

A close-up photograph of a person's hand resting on their hip, wearing blue denim shorts. The person's midriff is visible. The background is plain white.

# Data. Analysis

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The background of the slide is a photograph of a closet. A wooden rod holds several items of clothing. On the left, there are several folded brown cardboard boxes. Next to them are some white and black hangers. To the right, several beige and cream-colored sweaters are hanging. The lighting is soft and warm. In the bottom left corner, there is a decorative white diamond-shaped grid pattern.

# analysis objective

The main objective is to examine the performance of the second-hand clothing marketplace throughout **2021** through the analysis of available data.

**SQL**, **Pandas**, and **Tableau** will be employed to extract, process, and visualize relevant information.

The tools utilized were employed to conduct the data analysis, specifically to confirm that the results obtained were consistent across all platforms.

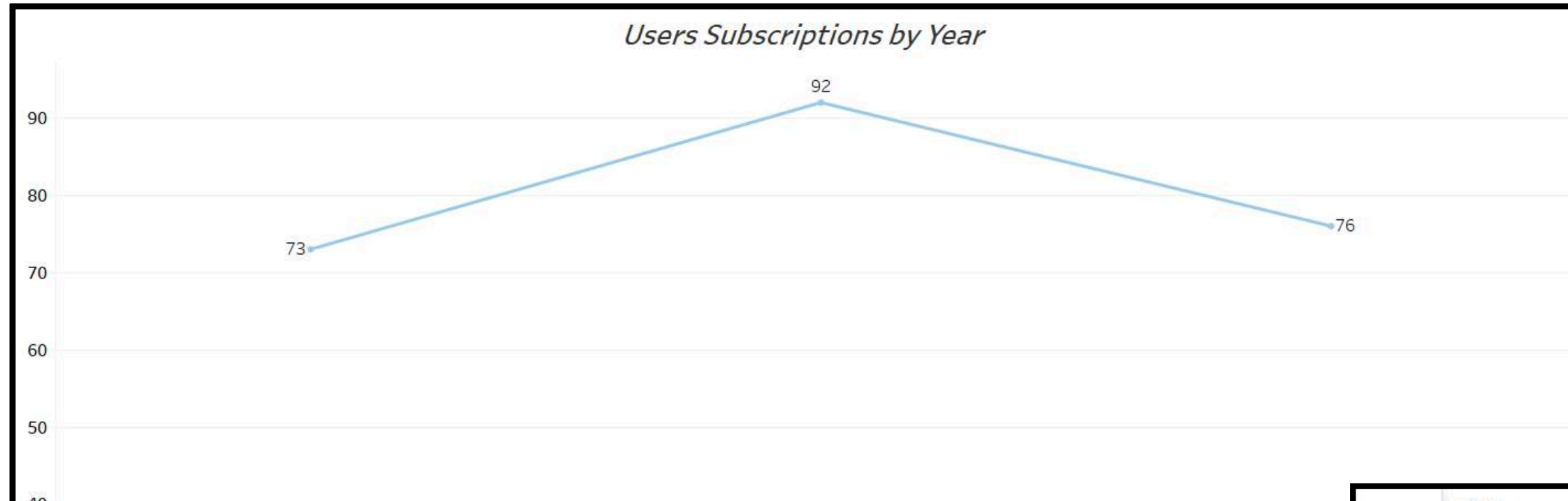


A photograph of a clothing rack filled with various garments, including a white floral dress, a beige turtleneck, and a patterned sweater. The word "Analysis" is superimposed in large, bold, black letters across the center of the image.

# Analysis

# Users Subscriptions by Year

The number of registered sellers on the marketplace was **73** in 2020, **92** in 2021, and **76** in 2022.



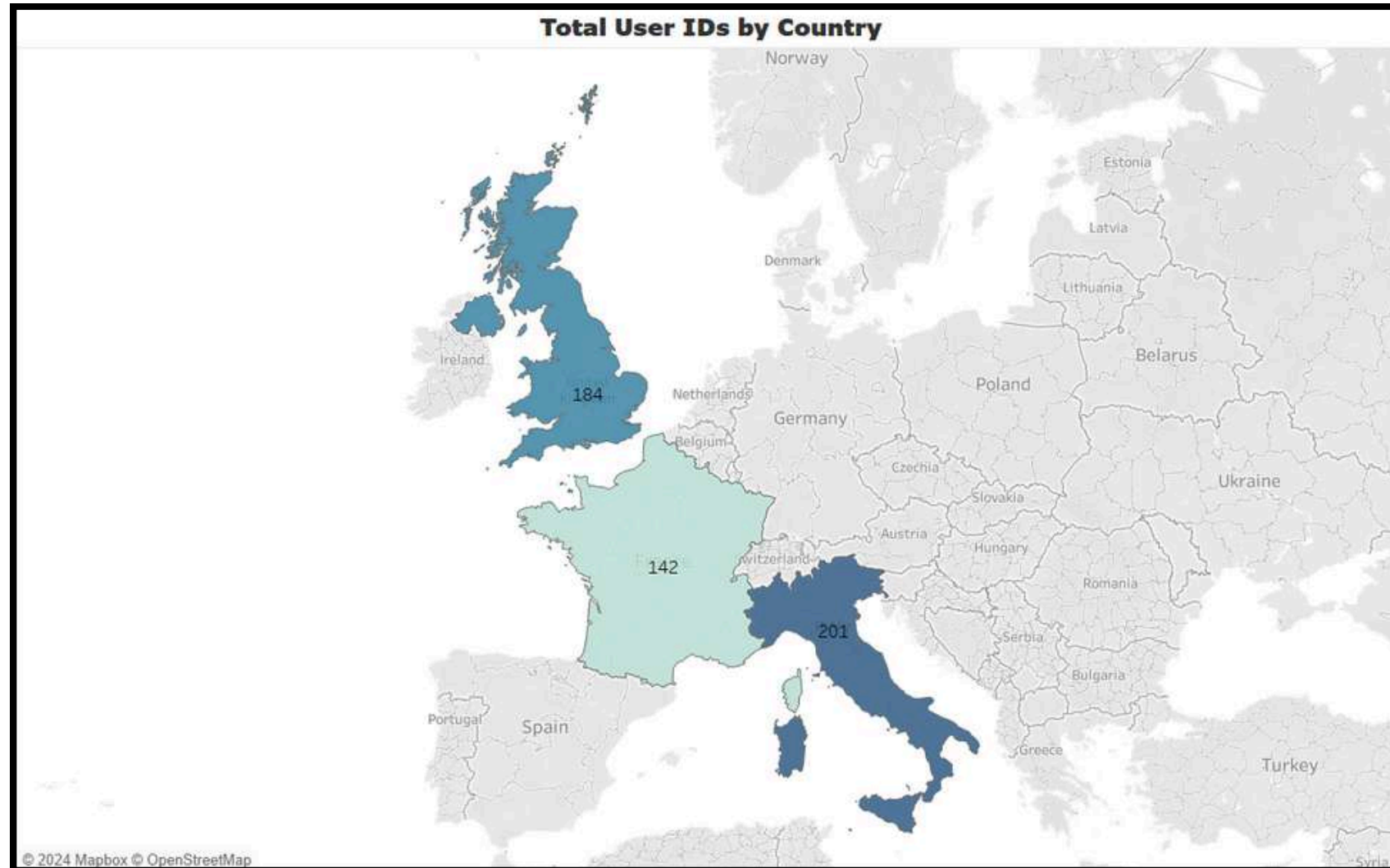
```
-- Subscription Trend by Year
SELECT EXTRACT(YEAR FROM subscription_date) as year, COUNT(DISTINCT user_id) as total_subscription_by_year
FROM clothing_sales
GROUP BY year
ORDER BY year;
```

