

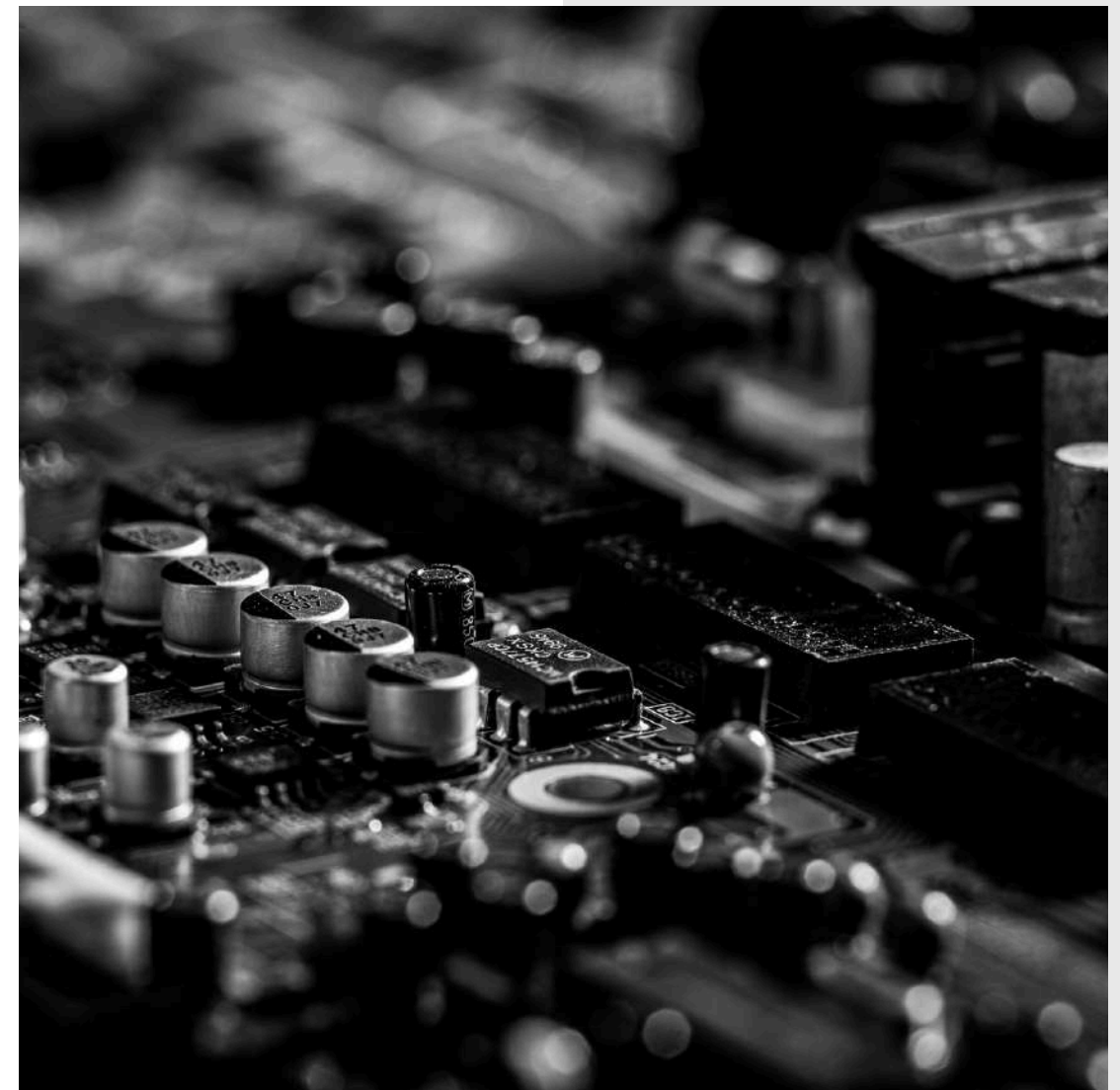
# UNDERSTANDING E-COMMERCE TRENDS:

