Sales Insights Report

There is a lot of information kept in one column, the PROD_NAME column. I split that column into three columns to disentangle the pack_size and the prod_brand from the prod_name. Now we can see what sizes of packs are included and how many brands are in the dataset.

Some of the substitutions I made need to be checked with the customer. For example: is "NCC" the same as "Natural Chip Co"? I left them as a separate category but this could be better handled with more information. Below is a quick overview of the completeness of the data and other high-level summaries of the data type and distribution.

Table 1: Data summary

Name	prod_info
Number of rows	264836
Number of columns	11
Column type frequency:	
character	3
Date	1
factor	4
numeric	3
Group variables	None

Variable type: character

skim_variable	n_missing	complete_rate	min	max	empty	n_unique	whitespace
prod_brand	0	1	3	15	0	23	0
prod_flavor	0	1	6	32	0	113	0
prod_name	0	1	12	35	0	114	0

Variable type: Date

skim_variable	n_missing	complete_rate	min	max	median	n_unique
date	0	1	2018-07-01	2019-06-30	2018-12-30	364

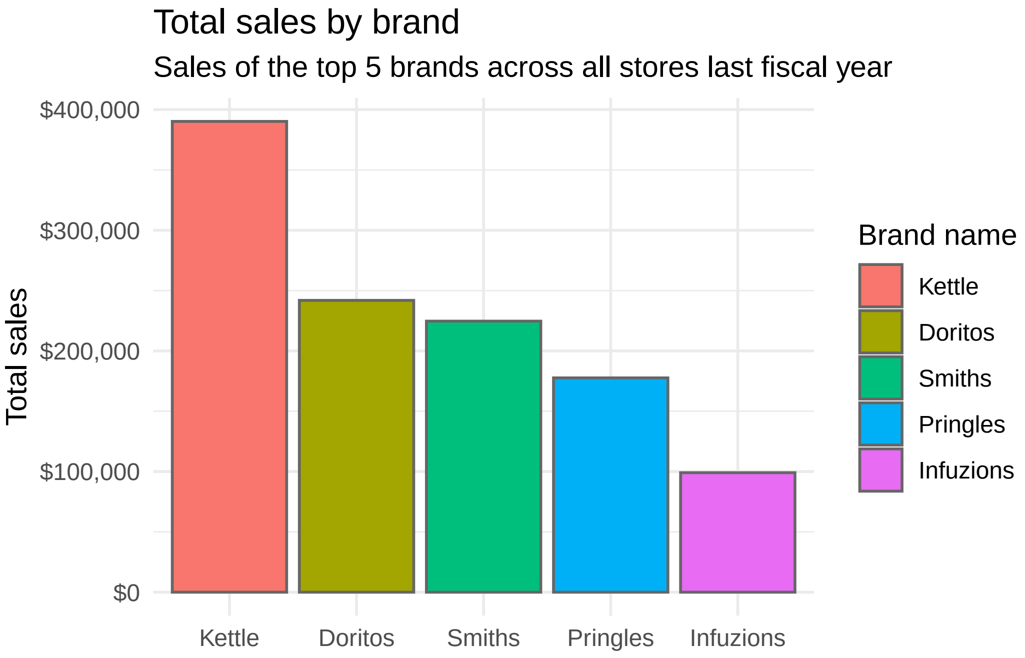
Variable type: factor

skim_variable	n_missing	complete_rate	ordered	n_unique	top_counts
store_nbr	0	1	FALSE	272	226: 2022, 88: 1873, 93: 1832, 165: 1819
lylty_card_nbr	0	1	FALSE	72637	162: 18, 172: 18, 131: 17, 116: 17
txn_id	0	1	FALSE	263127	116: 3, 102: 3, 108: 3, 211: 3
prod_nbr	0	1	FALSE	114	102: 3304, 108: 3296, 33: 3269, 112: 3268

Variable type: numeric

skim_variable	n_missing	complete_rate	mean	sd	p0	p25	p50	p75	p100	hist
prod_qty	0	1	1.91	0.64	1.0	2.0	2.0	2.0	200	
tot_sales	0	1	7.30	3.08	1.5	5.4	7.4	9.2	650	
pack_size	0	1	182.43	64.33	70.0	150.0	170.0	175.0	380	

We can tell from the tables above that there is a date column ranging from July 2018 to June 2019, three character variables (including the ones I added) with 23 unique brands and 114 unique products, and three numeric variables. There is an average of 2 packs in each product purchase (rounded up) and the average cost of a purchase is $7.30 There seems to be an outlier purchase of $650.00 so I need to verify whether this is an bug/anomaly or is explainable. The average pack size is around 180g. There are also four categorical variables (factors) including a tax id number which is unique for each purchase, a store number, a loyalty card number, and a product number. The loyalty card number will be useful for cross-referencing the cust_info table that I created from the purchase behaviour dataset that was provided. Below is a bar chart of total sales last fiscal year by brand to show the most common purchases.



Now for the cust_info (customer info).

Table 6: Data summary

Name	cust_info
Number of rows	72637
Number of columns	3
Column type frequency:	
factor	3
Group variables	None

Variable type: factor

skim_variable	n_missing	complete_rate	ordered	n_unique	top_counts
lylty_card_nbr	0	1	FALSE	72637	100: 1, 100: 1, 100: 1, 100: 1
lifestage	0	1	FALSE	7	RET: 14805, OLD: 14609, YOU: 14441, OLD: 9780
premium_customer	0	1	FALSE	3	Mai: 29245, Bud: 24470, Pre: 18922

All three variables of this dataset are categorical, though there are many loyalty card numbers. There are 7 categories of lifestage and 3 premium customer categories. Once again, the data is complete (no missing observations). One quick way to make this dataset more useful is to join the two tables together by loyalty number to prepare for analysis on customer category and lifestage for each purchase.

Table 8: Data summary

Name	full_df
Number of rows	264836
Number of columns	13
Column type frequency:	
character	3
Date	1
factor	6
numeric	3
Group variables	None

Variable type: character

skim_variable	n_missing	complete_rate	min	max	empty	n_unique	whitespace
prod_brand	0	1	3	15	0	23	0
prod_flavor	0	1	6	32	0	113	0
prod_name	0	1	12	35	0	114	0

Variable type: Date

skim_variable	n_missing	complete_rate	min	max	median	n_unique
date	0	1	2018-07-01	2019-06-30	2018-12-30	364

Variable type: factor

skim_variable	n_missing	complete_rate	ordered	n_unique	top_counts
store_nbr	0	1	FALSE	272	226: 2022, 88: 1873, 93: 1832, 165: 1819
lylty_card_nbr	0	1	FALSE	72637	162: 18, 172: 18, 131: 17, 116: 17
txn_id	0	1	FALSE	263127	116: 3, 102: 3, 108: 3, 211: 3

skim_variable	n_missing	complete_rate	ordered	n_unique	top_counts
prod_nbr	0	1	FALSE	114	102: 3304, 108: 3296, 33: 3269, 112: 3268
lifestage	0	1	FALSE	7	OLD: 54479, RET: 49763, OLD: 48596, YOU: 43592
premium_customer	0	1	FALSE	3	Mai: 101988, Bud: 93157, Pre: 69691

Variable type: numeric

skim_variable	n_missing	complete_rate	mean	sd	p0	p25	p50	p75	p100	hist
prod_qty	0	1	1.91	0.64	1.0	2.0	2.0	2.0	200	
tot_sales	0	1	7.30	3.08	1.5	5.4	7.4	9.2	650	
pack_size	0	1	182.43	64.33	70.0	150.0	170.0	175.0	380	

END OF EXAMPLE