	year numeric 🔒	total_subscription_by_year bigint 🔒
1	2020	73
2	2021	92
3	2022	76

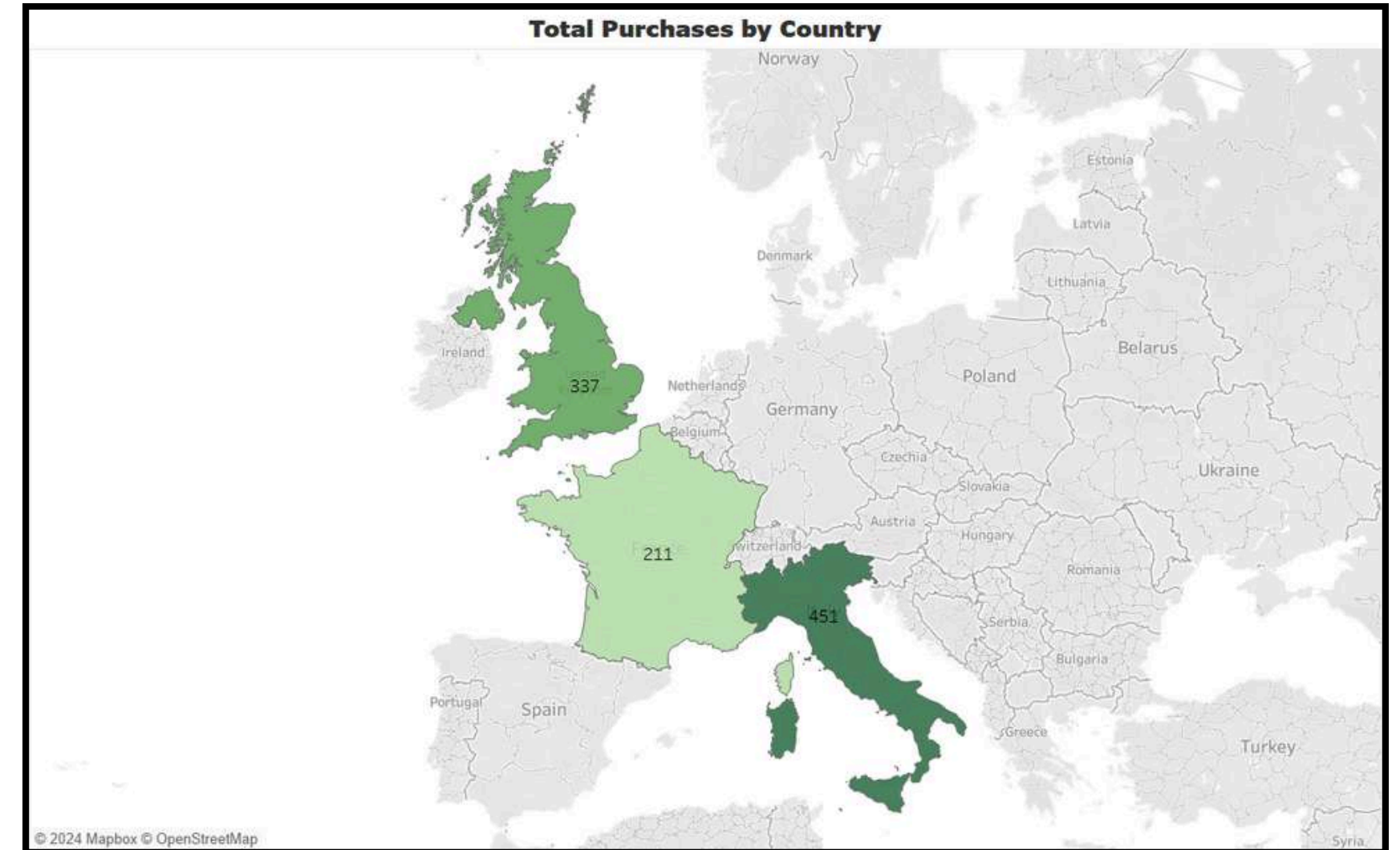




# Total User IDs by Country



# Total Purchases by Country



**Italy, France, and the United Kingdom** are known for their strong influence on fashion and style.

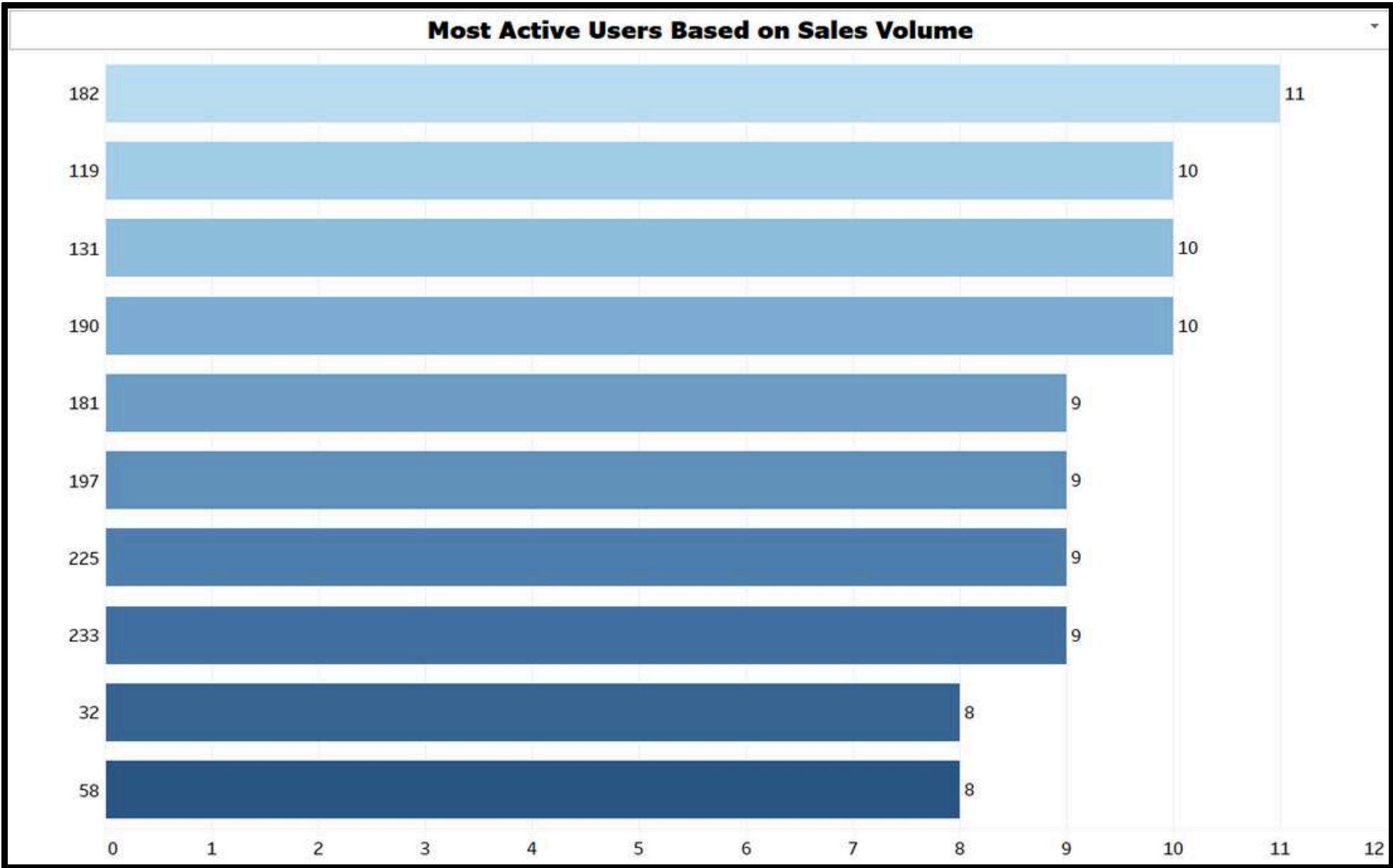
People in these countries may be more inclined to participate in a second-hand clothing marketplace to buy or sell fashion items.

Additionally, these countries are recognized for their growing environmental awareness and concern for sustainability.

# Most Active Users Based on Sales Volume

```
-- Most Active Users Based on Sales Volume
SELECT user_id, COUNT(*) as total_sales_by_user_id
FROM clothing_sales
GROUP BY user_id
ORDER BY total_sales_by_user_id DESC
LIMIT 10;
```

	user_id integer	total_sales_by_user_id bigint
1	182	11
2	190	10
3	119	10
4	131	10
5	197	9
6	233	9
7	225	9
8	181	9
9	86	8
10	89	8



# Users' nationality

I would have liked to know the nationality of the users who sell the most within the marketplace, but I noticed that the analysis indicates that multiple nationalities are correlated with each user ID. **Shouldn't the user ID be unique, and therefore their nationality as well?**

Top 10 selling users and their nationalities:			
	user_id	sales_count	country
0	182	11	uk
1	182	11	uk
2	182	11	it
3	182	11	it
4	182	11	uk
5	182	11	it
6	182	11	uk
7	182	11	uk
8	182	11	it
9	182	11	it
10	182	11	it
11	131	10	it
12	131	10	it
13	131	10	it
14	131	10	uk
15	131	10	uk
16	131	10	it
17	131	10	it
18	131	10	it
19	131	10	uk

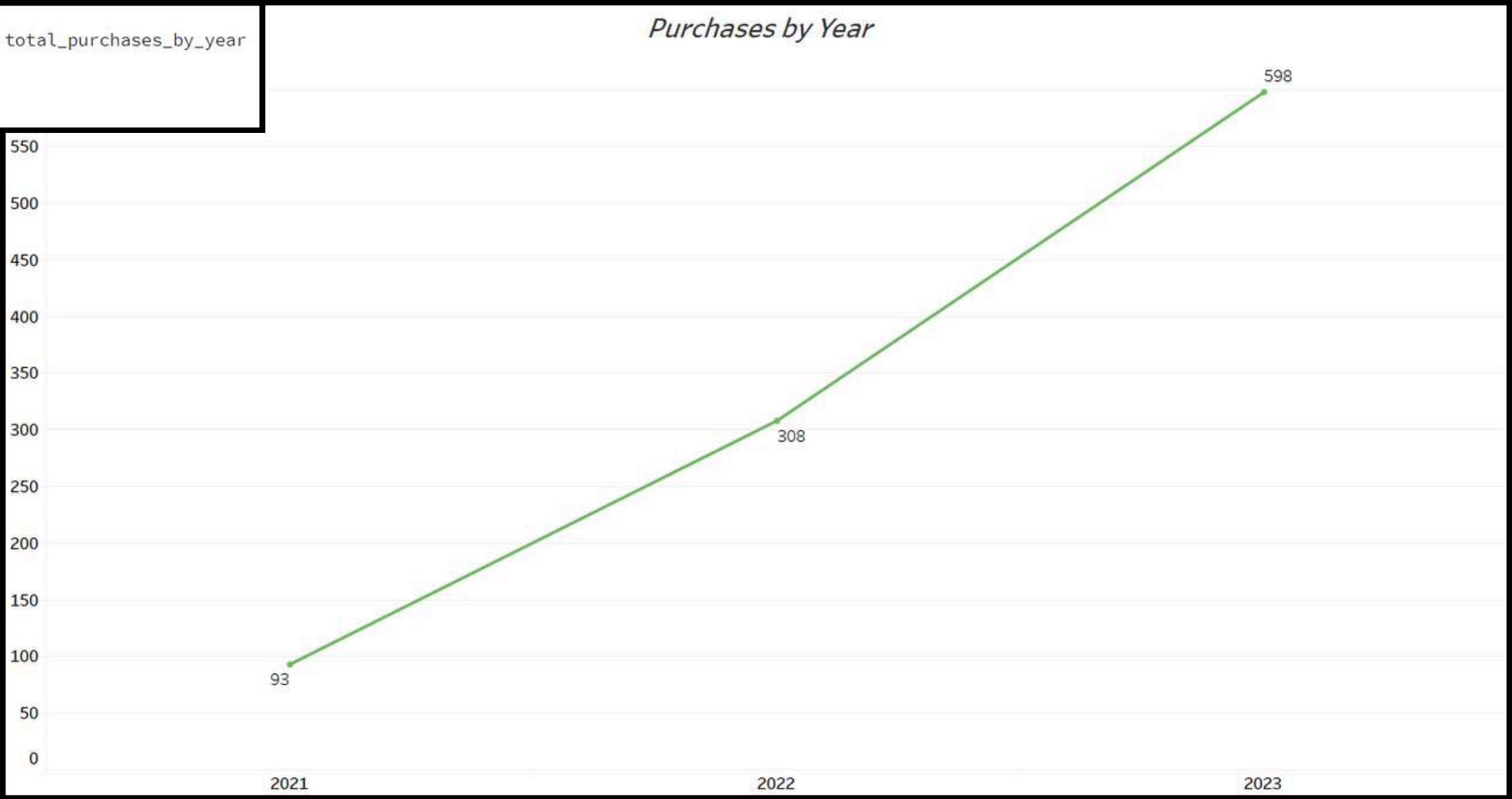
25	190	10	it
26	190	10	it
27	190	10	uk
28	190	10	uk
29	190	10	it
30	190	10	it
31	119	10	fr
32	119	10	it
33	119	10	uk
34	119	10	it
35	119	10	it
36	119	10	it
37	119	10	uk
38	119	10	uk
39	119	10	it
40	119	10	uk

# Purchases by Year

The number of transactions carried out within the marketplace has shown a steady increase over the past three years. In 2021, the number of purchases stood at **93**, significantly rising to **308** in 2022 and further to **598** in 2023.

```
-- Purchases Trend by Year
SELECT EXTRACT(YEAR FROM purchase_date) as year, COUNT(purchase_date) as total_purchases_by_year
FROM clothing_sales
GROUP BY year
ORDER BY year;
```

	year numeric	total_purchases_by_year bigint
1	2021	93
2	2022	308
3	2023	598



The consistent growth in transactions reflects the evolving preferences of consumers towards a more **sustainable lifestyle** and the **increasing acceptance of the circular economy**.