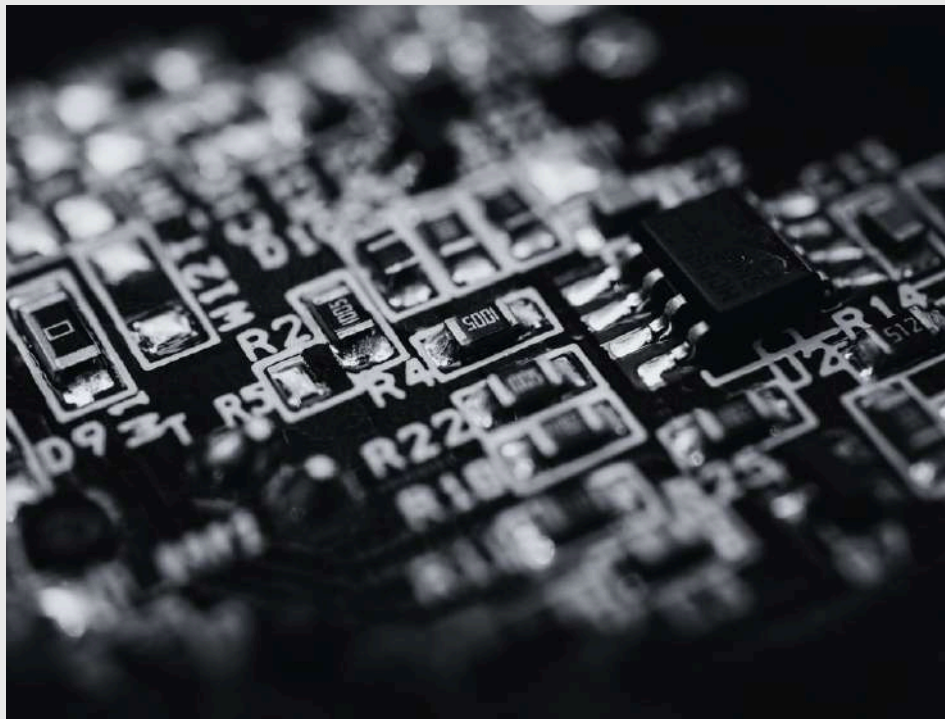
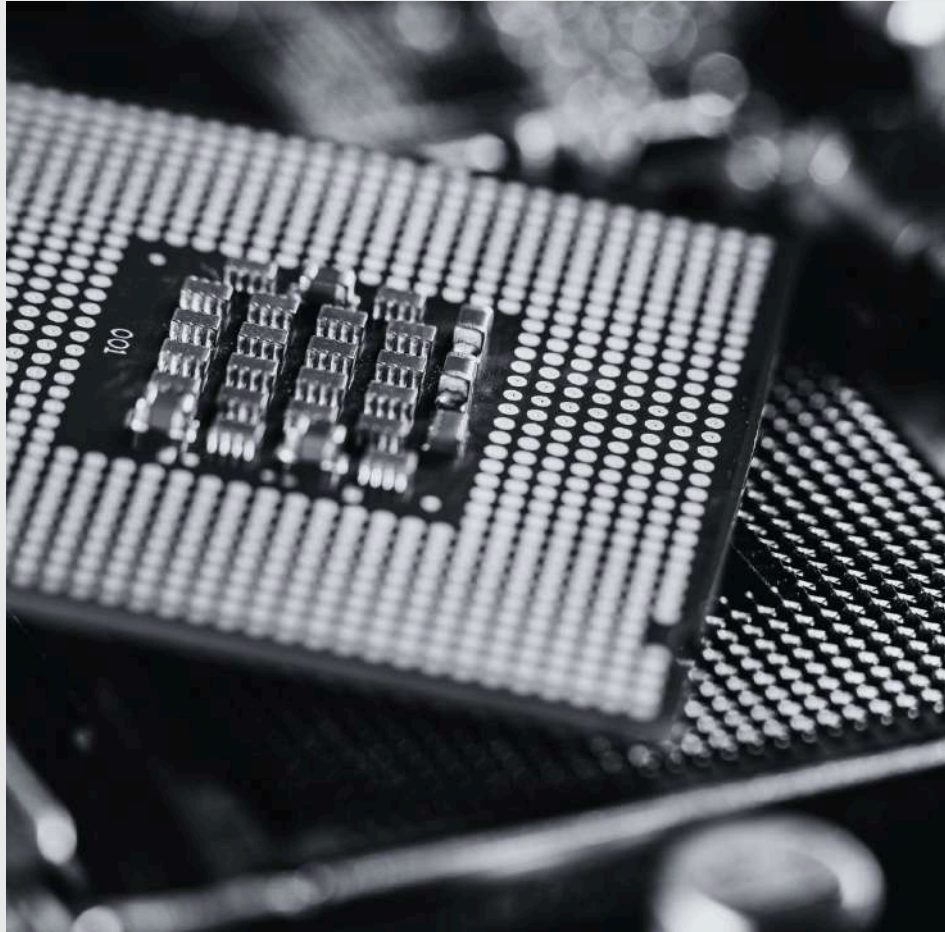
## BRAND, BEHAVIOR, AND CONVERSION

**DATA ANALYST**



**MUHAMMAD UMAR ABDURRAHMAN**  
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# TABLE OF CONTENT

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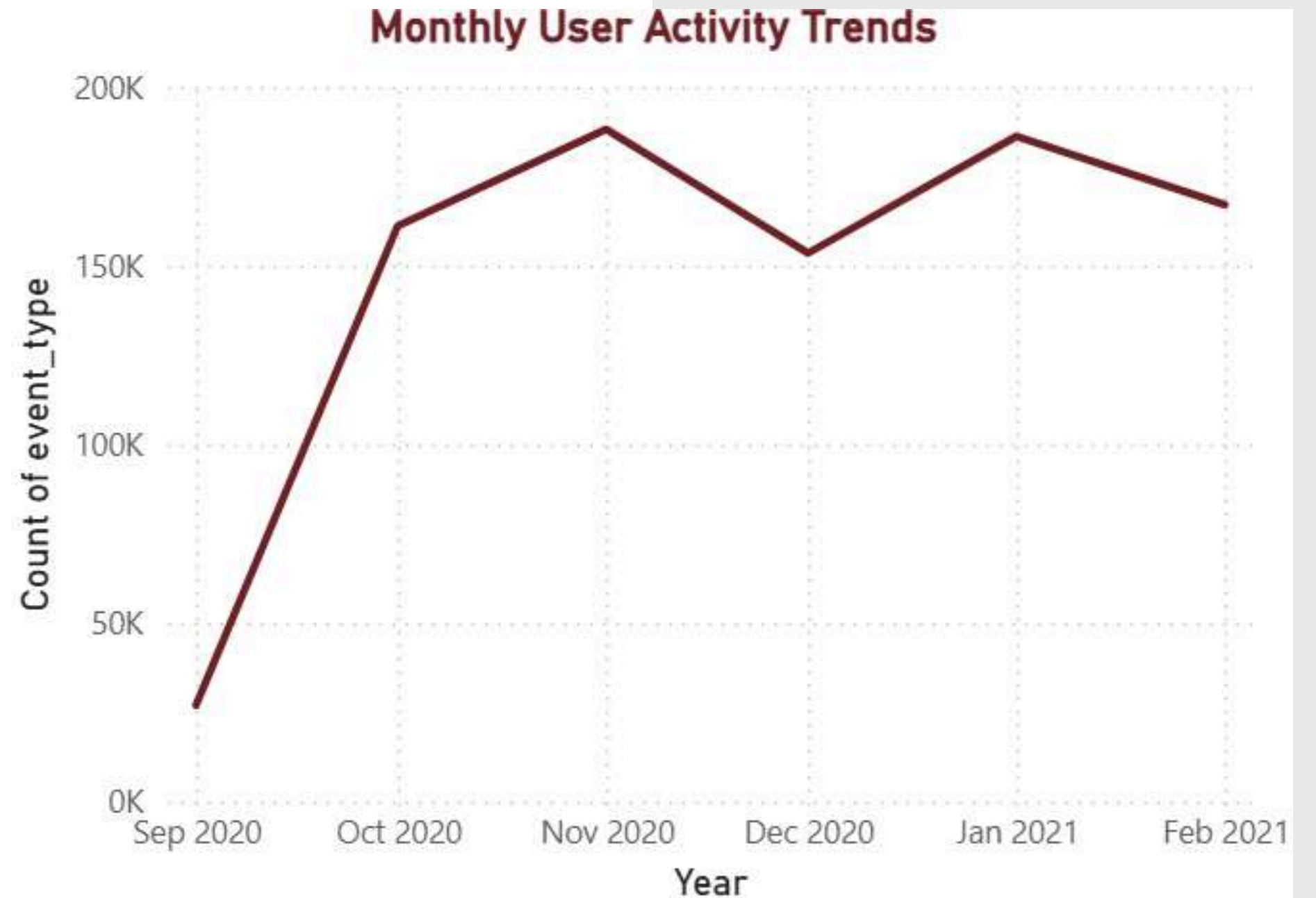


