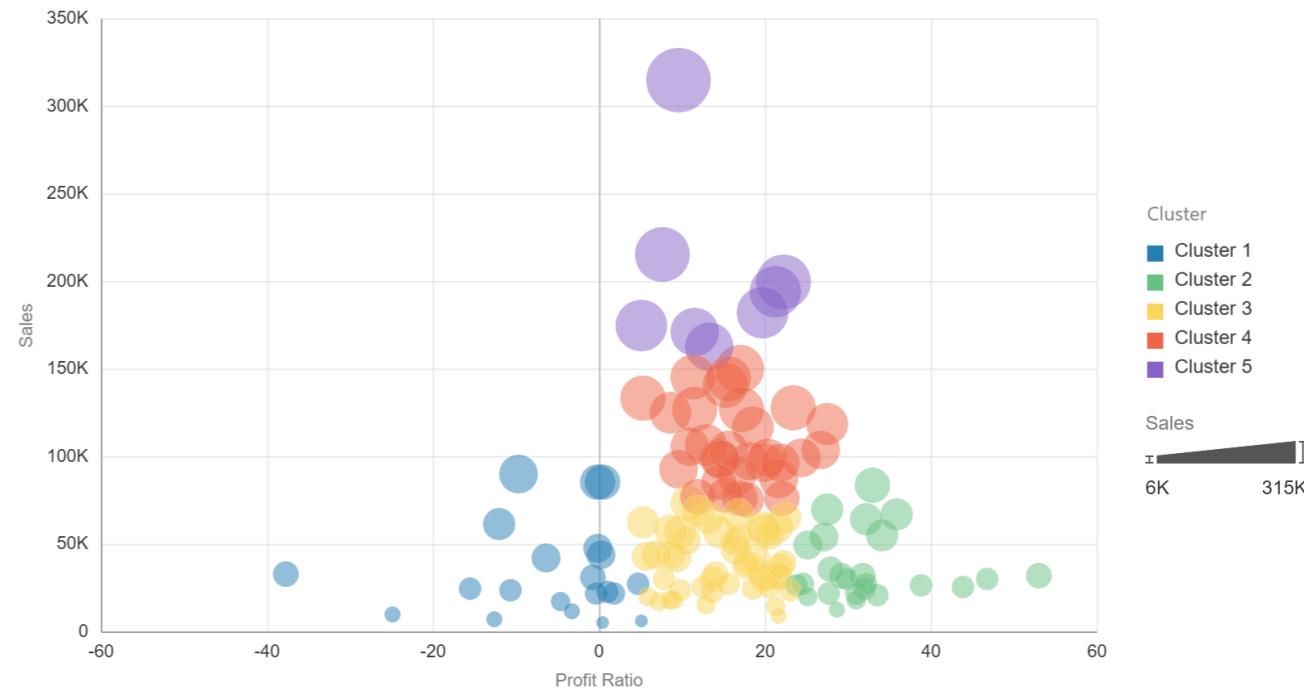


## Vanilla Advanced Analytics - Clusters - Requires R installed

Clusters - Requires R installed

 Product Category: All Order Year: All

Clusters of Cities by Profit Ratio and Sales



Clusters calculations can be invoked either by a right-click menu choice, or by a custom calculation like the one below :

```
CLUSTER((City),(Profit/Sales*100,Sales), 'clusterName', 'algorithm=k-means;numClusters=5;maxIter=10;
```