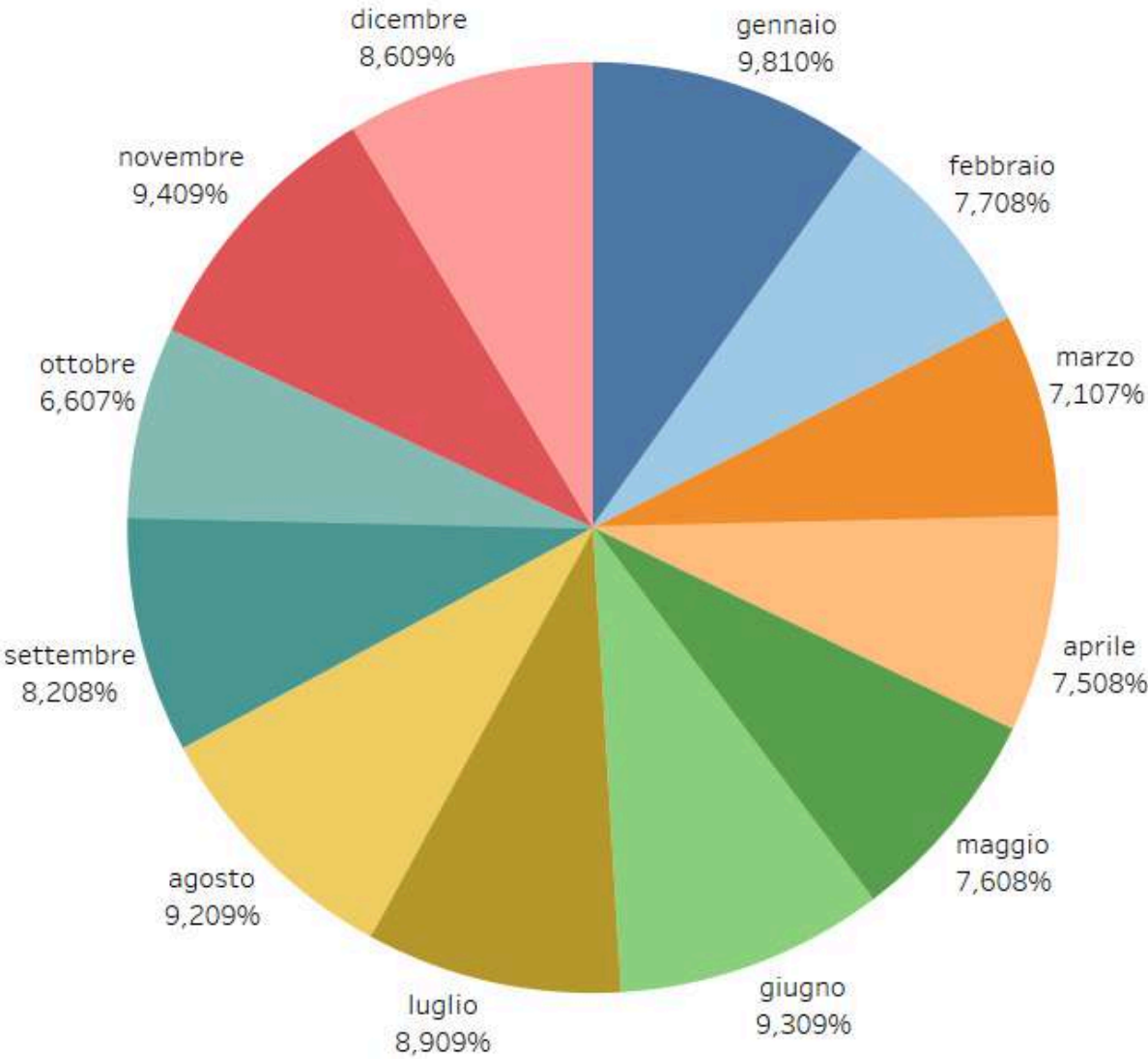


# Purchases Trend by Month

```
-- Temporal Trend by Month
SELECT EXTRACT(MONTH FROM purchase_date) as month, COUNT(*) as total_sales_by_month
FROM clothing_sales
GROUP BY month
ORDER BY month;
```

Temporal Trend by Month

	month numeric	total_sales_by_month bigint
1	1	98
2	2	77
3	3	71
4	4	75
5	5	76
6	6	93
7	7	89
8	8	92
9	9	82
10	10	66
11	11	94
12	12	86



From the analysis conducted, it emerges that the months with the highest sales are **January**, **November**, **June**, and **August**.

It is plausible to hypothesize that January and November represent peak periods due to holidays such as New Year's and Christmas, which drive people to make purchases for gifts and celebrations.

Furthermore, it is reasonable to assume that June and August benefit from the summer holidays when people are more inclined to travel and make purchases for vacations.

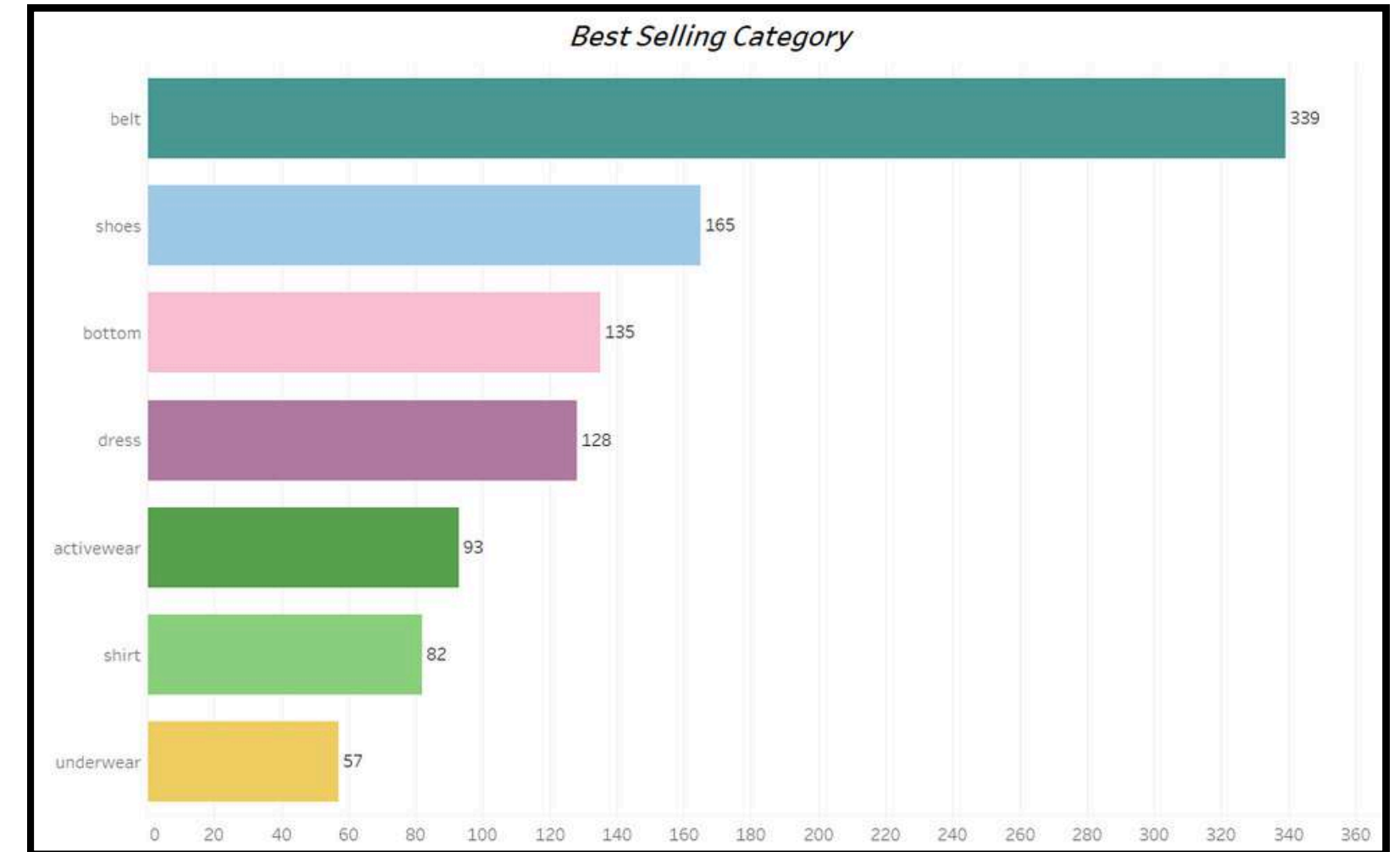


# Best Selling Category

```
# Esplorare le categorie di abbigliamento più popolate  
top_categories = df['category'].value_counts().head(10)  
print("Top Clothing Category:\n", top_categories)
```

```
Top Clothing Category:  
category  
belt          339  
shoes         165  
bottom        135  
dress         128  
activewear     93  
shirt          82  
underwear      57  
Name: count, dtype: int64
```

Accessories such as **belts** and **shoes** dominate the second-hand market for several reasons: they are durable, follow fashion trends, are versatile, and economically accessible.



This makes them popular choices for those looking to save without compromising on style.