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# DESCRIPTION

The e-commerce industry is growing rapidly, so companies need to understand consumer behavior in depth. User activity data (view, add to cart, purchase) is key to analyzing shopping patterns, promotion effectiveness, and sales trends. This analysis is important for:

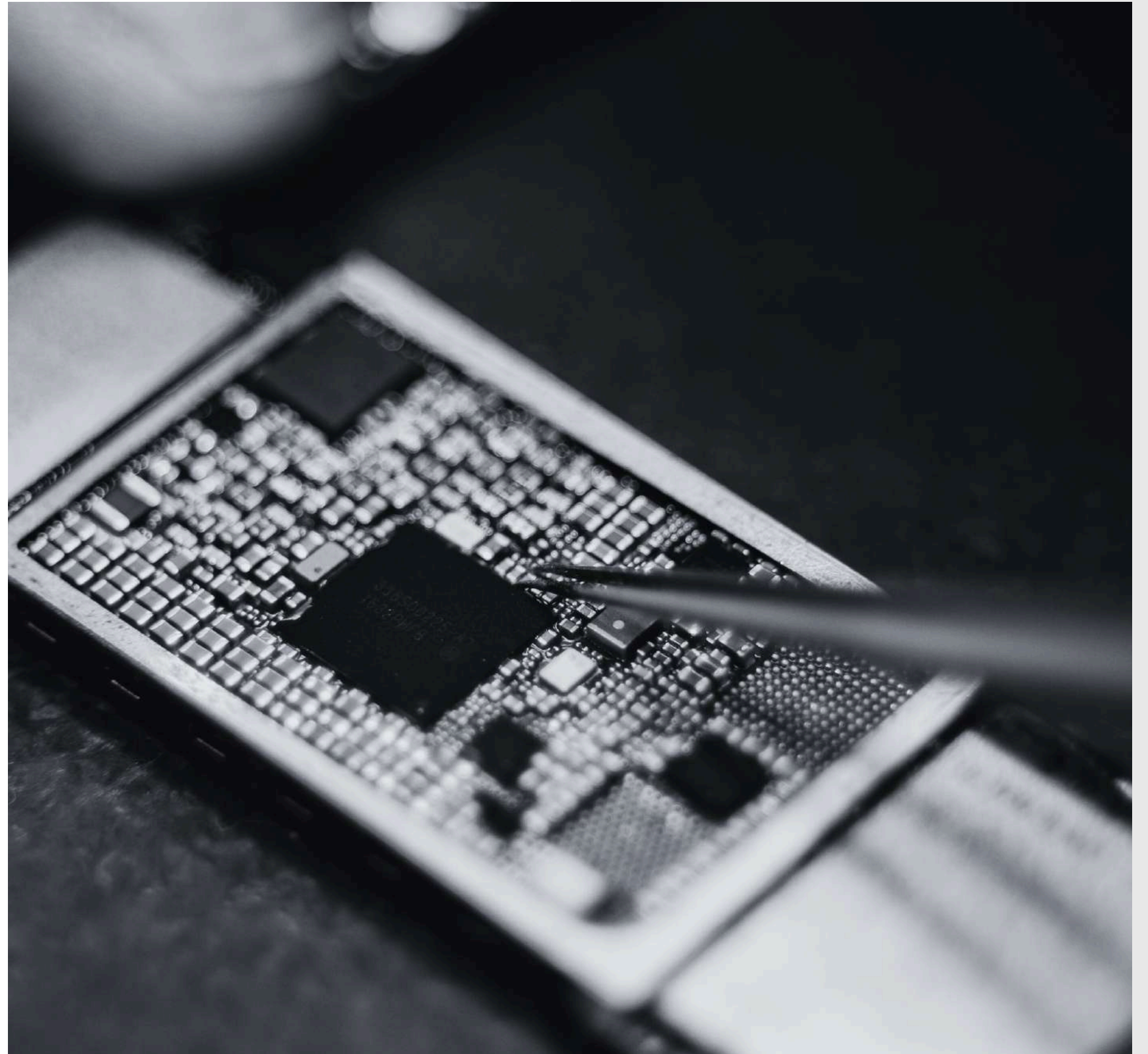
- Identifying consumer trends based on time, product, and category.
- Measuring conversion rates from view → cart → purchase.
- Assessing the contribution of categories/brands to sales.
- Evaluating the effectiveness of pricing and promotional strategies.





