

# E-commerce sales analysis and recommendations

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# Disclaimer

\_ The data used in this sheet is open--source and downloaded from Kaggle.com

<https://www.kaggle.com/jmmvutu/summer-products-and-sales-in-e-commerce-wish>

\_ The analysis used is made for training purposes and does not represent actual business performance. The workflow, however, can be adopted in any business scenario to generate insights about the business and enhance business performance.

\_ Data visualization was performed in QlikSense. The interpretation and data cleaning was performed through a combination of Python and QlikSense.

# Objectives

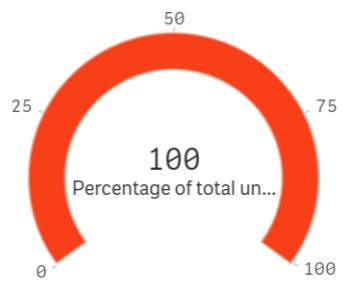
*The first step in any data analysis project is to ask a set of questions. They will guide and orient the interpreter in his/her analysis, influence the approaches they will take, and set a clear goal for the analysis project.*

In this data, the company directors want to have answers for the following questions in order to decide on how to enhance their business model:

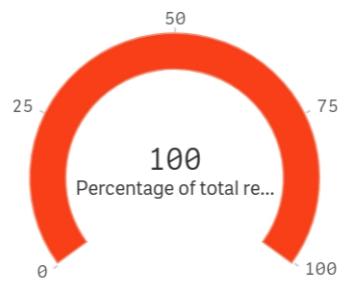
- 1- What are the consumers willing to pay for an item? Which price range should we focus on?
- 2- Is the rating of the merchant important? Would it influence the consumers choices and affect sales?
- 3- Should we have more ads to increase sales?
- 4- Will discounts or lower prices than competitors increase sales?
- 5- Which categories are selling the most what categories should we focus on?

The following slides will provide an answer to these questions, and recommendations will be suggested based on the results

