

PRODUCT RANGE ANALYSIS

Analyzing the product range of
an online store that sells
household goods



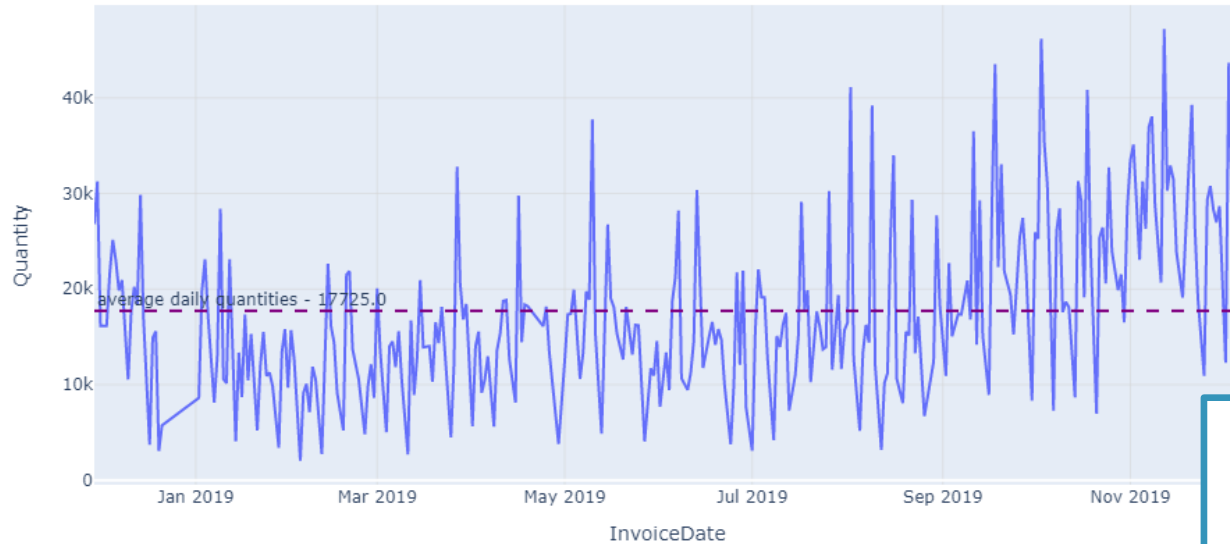
GETTING TO KNOW THE DATA

- the number of unique products logged in our data is 4017 different products
- the amount of all products purchased is 5406210 total units
- the amount of all of purchases (unique invoices) is 19771 total unique purchases



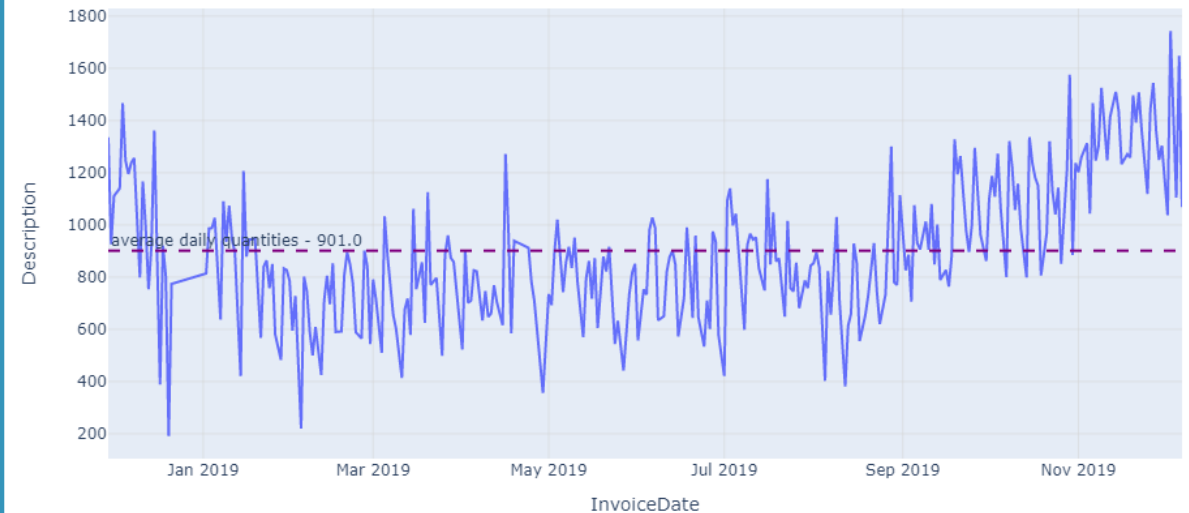
HOW MANY PRODUCTS ARE SOLD EVERY DAY?