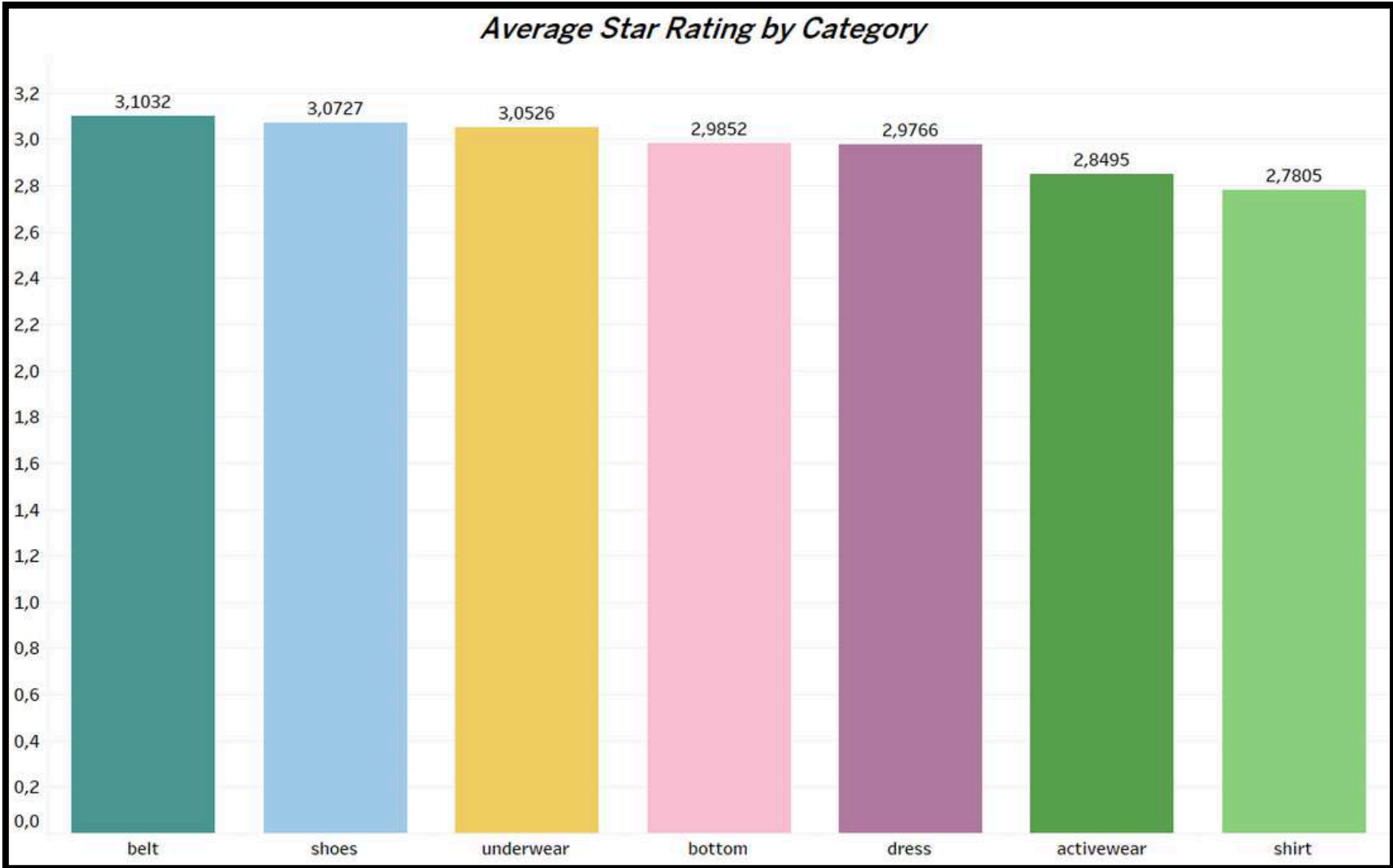


# Average Star Rating by Category

```
-- Average Star Rating by Category
SELECT category, AVG(stars) as avg_stars
FROM clothing_sales
GROUP BY category
ORDER BY avg_stars DESC;
```

	category character varying (255) 🔒	avg_stars numeric 🔒
1	belt	3.1032448377581121
2	shoes	3.0727272727272727
3	underwear	3.0526315789473684
4	bottom	2.9851851851851852
5	dress	2.9765625000000000
6	activewear	2.8494623655913978
7	shirt	2.7804878048780488

The analysis has confirmed that the categories of **belts** and **shoes** are among the most appreciated by purchasers. The average rating assigned to these categories exceeds 3 stars, indicating a significant level of customer satisfaction.



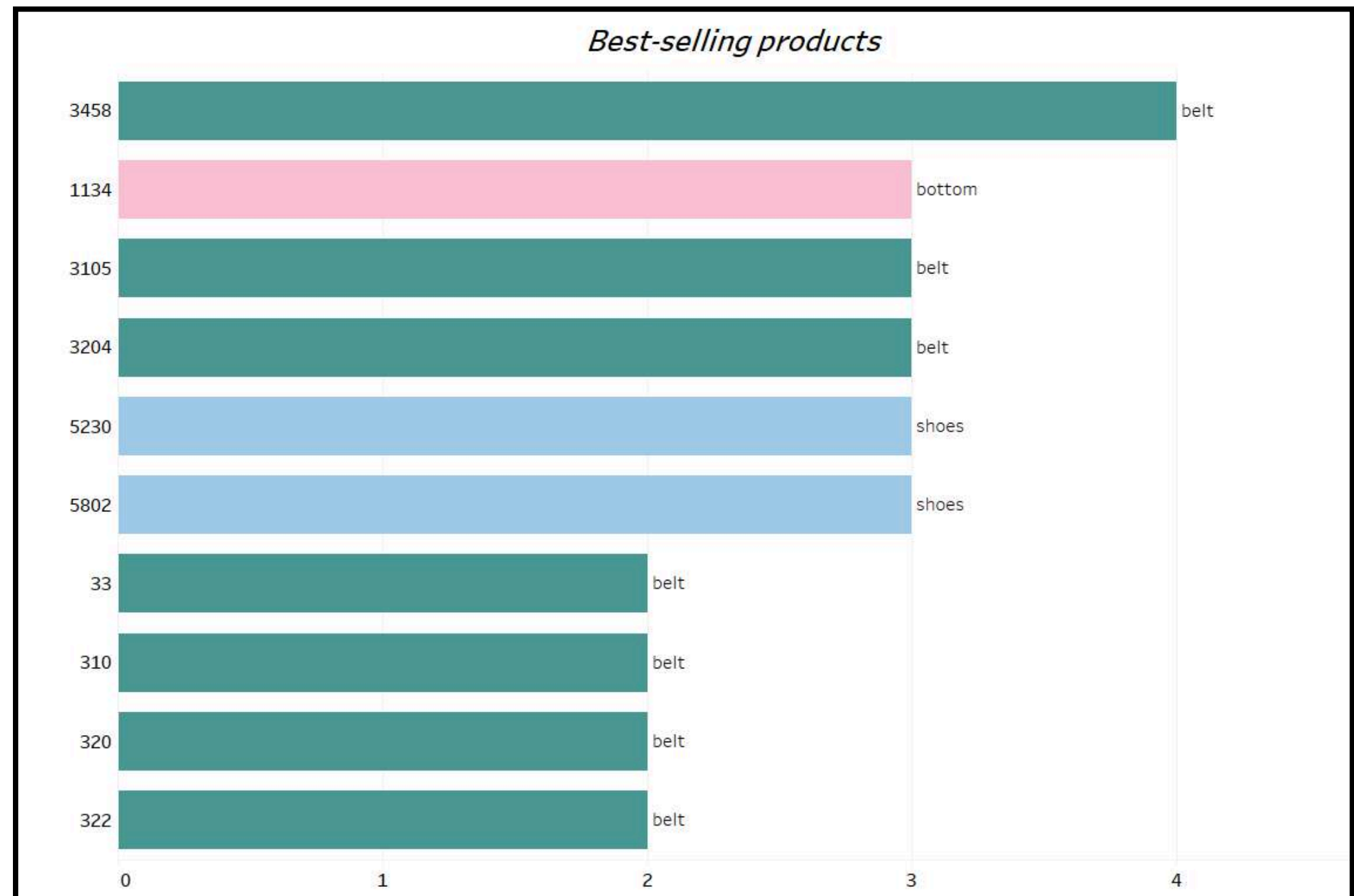


# Best-selling products

```
-- Extract the best-selling products
SELECT item_id, COUNT(*) as total_sales
FROM clothing_sales
GROUP BY item_id
ORDER BY total_sales DESC
LIMIT 10;
```

