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E-COMMERCE GROWTH ANALYSIS

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ABOUT MERCADO LIVRE

MercadoLibre, Inc in Spanish, and known as Mercado Livre in Portuguese.

Mercado Livre is an Argentine company headquartered in Montevideo, Uruguay and incorporated in Delaware in the United States that operates online marketplaces dedicated to e-commerce and online auctions.

Mercado Libre also runs a real estate and motors division under the name “*Mercado Libre Classificados*”. Realtors pay a monthly fee to list properties and automobiles on the Mercado Libre platform.

PROBLEM STATEMENT

Mercado Livre, a leading Brazilian e-commerce platform, aims to optimize its marketplace operations by gaining deeper insights into customer behavior, seller performance, product trends, and fulfillment efficiency. The goal is to uncover growth opportunities, improve customer experience, and forecast future sales trends to support data-driven decision-making.

STEPS INVOLVED:

PART 1: SQL ANALYSIS

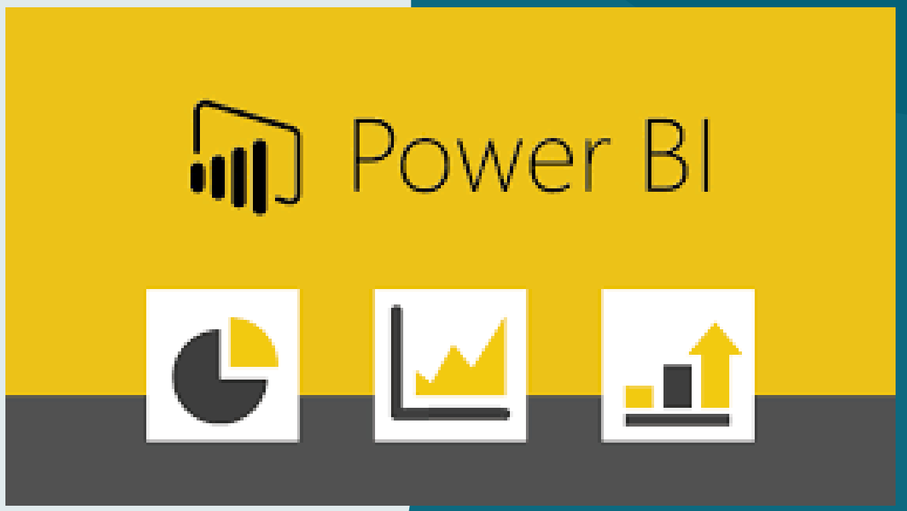
PART 2: DASHBOARD CREATION - POWER BI

PART 3: PYTHON – EDA & TREND ANALYSIS

DASHBOARD CREATION
POWER BI

Objective:

Build an interactive, multi-page dashboard with navigational buttons. Each page focuses on a theme with clearly defined KPIs, matrices, and visual insights.



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Total Revenue	Total Orders	Average Order Value	MOM Growth
$16.01M	99K	$160.99	360.50K...