total number of daily purchases in total quantities



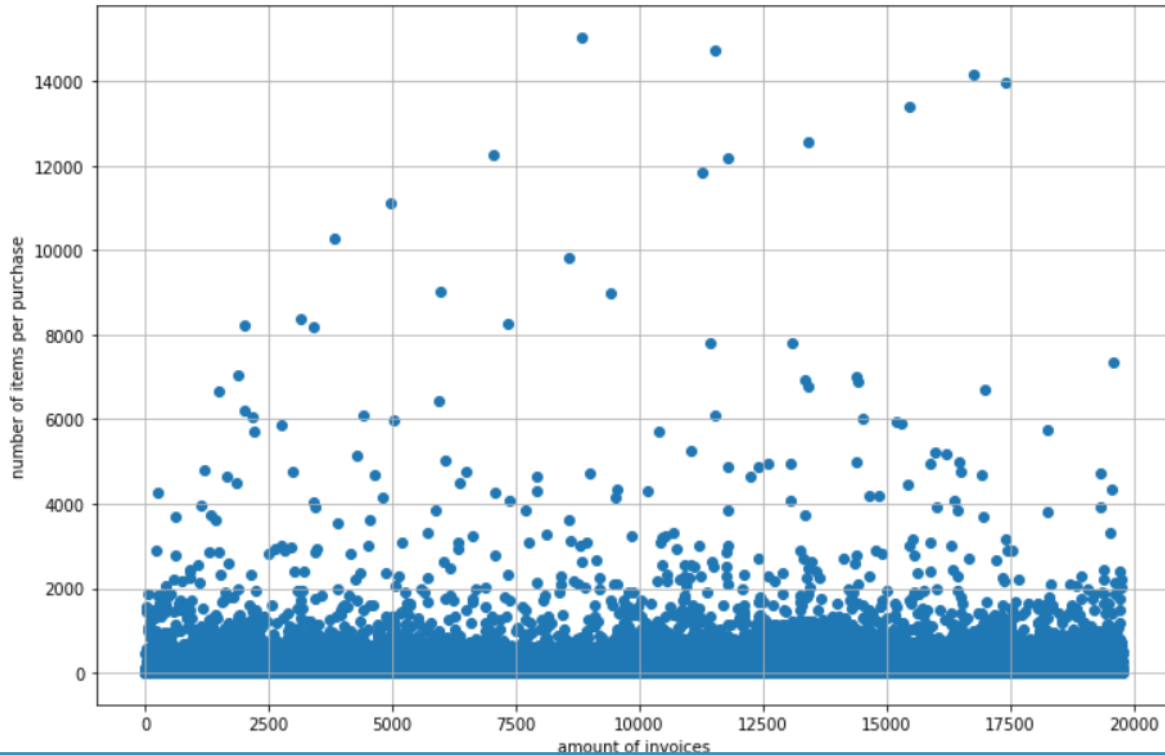
the one thing that stands out that is common on both graphs is the high numbers of purchases, in quantities and varieties, from November to December.