# PROBLEM STATEMENT

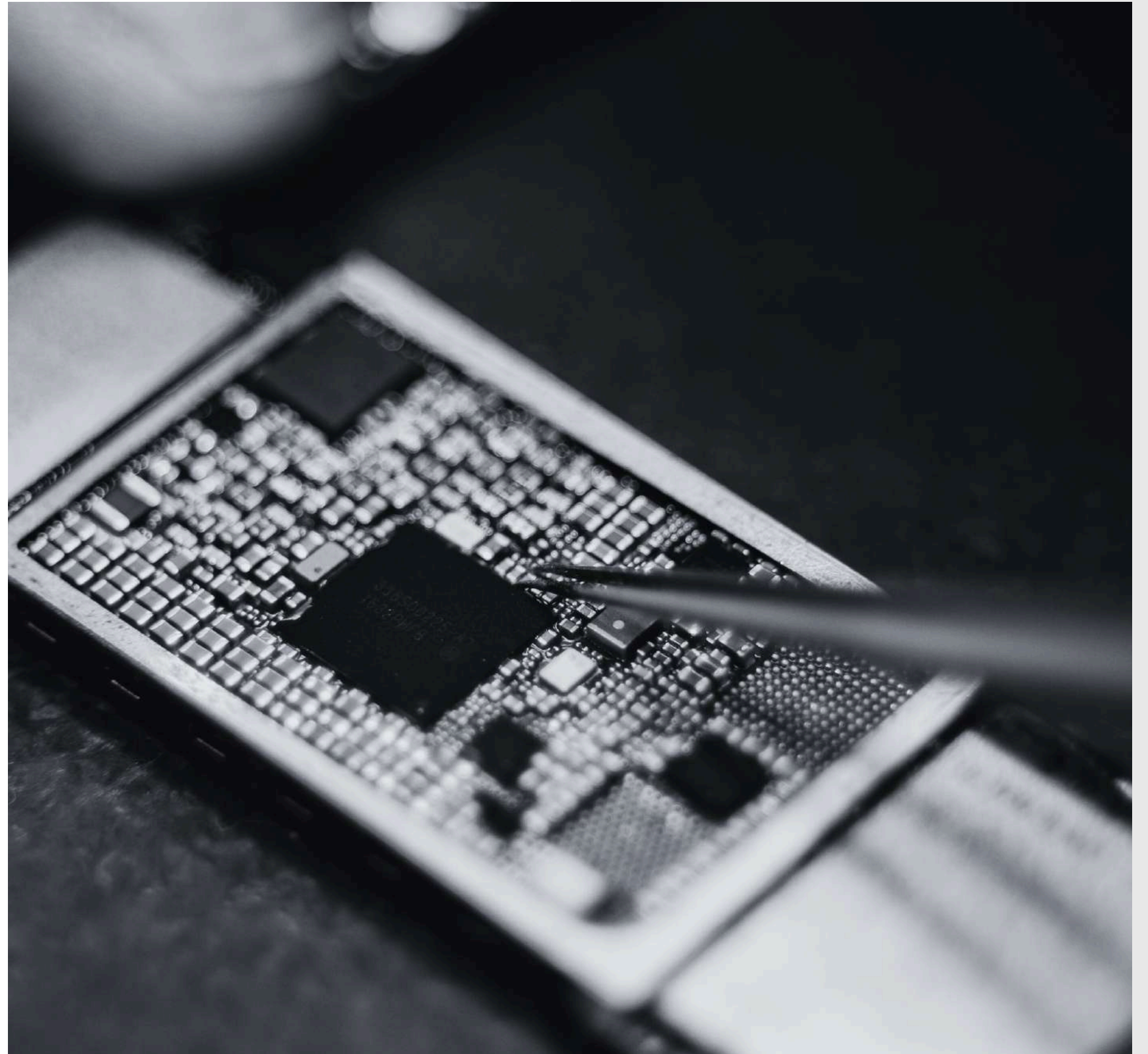
- What are consumer behavior patterns based on events (view, cart, purchase) and seasonal trends?
- Which brands are viewed most often and contribute significantly to profits?
- What are consumer activity trends over time (monthly)?
- What is the conversion rate from view → cart → purchase, and at which stage do the biggest obstacles occur?



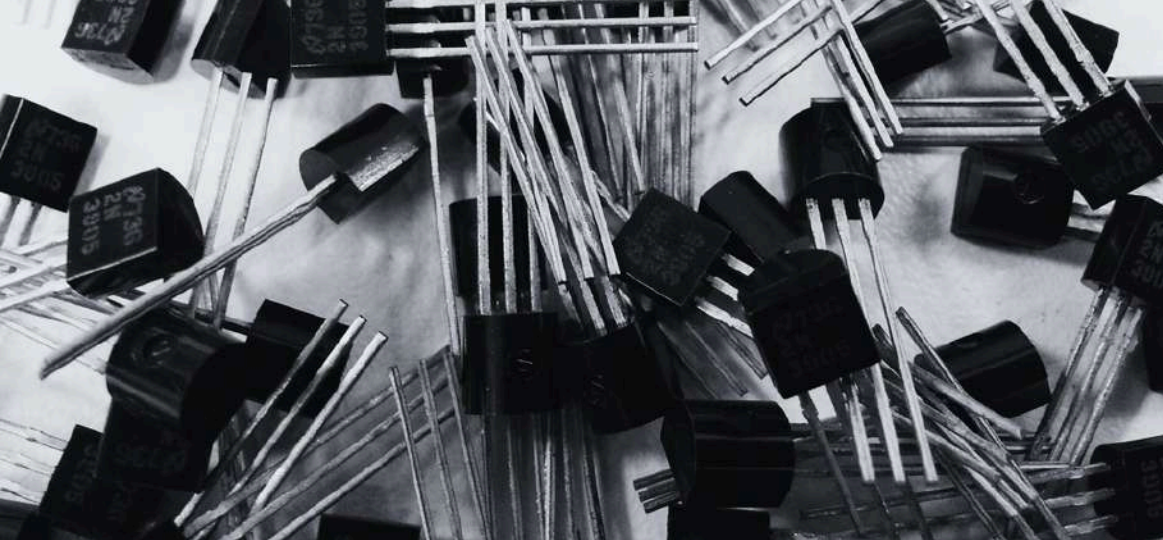


# PROJECT OBJECTIVES

- Understand consumer behavior patterns based on activities (view, cart, purchase).
- Measure conversion rates at each stage of the shopping funnel.
- Identify dominant brands and their contribution to profit.
- Provide strategic recommendations to increase e-commerce conversion & profit.