Year

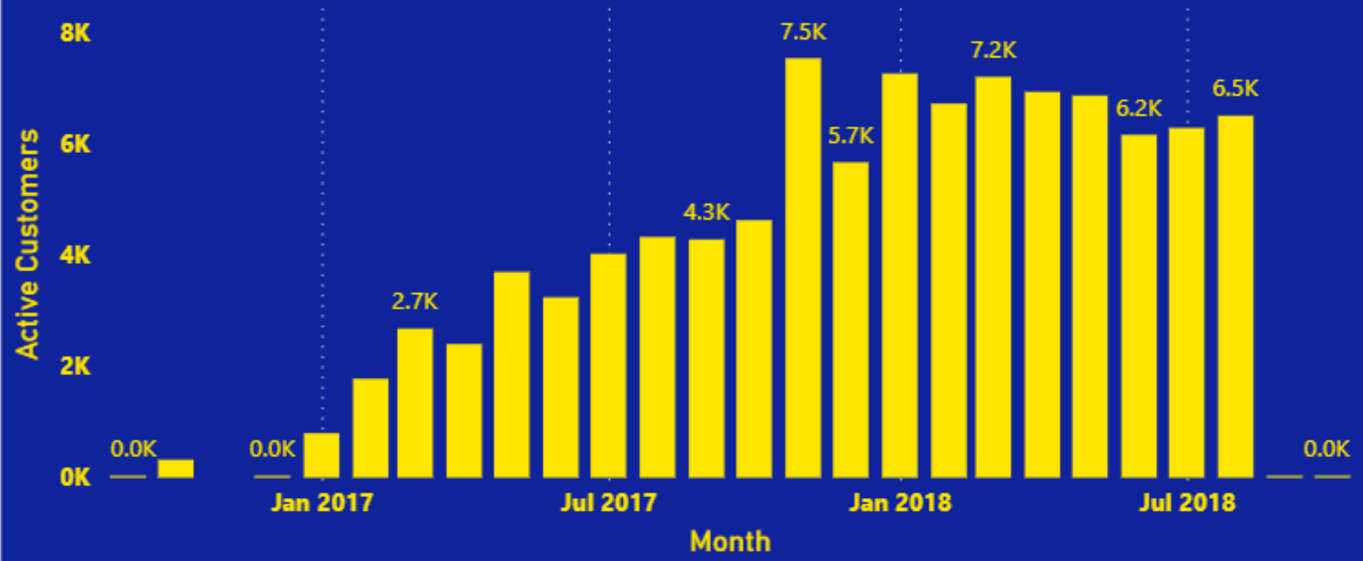
2016

2018

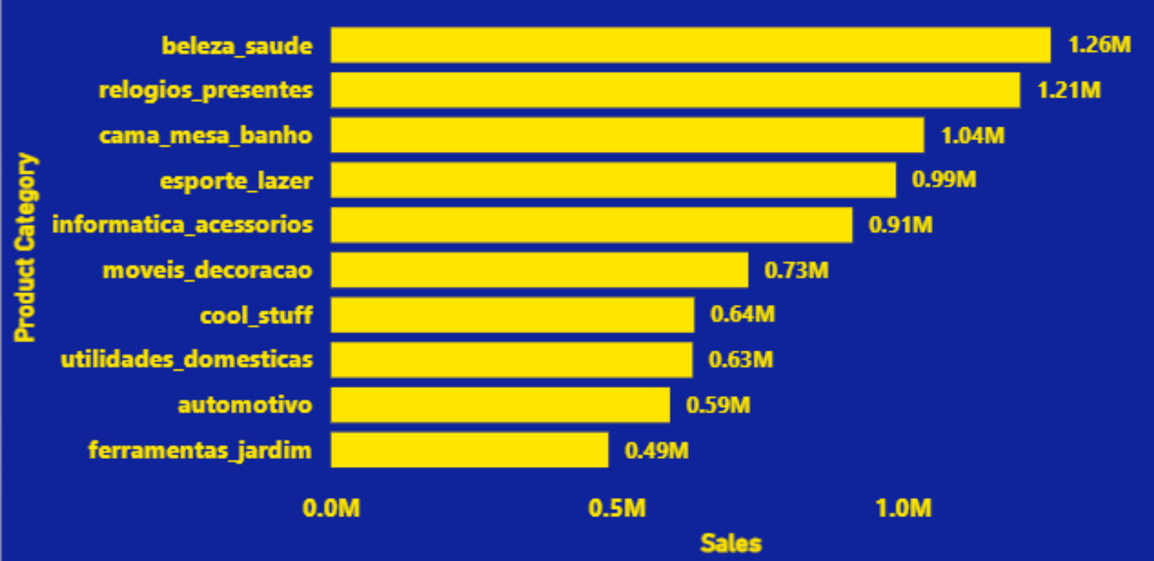
2017

Monthly Revenue Trend

Number of Active Customers



Top 10 Product Categories by Revenue



INSIGHTS:

Executive Sales Overview:

Mercado Livre experienced strong business growth across 2017 and 2018, supported by increasing revenue, rising customer activity, and consistent order value.

Key Metrics:

- Total Revenue: $16.01M
- Total Orders: 99K
- Avg. Order Value: $160.99
- MoM Growth: 360.5K

Top Categories by Revenue:

- Beleza & Saúde – $1.26M
- Relógios & Presentes – $1.21M
- Cama, Mesa & Banho – $1.04M

Revenue Trend:

Revenue surged from early 2017, peaking at $1.19M, and remained stable above $1M/month through 2018. A final drop to zero likely indicates data cut-off, not performance decline.

Customer Activity:

Active customers climbed steadily to 7.5K by early 2018, maintaining a strong base around 6K–7K. This shows solid customer retention and engagement.

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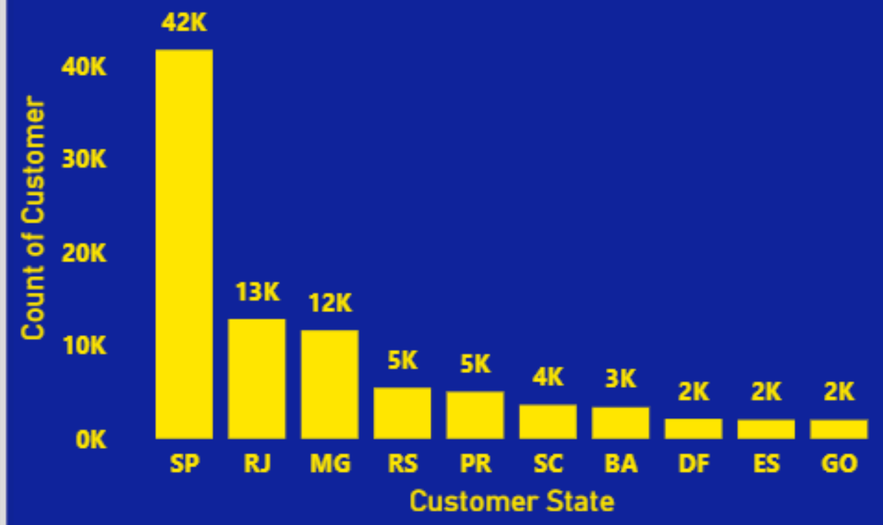
Total Customers	Avg Orders per Customer	Customer Retention Rate	First Purchases
99.44K	1.00	3.01%	634

State

AC	CE	MG	PE	RO
AL	DF	MS	PI	RR
AM	ES	MT	PR	RS
AP	GO	PA	RJ	SC
BA	MA	PB	RN	SE

Top States by Number of Customers

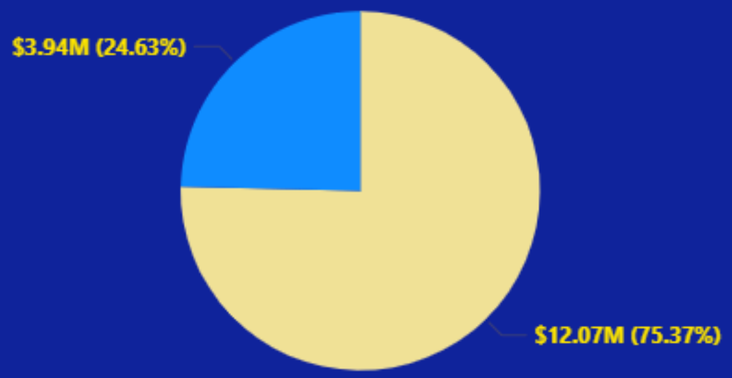


Average Review Score by State

Ratings

1	4
2	5
3	

High Value Orders



Order Value ● Low value ● High value

Heatmap of Customers Location

INSIGHTS:

Customer Insights:

Mercado Livre has a broad and loyal customer base, with over 99.44K total customers. However, the customer retention rate is low at 3.01%, indicating a need to improve post-purchase engagement and loyalty programs.

- High-value orders dominate, contributing $12.07M (75.37%) of total revenue.
- Indicates customer willingness to spend, which is a strong sign of trust and perceived value.
- Avg. orders per customer: 1.00
- First-time purchases: 634
- São Paulo (SP) leads with 42K customers, followed by Rio de Janeiro (RJ) with 13K and Minas Gerais (MG) with 12K.
- Strong customer concentration is visible across Brazil, especially the Southeast region, as shown in the heatmap.
- Most states maintain a 4.1–4.2 average review score, reflecting overall customer satisfaction.
- Majority of customers gave ratings between 3–5, signaling a positive brand experience.