total number of daily purchases in unique products count



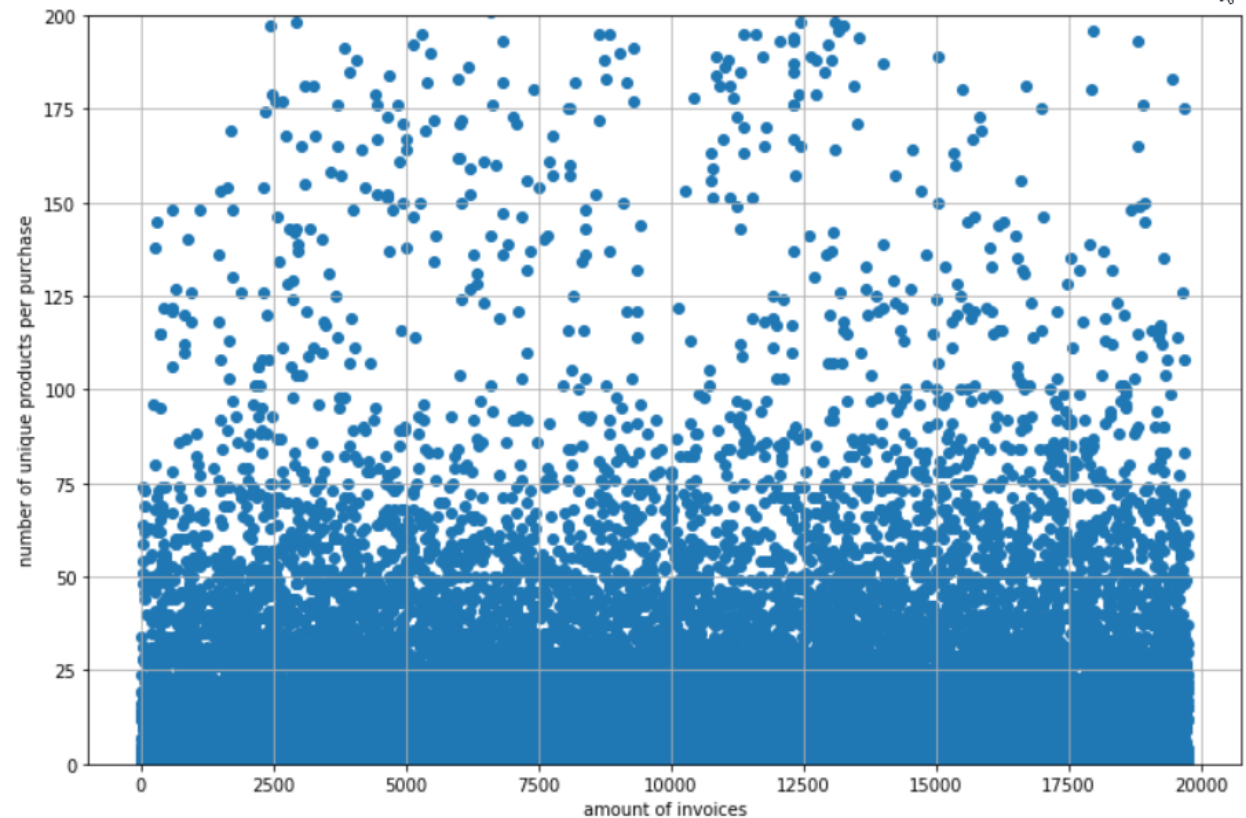
WHAT CHARACTERIZES A PURCHASE?

distribution of total number of items per purchase



what characterizes a purchase, is between 1-30 unique products, with between 1-200 total units of products. taking into account these calculations in compare to the averages, we can say that: what characterizes a purchase, is a large amount of unique products, with relatively low to average amounts of total units.

distribution of unique number of products per purchase



WHAT ARE THE MOST POPULAR PRODUCTS IN THE DATA?

top10_apearances	top10_quantities	top10_quantities_single_row	top10_groups
WHITE HANGING HEART T-LIGHT HOLDER	WORLD WAR 2 GLIDERS ASSTD DESIGNS	WORLD WAR 2 GLIDERS ASSTD DESIGNS	JUMBO BAG BAROQUE BLACK WHITE
JUMBO BAG RED RETROSPOT	JUMBO BAG RED RETROSPOT	SMALL POPCORN HOLDER	POPCORN HOLDER
REGENCY CAKESTAND 3 TIER	WHITE HANGING HEART T-LIGHT HOLDER	EMPIRE DESIGN ROSETTE	WORLD WAR 2 GLIDERS
PARTY BUNTING	POPCORN HOLDER	ESSENTIAL BALM 3.5G TIN IN ENVELOPE	HANGING T-LIGHT HOLDER
LUNCH BAG RED RETROSPOT	PACK OF 72 RETROSPOT CAKE CASES	FAIRY CAKE FLANNEL ASSORTED COLOUR	RETROSPOT CAKE CASES
ASSORTED COLOUR BIRD ORNAMENT	ASSORTED COLOUR BIRD ORNAMENT	SMALL CHINESE STYLE SCISSOR	BIRD ORNAMENT
SET OF 3 CAKE TINS PANTRY DESIGN	RABBIT NIGHT LIGHT	ASSORTED COLOUR BIRD ORNAMENT	NIGHT LIGHT
PACK OF 72 RETROSPOT CAKE CASES	MINI PAINT SET VINTAGE	PACK OF 60 PINK PAISLEY CAKE CASES	PAINT SET
LUNCH BAG BLACK SKULL.	PACK OF 12 LONDON TISSUES	RABBIT NIGHT LIGHT	PACK OF TISSUES
NATURAL SLATE HEART CHALKBOARD	PACK OF 60 PINK PAISLEY CAKE CASES	GROW A FLYTRAP OR SUNFLOWER IN TIN	PAISLEY CAKE CASES

