

DATA ANALYSIS WITH PYTHON

A case study on a fashion
e-commerce company



Problem statement:

Company X is a fashion e-commerce company. The purpose of this case study is to analyse the historical sales data of Company X and help the Customer Relationship Management (CRM) team to generate insights that can be used to generate new campaign angles for customer re-engagement campaigns.

Data used:

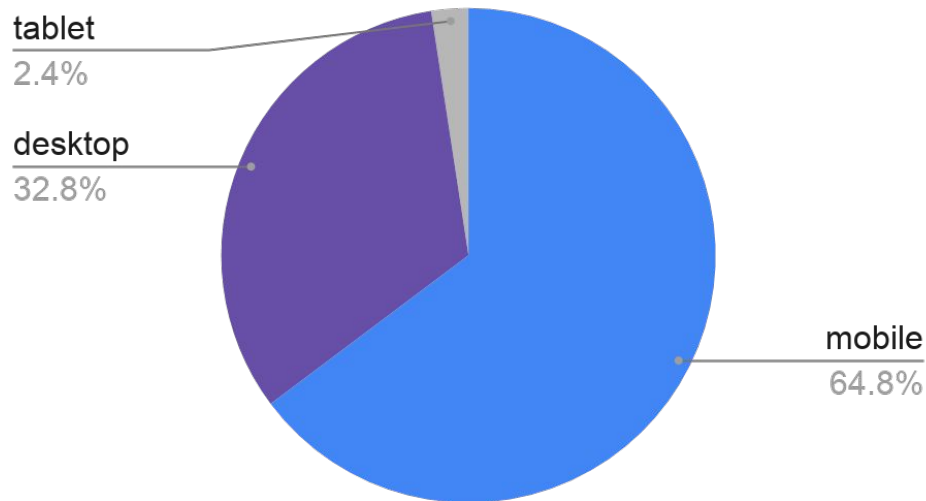
Sales transaction data from 01-Jun-16 to 28-Jun-17.

Analysis and visualisation:

All analysis was done in Python ([full working code](#)), and the charts were created in Google Sheets.

Findings and recommendations

Orders from mobile were 2 times higher than desktop

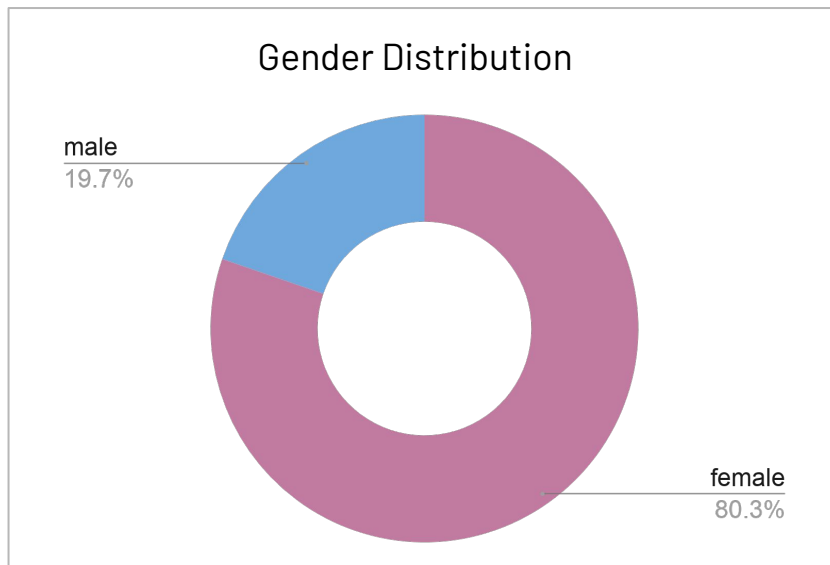


What this means

Marketing campaigns should be targeted to reach customers on mobile, especially through social media.

A robust mobile app is a must to give customers an easy and fuss-free shopping experience.