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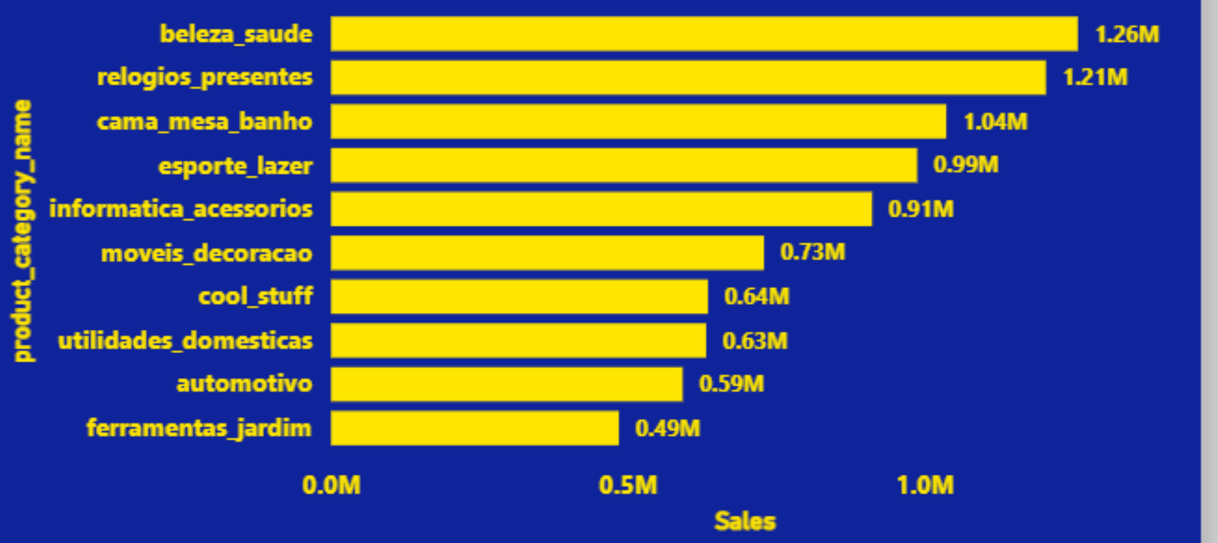
Review Score

