# Data at Scale: Management, Processing, Visualization Coursework

*25.01.2020 (Fri)*
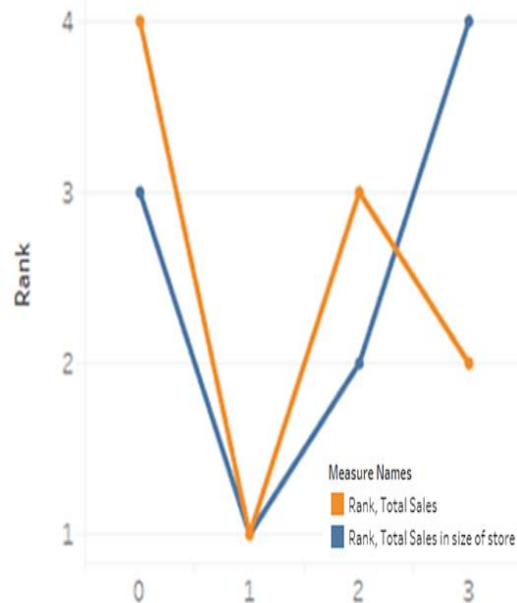
# Selecting marketing store

## Comparing three KPIs - Store 2, gap of new customer and active customer shows potential to increase new customers and induce active customer's spending

### Total sales vs Total sales in size

Total sales vs Total sales in size

Rank

Measure Names
- Rank, Total Sales (orange)
- Rank, Total Sales in size of store (blue)

- Measure store size by the number of product code
- Store 0 become standard as 1
- 768,756 product code
- Store 1's relative store size 0.06
- Store 2's relative store size 0.52
- Store 3's relative store size 0.29

### New customers

New Customers

| Mth | Store Code (New Customer) | | | |
| --- | 0 | 1 | 2 | 3 |
| 2018-03 | | 106 | 358 | 378 |
| 2018-04 | | 99 | 257 | 418 |
| 2018-05 | | 58 | 129 | 232 |
| 2018-06 | 1,055 | 51 | 113 | 133 |
| 2018-07 | 568 | 37 | 76 | 126 |
| 2018-08 | 375 | 36 | 63 | 125 |
| 2018-09 | 323 | 42 | 61 | 106 |
| 2018-10 | 247 | 36 | 38 | 100 |
| 2018-11 | 221 | 23 | 36 | 78 |
| 2018-12 | 192 | 24 | 51 | 96 |
| 2019-01 | 183 | 15 | 38 | 109 |
| 2019-02 | 148 | 32 | 25 | 114 |
| 2019-03 | 182 | 22 | 46 | 70 |
| 2019-04 | 149 | 17 | 26 | 59 |
| 2019-05 | 145 | 16 | 38 | 68 |
| 2019-06 | 129 | 28 | 31 | 68 |
| 2019-07 | 84 | 15 | 32 | 76 |
| 2019-08 | 119 | 11 | 25 | 85 |
| 2019-09 | 91 | 22 | 30 | 56 |
| 2019-10 | 89 | 19 | 29 | 55 |
| 2019-11 | 74 | 11 | 14 | 36 |

- New customers in month
- Store 1, 14/18 month over 100
- Store 2,3 least new customers
- Store 4 several months that over 100

### Active customers

Active Customers

| Mth (Re.. | Store Code (Repeat3 Custome..) | | | |
| --- | 0 | 1 | 2 | 3 |
| 2018-03 | | 10 | 71 | 10 |
| 2018-04 | | 38 | 230 | 93 |
| 2018-05 | | 44 | 235 | 70 |
| 2018-06 | 191 | 32 | 220 | 45 |
| 2018-07 | 399 | 47 | 210 | 71 |
| 2018-08 | 415 | 51 | 241 | 63 |
| 2018-09 | 381 | 48 | 239 | 78 |
| 2018-10 | 404 | 45 | 233 | 65 |
| 2018-11 | 400 | 41 | 236 | 67 |
| 2018-12 | 442 | 46 | 243 | 74 |
| 2019-01 | 386 | 41 | 226 | 73 |
| 2019-02 | 364 | 35 | 204 | 51 |
| 2019-03 | 400 | 44 | 232 | 83 |
| 2019-04 | 391 | 39 | 223 | 72 |
| 2019-05 | 442 | 44 | 241 | 72 |
| 2019-06 | 423 | 28 | 246 | 59 |
| 2019-07 | 397 | 34 | 234 | 76 |
| 2019-08 | 429 | 38 | 261 | 75 |
| 2019-09 | 377 | 33 | 266 | 71 |
| 2019-10 | 415 | 40 | 261 | 76 |
| 2019-11 | 224 | 25 | 172 | 24 |

- Repeat customers more than three times in monthly basis
- Store 2, significant amount of loyal customer, even though the group of new customers is small
- Big gap, high potential to increase total sales