Clusters Detail Table

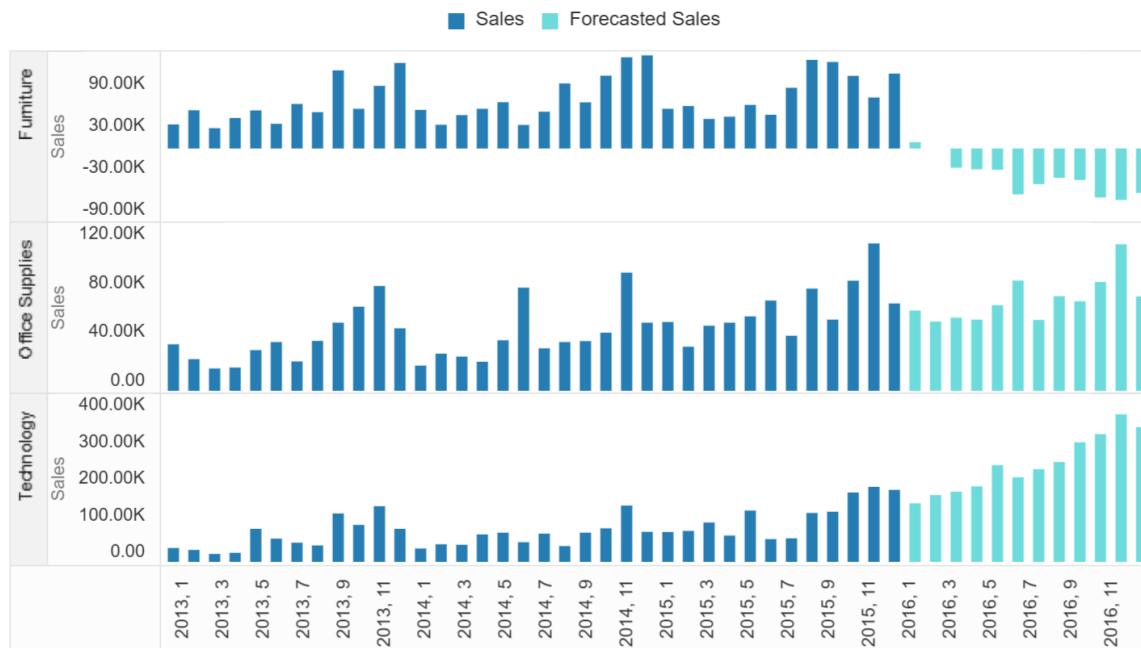
| Cluster   | City       | Sales     | Profit Ratio |
|-----------|------------|-----------|--------------|
| Cluster 1 | Ahmedabad  | 24,464.97 | -15.66       |
|           | Baltimore  | 31,504.78 | -0.73        |
|           | Bangalore  | 47,518.51 | -0.23        |
|           | Cape Town  | 33,194.05 | -37.88       |
|           | Charleston | 22,392.21 | 1.70         |
|           | Cologne    | 6,189.72  | 4.96         |
|           | Davangere  | 61,473.62 | -12.10       |
|           | Denver     | 27,537.28 | 4.55         |
|           | Duisburg   | 7,388.50  | -12.74       |
|           | Essen      | 5,615.77  | 0.35         |
|           | Hamburg    | 10,136.48 | -24.89       |
|           | Lipetsk    | 86,072.26 | 0.38         |
|           | Medina     | 22,044.54 | 0.40         |

## Vanilla Advanced Analytics - Forecast - Requires R installed

Forecast - Requires R installed

Product Category: All Order Year: 2013, 2014, 2015

Monthly Sales Forecast by Product Category



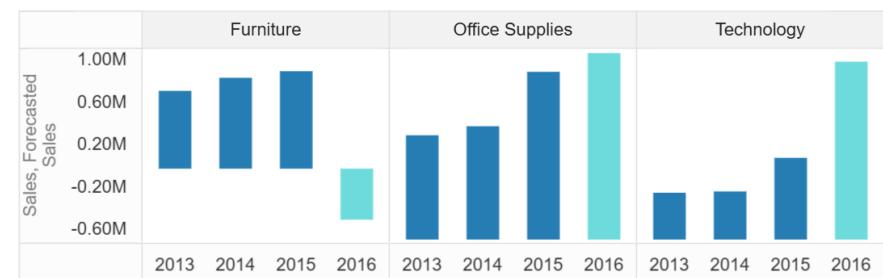
Forecast calculations can be invoked either by a right-click menu choice, or by a custom calculation like the one below :

```
Forecast(Sales, Order Year, Order Month, 'forecast', 'numPeriods=12')
```

