

# Data Analysis and Visualization for Australian Grocery Store

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## Which items should the store stop selling? Why?

To answer this question, we first explored the data and came up with data tables that represent the items with a higher profit loss compared to the rest of the items; specifically, a loss of more than \$200. There were more items with a loss in profit but we decided to look at the ones that are at least \$200 because the next largest loss was around \$45, which did not seem to affect the total profit loss of \$40,000 that much.

### Total Profit Loss for Both Years

Item Name	Total Buying Price	Total Selling Price	Total Profit 
Cabbage Wombok		1,406	-2,110
Avocado Hass Medi..	3,315	2,199	-1,116
Red Radish bunch		742	-288
Pear Nashi	11	767	-259
Banana Cavendish	224	48,454	-243
bitter melon	12	2,140	-238

Total Buying Price, Total Profit and Total Selling Price broken down by Item Name. The view is filtered on sum of Total Profit and Item Name. The sum of Total Profit filter ranges from -2,110 to 0. The Item Name filter keeps 1,117 of 1,136 members.

### Total Profit Loss by Year

Item Name	Total Buying Price		Total Selling Price		Total Profit	
	2017	2018	2017	2018	2017	2018
Cabbage Wombok			183	1,224	-274	-1,836
Avocado Hass Medium	438	2,877	291	1,908	-147	-969
Red Radish bunch			400	342	-155	-133
Pear Nashi	11		767		-259	
Banana Cavendish	126	98	27,533	20,921	-138	-105
bitter melon	8	4	943	1,196	-105	-133

Total Buying Price, Total Profit and Total Selling Price broken down by Date Year vs. Item Name. The view is filtered on sum of Total Profit, Item Name and Date Year. The sum of Total Profit filter ranges from -2,110 to 0. The Item Name filter keeps 1,117 of 1,136 members. The Date Year filter keeps 2017 and 2018.

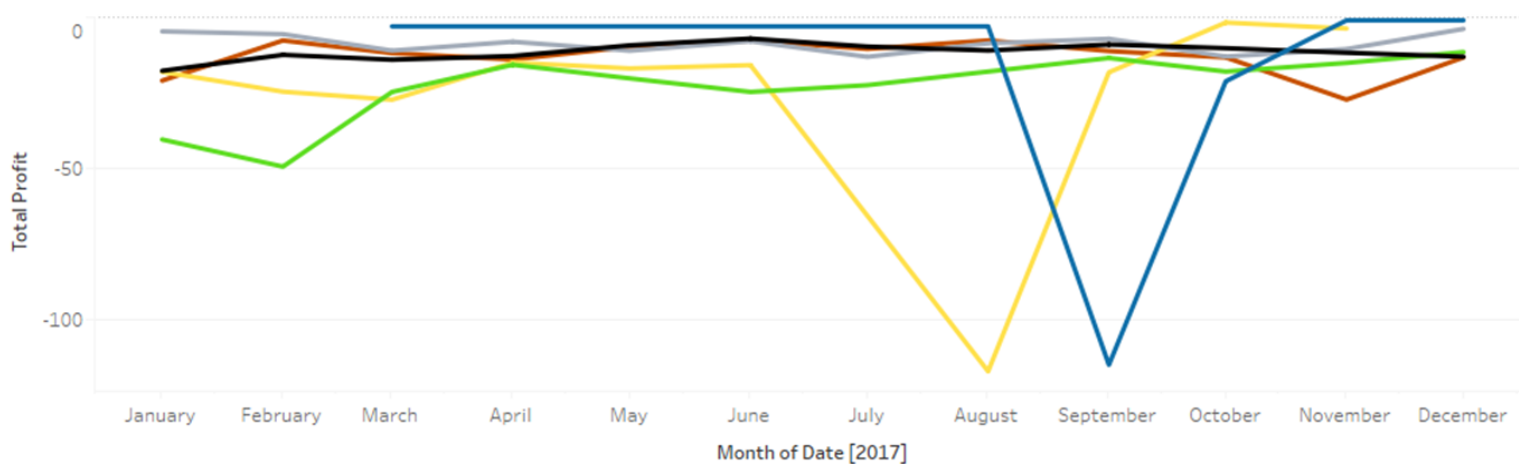
Looking at our data, one item that we can confidently say that the store would be better off not selling was 'Avocado Hass Medium'. There has been a large profit loss in both the years 2017 and 2018 (which was especially higher in 2018). And despite the profit loss of \$147 in 2017, the store bought more of this item in 2018 (\$1908) causing them to lose even more profit (\$969).

