# Product range analysis

Based on sales data from 29.11.18 to 12.07.19

# Top products

Sales, price, revenue*

*(The highest metrics are underlined)

- **Small popcorn holder:**
  **56427** units were sold
  With average **0.85** price
  And total revenue of **47,963**

- **Regency cake stand 3-tier:**
  **12996** units were sold
  With average **12.75** price
  And total revenue of **165,699**

- **Rustic seventeen drawer sideboard:**
  **32** units were sold
  With average **165** price
  And total revenue of **5280**

# Prices and sales relation

- The lower the price, the higher the sales

- Cheap items bring more total revenue, because their sales are much higher



Relation between unit price and sales



Relation between revenue and and sales
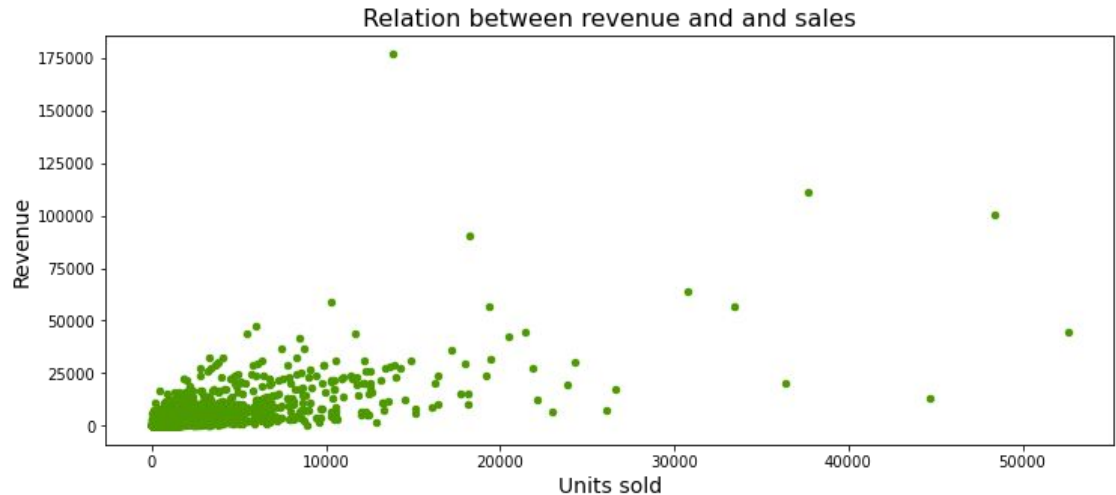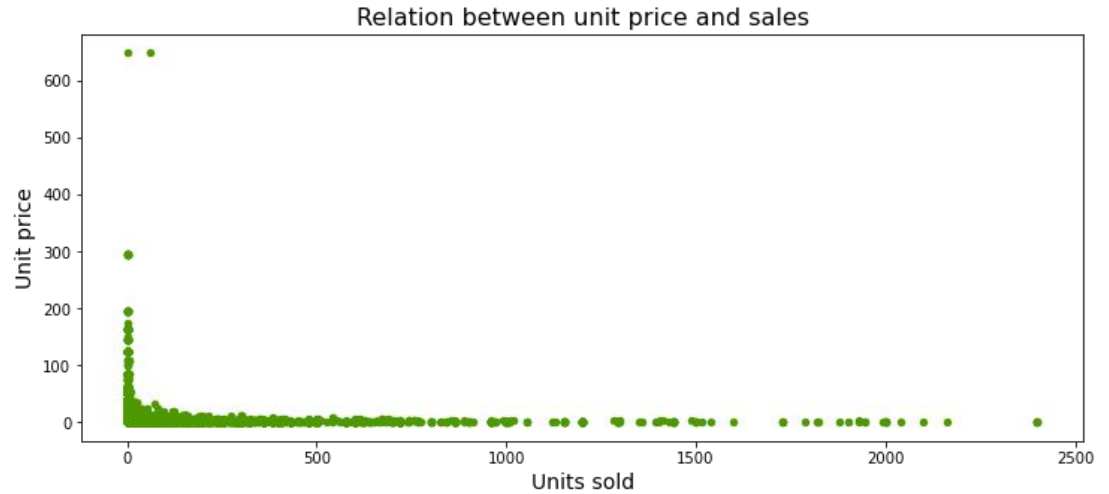
# Product Analysis

# Variety-based:

- **The more variance have the item (for example, different colors or patterns), the lower the profits.**

# 9%

The profit share of varied items is only 9% - while they make 24% of total items!

# Description based:

By separating keywords

# Keywords:
## The lower the occurrence, the higher the profits

Total of 1931 unique keywords
Median occurrence: 2
Maximum occurrence: 322

- Most common keywords are "set" (322), "pink" (304) and "heart" (222).

- Largest profits by keywords: "cakestand" (2 occurrences) - 188,978, chilli (1 occ.) - 59,236 and "ornament" (1 occ.) - 56,584.

- 0.5% of keywords bring 5% of total profit!

# Clustering*

| cluster_labels | total_items | avg_sales | avg_price | avg_revenue | total_revenue | unique_items | variety |
|---|---|---|---|---|---|---|---|
| 0 | 996 | 1207.776104 | 3.047229 | 2210.222801 | 2201381.910000 | 993 | 0.011044 |
| 1 | 1744 | 1117.129587 | 3.536881 | 2047.512093 | 3570861.090000 | 1744 | 0.000000 |
| 2 | 215 | 1111.358140 | 3.255674 | 1741.891907 | 374506.760000 | 172 | 0.358140 |
| 3 | 138 | 12608.362319 | 2.692609 | 25298.361522 | 3491173.890000 | 136 | 0.057971 |
| 4 | 812 | 294.986453 | 3.542980 | 595.364938 | 483436.330000 | 281 | 1.000000 |
| 5 | 10 | 25.000000 | 106.464000 | 2851.299000 | 28512.990000 | 10 | 0.000000 |

* **Green** - highest values, **orange** - lowest ones

# Clusters prioritized

| Cluster ID | Priority level | Cluster size | Description |
|---|---|---|---|
| 4 | 1 | 137 | Cheapest items with extremely high sales and extremely high average revenue. |
| 5 | 2 | 999 | Totally average items, with average sales and average profits. Compared to cluster 2, it's average price is slightly smaller, but sales and revenues are slightly bigger. |
| 2 | 3 | 1748 | The largest cluster with non-varied items with average sales and revenue |
| 3 | 4 | 10 | Very small cluster with the most expensive items. |
| 0 | 5 | 208 | Cluster with low prices and low revenues. ⅓ of items heare are varied. |
| 1 | 6 | 813 | Cluster with varied items, small sales and very low revenue. |

# Statistical tests results

In most cases except for sales by keywords there was statistically significant difference between the samples, meaning:

- Varied items have lower sales and are less profitable than unique items

- Items with less frequent keywords have higher revenues (but not sales)

- Cheaper items have higher sales and profits

# Recommendations:

- **Common features bring less revenues. We should concentrate on stock items with more unique features.**

- **Turnover rate is the key. More cheap items meaning higher sales and revenues.**