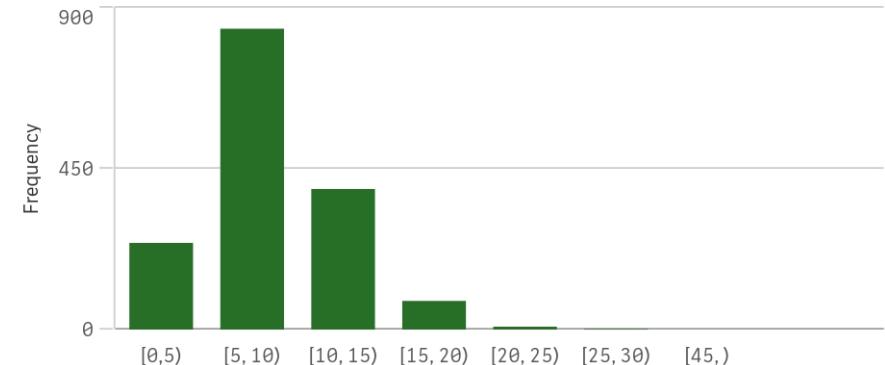
### Percentage of total units sale



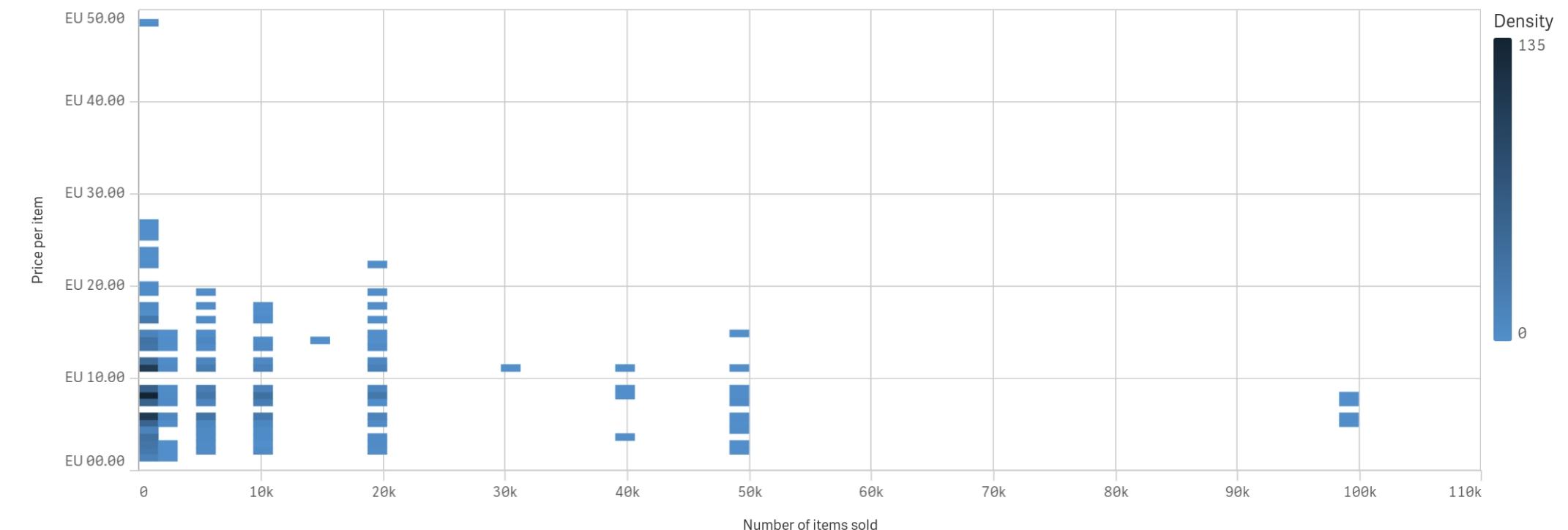
### Percentage of total revenues



### Price distribution by buckets



### Price versus number of items sold \*



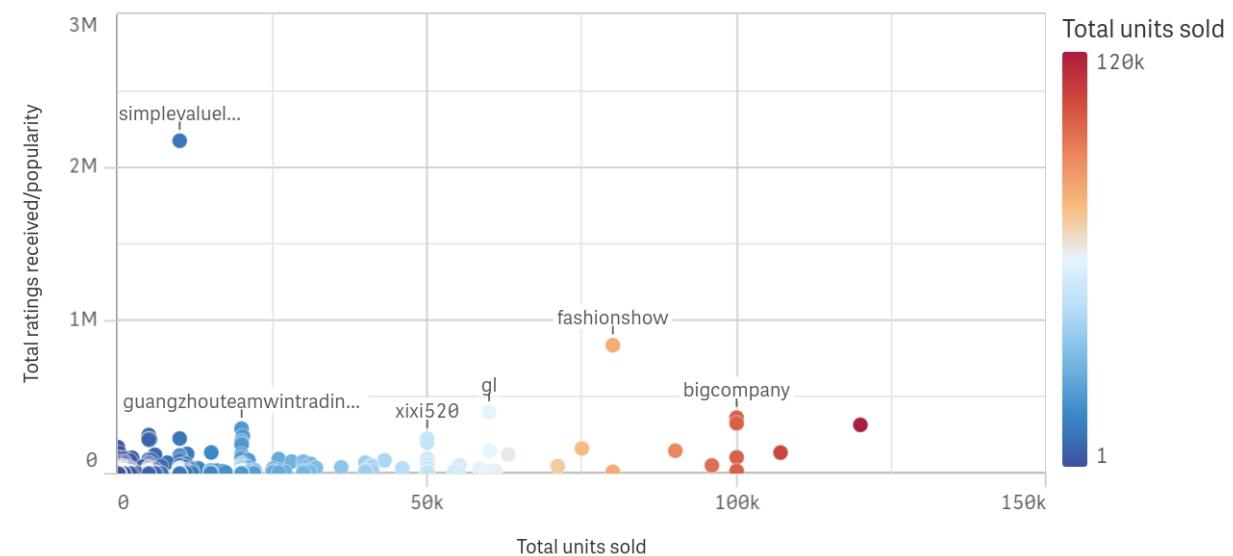
\* Providing overview of 1.3k dimension values.

# Question 1: what should be our pricing range?

- \_ The price distribution in the graph shows that **63%** of items sold are between 5 and 10EU. That's equivalent to **56 %** of revenues
- \_ In general, almost **all** sold items are under 20EU

**This shows that consumers want to buy cheap products, and we should focus on selling items having a price up to 20EU as this will make the majority of the profits**

### Sales vs merchant rating counts --> trustworthiness of reviews



Average rating

**4.03**

Standard deviation Rating

**0.2**

Percentage of merchants

**100%**

Number of merchants

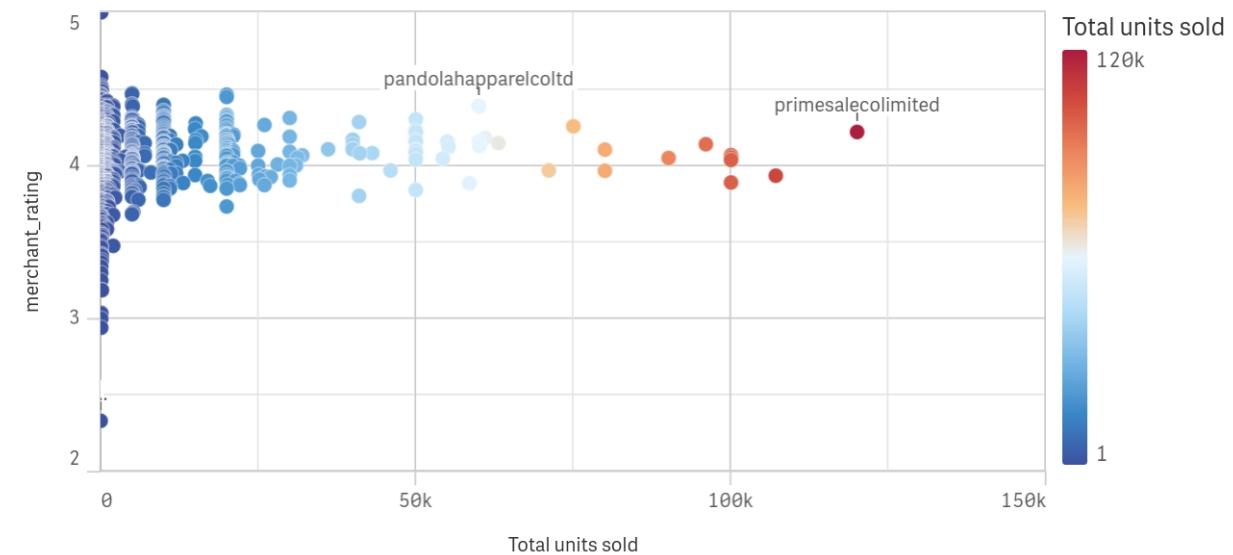
**1,573**

Total merchants

**1,573**



### Sales vs merchant rating



### Sales by merchant and rating

merchant_name	Units sold	Rating	Rating count
<b>Totals</b>	<b>6825255</b>	-	-
2ist	1300	3.95	17471
007fashion	20000	3.92	14553
008fashion	10000	4.12	31559
10daysdelivery	10000	4.15	21412
19miles	20	3.61	46
520daiwenqishow	100	4.11	425
2312hangm	10000	4.05	88
886806blw	6000	3.96	6302
21167008aacom	41000	4.27	30225
		4.28	43676