There were also other items like Cabbage Wombok, Red Radish bunch, Pear Nashi, Banana Cavendish, and Bitter Melon which showed negative profits as well. However, All Foods shouldn't completely stop selling these items based on this dataset. The problem with the dataset is that the buying prices of these items were entirely null or partially null, meaning that there isn't a sufficient amount of information to completely stop selling these items.

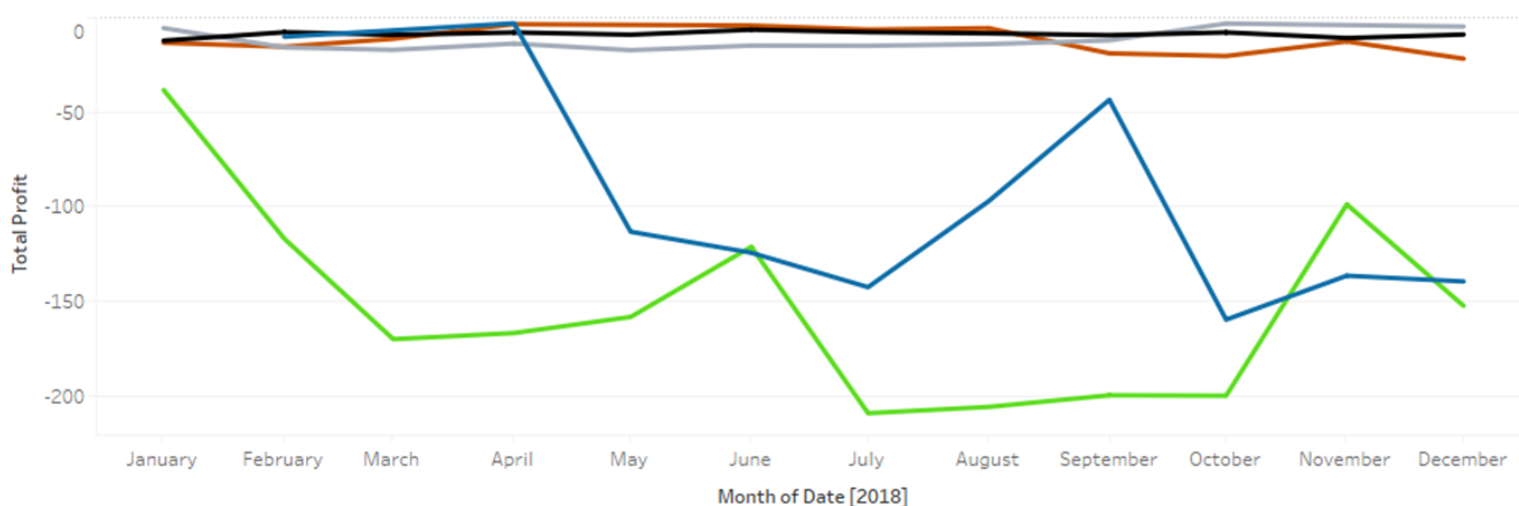
Here is the data visualization that provides further details about the trend of profit loss for these six items:

Item Name   ■ Avocado Hass Me...   ■ Banana Cavendish   ■ bitter melon   ■ Cabbage Wombok   ■ Pear Nashi   ■ Red Radish bunch