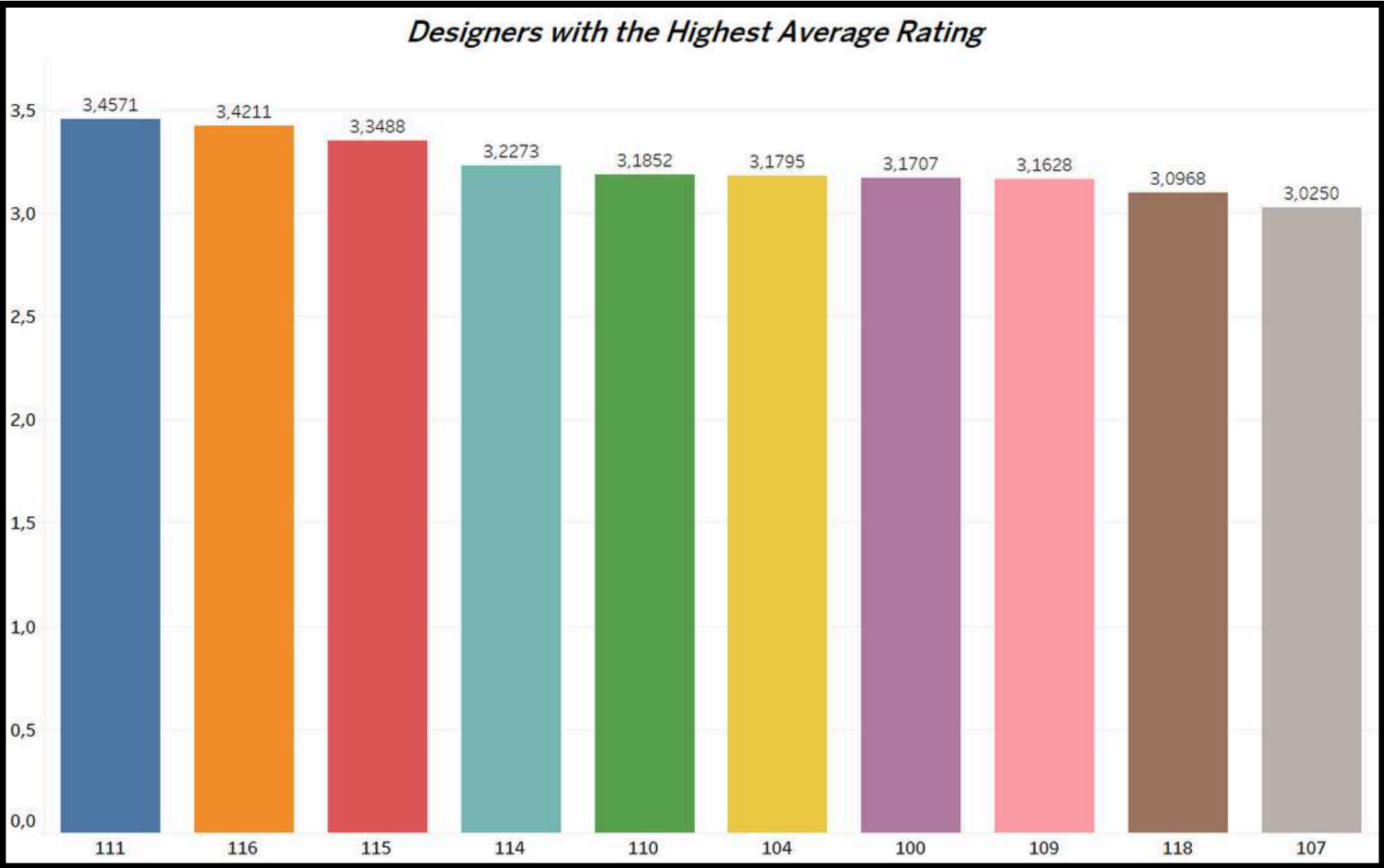
	item_id integer	total_sales bigint
1	3458	4
2	5802	3
3	3105	3
4	3204	3
5	1134	3
6	5230	3
7	1403	2
8	3407	2
9	3442	2
10	3244	2

Further confirmation of the popularity of the **belts** category.



# Designer with the Highest Average Rating

```
-- Designer with the Highest Average Rating
SELECT designer_id, AVG(stars) as avg_stars
FROM clothing_sales
GROUP BY designer_id
ORDER BY avg_stars DESC
LIMIT 10;
```



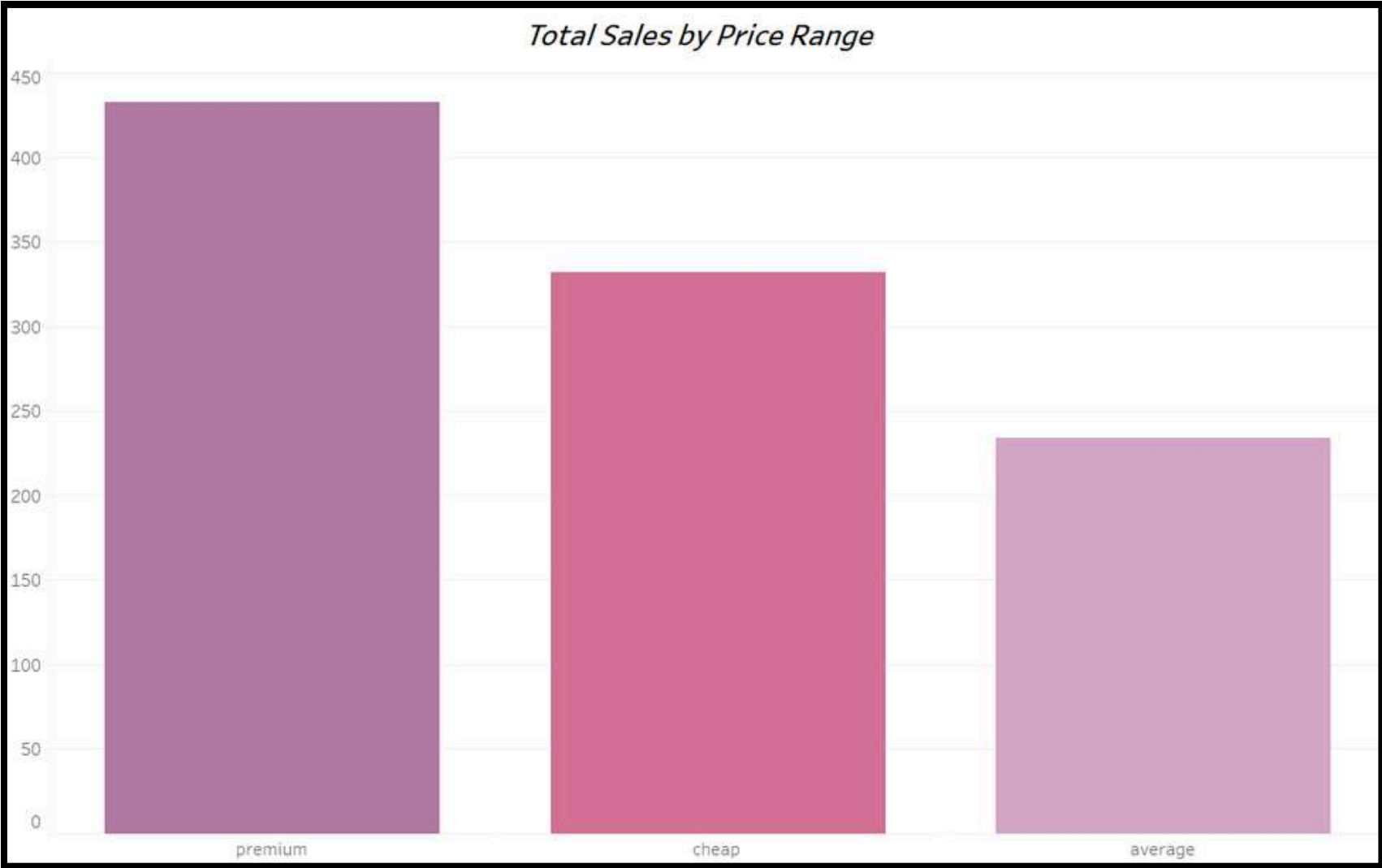
	designer_id integer	avg_stars numeric
1	111	3.4571428571428571
2	116	3.4210526315789474
3	115	3.3488372093023256
4	114	3.2272727272727273
5	110	3.1851851851851852
6	104	3.1794871794871795
7	100	3.1707317073170732
8	109	3.1627906976744186
9	118	3.0967741935483871
10	107	3.0250000000000000



# Distribution of Sales by Price Range

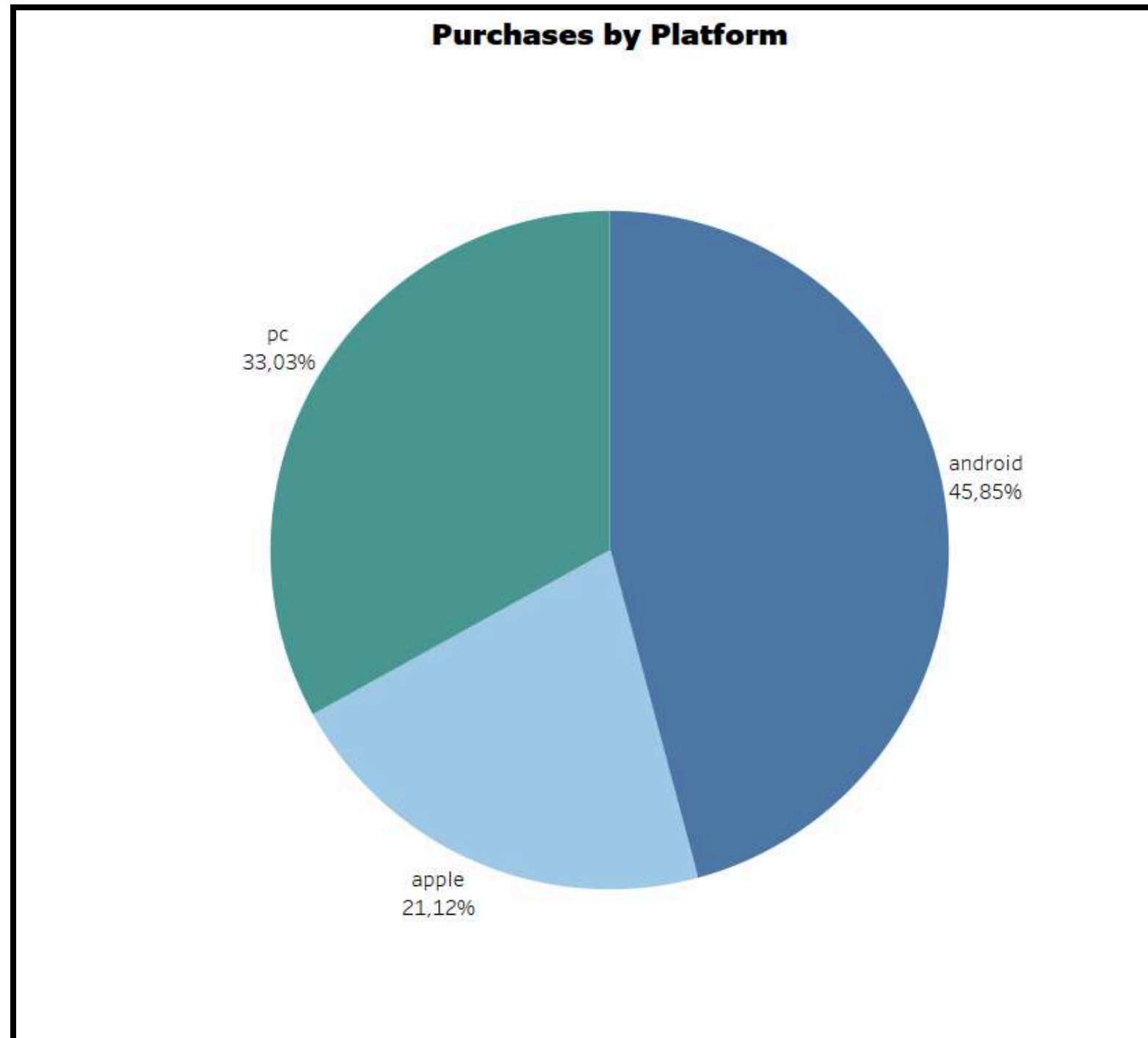
```
-- Distribution of Sales by Price Range
SELECT level, COUNT(*) as total_sales_by_level
FROM clothing_sales
GROUP BY level
ORDER BY total_sales_by_level DESC;
```

	level character varying (50) 🔒	total_sales_by_level bigint 🔒
1	premium	433
2	cheap	332
3	average	234



The popularity of different price ranges in the second-hand market reveals nuanced consumer preferences: **Premium** items attract buyers seeking quality and prestige, often at a discounted price compared to new. **Cheap** items provide accessible options for budget-conscious shoppers without compromising functionality. Meanwhile, items in the **average** price range offer a balance between quality and affordability, appealing to a broad spectrum of consumers.