Sales Forecast Details

|                 | 2013    | 2013 | 2014    | 2014 | 2015      | 2015 | 2016 | 2016 | 2020     |
|-----------------|---------|------|---------|------|-----------|------|------|------|----------|
| Furniture       | 659,211 |      | 769,951 |      | 826,404   |      |      |      | -431,72  |
| Office Supplies | 441,711 |      | 479,801 |      | 710,232   |      |      |      | 789,66   |
|                 | 743,720 |      | 764,330 |      | 1,298,608 |      |      |      | 2,825,60 |

Sales Forecast by Year

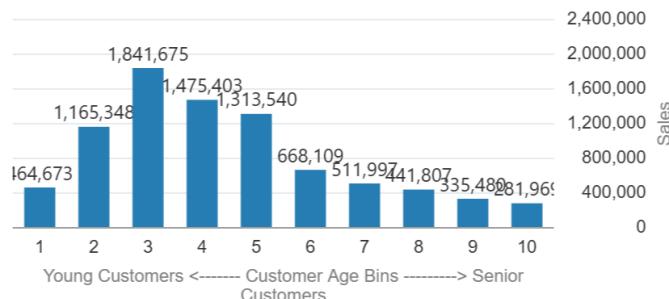


## Vanilla Advanced Analytics - Binning

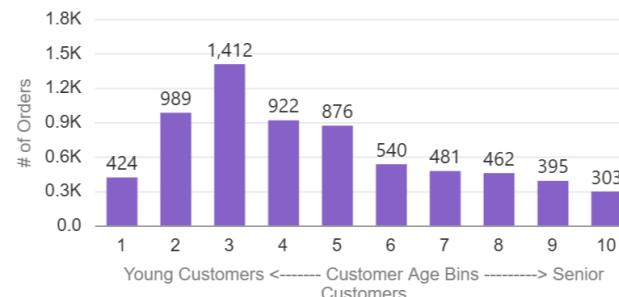
### Binning

Product Category: All Order Year: All

Sales by Cust. Age Bins



# of Orders by Cust. Age Bins

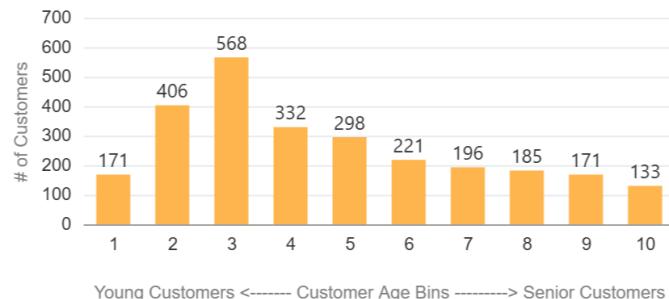


Binning calculations can be defined in a custom calculation like the one below :

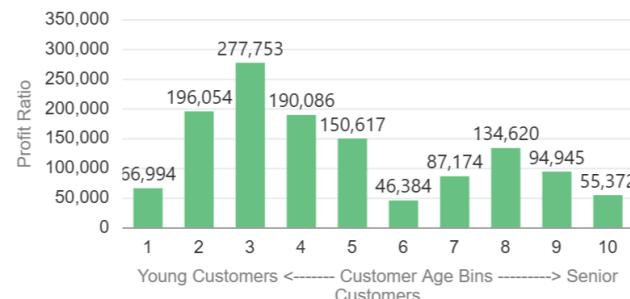
Customer Age Bins Details

| Cust. Age Bins | Cust age up to | # of Customers | # of Orders | Sales     |
|----------------|----------------|----------------|-------------|-----------|
| 1              | 20             | 171            | 424         | 464,673   |
| 2              | 25             | 406            | 989         | 1,165,348 |
| 3              | 30             | 568            | 1,412       | 1,841,675 |
| 4              | 35             | 332            | 922         | 1,475,403 |
| 5              | 40             | 298            | 876         | 1,313,540 |