# Specifying marketing strategy

## Comparing three KPIs – Store 2, marketing starts from March 2020 on milk category

### Monthly Sales

**Monthly Sales**

| Month | Store Code 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 2018-04 | | 165.1% | 171.8% | 166.4% |
| 2018-05 | | 10.8% | 7.2% | -6.3% |
| 2018-06 | | -17.3% | 1.0% | -25.6% |
| 2018-07 | 82.2% | 17.9% | -6.0% | 17.5% |
| 2018-08 | 1.8% | 1.6% | 9.4% | -2.5% |
| 2018-09 | -2.2% | 6.6% | -1.2% | 4.6% |
| 2018-10 | -1.2% | -2.3% | -8.0% | 8.3% |
| 2018-11 | 0.9% | 4.4% | 5.1% | -5.3% |
| 2018-12 | 6.1% | -0.8% | 10.2% | 0.5% |
| 2019-01 | -8.8% | -9.0% | -8.4% | 9.3% |
| 2019-02 | -6.0% | -10.7% | -16.6% | -15.0% |
| 2019-03 | 10.5% | 17.3% | 21.1% | 13.6% |
| 2019-04 | -3.9% | 6.9% | -3.2% | -0.9% |
| 2019-05 | 15.2% | -3.2% | 8.9% | -3.9% |
| 2019-06 | -1.5% | -15.2% | 3.0% | -24.6% |
| 2019-07 | -11.2% | -4.9% | -7.7% | 26.2% |
| 2019-08 | 9.7% | 7.7% | 8.7% | -2.0% |
| 2019-09 | -8.7% | 3.4% | -1.3% | -4.3% |
| 2019-10 | 6.2% | 11.1% | 2.0% | 1.2% |
| 2019-11 | -37.6% | -35.3% | -39.6% | -38.2% |

- Rate of monthly sales difference compare to previous month
- March to August shows almost continuous positive rate
- Last month, Nov 2019 was poor, start marketing on March 2020
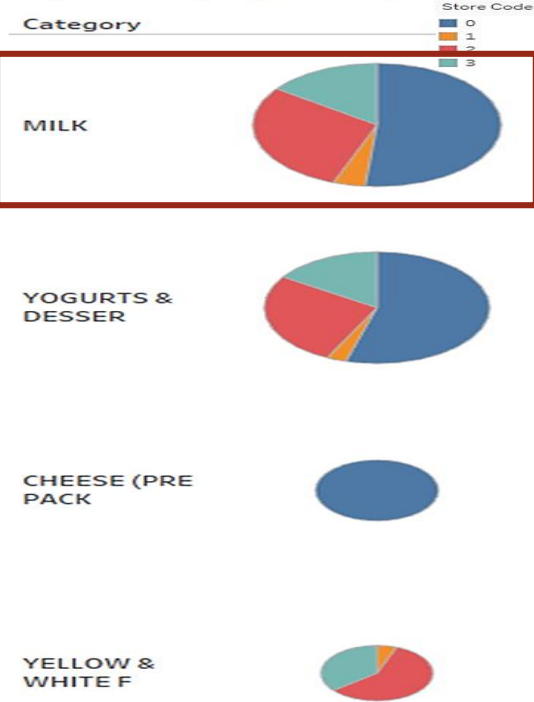
### Top 3 Department

**Top 3 Department**

Department — Store Code: 0, 1, 2, 3

- PROVISIONS DAIRY
- GROCERY 2
- FRUIT & VEGETABLES
- GROCERY 3
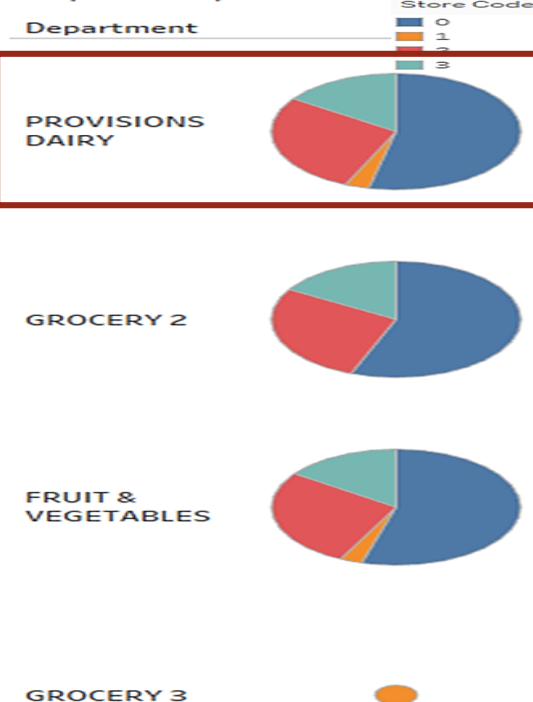
- 'Provisions dairy', the largest sales in all department in four stores
- 61,174 in 'provisions dairy'
- 60,736 in 'grocery 2'
- 59,927 in 'fruit & vegetables'

### Top 3 category in dairy depart

**Top 3 Category in dairy depart**

Category — Store Code: 0, 1, 2, 3

- MILK
- YOGURTS & DESSER
- CHEESE (PRE PACK
- YELLOW & WHITE F

- Most sold categories in 'provision dairy department' in each store
- 'milk' category shows the most sold category in 'provision dairy'.
- store code 2 sold 20,503 quantities
- marketing should focus on 'milk category' in store code 2

# The End of Document