RETURNS ANALYSIS

- the amount of unique products that have been returned is 1962 different products, which make up 48.8% off all unique product purchases
- the amount of all products returned is 114807 total units, which make up 2.1% off all product purchases
- the amount of all of returns (unique invoices) is 3420 total unique returns, which make up 17.3% off all unique purchases
- The most popular returned products, are:

top10_appearances	top10_quantities	top10_quantities_single_row	top10_groups
REGENCY CAKESTAND 3 TIER	ROTATING SILVER ANGELS T-LIGHT HLDR	ROTATING SILVER ANGELS T-LIGHT HLDR	T-LIGHT HOLDER
JAM MAKING SET WITH JARS	FAIRY CAKE FLANNEL ASSORTED COLOUR	FAIRY CAKE FLANNEL ASSORTED COLOUR	FAIRY CAKE FLANNEL
SET OF 3 CAKE TINS PANTRY DESIGN	WHITE HANGING HEART T-LIGHT HOLDER	GIN + TONIC DIET METAL SIGN	HANGING T-LIGHT HOLDER
ROSES REGENCY TEACUP AND SAUCER	GIN + TONIC DIET METAL SIGN	WHITE HANGING HEART T-LIGHT HOLDER	METAL SIGN
STRAWBERRY CERAMIC TRINKET BOX	HERB MARKER BASIL	HERB MARKER BASIL	PARTY BUNTING
RECIPE BOX PANTRY YELLOW DESIGN	FELTCRAFT DOLL MOLLY	TEA TIME PARTY BUNTING	JUMBO BAG BAROQUE BLACK WHITE
JUMBO BAG RED RETROSPOT	TEA TIME PARTY BUNTING	PINK BLUE FELT CRAFT TRINKET BOX	HERB MARKER
LUNCH BAG RED RETROSPOT	PAPER POCKET TRAVELING FAN	PAPER POCKET TRAVELING FAN	FELTCRAFT DOLL
GREEN REGENCY TEACUP AND SAUCER	PINK BLUE FELT CRAFT TRINKET BOX	WORLD WAR 2 GLIDERS ASSTD DESIGNS	TRAVELING FAN
WOOD 2 DRAWER CABINET WHITE FINISH	WORLD WAR 2 GLIDERS ASSTD DESIGNS	FELTCRAFT BUTTERFLY HEARTS	CRAFT TRINKET BOX

FINAL CONCLUSION

working on this project we made some observations:

- there is a seasonality in product sales, some parts of the year, especially September-December, have bigger sales not only in total amounts sold, but also in the range of products sold (in those months the variety of products sold is greater).
- what characterizes a purchase, is a large amount of unique products, with relatively low to average amounts of total units. that means clients are inclined to buy a range of different products in a single purchase.
- we calculated which products are the top sellers in the store, using a few different calculation methods. there are some prominent products that appear to be consistently popular.
- the amount of total returns make up only 2% of total products sold, but the range of returned products makes up for around 17% of the entire range of products.
- some of the most popular returned items are also in the most popular purchased items. but since the ratio is small, it is not an indication that those products are "unpopular". however there are some products that dominate as popular in returns, but are not in the lists of most popular products purchased. these products don't seem to have good selling potential.
- our store caters to private clients and business clients (bulk purchases). the average amount of unique product sold to private customers is higher than the average amount of unique product sold to business customers. private clients make up more than 50% of total items sold by the store, and they are characterised as purchasing a large variety of products. i.e., they prefer a wider range of products.

FINAL CONCLUSION

based on those observations, we formulated some conclusions:

- the store should invest in a range of products that are suitable the months that are characterised in higher sales, especially in the products aimed at early Christmas shopping during November.
- the store should invest in the type of products that appear to be consistently popular, and try to eliminate from the range products that are more often returned (and are not on the lists of most popular products purchased).
- private clients are a group with high potential of sales, and they prefer a varied range of products. so the store should invest in a range of products targeted to that group, while keeping in mind the previous conclusions.