DATA UNDERSTANDING

# DATA UNDERSTANDING

## ROW & COLUMN

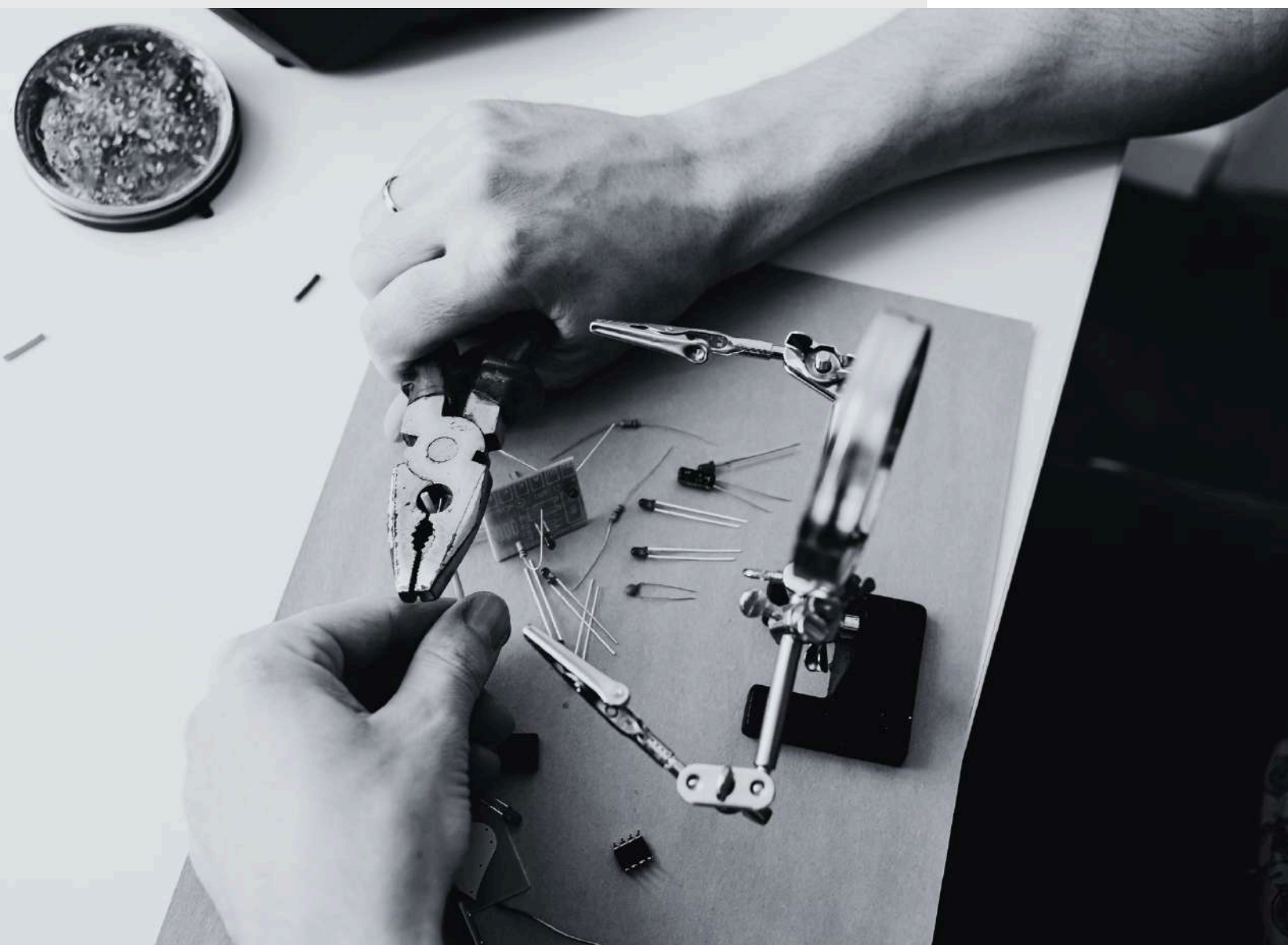
885129 Rows & 9 Column

## FEATURES

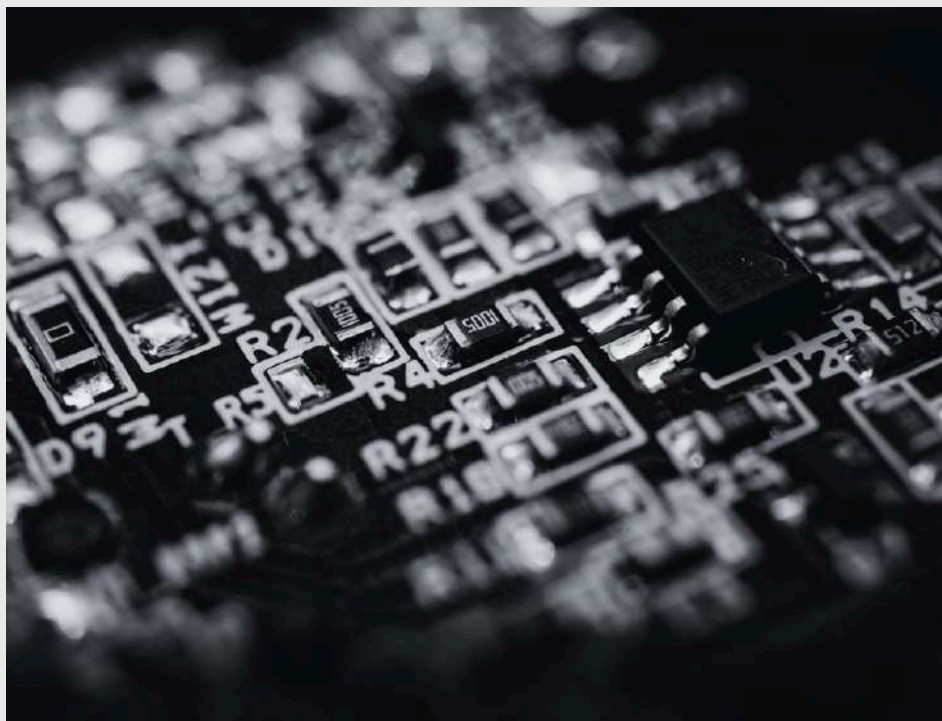