1 2 3 4 5

Product Categories	Total Products Available	High-Value Orders
71	32.95K	4239

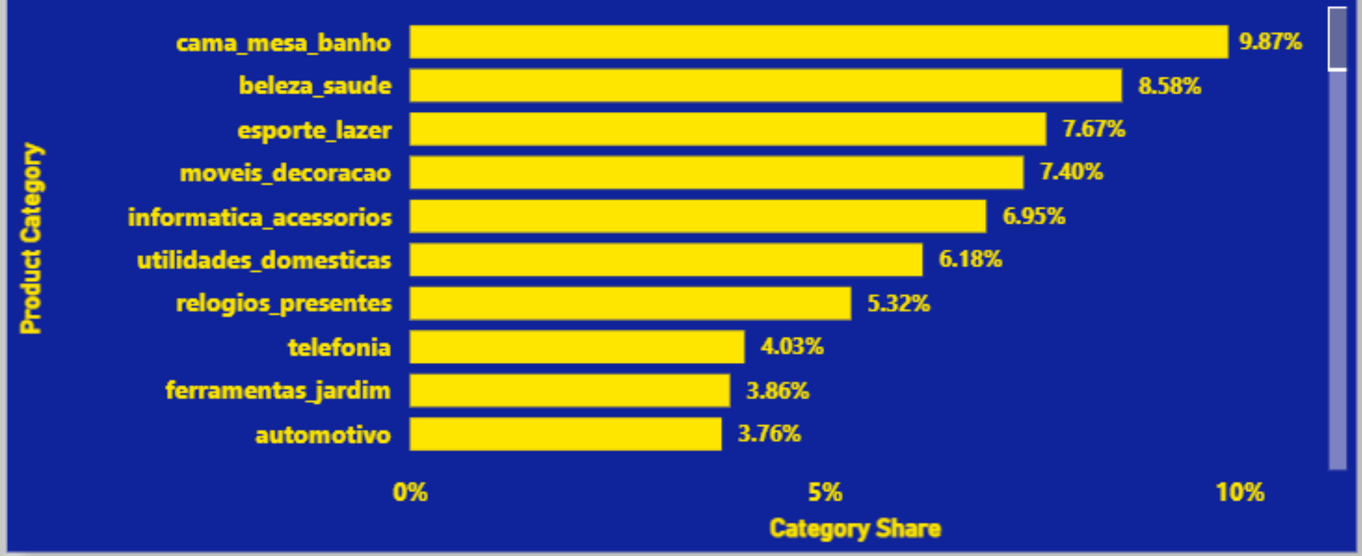
Top 10 Product Categories by Revenue

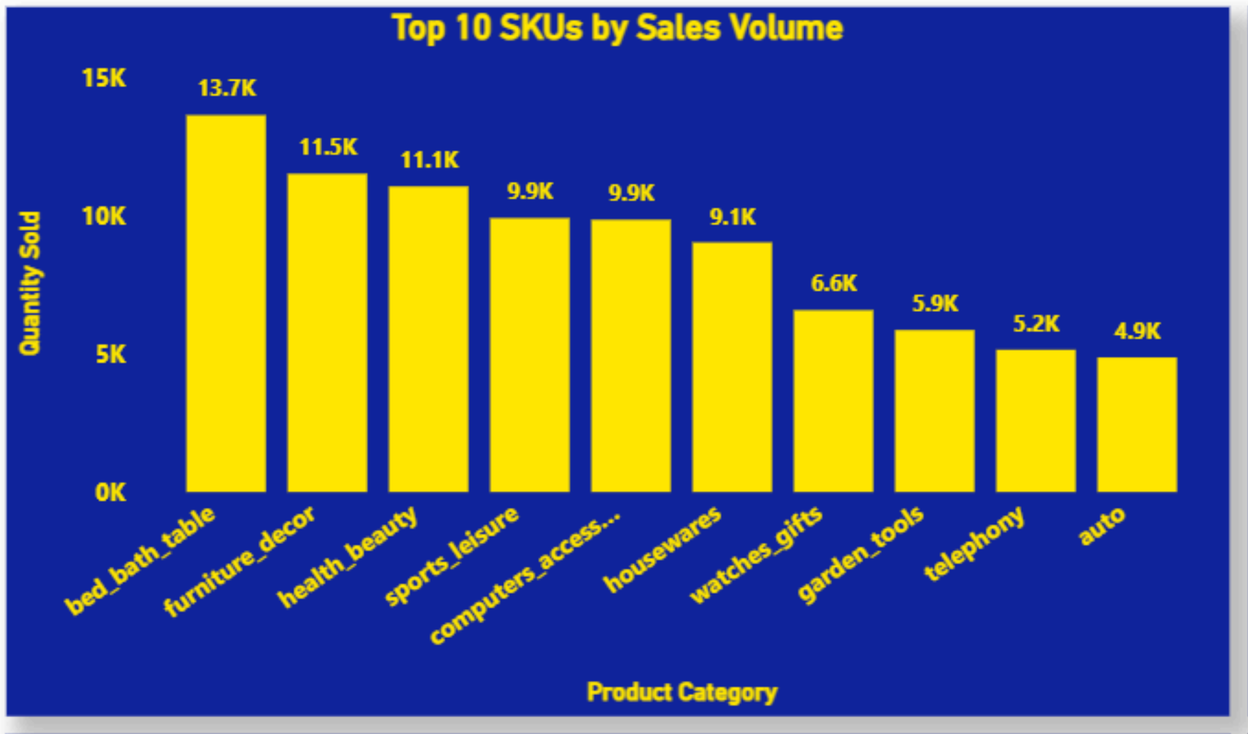


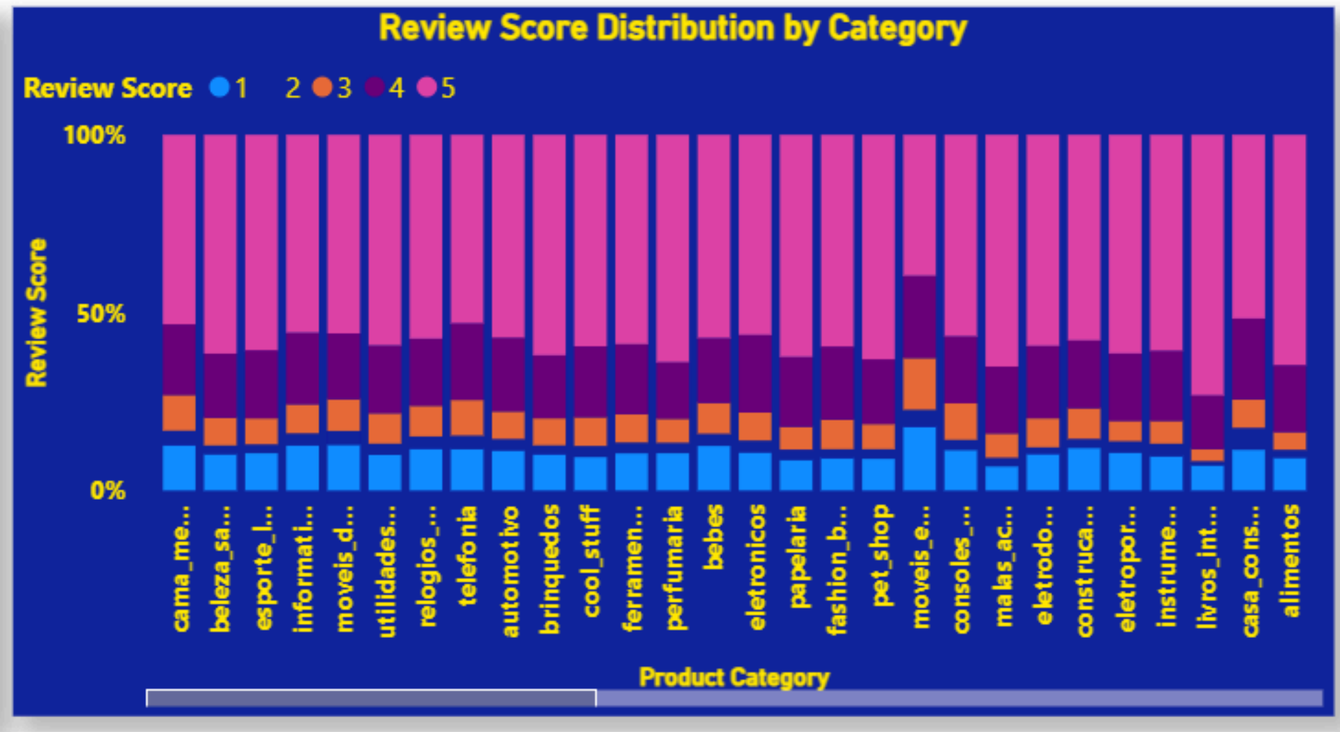
Category-wise Average Order Value

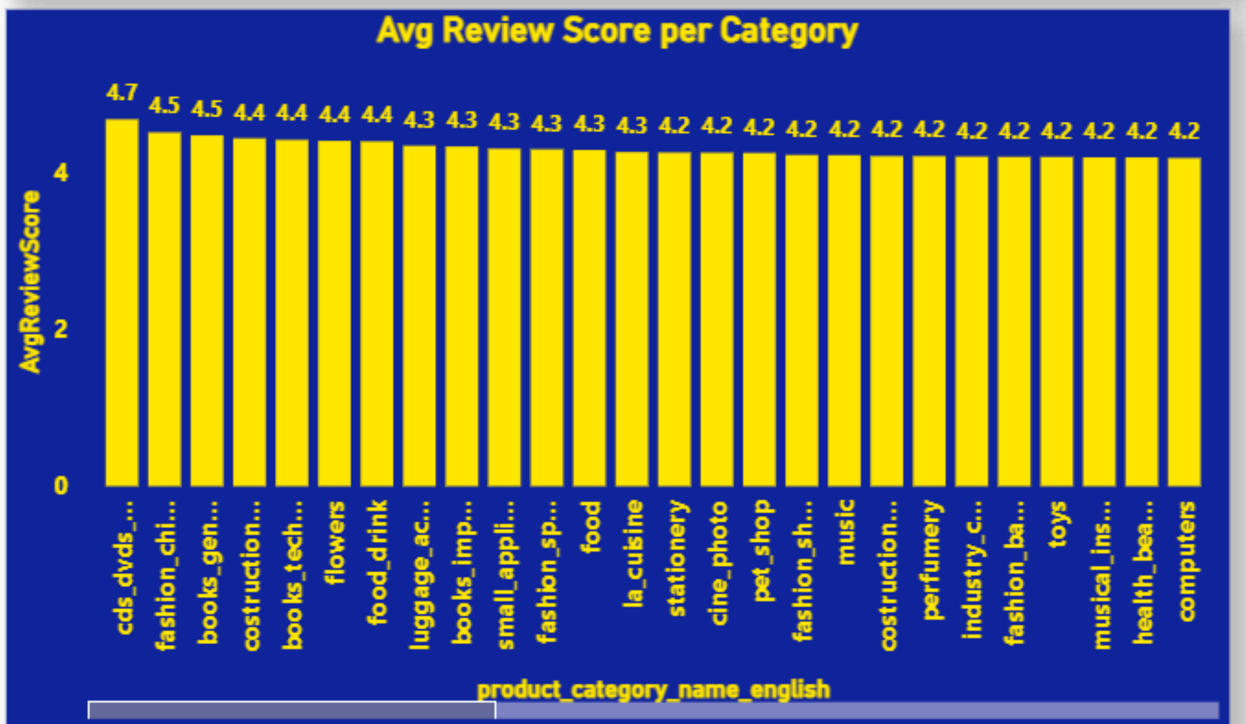
Order Volume by Product Category

% Share of Each Category




Top 10 SKUs by Sales Volume
Quantity Sold
15K
10K
5K
0K
13.7K
11.5K
11.1K
9.9K
9.9K
9.1K
6.6K
5.9K
5.2K
4.9K
bed_bath_table
furniture_decor
health_beauty
sports_leisure
computers_access...
housewares
watches_gifts
garden_tools
telephony
auto
Product Category