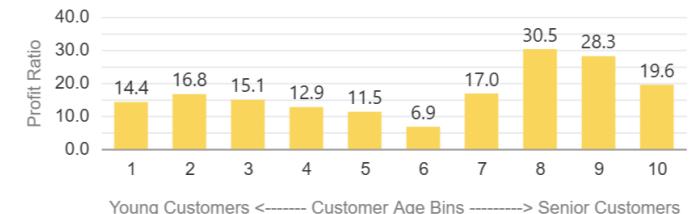
# of Customers by Cust. Age Bins



Profit by Cust. Age Bins



Profit Ratio by Cust. Age Bins



## **Vanilla Advanced Analytics - Binning Maps**

## Binning Maps

 Sales: ≤ 12,000



## Sales Map : Order Size (Hz) x Customer Age (Vert)



|   | 1      | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9      | 10     |
|---|--------|---------|---------|---------|---------|---------|---------|---------|--------|--------|
| 1 | 19,409 | 31,194  | 32,888  | 49,007  | 28,151  | 44,724  | 17,069  | 26,072  | 30,322 | 41,504 |
| 2 | 49,185 | 86,136  | 97,972  | 82,956  | 112,226 | 48,794  | 74,982  | 40,690  | 14,449 | 52,088 |
| 3 | 64,255 | 109,189 | 130,881 | 126,161 | 143,867 | 114,240 | 133,547 | 120,476 | 92,741 | 59,003 |
| 4 | 37,541 | 62,346  | 87,789  | 59,820  | 68,675  | 82,860  | 40,620  | 59,977  | 45,859 | 17,212 |

## Profit Map : Order Size (Hz) x Customer Age (Vert)



|   | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 | -29    | 4,752  | 2,091  | 8,147  | 7,864  | 10,911 | 3,050  | 7,962  | 9,266  | 11,016 | 1,400  |
| 2 | -3,843 | 10,232 | 14,951 | 8,578  | 14,646 | 10,822 | 18,607 | 4,377  | 3,899  | 9,897  | 25,763 |
| 3 | -1,231 | 15,161 | 524    | 32,087 | 34,082 | 16,325 | 29,464 | 23,103 | 15,217 | 573    | 13,701 |
| 4 | -3,213 | 5,750  | -1,077 | 11,930 | 12,435 | 19,245 | 7,445  | 19,126 | 13,671 | 723    | 16,100 |

Profit Rate : Order Size (Hz) x Cust Age (Vert)



# of Orders : Order Size (Hz) x Cust Age (Vert)



Shipping Cost : Order Size (Hz) x Cust Age (Vert)