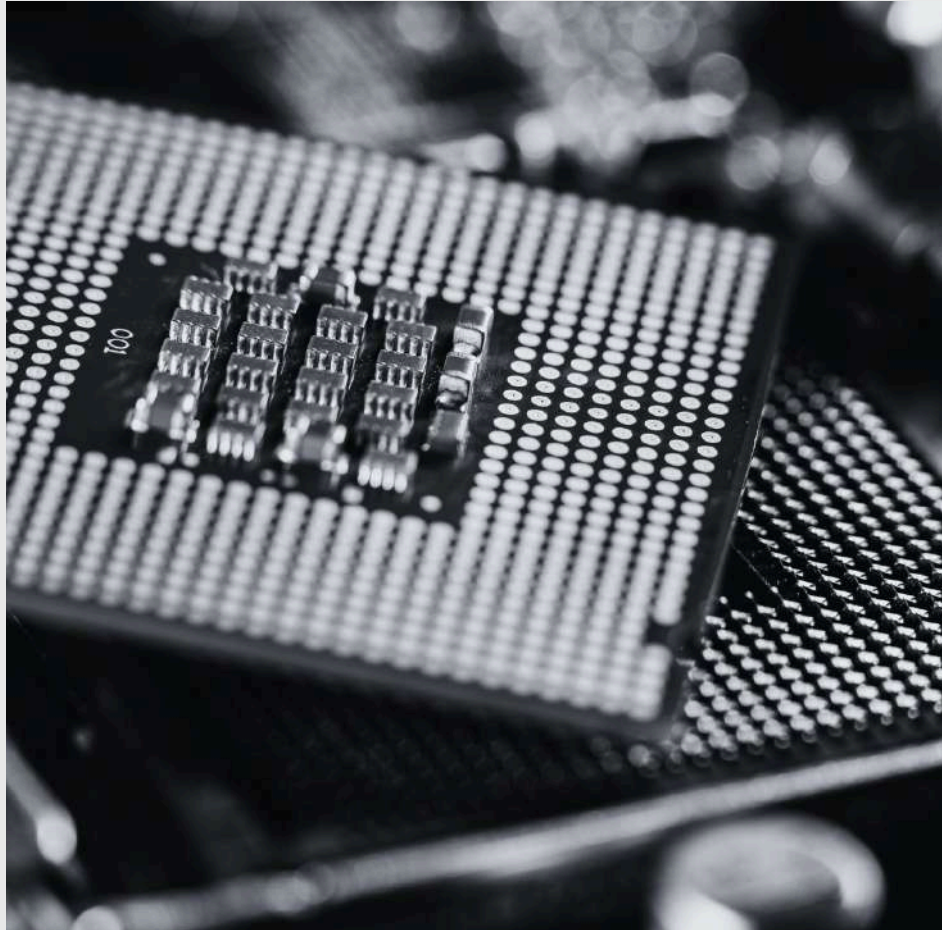
event\_time, event\_type, product\_id, category\_id,, category\_code, brand, price, user\_id, user\_session