## Question 2: Merchant rating and sales

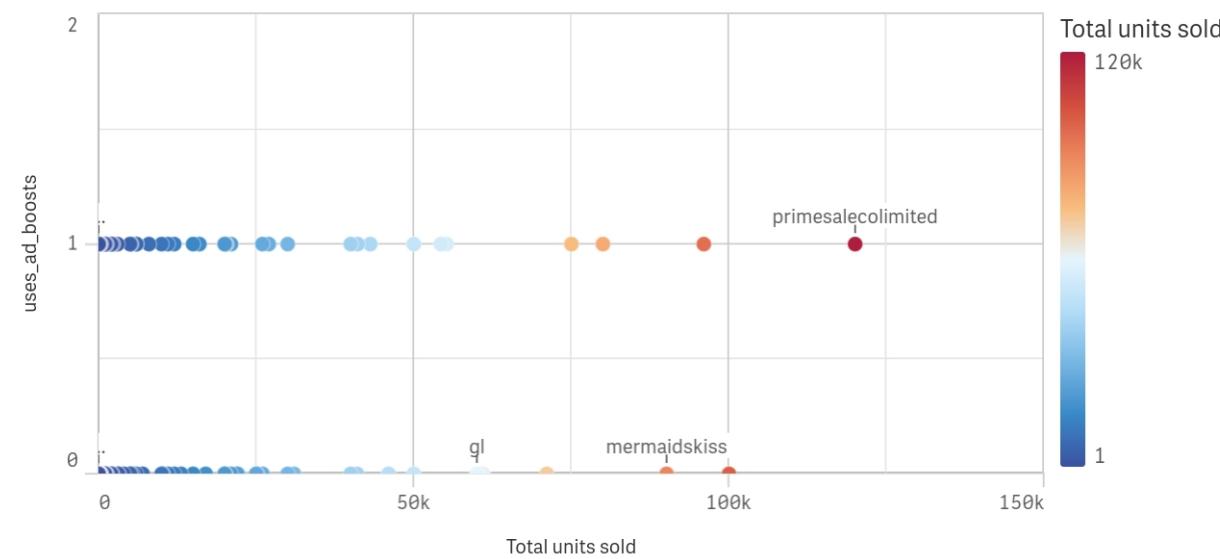
- \_ The average rating is 4.03 with a standard deviation of 0.2
- \_ **73%** of items sold are for merchants having a rating  $\geq 4.0$
- \_ **98%** of items are sold are for merchants having a rating  $\geq 3.8$

*High rating definitely encourages the consumers to buy from these merchants*

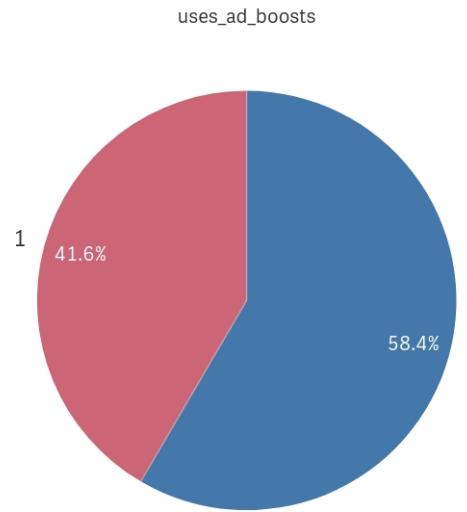
- \_ But the popularity of the merchant is also important.
- \_ **87%** of sales are for merchants having  $>5000$  ratings. This indicates that people trust merchants who have a lot of rating, not only good rating

*High rating counts show that the merchant is trustworthy. People are more likely to buy from merchants who have a high rating, and who have been rated by a lot of people. This makes the rating more credible.*

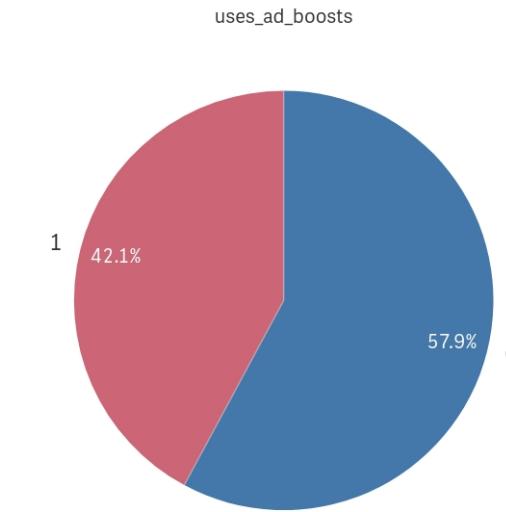
## Ads vs units sold per merchant



## Units sold with ads



## Sales amount with ads



## Percentage of merchant using ads

**100.00%**

Total merchants

**1,573**

Number of merchants

**1,573**

## Sales by merchant and rating

merchant_name	Units sold	Ads (1=yes)	Sales per item EU
<b>Totals</b>	<b>6825255</b>	<b>681</b>	<b>55387646.15</b>
gl	1300	0	13749
2ist	20000	1	280000
007fashion	10000	1	60000
008fashion	10000	1	40000
10daysdelivery	20	0	140
19miles	100	1	1200
520daiwenqishow	100	0	800
2312hangm	10000	0	110000
886806blw	6000	0	63000
211670008qqcom	41000	0	263000
aa388ps	5000	1	45000
aa321707	100	1	1600
abcdyyy	1000	0	6000
adreaboutique	5250	1	32050
agone	1000	1	5730
ahaashop	5000	0	55000
ahadadada	1000	0	11000
ahighqlty	200	2	2400
aidos	100	1	800
ainiu	10000	0	110000
aiqianxiege	1000	1	5000