Review Score Distribution by Category
Review Score
1
2
3
4
5
100%
50%
0%
Review Score
cama_me...
beleza_sa...
esporte_l...
informati...
moveis_d...
utilidades...
relogios_...
telefonia
automotivo
brinquedos
cool_stuff
ferramen...
perfumaria
bebes
eletronicos
papelaria
fashion_b...
pet_shop
moveis_e...
consoles_...
malas_ac...
eletrodo...
construca...
eletropor...
instrume...
livros_int...
casa_cons...
alimentos
Product Category


Avg Review Score per Category
AvgReviewScore
4
2
0
4.7
4.5
4.5
4.4
4.4
4.4
4.4
4.3
4.3
4.3
4.3
4.3
4.3
4.2
4.2
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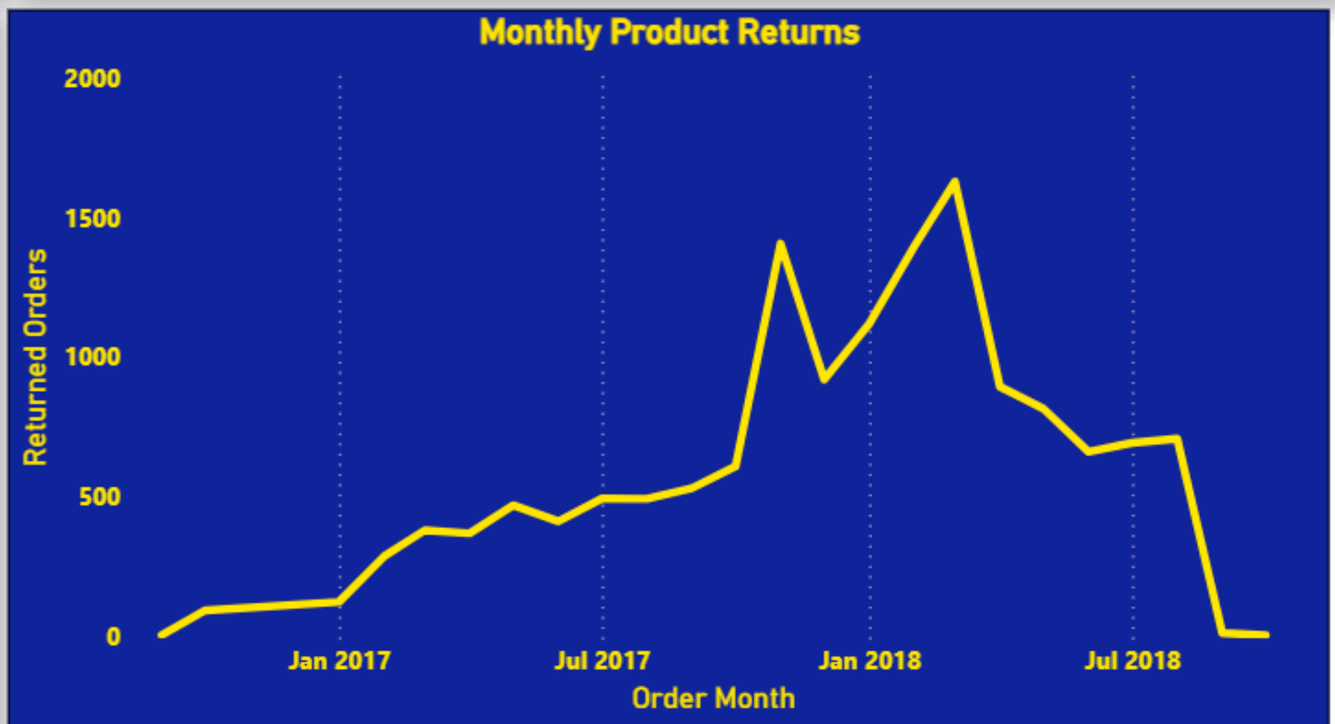
4.2
cds_dvds_...
fashion_chi...
books_gen...
construction...
books_tech...
flowers
food_drink
luggage_ac...
books_imp...
small_appli...
fashion_sp...
food
la_cuisine
stationery
cine_photo
pet_shop
fashion_sh...
music
construction...
perfumery
industry_c...
fashion_ba...
toys
musical_ins...
health_bea...
computers
product_category_name_english


Monthly Product Returns
Returned Orders
2000
1500
1000
500
0
Jan 2017
Jul 2017
Jan 2018
Jul 2018
Order Month

INSIGHTS:

Product Performance:

Key KPIs:

- 71 Product Categories
- 32.95K Products Available
- 4,239 High-Value Orders

- Cama, Mesa e Banho leads in sales (13.7K units), orders (11.1K), and market share (9.87%).
- Beleza e Saúde and Relógios e Presentes are also top revenue drivers.
- Cool Stuff and Informática Acessórios show high revenue per order with moderate volume.
- Telephony has high volume but lower revenue—likely due to lower-priced items.
- Most categories enjoy strong review scores (avg. 4.2–4.7 stars).
- Returns peaked in early 2018, highlighting areas for post-sale improvement.
- Portáteis Casa and Electronics have the highest average order values, ideal for upselling strategies.

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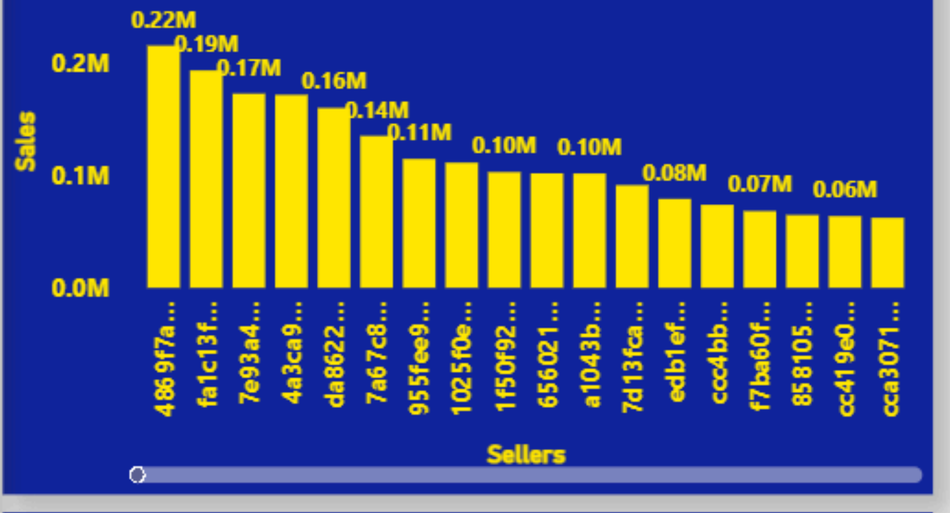
Avg Delivery Days	Seller Return Rate	Total Sellers	Total Orders
12.50	14.12%	3095	99K