## DATASET

E-Commerce Events History in Electronics Store







# DATA PRE-PROCESSING

DATA PRE-PROCESSING

## **HANDLING MISSING VALUES**

Identified minor missing values → dropped to maintain consistency.

## **HANDLING DUPLICATED**

Detected a small number of duplicate records → removed to ensure data integrity.

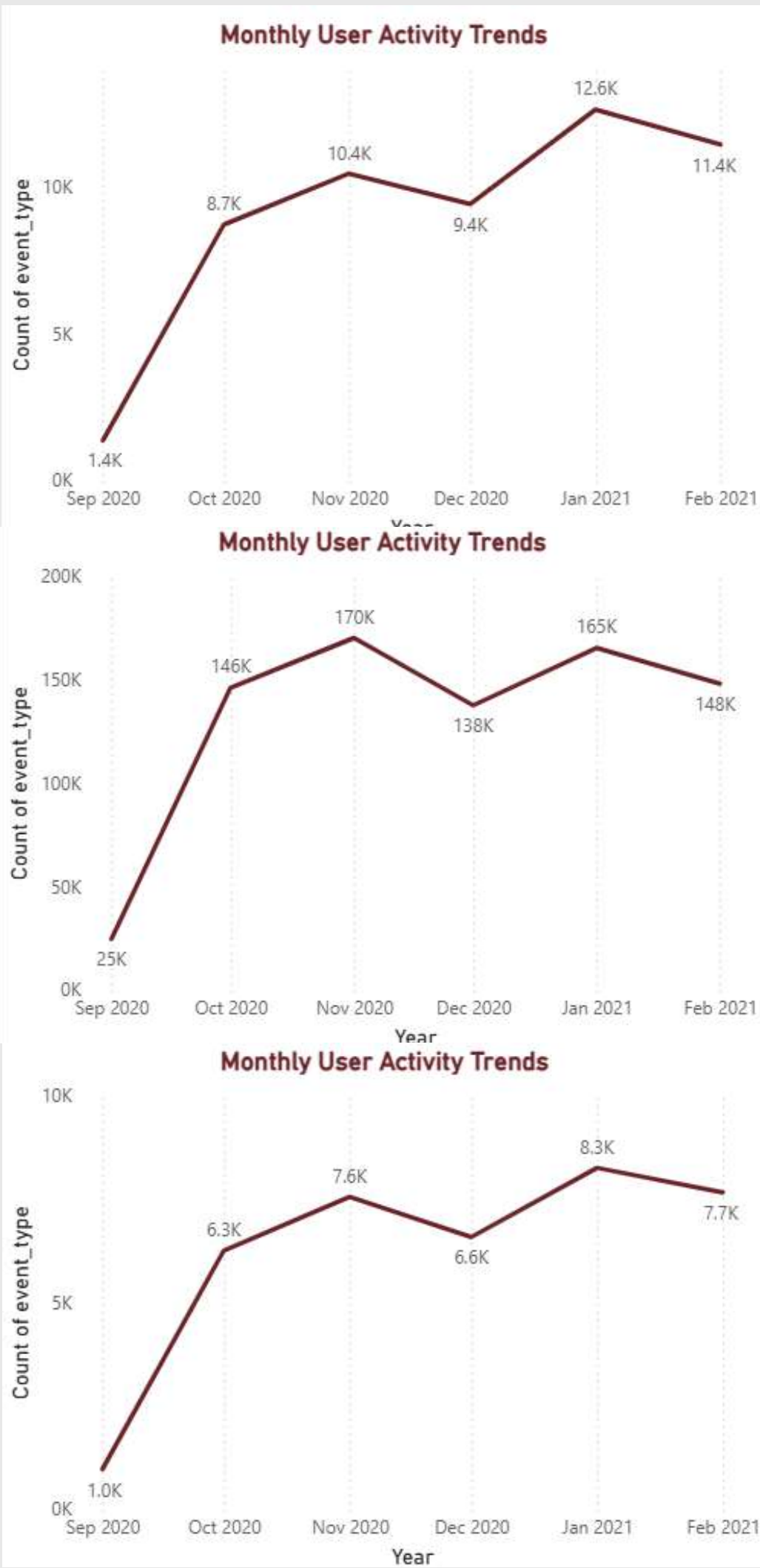
## **DATA MANIPULATING**

Change the format of event\_time from object to datetime



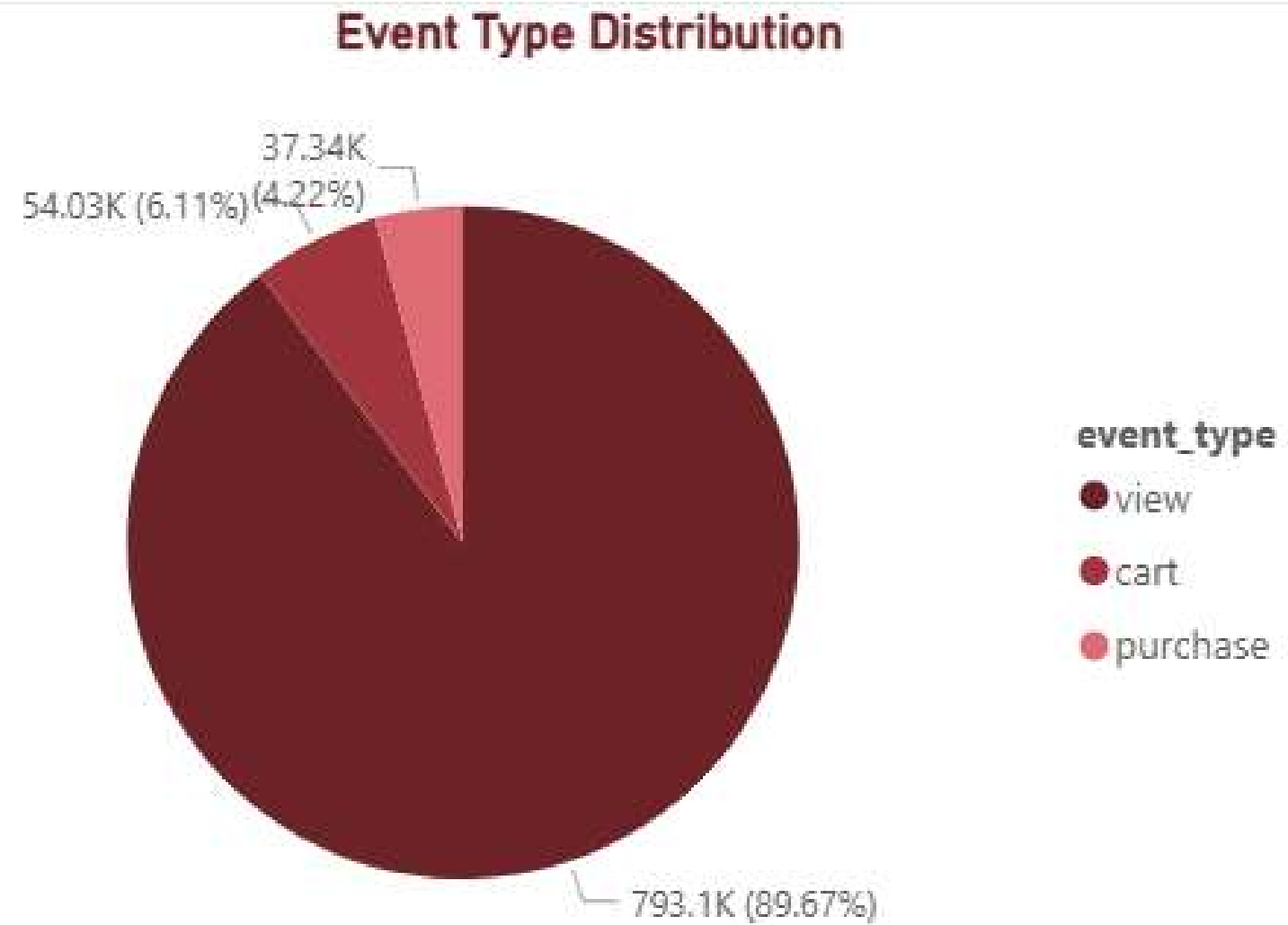
# MONTHLY USER ACTIVITY TRENDS

- User activity (views, carts, purchases) peaked at the end of the year (October–January), likely influenced by the holiday season and end-of-year promotions.
- After the peak, all activity declined in February 2021 → an opportunity to analyze whether this was due to seasonal factors or a decline in user interest.
- The cart-to-purchase ratio appears to be quite healthy, indicating that many users actually proceed to the purchase stage.