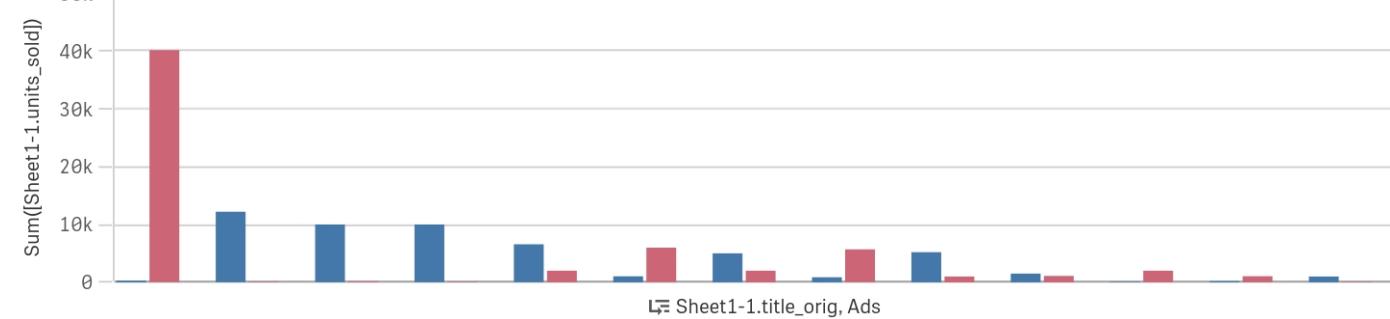
## Question 3: Should we use more ads?

- \_ Only **35%** of merchants advertised their items
- \_ **41%** of items sold were advertised.

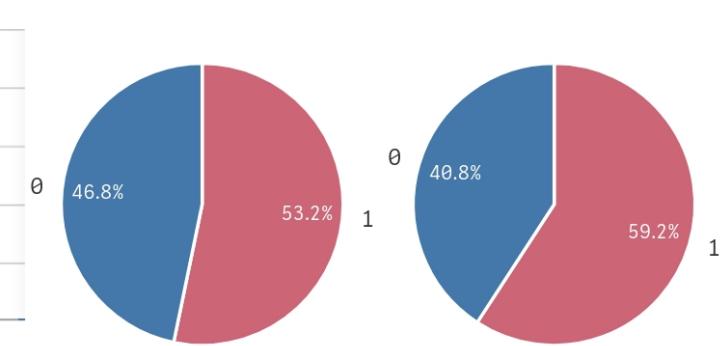
*This could indicate that ads are not effective but the data here is misleading*

*Let's compare the sales of the same products: but one product was advertised while the other was not*

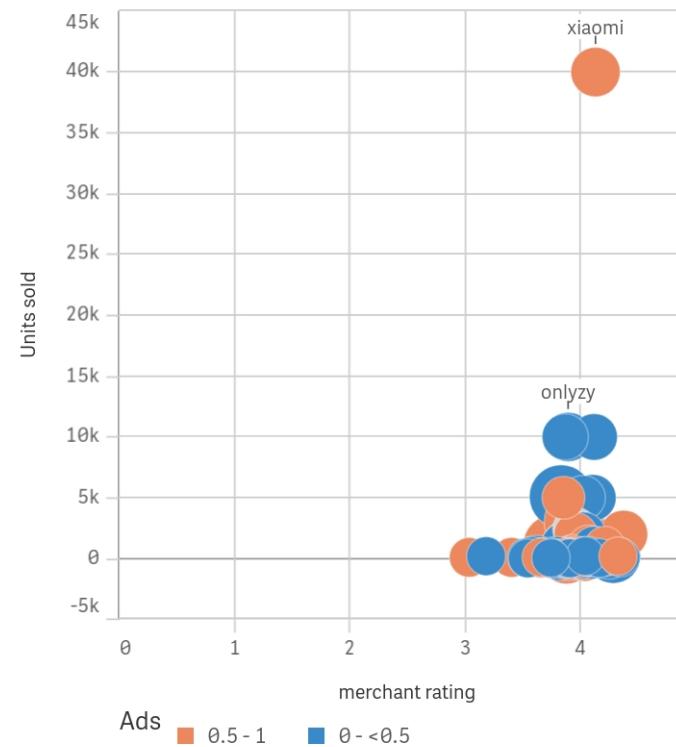
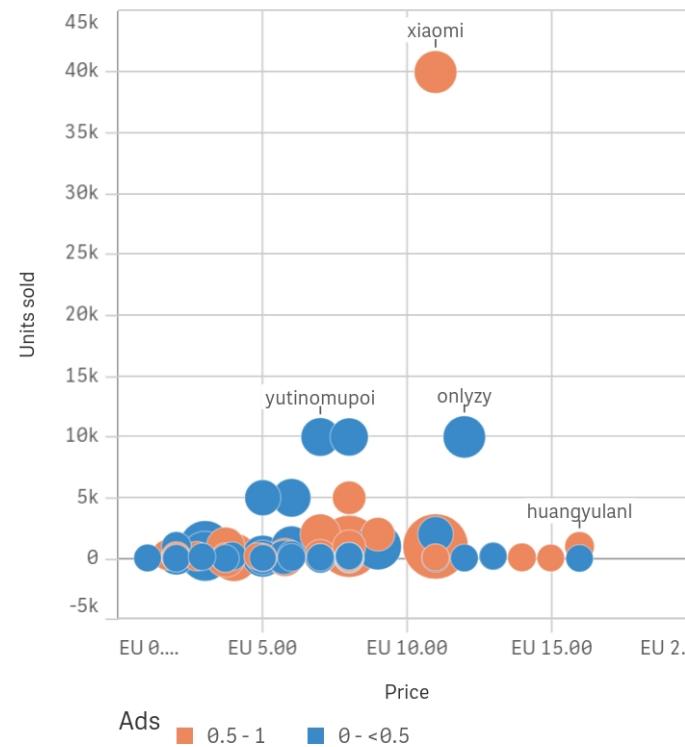
Ads ■ 0 ■ 1



Effect of ads on total units sale Effect of ads on revenues



Price versus number of items sold vs rating counts(trustwor... Merchant rating versus number of items sold vs rating count...