Product Category

- agro_industry_and_commerc
- air_conditioning
- art
- arts_and_craftmanship
- audio
- auto
- baby
- bed_bath_table
- books_general_interest
- books_imported
- books_technical
- cds_dvds_musicals
- christmas_supplies
- cine_photo
- computers
- computers_accessories
- consoles_games
- construction_tools_construc...
- construction_tools_lights
- construction_tools_safety

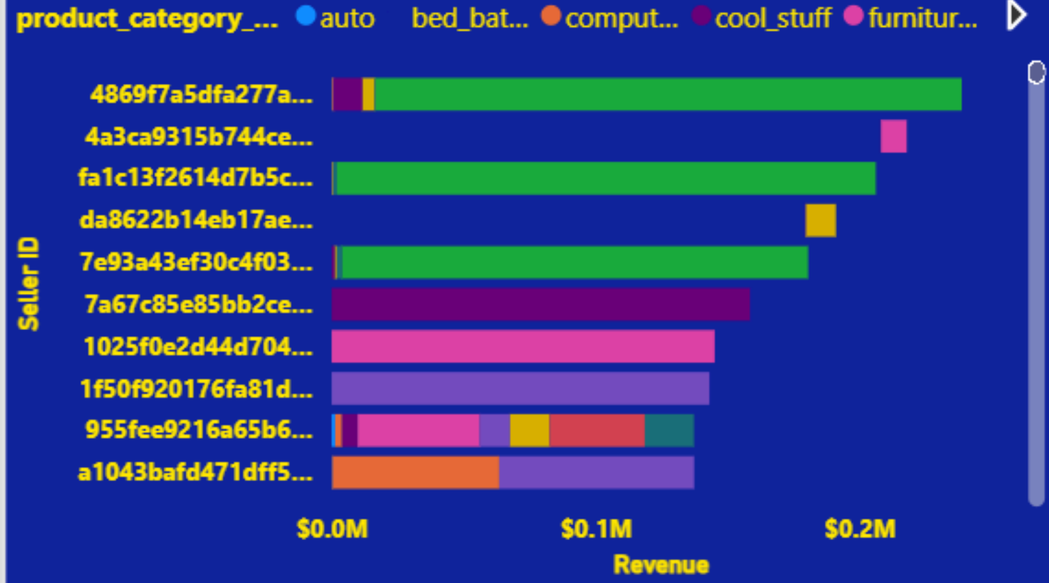
Top 10 Sellers by Revenue



Geographical Spread of Sellers

Order Count per Seller

Revenue per Seller by Product Category



INSIGHTS:

Seller Analytics:

- Avg Delivery Time is 12.5 days – acceptable but can be optimized for a better customer experience.
- Return Rate is relatively high at 14.12%, hinting at potential product quality or buyer mismatch issues.
- With 3,095 active sellers and 99K total orders, the platform is highly active and competitive.
- The top revenue-generating seller crosses $220K, while the top order count is 1,854 – showing a clear split between high-volume vs high-value seller strategies.
- Categories like auto, computers, and bed_bath_table are leading revenue generators.
- Revenue is well-distributed, with several sellers tapping into multiple high-performing categories.
- The geographical map shows a dense seller concentration in Southeast Brazil, especially around São Paulo, Rio de Janeiro, and Minas Gerais – strong regions for focused delivery networks and marketing.

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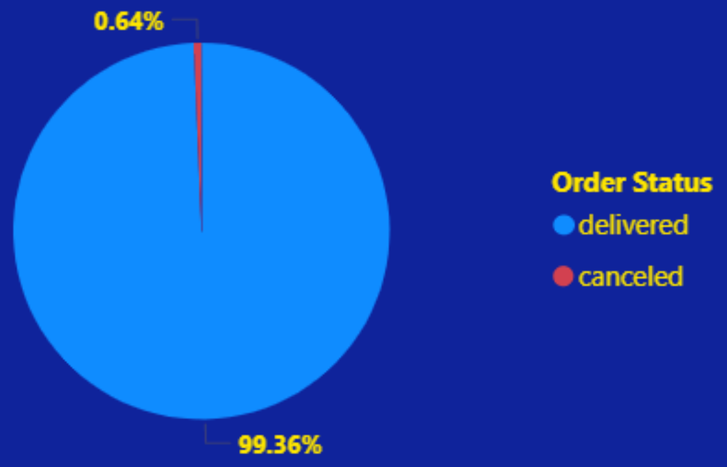
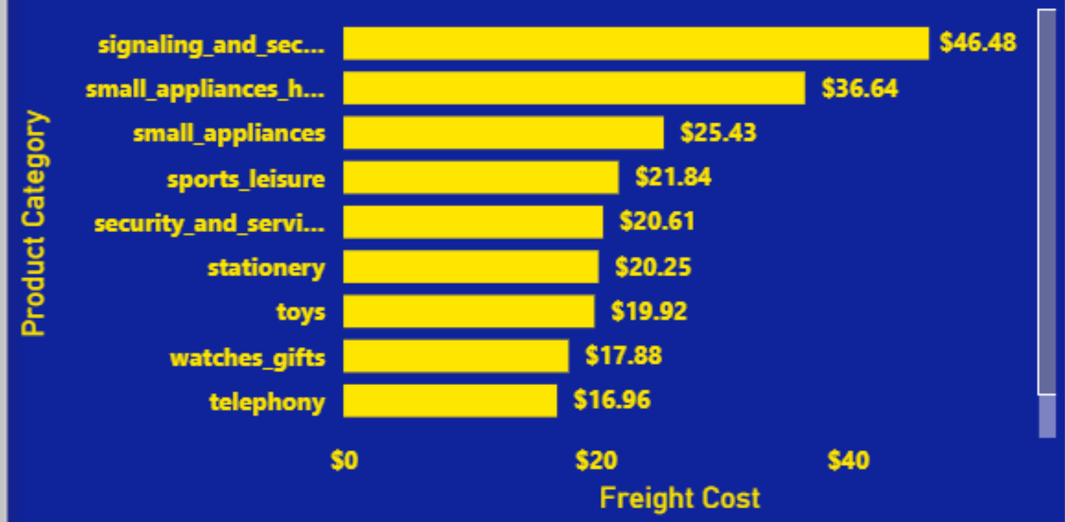
Freight Cost per Order	Avg Delivery Days	Avg Order Value	Average Review
$19.99	12.50	$160.99	4.09

January	July
February	August
March	September
April	October
May	November
June	December