Female Gen Z and Millennials form the bulk of customer base



Median age of customer

28

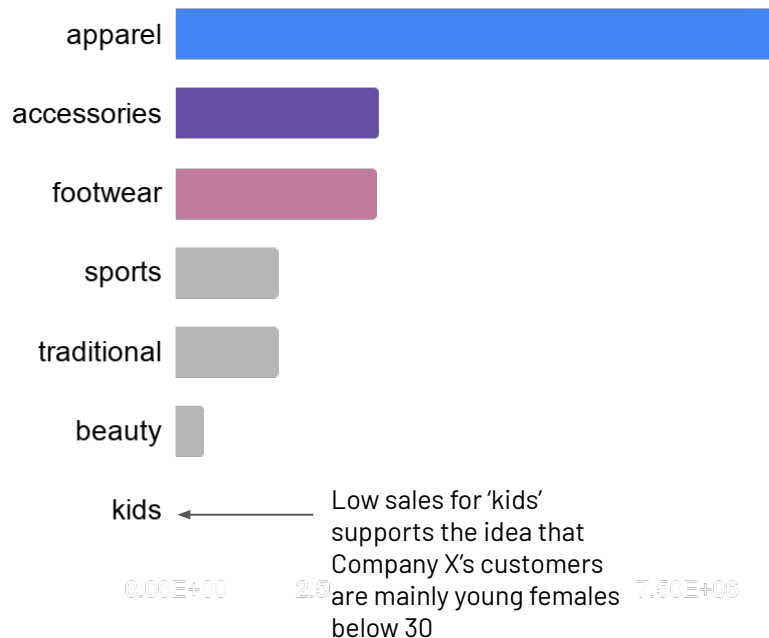
50% of customers were
between ages

22-35

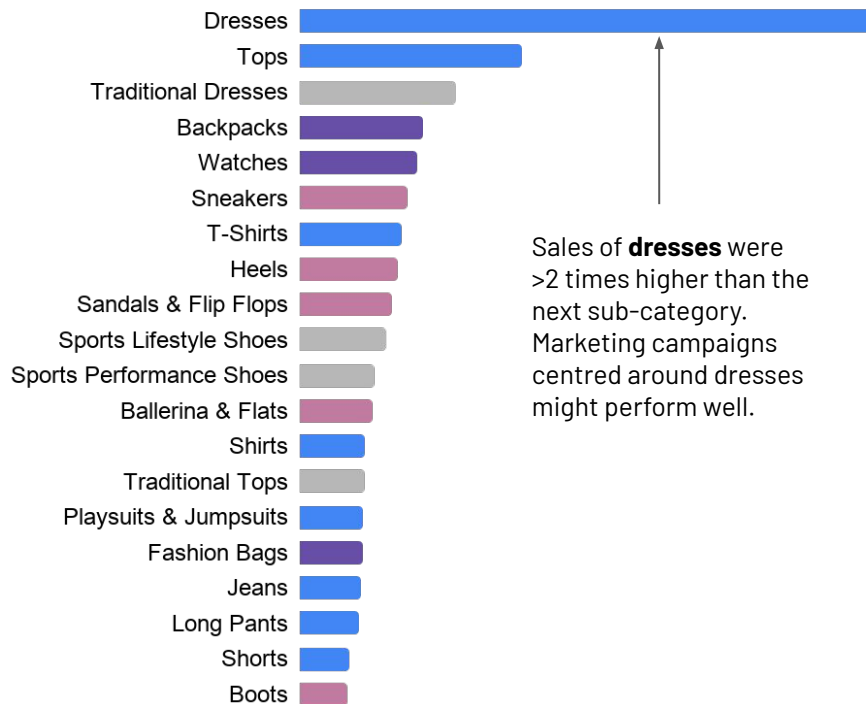
Besides needing to reach customers on mobile, Company X also needs to develop a deep understanding of the lifestyles and digital shopping behaviour of young women and tailor our messages to fit their aspirations and values.

For most, Company X is still a destination for clothing

Total sales by category



Top 20 sub-categories by total sales



Nearly half of all customers only purchased 1–2 times in the previous year

Number of purchases	Percentage of customers	Cumulative percentage
1	29.24%	29.24%
2	19.46%	48.70%
3	12.76%	61.46%
4	8.62%	70.08%
5	6.05%	76.13%
6 and above	23.87%	100.00%

Possible explanations

Customers did not have a good experience shopping with Company X.

Company X's customers are not power shoppers and have a long inter-purchase period.

The bulk of Company X's customers have little to no brand loyalty. Given the abundance of choices consumers have, Company X simply did not wow its customers enough to return.