Sheet1-1.title_orig	Ads	Units sold	Pr
<b>Totals</b>			
7 Colors Tops 2018 Women Lady Sexy Summer Sleeveless Top Blouse Lace Vest Tank Shirt	1	10100	-
2020 Plus Size Fashion Women Summer Casual Tank Tops Loose Beach Blouses Sleeveless Bohemia Printed Cotton Beach T	1	1100	-
Cotton Shirt Tops Women's Summer Casual Loose Short-sleeved Printed Ladies Shirt	2	300	-
Fabric Waist Trainer Vest Hot Shaper Summer Shapewear Slimming Adjustable Sweat Belt Body Shaper	4	610	-
Ladies Summer Tie Dye Print Short Sleeve Off Shoulder Casual Plus Size Dress	2	250	-
Men's Low Cut Socks Shallow Invisible Socks Spring and Summer Short Socks Pure Cotton Breathable Socks Medias Femininas Socks for	2	300	-
New Fashion Summer Women Casual Dress Round Neck Loose Big Swing Skirt Sleeveless Soild Color Beach dress	12	6570	-
NEW Red Bull Summer Mens Casual Shorts Pants Loose Cotton Movement Dry Quickly Fitness Shorts	1	100	-

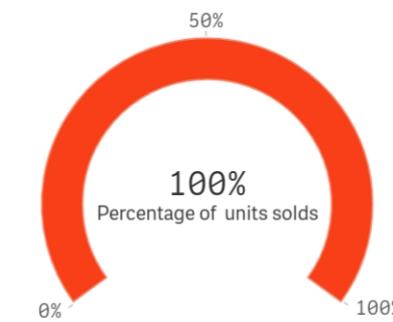
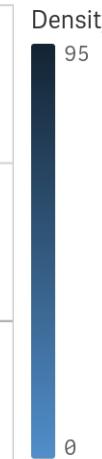
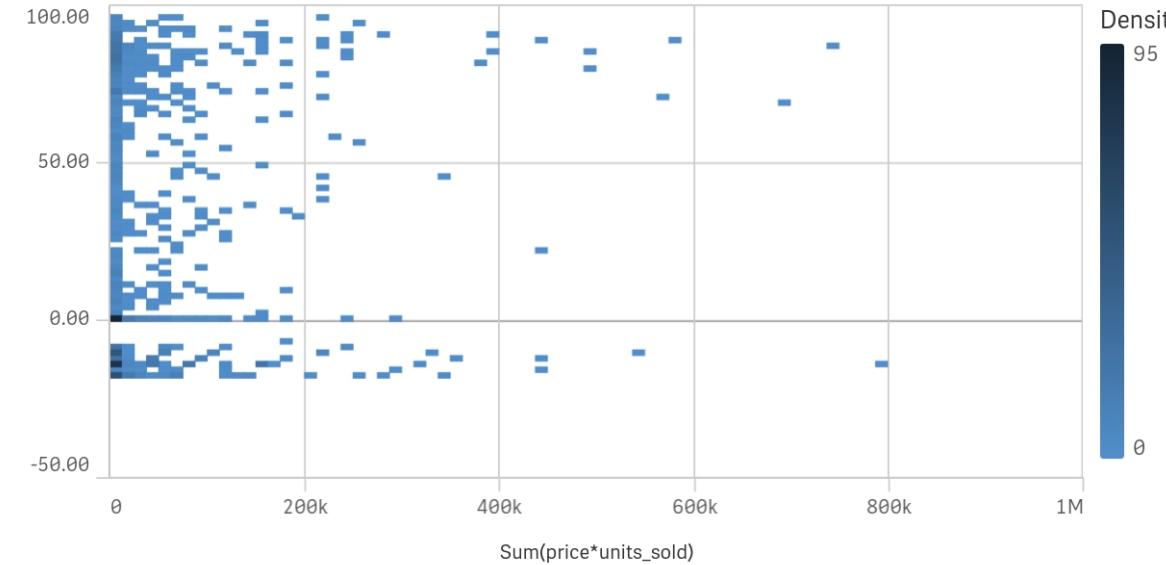
## Question 3: Should we use more ads?

- \_ Almost **50%** of the units sold were advertised (*in graphs 1 = advertised 0= not advertised*)
- \_ For some products, **99%** of the units sold were the advertised one
- \_ For others, **99%** of the units sold were not advertised.

**Why?**

- \_ A closer look will indicate that most of the units sold belong to merchants having a lot of reviews and have a high rating.
- \_ Even if the item is more expensive and not advertised, people will still buy items from the merchants with higher reviews and better rating --> **Trustworthiness**
- \_ Ads are not important as long as the merchant has a lot of reviews and high ratings.