# Purchases by Platform



Users prefer purchasing from **mobile platforms** rather than from **PCs**, and specifically show a greater inclination towards using **Android** devices rather than **Apple**.

Mobile devices offer greater convenience and accessibility to users, allowing them to make purchases anytime and anywhere they are. Additionally, Android devices are available in a wider range of prices and offer a greater variety of options compared to Apple devices, making them more accessible to a broader range of users.



A photograph of a modern, brightly lit closet. On the left, a small potted plant sits on a shelf above a pair of pink high-heeled sandals. The main section features a gold-colored hanging rod with several items: a stack of folded white shirts on a shelf above, a row of colorful tops (pink, yellow, green, white) hanging on hangers, and a pink top with a geometric pattern hanging on the right. Below the patterned top, a stack of folded blue jeans is visible. The word "Strategy" is overlaid in large, bold, black font across the center of the image.

# Strategy



**Targeting Key Countries:** Given the influence of Italy, France, and the United Kingdom in the fashion industry and the growing concern for environmental sustainability, focus on penetrating these markets. Create targeted marketing campaigns and collaborate with local influencers to increase awareness of your marketplace in these countries.

**Capitalizing on Peak Periods:** Focus on the seasons and peak sales periods identified, such as January, November, June, and August. Create promotions and special offers during these periods to stimulate purchases. For example, offer specific discounts for Christmas gifts during November and December.

**Feedback and Continuous Improvement:** Gather feedback from users and monitor key performance metrics to identify areas for improvement. Continuously optimize the user experience and update your marketplace based on customer needs and feedback.

**Geographical Expansion:** Subsequently, expand your focus to other European countries showing a growing interest in sustainability and second-hand fashion. These could include Germany, Spain, the Netherlands, Sweden, and others. Conduct in-depth market research to identify countries with a receptive audience towards sustainable fashion and clothing resale.

**Focus on Accessories:** Given the established demand for accessories such as belts and shoes in the second-hand market, ensure that you have a wide selection of these items in your marketplace. Highlight their durability, versatility, and economic convenience in your marketing campaigns.

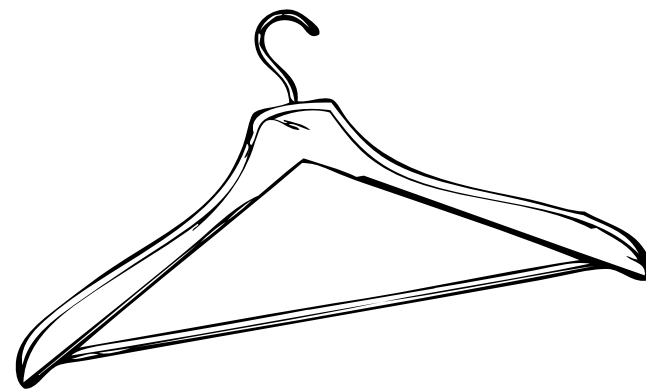
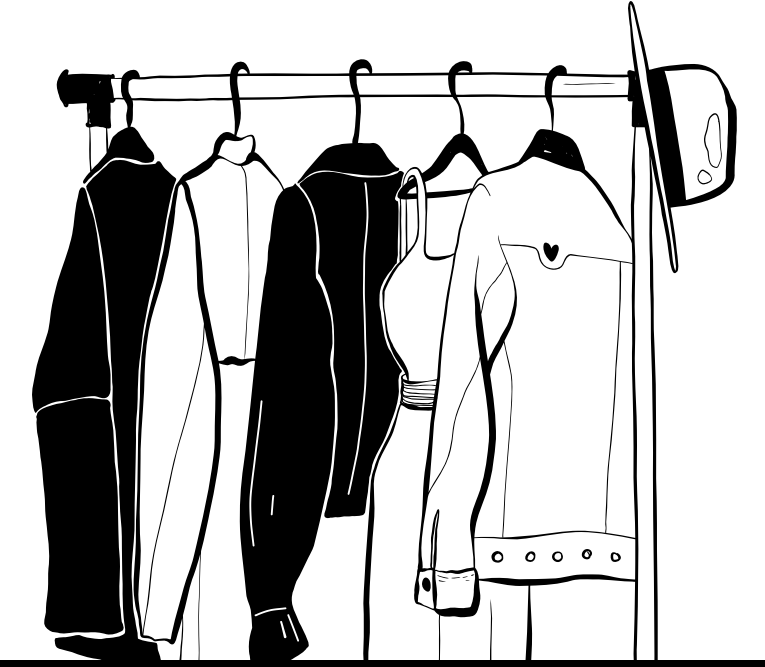


**Mobile Device Optimization:** Since users prefer to make purchases from mobile devices, ensure that your marketplace is fully optimized for smartphones and tablets. Develop a user-friendly mobile application that offers a smooth and secure shopping experience. Additionally, since Android users are more numerous, focus on developing the app for this platform while ensuring compatibility with Apple devices.

**Ensuring Security and Reliability:** Invest in robust security measures to protect users' sensitive data and ensure secure transactions. Implement seller and product verification policies to ensure that buyers can make purchases with confidence.

**Data Analysis and Continuous Adaptation:** Carefully monitor performance metrics and collect data on user behaviors in different markets. Use this information to continuously adapt and optimize your marketing and market penetration strategies.

**Price Range Diversification:** Offer a wide range of products covering various price points, including premium, budget-friendly, and mid-range items. This will ensure that your marketplace is accessible to a wide range of buyers with different needs and budgets.





# Personas

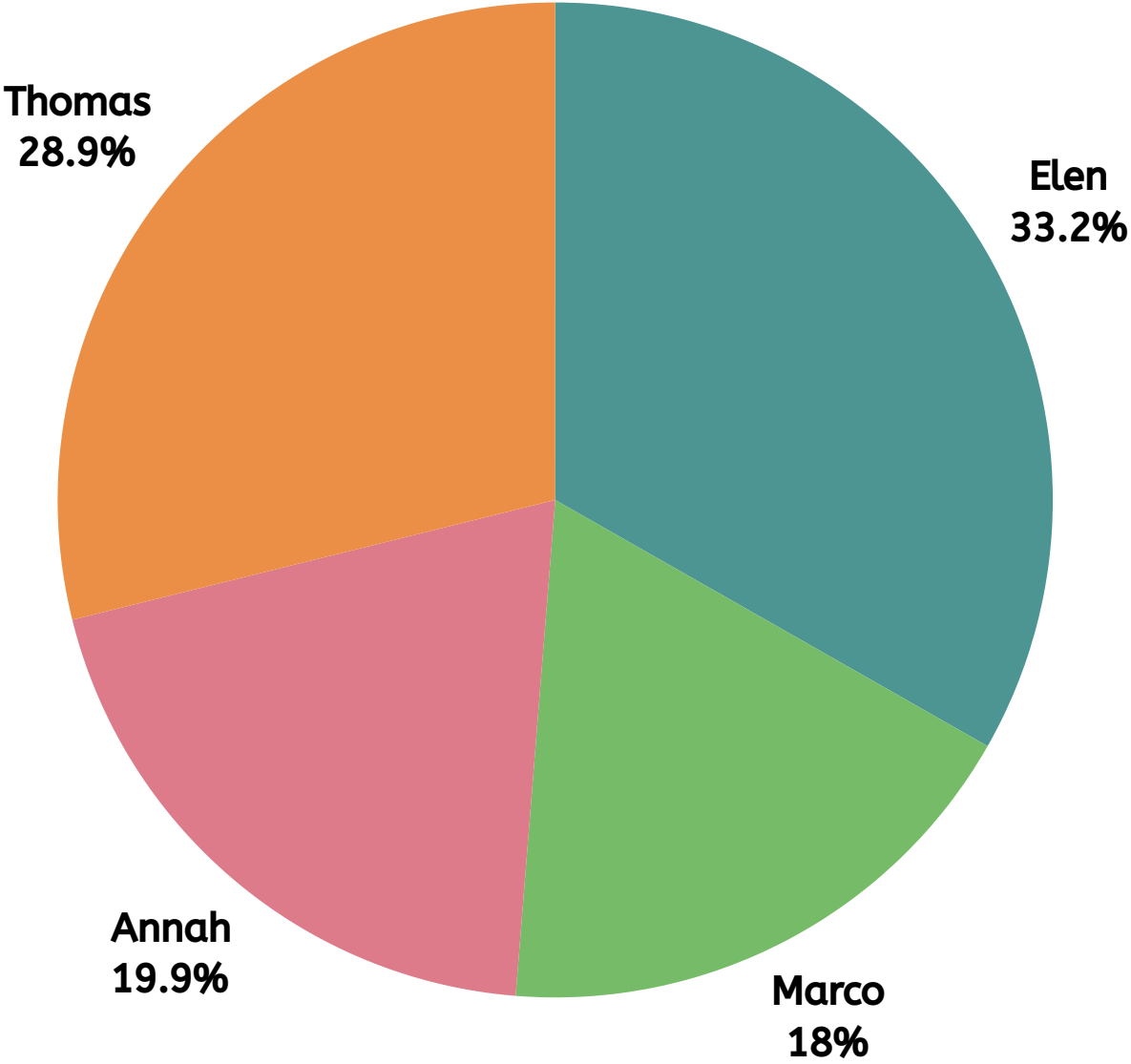






Thomas is a college student with a limited budget. To save money, he prefers to purchase second-hand clothing on online platforms. However, to cover his university expenses, he has started selling his lightly used clothes on a second-hand marketplace. He is looking for an intuitive and affordable platform where he can easily post his listings and interact with buyers interested in purchasing items at affordable prices.