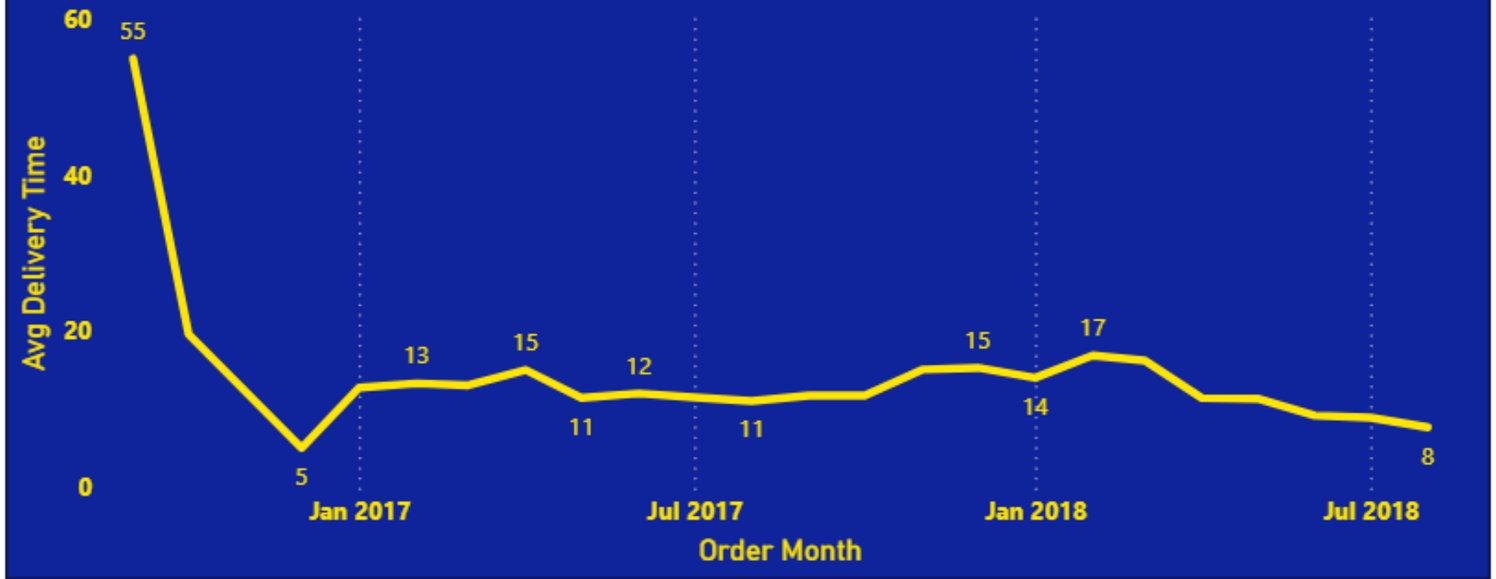
Cancelled vs Completed Orders



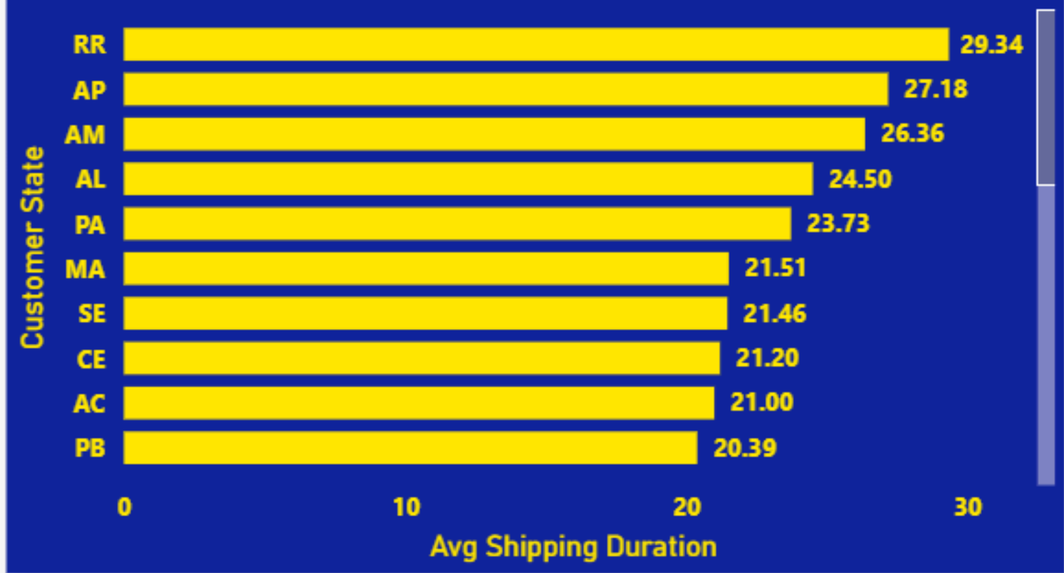
Average Freight Cost per Category



Average Delivery Time



State-wise Avg. Shipping Duration



INSIGHTS:

Operational & Fulfillment Metrics:

- Avg Delivery Time holds steady at 12.5 days, which is consistent and reliable.
- Freight Cost per Order averages $19.99, with notable variation across categories.
- Signaling & security incurs the highest freight at $46.48, while telephony is the lowest at $16.96.
- State-wise Delivery Time shows RR (Roraima) and AP (Amapá) have the longest shipping durations (29.34 & 27.18 days), indicating regional logistical challenges.
- Avg Order Value is strong at $160.99, showing customers are spending well.
- Cancellation Rate is only 0.64%, with 99.36% orders successfully delivered, reflecting excellent operational efficiency.
- Customer Satisfaction is solid with an average review score of 4.09 out of 5.
- Delivery times dropped significantly from 55 days to around 11–13 days, stabilizing over the period—a sign of improved supply chain and fulfillment processes.