**Ads are not important as long as the merchant has a lot of reviews and high ratings.**



Sum(units\_sold)  
6,825,255.00

Total number of units sold

6,825,255

\* Providing overview of 1.3k dimension values.

title_orig	Retail Price	Price	Discount	%	Sum([Sales per item])
<b>Totals</b>	-	-	-	-	0
'Let That Shit Go' Women Graphic Tee Casual Cotton Short Sleeve T-shirts Bohemia Style Mandala Namaste Printed Top Blouse	9	8	1	11.11	0
(S-5XL) Women Fashion Summer Double-Layer Sports Shorts Quick-Drying Yoga Sports Leggings Fitness Shorts Plus Size	56	1.72	54.28	96.93	0
(S-7XL) Women Camisole Summer Printed Vest Floral Sleeveless Vest V-neck Shirt Plus Size	56	2	54	96.43	0
(US Size) Cotton Graphic Tees for Women / Girls: 4 Colors, Spring Summer Tee, Cute Funny Short Sleeve T-Shirt, Loose Blouse Tops	6	7	-1	-16.67	0
1 Pcs Swimming Chair/Bed Swimming Pool Seat Inflatable Lazy Bed Lounge Chair Air Mattress Floating Bed/Chair with Net Foldable for Swimming Pool/Beach Water Relaxation	7	8	-1	-14.29	0
1pcs Men's Running Shorts 2 in 1 Sports Jogging Fitness Shorts Summer Training Quick Dry Short Gym Shorts Sport Pants	14	16	-2	-14.29	0
1PCS Swimwear Monokini Swimsuit Backless Bodysuit Women Swimsuit	21	11	10	47.62	0
1Set Lace Bikini Diamond Swimsuit Crystal Women Swimwear Nude Bikinis Brazilian Rhinestone Beachwear Push Up Bikini	14	16	-2	-14.29	0
3 Color Summer New Women's Fashion Sexy Ripped Skinny Denim Short	13	15	-2	-15.38	0

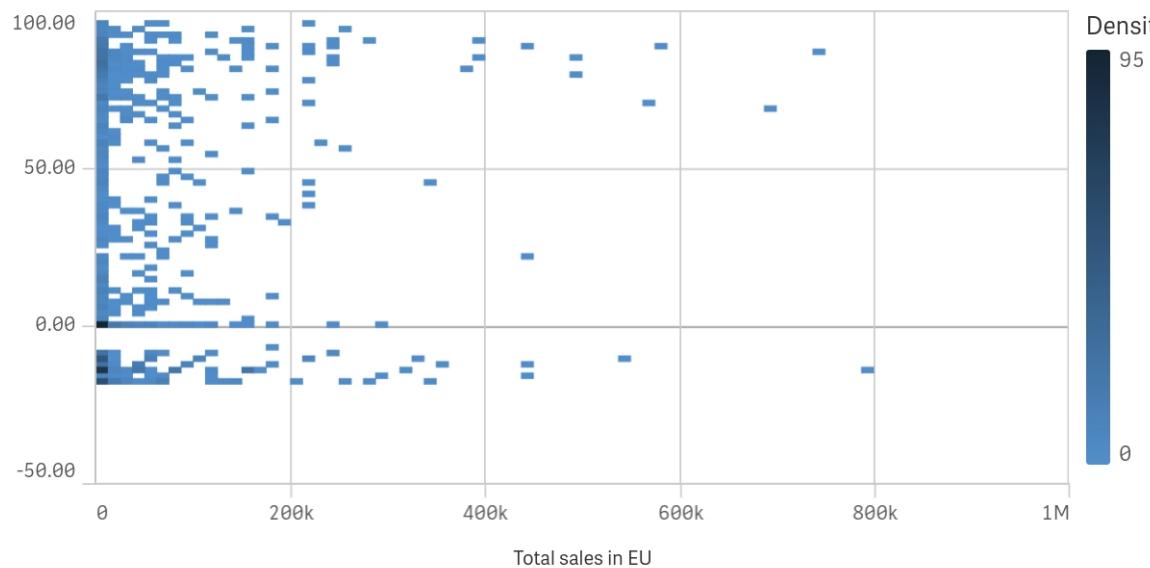
## Question 4: Should our prices be cheaper than retail?

- \_ **61%** of items sold have prices less than retail price
- \_ **33%** of items sold have a price that is 50 -100% lower than retail
- \_ **25%** of items sold have a price between 10 and -10% relative to retail.

### *Why people are still buying if they can buy cheaper elsewhere?*

- \_ A closer look will indicate that most of the units sold belong to merchants having a lot of reviews and have a high rating.
- \_ Even if the item is more expensive and not advertised, people will still buy items from the merchants with higher reviews and better rating --> **Trustworthiness**
- \_ Ads are not important as long as the merchant has a lot of reviews and high ratings.

**Ads are not important as long as the merchant has a lot of reviews and high ratings.**



Here we only calculate 3400 units sold. The item with 20000 sold is not considered because we want to look at it in detail later

Percentage of units sold  
200743%

Sum(units\_sold)  
6,825,255

Number of units sold  
3,400

\* Providing overview of 1.3k dimension values.