Elene is a young fashionista who loves to follow the latest trends. Selling used clothing allows her to clear out items she no longer wears to make space in her wardrobe and earn some extra money to purchase new trendy pieces. She is active on social media and uses the second-hand marketplace to share her unique style with other fashion enthusiasts.



Anna is an environmentally conscious mom who is constantly looking for ways to reduce her ecological footprint. She decides to sell her children's clothing on a second-hand marketplace to promote the reuse of clothes rather than buying new ones. She is looking for a platform that promotes sustainability and offers a safe and reliable selling experience for families.

Marco is a lover of sports and physical activity. Over time, he has accumulated several technical garments and sportswear that he no longer uses. Determined to make space in his closet and earn some extra money, he decides to sell these items on a second-hand marketplace. Marco is interested in a quick sale and prefers a user-friendly platform with a wide user base.

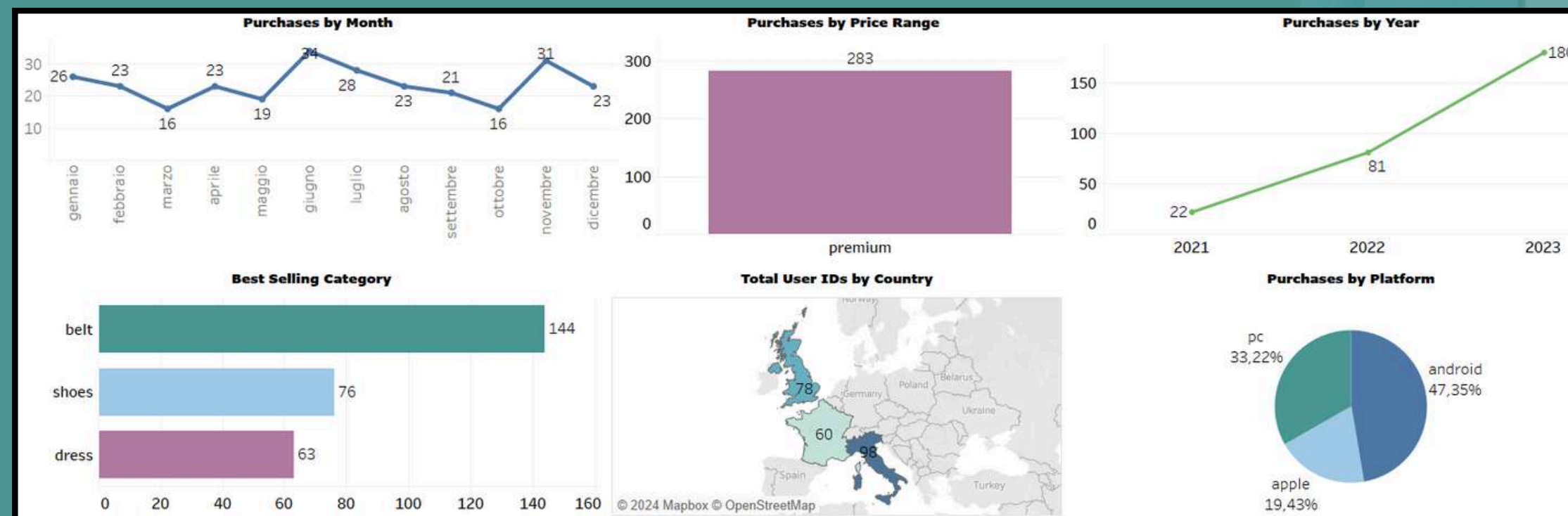


# Elen - the fashionista:

Elene's sales peak in June and July, aligning with seasonal trends as people tend to refresh their wardrobes during summer, creating high demand for her second-hand fashion items. Over the years, her sales have consistently grown, driven by the consistent demand for luxury products at accessible prices.

Elene exclusively sells second-hand luxury accessories and dresses, distinguishing herself through her selection of high-quality items and trendy designs. Her products are positioned at a premium price level, reflecting their luxury status and ensuring perceived value among customers.

Her clients prefer to use mobile platforms for making purchases, as this offers them convenience and flexibility during the purchasing process.





# Elene would be an ideal user for a second-hand clothing marketplace! WHY?

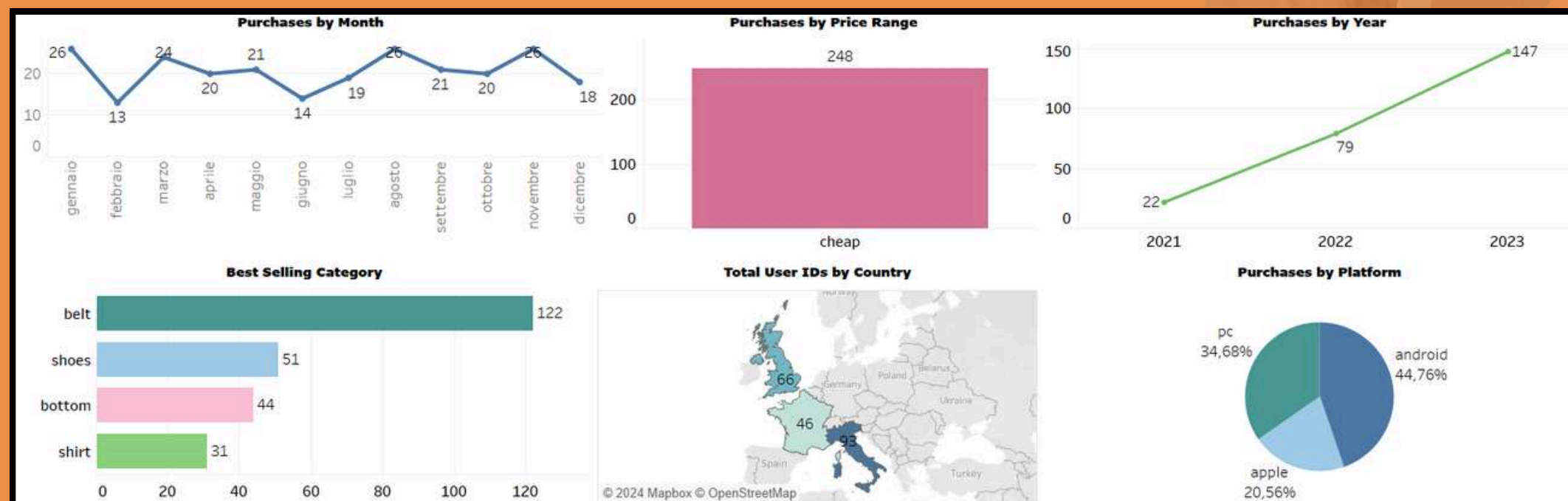
- 1 Love for Fashion Trends:** Elene would be a customer interested in discovering and selling new second-hand fashion items that reflect the latest trends.
- 2 Seasonal Buying Activity:** Her best sales occur during the summer months when consumers are looking for trendy summer clothing. This suggests that Elene is aware of the seasonal needs of the market and would be an active user during peak sales periods.
- 3 Growing Trust in the Platform:** Her significant growth in sales over the past few years could indicate that Elene has developed trust in the second-hand platform. This trust may have been built through positive buying and selling experiences and could encourage her to continue using the platform in the future.
- 4 Preference for High-Quality Products:** Specializing in the sale of luxury accessories and high-end clothing, Elene gravitates towards quality and prestige. A marketplace offering a selection of quality, branded products would therefore be appealing to her.
- 5 Convenience of Mobile Platforms:** Since her clients prefer to use mobile platforms for shopping, Elene would appreciate a marketplace that offers a user-friendly and mobile-optimized experience, allowing her to easily browse products and complete purchases quickly and efficiently.

# Thomas, the thrifty student:

His best sales (January, August, and November) reflect his inclination towards saving money. January might be a period when his clients searches for items to cope with winter cold, August for back-to-school or university return, while November could be linked to the holiday and gifting season. His annual sales have steadily grown over the years. This highlights the growing need for savings and the popularity of second-hand platforms among college students like Thomas.

Thomas exclusively sells second-hand clothing and shoes, offering a variety of options for those seeking items at affordable prices. His products are positioned at an economical price level, making them accessible to people with limited budgets.

His customers prefers using Android and PC platforms for their transactions. This could be due to the greater availability of these platforms among college students as him and their ease of use on desktop or laptop devices.



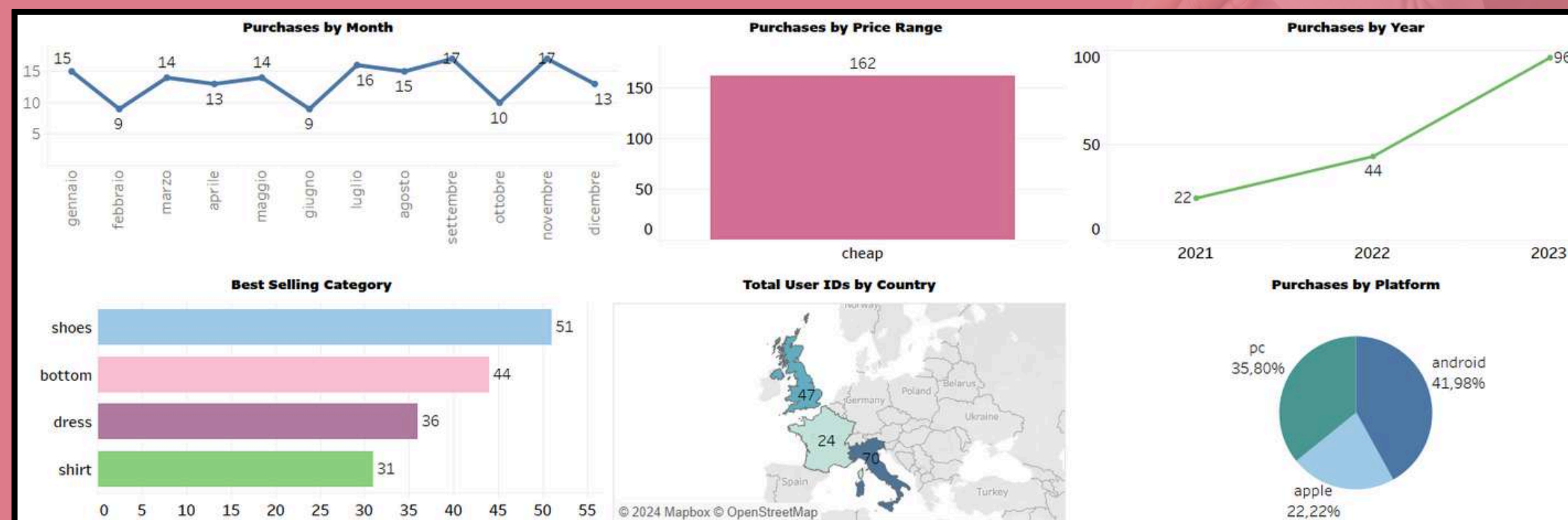


# Annah, the eco-friendly mom:

Her best sales (July, September, and November) reflect her commitment to environmental sustainability. July might be a period when people search for summer clothing for their children, September could be related to back-to-school, while November might be associated with seasonal changes and the need for new clothes.