Total Profit For 2017



Total Profit For 2018

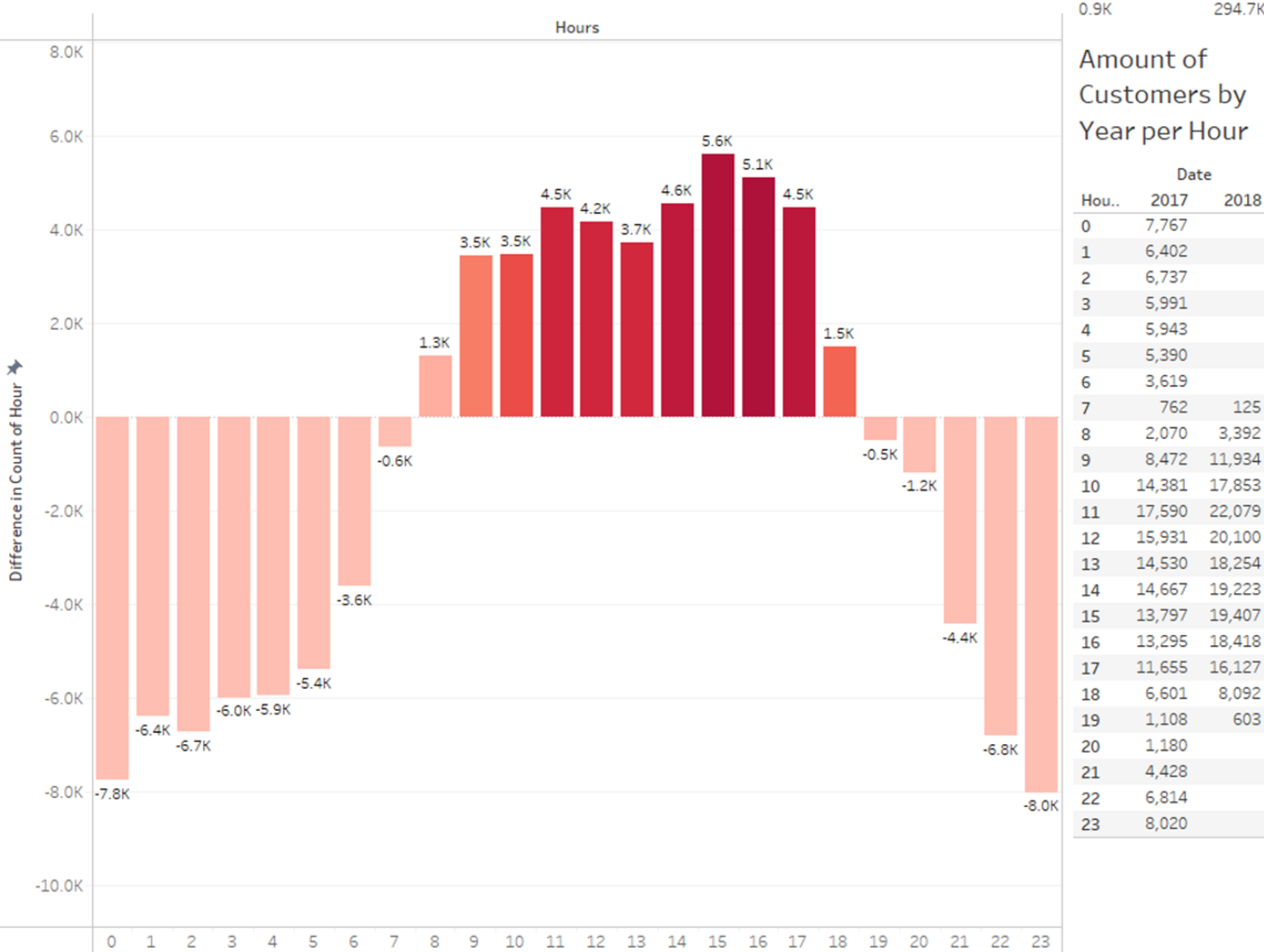


How does the year 2017 compare to the year 2018? Were there any significant changes in purchasing habits of the customers?

With the change in their operation hours, there was an increase in customers from 8 am to 6 pm in 2018 compared to 2017. In total, they lost 21,543 customers due to the change in their operating hours. This purchasing habit was the most significant considering that All Foods opens at 7 am and closes at 7 pm.

Here in this visualization, we can see that the largest increase of customers happened around 3 ~ 4 pm while the most decrease of customers happened around 11 pm ~ 12 am.

Differences of Customers between 2017 and 2018 per Hour



Another change in purchasing habits that was found between 2017 and 2018 is the amount of products being purchased for specific items. This bar chart shows the top 10 most sold items for both 2017 and 2018. If an item is a top 10 sold item in both years, there is almost always a decrease in the amount sold in the year 2018, the only exception to this being Pumpkin Japanese / Kent. This is perhaps because there were fewer customers in 2018 compared to 2017. The year 2017 had 3 items that were in the top 10 list that weren't included in the 2018 top 10 list. However, the year 2018 had 2 items that were in the top 10 list that weren't included in the 2017 top 10 list.

Year of Date

2017

2018

### Comparison of Most Sold Items Between 2017 and 2018