Company X's customers are not big spenders

Median order value*

\$53

50% of all orders had values between

\$33-\$89

75% of all items bought cost less than

\$33

What this means

Consumers are price sensitive and will be attracted to retailers that offer affordable yet stylish clothing

Company X should emphasise positioning as a provider of cutting-edge fashion at affordable prices

*Median was used instead of average due to some extremely high order values inflating the AOV (which was \$70).

Voucher codes – too much of a good thing?

Orders made with voucher codes

27.9%

Number of voucher codes used
over a period of 392 days

13,404

Average number of orders per
voucher code

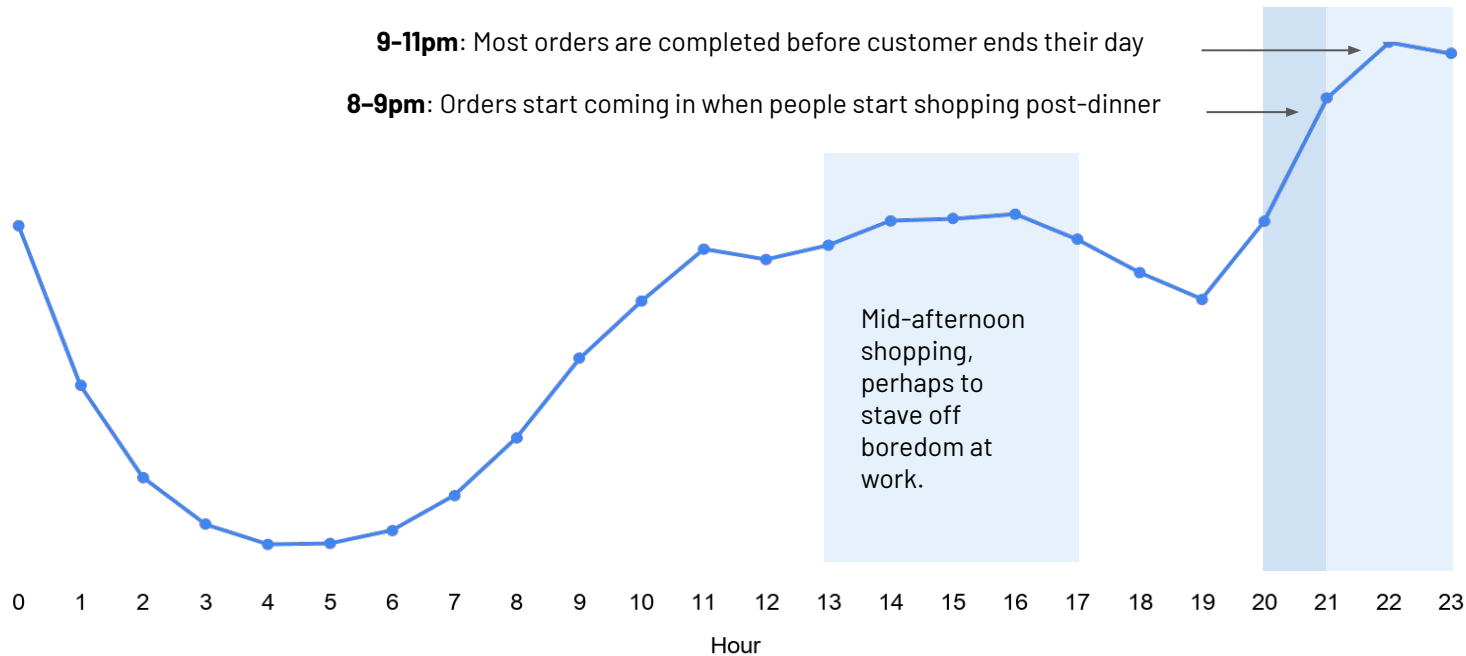
5.6

Interpreting these numbers

While voucher codes were effective in driving sales, it seems that Company X generated an excessive number of voucher codes over the sales period analysed.

Further, when coupled with the knowledge that 50% of customers made only 1-2 purchases, one might infer that they were mostly one-time bargain hunters with little loyalty to the company.