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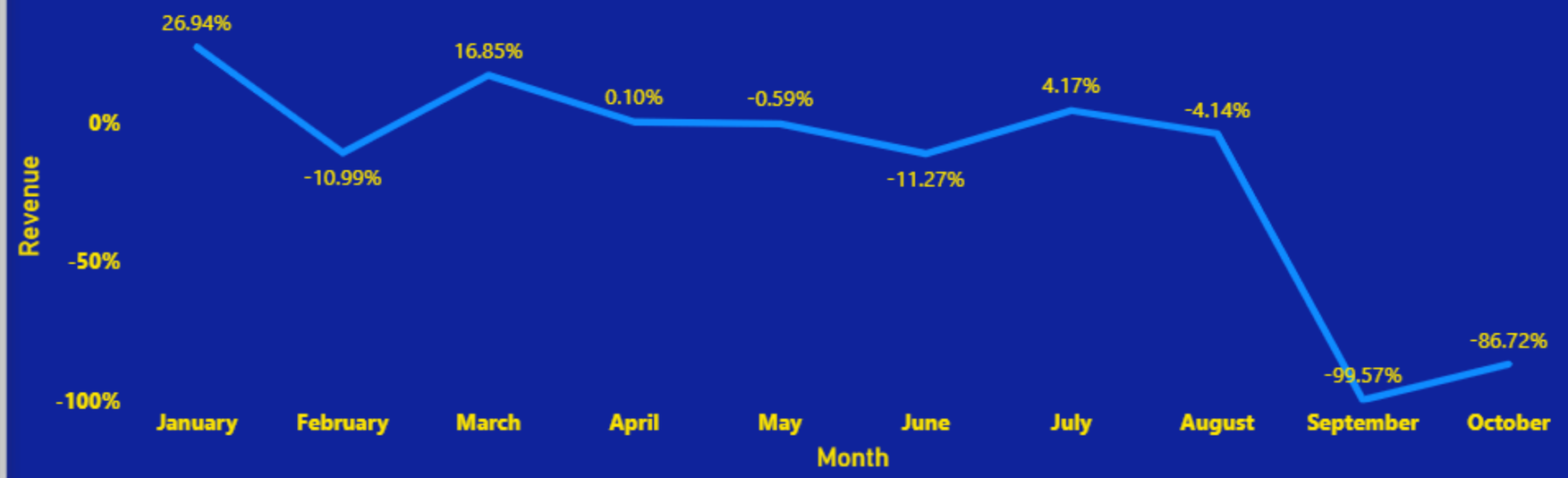
2016 | 2017 | 2018

boleto | credit_card | debit_card | voucher

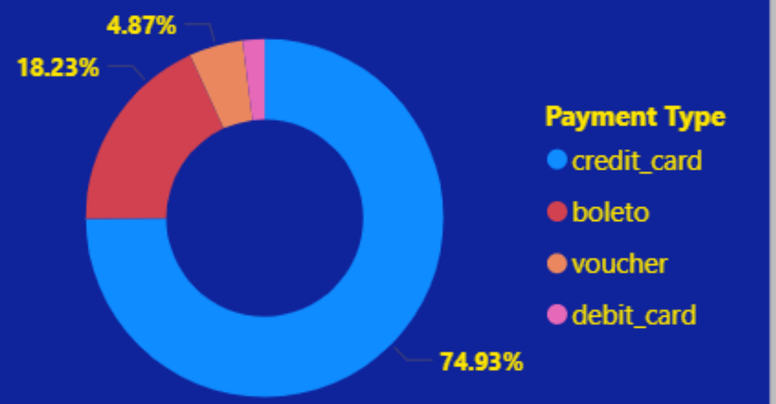
State

AC	CE	MG	PE	RO	SP
AL	DF	MS	PI	RR	TO
AM	ES	MT	PR	RS	
AP	GO	PA	RJ	SC	
BA	MA	PB	RN	SE	

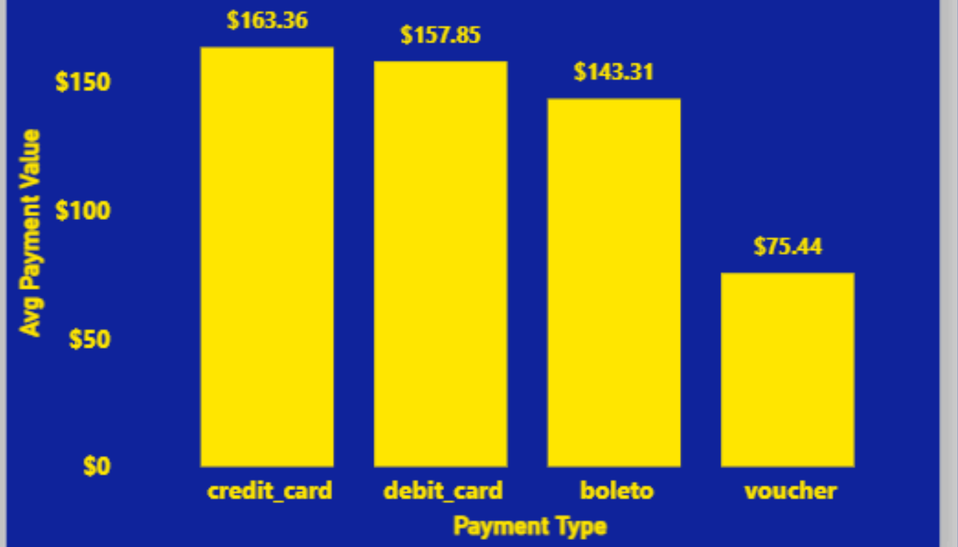
Month-on-Month Change in Transaction Volume



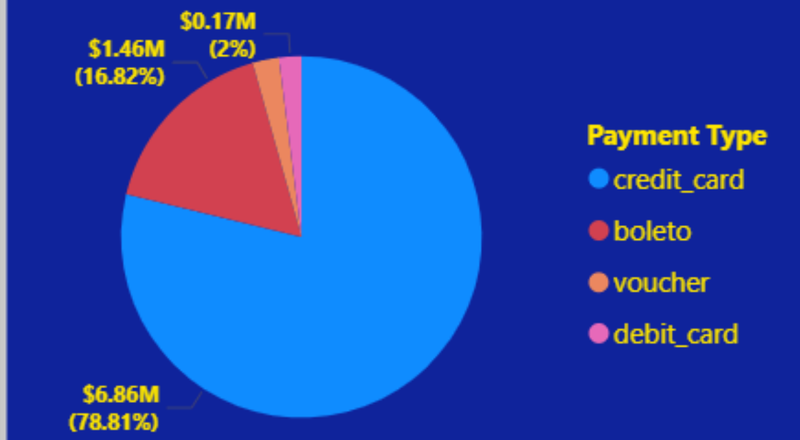
Payment Methods Distribution



Avg. Payment Value per Method



Revenue by Payment Method



INSIGHTS:

Payment & Financial Insights:

- Credit cards dominate with 74.93% of transactions and contribute 78.81% of total revenue ($6.86M) – clearly the most preferred and high-value method.
- Boletos are the second most used (18.23%) with $1.46M revenue, while vouchers and debit cards contribute minimally.
- Avg Payment Value is highest via credit card ($163.36), followed by debit card ($157.85) and boleto ($143.31). Vouchers trail behind at $75.44.
- Strong growth was seen in January (26.94%) and March (16.85%).
- However, September (-99.57%) and October (-86.72%) saw massive drops in transaction volume—possibly due to external market or operational disruptions.
- Credit cards are critical to Mercado Livre's payment ecosystem—both in volume and value.
- Boletos maintain relevance, especially in regions with lower card penetration.
- A steep decline in later months demands investigation into potential causes like system outages, policy changes, or seasonality.

THANK YOU

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