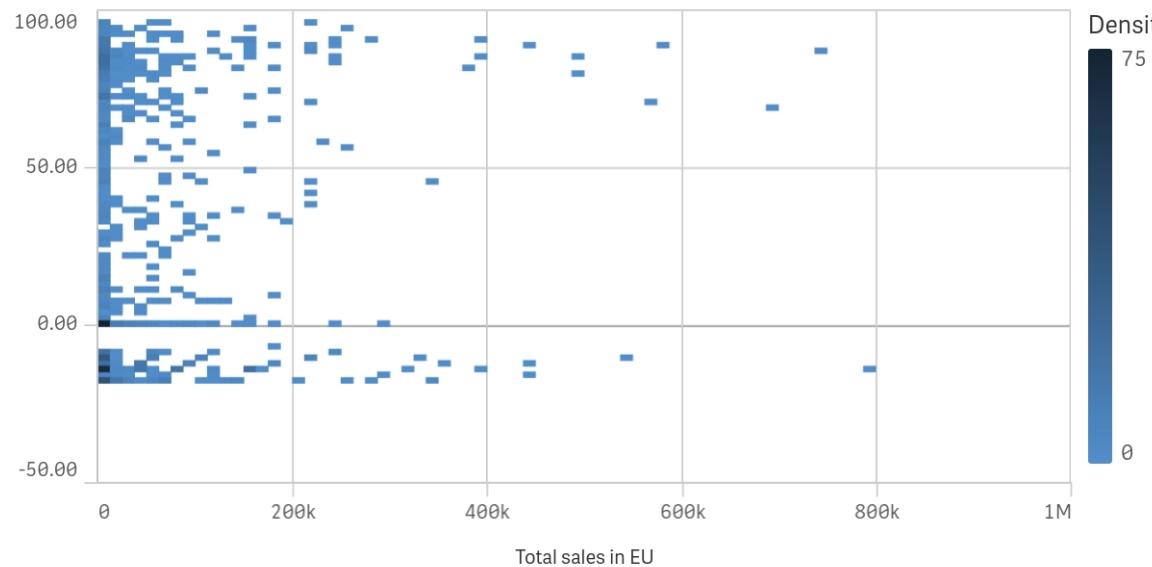
title_orig	product_id	Retail Price	Price	Discount	%	Sum(units_sold)
<b>Totals</b>						
'Let That Shit Go' Women Graphic Tee Casual Cotton Short Sleeve T-shirts Bohemia Style Mandala Namaste Printed Top Blouse	5d4e1c578d4d082786c90cc8	9	-	1	11.11	10000
(S-5XL) Women Fashion Summer Double-Layer Sports Shorts Quick-Drying Yoga Sports Leggings Fitness Shorts Plus Size	5eeb1da8eeb02e10154792a6	56	-	54.28	96.93	100
(S-7XL) Women Camisole Summer Printed Vest Floral Sleeveless Vest V-neck Shirt Plus Size	5e9ea0052f7e421781e951fa	56	-	54	96.43	1000
(US Size) Cotton Graphic Tees for Women / Girls: 4 Colors, Spring Summer Tee, Cute Funny Short Sleeve T-Shirt, Loose Blouse Tops	5c95ca01202e6b700d5c5ee4	6	-	-1	-16.67	100
1 Pcs Swimming Chair/Bed Swimming Pool Seat Inflatable Lazy Bed Lounge Chair Air Mattress Floating Bed/Chair with Net Foldable for Swimming Pool/Beach Water Relaxation	5ee3257cb3c7be38e3ec7c74	7	-	-1	-14.29	10
1pcs Men's Running Shorts 2 in 1 Sports Jogging Fitness Shorts Summer Training Quick Dry Short Gym Shorts Sport Pants	5eaa972cf7d1965858d7b664	14	-	-2	-14.29	100
1PCS Swimwear Monokini Swimsuit Backless Bodysuit Women Swimsuit	5cc40a4d1d09f56e4fafaf12e	21	-	10	47.62	1000
1Set Lace Bikini Diamond Swimsuit Crystal Women Swimsuit Nude Bikinis Brazilian Rhinestone Beachwear Push Up Bikini	5bce9924df97d42c05eeef81e	14	-	-2	-14.29	50
3 Color Summer New Women's Fashion Sexy Ripped Skinny Denim Short	5e4e9219fcc85c44b0757483	13	-	-2	-15.38	200

## Question 4: Should our prices be cheaper than retail?

Considering a high price is the one above 20EU (We will remove the 20000 item because it distorts the analysis)

\_ **94%** of items sold were more than 50% cheaper than retail

For high priced items (>50EU), people want to buy cheaper items, it counts for them



\* Providing overview of 1.2k dimension values.

Density  
75  
0

For the prices < 20EU, the consumer doesn't really care about discounts.  
50% buy while discounted and 50% still buy even if it more expensive.  
Discounts are only important when prices are higher than 20 EU

Percentage of units solds

**110%**

Average price

**EU 8.33**

Sum(units\_sold)

**6,825,255**

Number of units sold < 20 EU

**6,220,119**

\* Providing overview of 1.2k dimension values.