9-11pm is the peak for shopping activity



Time messages to when customers are most likely to want to engage with it. E.g. sending the promotional messages in the afternoon after lunch might be effective since customers are experiencing an afternoon slump and might not be the most productive at work. Sending messages in the evenings could serve as a timely reminder that drives customers to shop at Company X when they are relaxing at home.

Shopping activity peaks on Sundays and Mondays

During the week when shoppers less active, Company X could engage with them by sending interesting and meaningful editorial content instead of emails with discount codes.

Seems like a case of retail therapy to cope with Monday blues



Mon

Tue

Wed

Thu

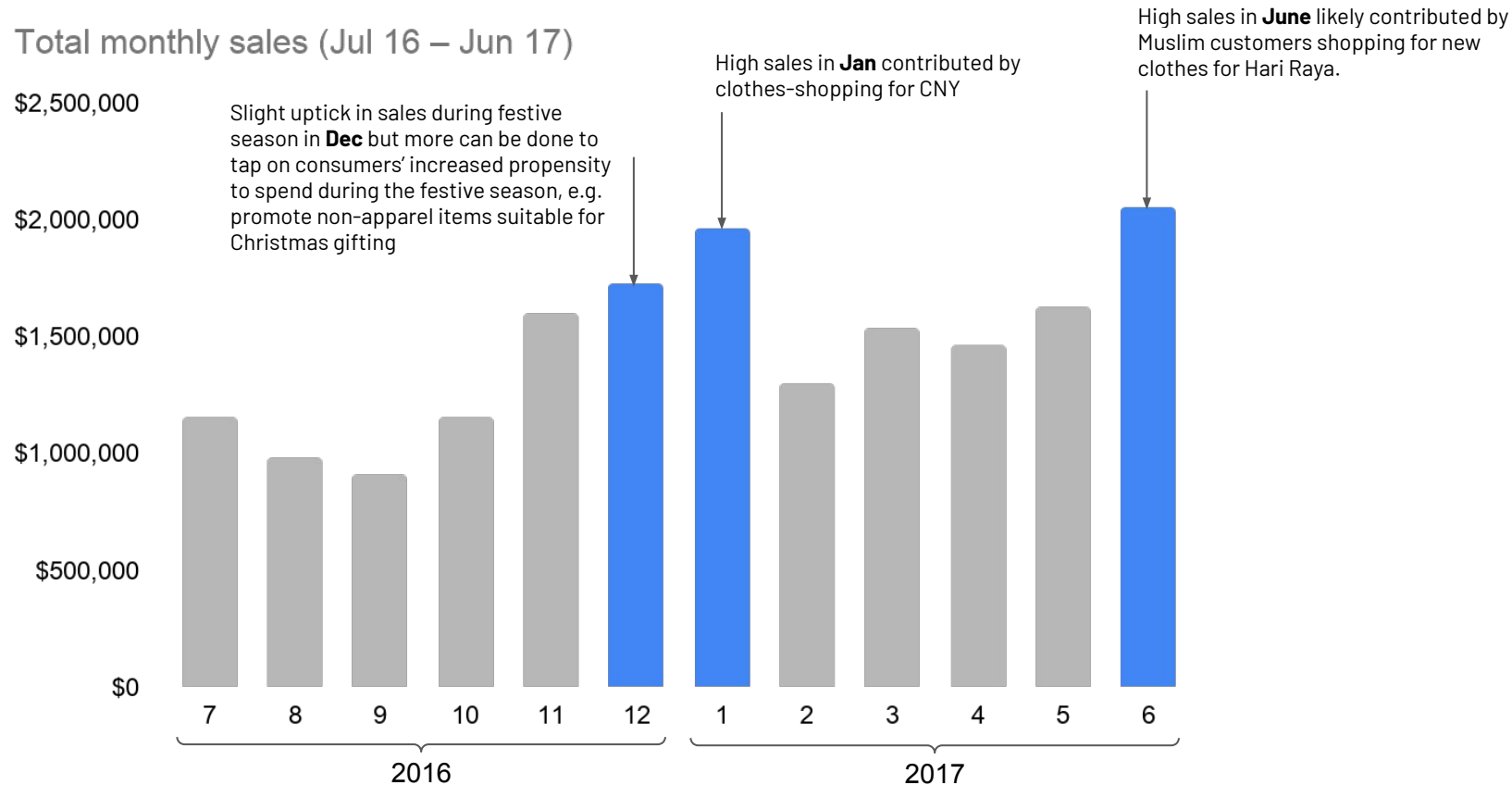
Fri

Sat

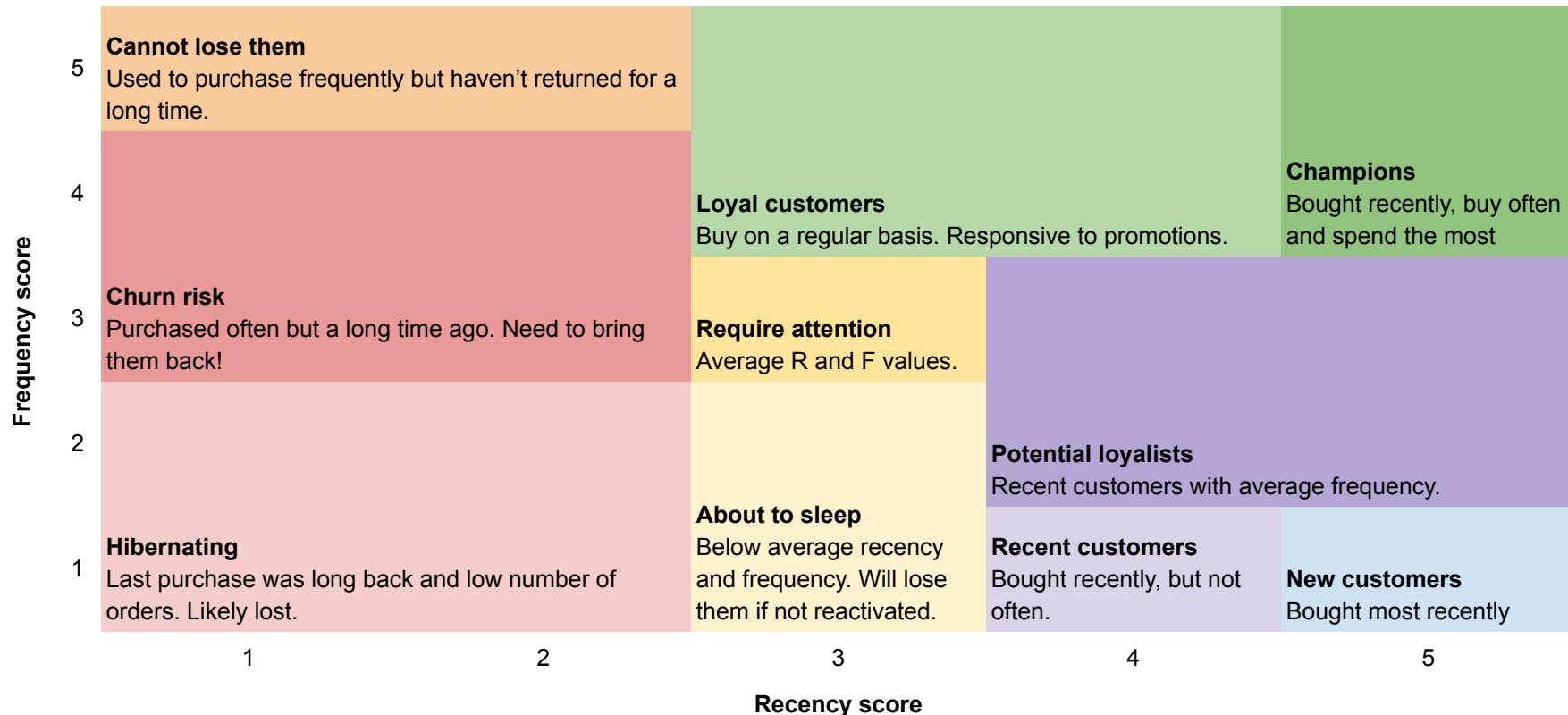
Sun

Customers use their free time on the weekends to carefully evaluate options and then complete their purchases in peace and quiet at home on Sunday evening