## Vanilla Advanced Analytics - Trendline - Requires R installed

Trendline - Requires R installed

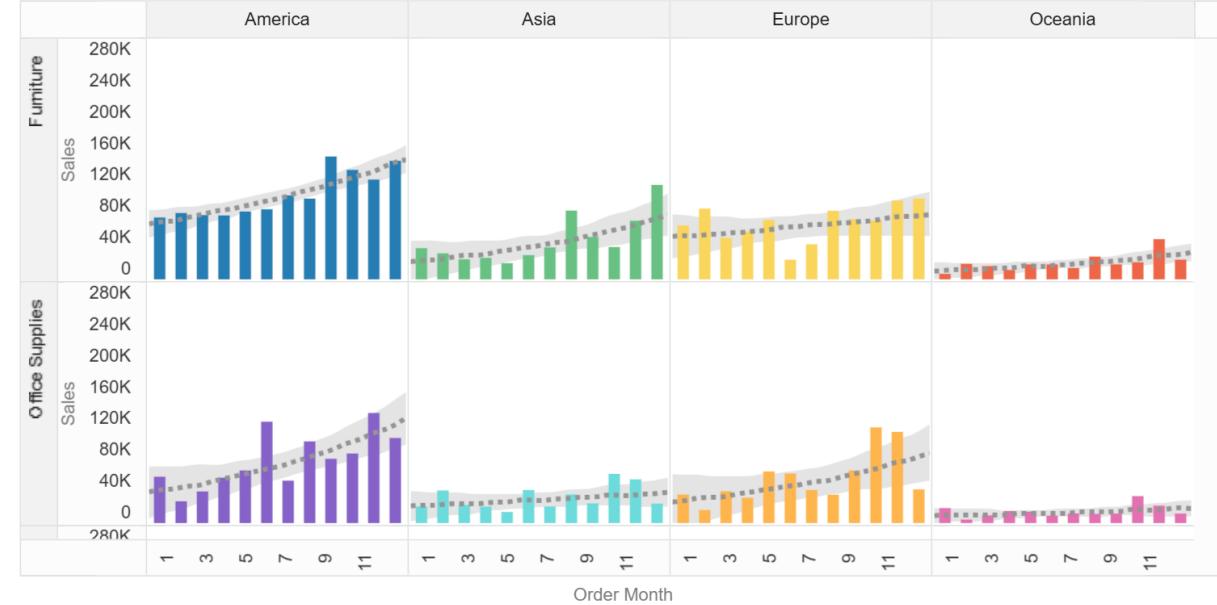
Continent: Africa Product Category: All

### Trend Lines on monthly Sales

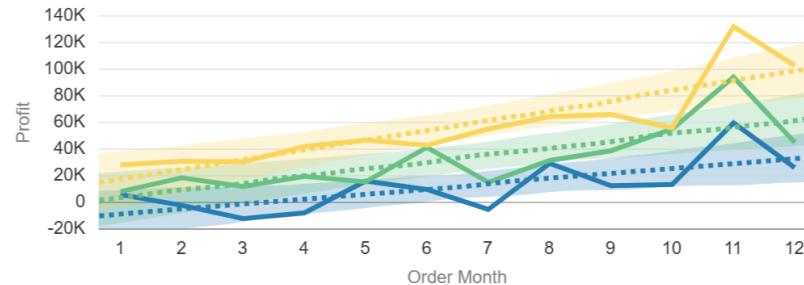
Polynomial (deg 4) Trending on Monthly Profit



Exponential Trendlines Trellised



Linear Trending on Monthly Sales by Products



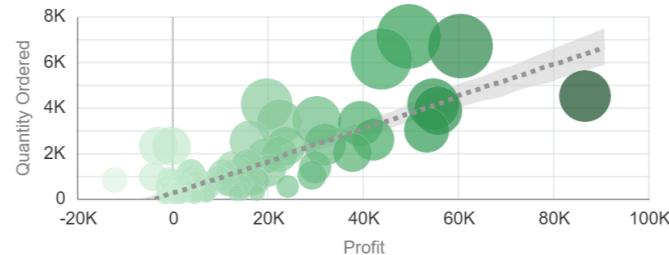
## Vanilla Advanced Analytics - Scatter Regression - Requires R

### Scatter Regression - Requires R

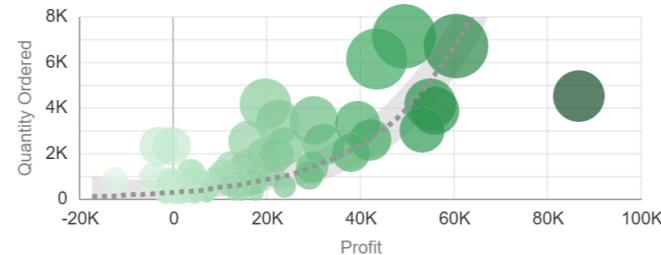
 Product Category: All Order Year: All City: Hong Kong, Los Angeles, Riyadh