Her annual sales have steadily grown over the years. This highlights the increasing attention towards sustainability and the growing popularity of second-hand platforms among families who share Anna's values.

Anna exclusively sells children's clothing and shoes, offering a wide selection of options for those seeking affordable and sustainable items for their kids. Her products are positioned at an affordable price level, making them accessible to families with limited budgets and promoting the concept of sustainable fashion.

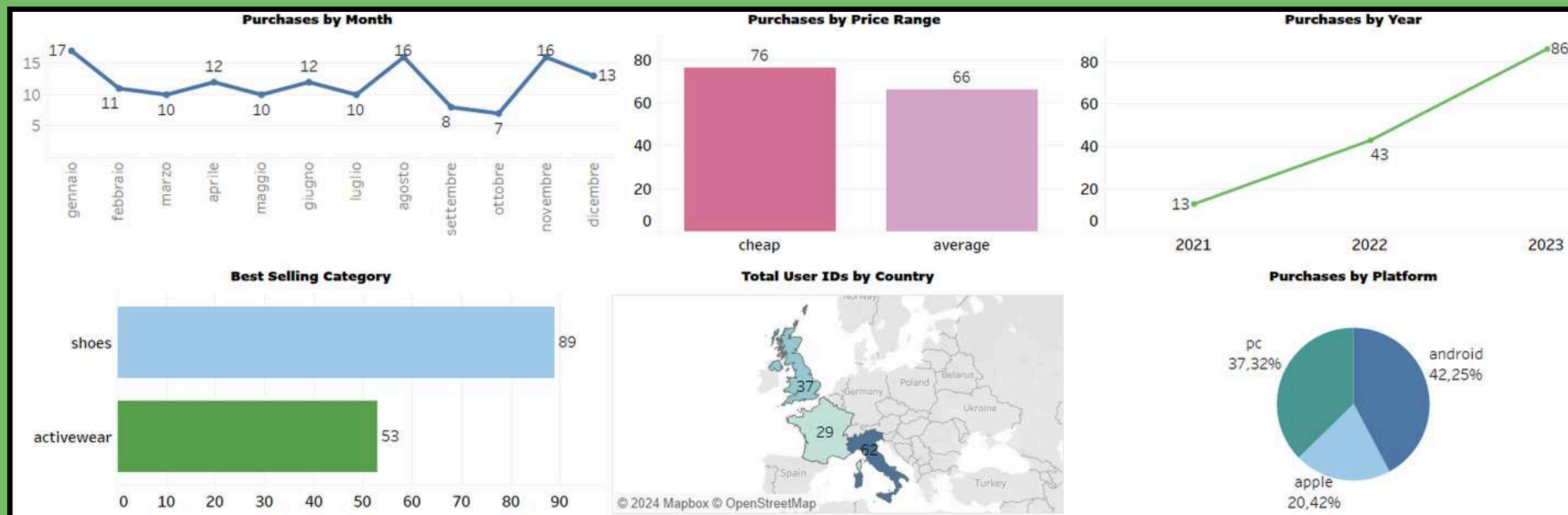


# Marco, the sports enthusiast:

Marco's best sales months (January, August, and November) align with his passion for sports. January sees increased fitness activities and sportswear purchases due to New Year's resolutions. August corresponds to peak summer sports activities, while November anticipates indoor winter sports and holiday preparations.

His annual sales have consistently increased, from 13 in 2021 to 43 in 2022, and finally to 86 in 2023, driven by growing demand for second-hand sportswear, bolstered by his diverse product and price range.

Marco sells activewear and sports shoes, catering to the needs of sports enthusiasts. His products are priced affordably (Average/Cheap) to appeal to a wide range of buyers.



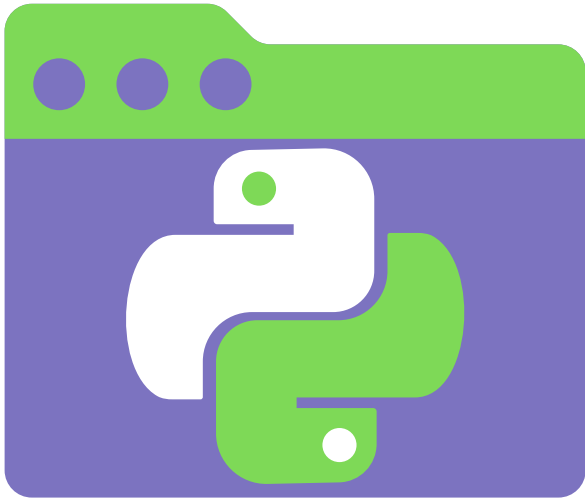


# Links:

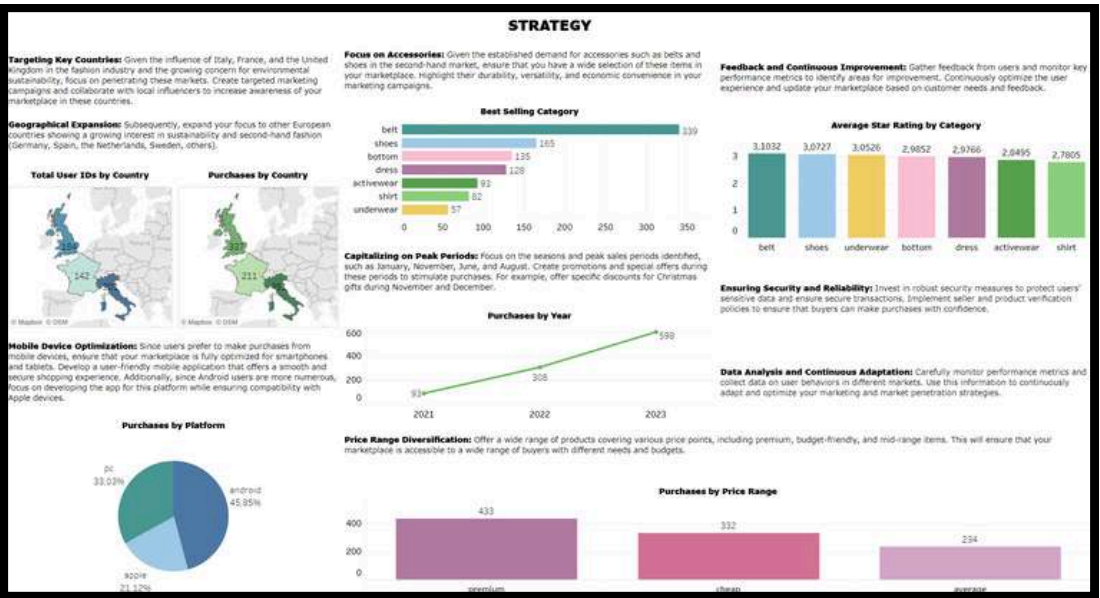
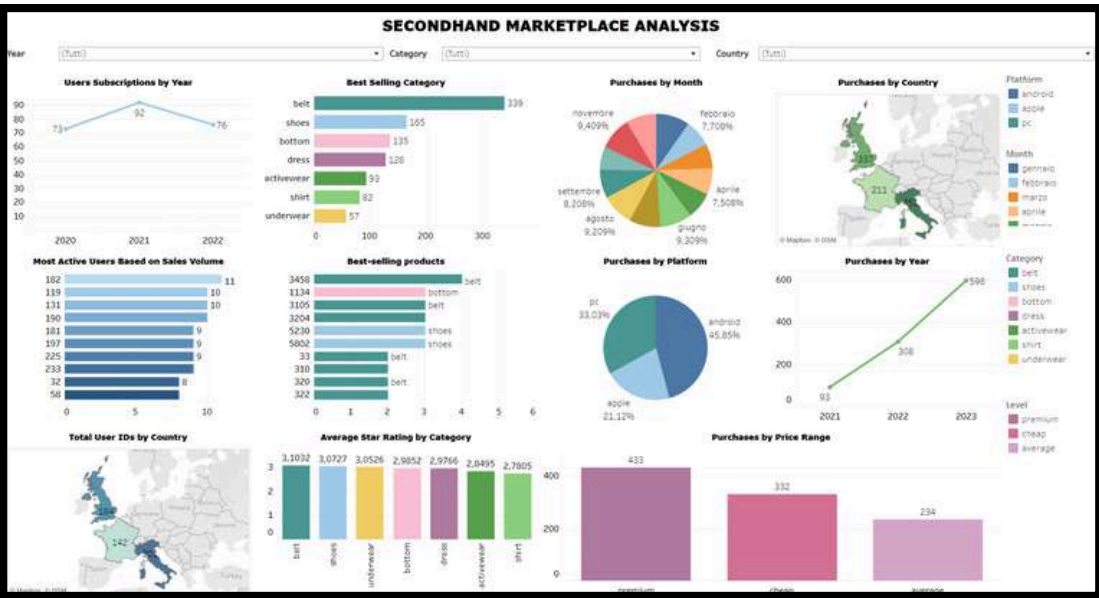
## SQL SCRIPT



## PYTHON SCRIPT



I've decided to incorporate 3 types of visualizations: the first one is an overview, the second one includes a brief strategy suggestion and the third one includes the user personas:



Click on the images to see scripts and visualizations!





# The end

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