Optimise marketing campaigns around festive periods

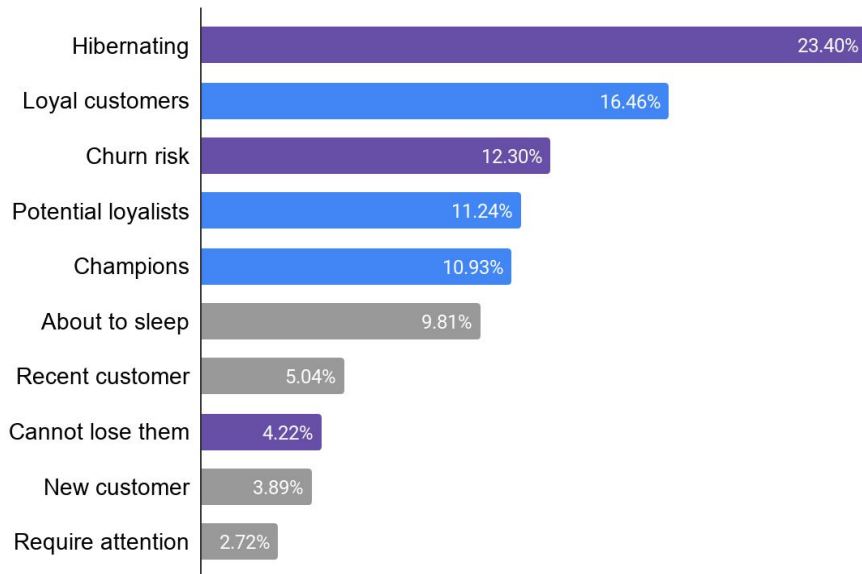


Analyse customers by Recency and Frequency (see next slide)



Customers need to be actively engaged

Customer segments



39.9% of customers are inactive

(Recency score: 1-2) HIBERNATING + CHURN RISK + CANNOT LOSE THEM

- Increase frequency of communications with customers to maintain brand awareness.

38.6% are Champions, Loyal customers or Potential Loyalists

- Investigate opportunity to create special offers for loyal customers.
- Try a birthday discount code, or when a customer has been shopping with Company X for a year (or more), thank them for their business and send them an anniversary discount code.

Other recommendations

Collaborate with fashion influencers to boost brand image, reach inactive customers, attain new customers, and gain social proof. Influencer marketing is an effective way of reaching customers who are inactive since there's a high chance they have unsubscribed from emails. Collaborating with popular influencers will also boost Company X's brand image as a trendy brand and positively shape consumers' evaluation of the brand.

Maximise engagement with customers on mobile using videos/moving content. Fighting for a 20-something's attention is tough. They are easily distracted by marketing messages from other brands and content from their social networks. Videos are more engaging and will grab customers' attention more effectively.

Lead engagement with compelling content, not discounts. Educate customers about the latest fashion trends. Inspire customers with a style guide/lookbook that shows them how they can put together different looks with items from Company X, and they may be inspired to emulate the look.

Build customer loyalty through emotional branding. The fashion industry is extremely competitive with high brand-switching rates. Company X needs to find ways to engage customers authentically and build an emotional connection with them.

Reduce reliance on voucher codes. For sustained repeat purchases, try using online cashback credits stored in their accounts, and support repurchase intent with occasional voucher codes.

Profile of a potential customer

Sarah, 24, the fashion-loving millennial

Sarah is young professional who's fresh out of university. She comes from a humble family background and was taught to be thrifty growing up. Outside of work, Sarah enjoys socialising, doing yoga, indulging in TV shows and spends 2-3 hours a day on her phone browsing social media platforms such as Instagram, YouTube, Twitter, and Tiktok. She gets her style inspiration from influencers like Andrea Chong and the founders of Love Bonito.

FASHION SHOPPING HABITS

- Sarah browses online fashion sites at least once a week, but may only make purchases once every 2 months. Some of her favourite sites include ASOS, Love Bonito, and SuperGurl.
- Sarah is interested in the latest trends and styles, and will follow them if they are affordable to emulate. She wants to update her wardrobe frequently so that she can look fashionable all the time.
- Without a high disposable income, Sarah can only look for style on a budget. She mostly sticks to affordable retailers and spends less than \$30 on a dress, but will occasionally allow herself to splurge on something she really likes.
- Discounts are highly appealing to Sarah and they are a huge influence on her purchase decisions.