**Regression Trendings on Profit x Qty Ordered. Dots on the scatter represent Cities.**

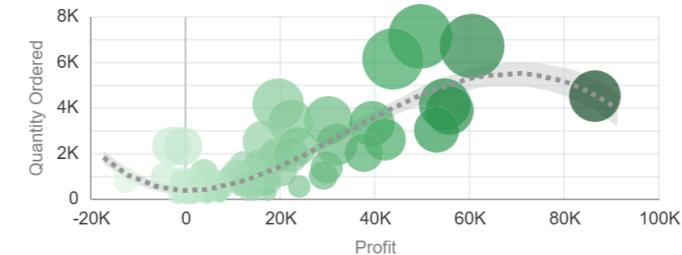
Linear Regression Trending



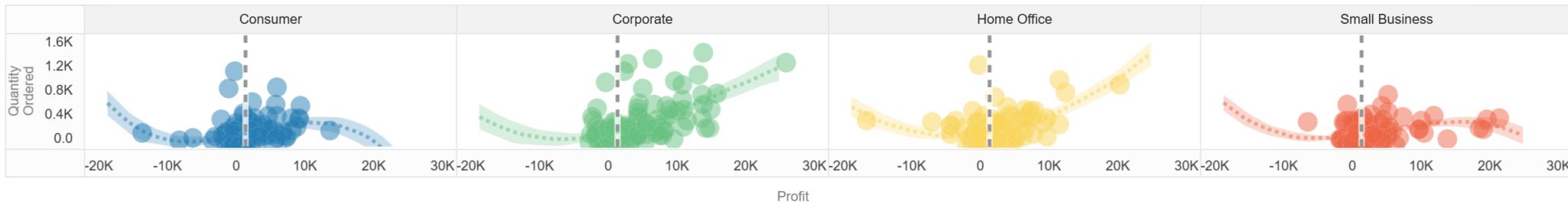
Exponential Regression Trending



Polynomial Deg 4 Regression



Trellised Exponential Regression Trending



## Vanilla Advanced Analytics - Outliers - Requires R installed

Outliers - Requires R installed

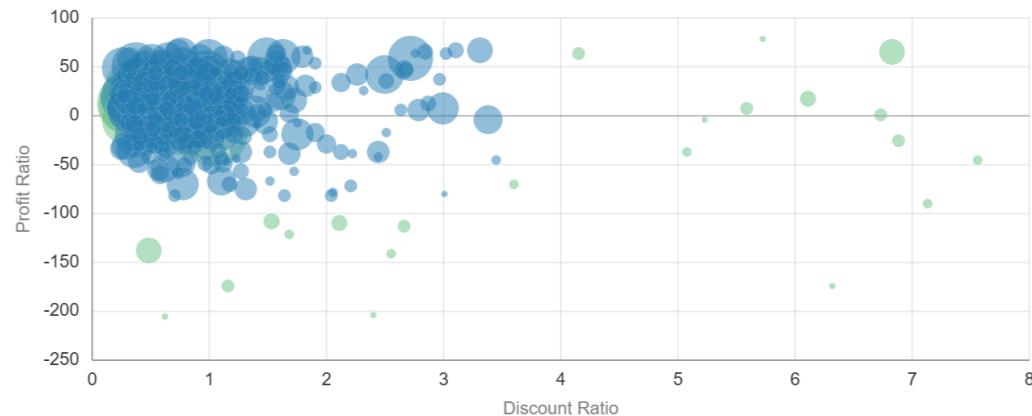
Order Year: 2013

### Outlier on 3 combined values : Sales, Profit Ratio, Discount Ratio

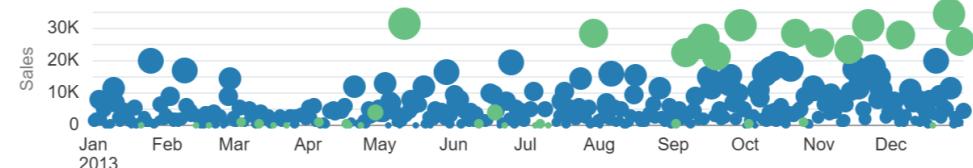
Outliers calculations can be invoked by right-click menu choice, or by a custom calculation like :

Order Date Outliers (Sales x Profit Ratio x Discount Ratio)

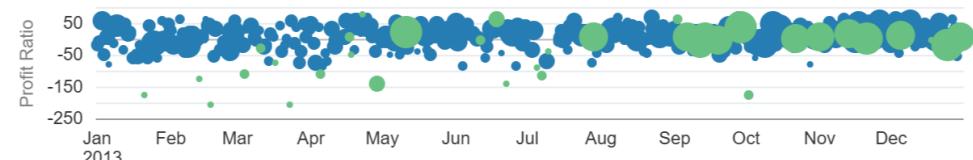
Outlier Days    █ Normal    █ Outlier  
Sales 17 ± 34K



Combined Outliers represented Sales axis only



Combined Outliers represented Profit Ratio axis only



Combined Outliers represented Discount Ratio axis only