title\_orig

### Totals

Summer Steering Wheel Sunshade Swim Ring Car Inflatable Baby Float Seat Boat Pool Tools Accessories For Kids Toys	54ab85ff509baf3e966f7f2a	105
Women Halter Long Sling Dress Swing Print Boho Dress	5d0062d51eff785af2761c47	26
Good Quality 2014 Summer Hot Sale Zipper Shorts Fashion Slim Men's Casual Ripped Jeans Cropped Trousers	535530635aefb0555ba4351f	21
2020 Door Mesh Netting Curtain Bedroom Home Anti Mosquito Insect Nets Velcro Vorhang Home Decor Supplies Door Screen Magnetic Net	5e7c870cedbc005e005014b3	17
Lazy Lay Bag High Quality Fast Inflatable Lazy Sofa Lounger Air Sofa Unicorn Bean Bag Chair Outdoor Beach Lounger	5b238ab1ddaa9221a9b9249c	17
New Fashion Autumn Summer Women's Long Sleeve V Neck Long Dress Floral Print Split Maxi Dress Holiday Party Beach Sundress Evening Dresses	5def3c02b8bdac0102daa099	17
Summer Elegant Temperament Printing Women Dresses New Fashion Sexy V-neck Short Sleeve Silk Office Lady Dress A-line	5b1bf3ccbe42dd67af401067	115
2019 Fashion Women Summer V-Neck Sleeveless Collect Waist Boho Print Maxi Long Dress S-XXXXXL	5d2d7c75d7bd6303731a556f	76
Letter Print Tie Dye Halter Sleeveless Long Dress Summer Cotton Bohemian Dress	5ec782e0a323520050bd869b	59
Men Summer Running Shorts 2 in 1 Sports Jogging Fitness Shorts Training Quick Dry Short Gym Shorts Sport Pants	5e97f85b737a610159cf5efa	47
Men Fashion Plus Size S-3XL Denim Shorts Men Summer Autumn Fashion Vintage Style Jeans	5b88da661a62df412262441f	27
Mens Fashion Slim Fit Jeans Shorts Cargo Baumwolle Skinny Shorts Jeans Summer Casual Denim Shorts	5b58449a6efe5e178f799c31	27
2019 Women Open Toe Ankle Braid Strap Straw Platform Sandals Adjustable Buckle Wedge Rubble Sole Summer Shoes Cute Espadrille	5c8783d4fc2f9d769aa1cc3e	17
Pandolah Hot Women One Piece Bathing Suit Dotted Beachwear Push up Swimsuit Plus Size Swimwear Monokini M-3XL	5656be5c8f5f02126fd6bab	16

## Question 4: Should our prices be cheaper than retail?

For low price items (<20EU):

- \_ About **50%** of units sold are more expensive than retail, and **50%** are cheaper

**Consumers don't care about the price difference if the price is relatively low (<20EU)**

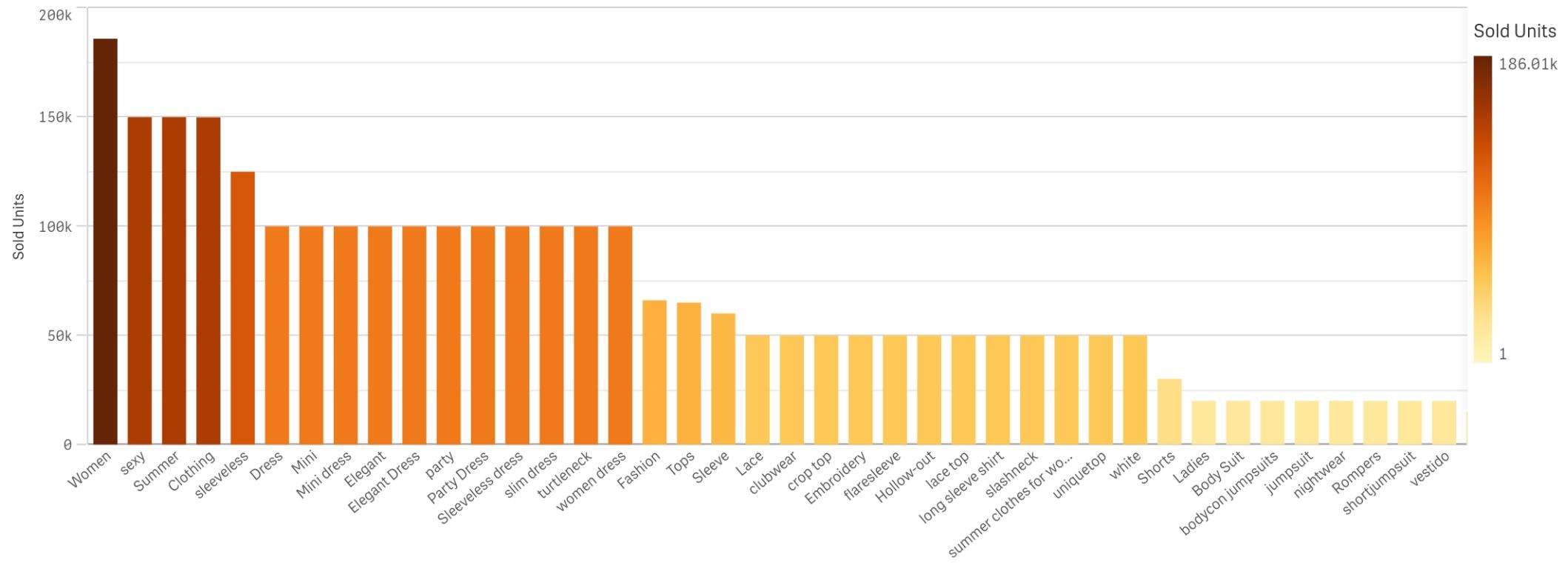
Percentage Tag counts

100%

Tag counts

3,090,483

Top tags sold showing the top categories



Sheet1.tags



## Question 5: Which categories are selling the most?

- \_ More than **60%** of sales have tags that belong to women clothing
- \_ About **33%** of sales belong to the category sexy/elegant/fashion women dress

**So we must definitely focus more on women clothing and on the elegant and fashionable designs**

# Conclusions and recommendations

- 1) We should focus on having prices < 20EU. The consumers are unlikely to pay more than that for online shopping.
- 2) The merchants we deal with must have a lot of reviews (>5000 reviews) and have a rating >4. Consumers are more likely to buy from merchants who have a high rating, and who have been reviewed by a lot of people. This makes the rating more credible and the merchant more trustworthy.
- 3) Ads are not effective. If the merchant has high reviews and a good rating, this will be a free advertisement for them and their products.
- 4) For prices <20EU, it is not important to have them cheaper than retail. People don't mind to buy cheaper products because the difference is little for them.
- 5) The top-selling products in summer are for women clothing. We should focus more on Elegant, Sexy and Fashionable products.