# EVENT DISTRIBUTION

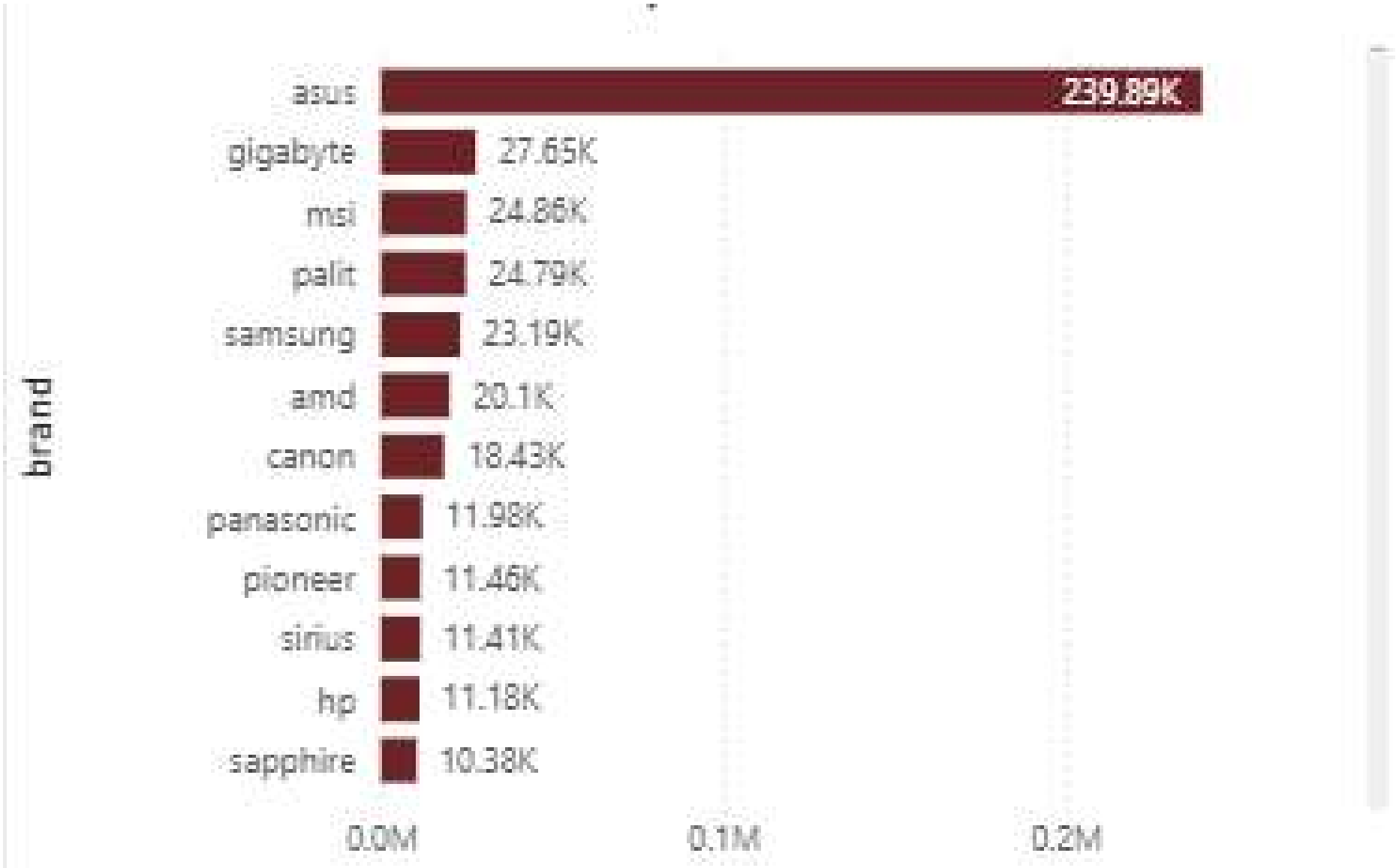


- The majority of user activity is viewing (793.1K / 89.67%), indicating high interest in the product but not necessarily followed by further action.
- Only 6.11% (54.03K) proceed to the cart stage, indicating a barrier in conversion from viewing the product to adding it to the cart.
- The purchase rate is very low (37.34K / 4.22%), indicating a significant gap between interest and actual purchases.
- The cart-to-purchase ratio is relatively low, necessitating further analysis regarding pricing, user experience, or promotions to improve conversion.
- Strategic insight: improvement efforts should focus on the view → cart and cart → purchase stages, for example through funnel optimization, discounts, or personalized product recommendations.



# TOP BRANDS

- **ASUS** has a very high number of activities (239K+ events), far ahead of its competitors (Gigabyte only has 27K).
- **ASUS** has strong brand awareness → often the first choice for users of electronic products.
- **ASUS** products cover a wider range of categories (laptops, PC components, accessories), so they appear more often in view events.
- **ASUS** also occupies a dominant position in terms of profit (83M), demonstrating consistency between interest and purchases.

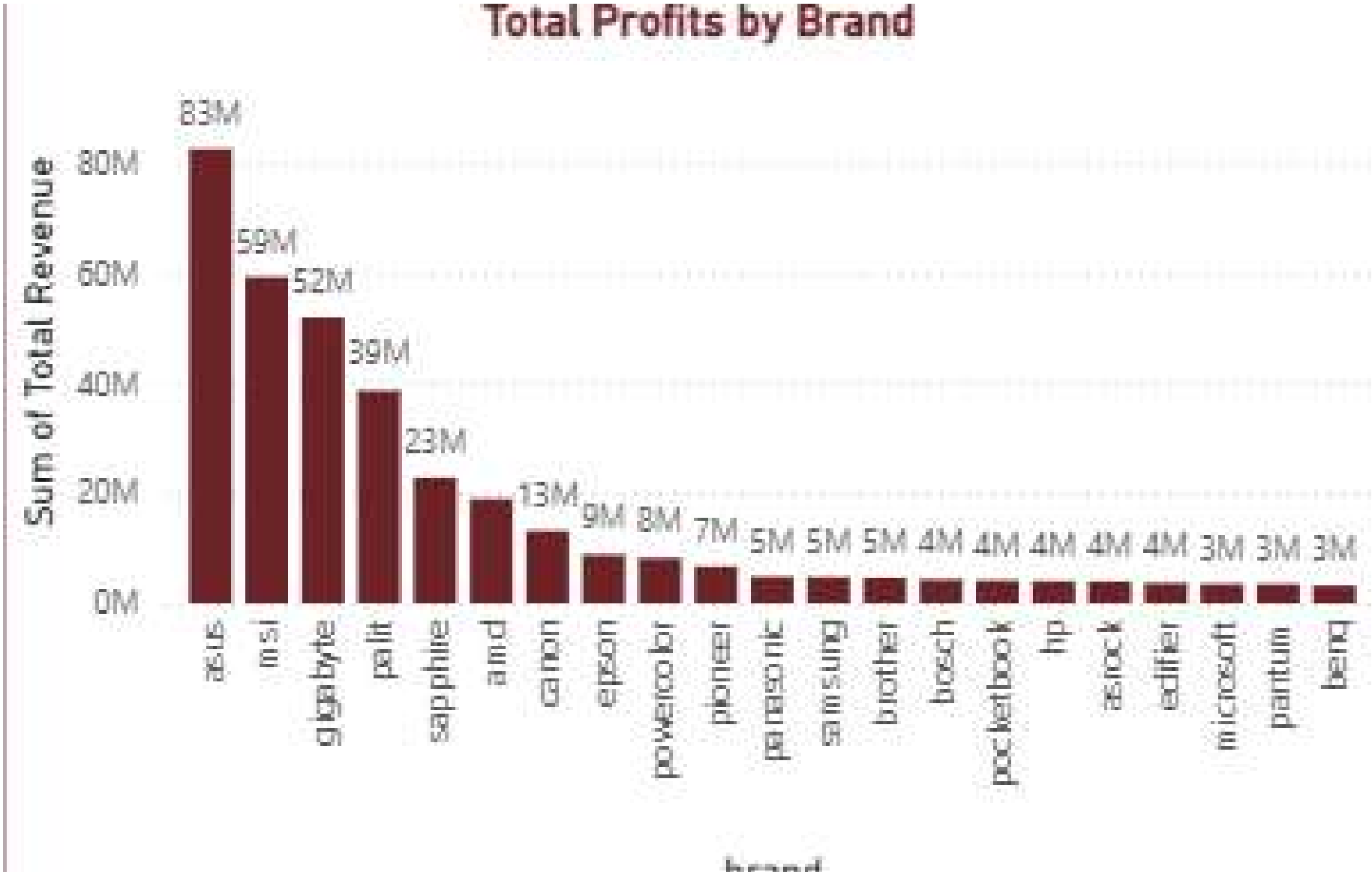






# TOP BRANDS BY PROFITS

- **ASUS, MSI, and Gigabyte dominate the market with the largest profit contributions (totaling more than 190 million).**
- **There is a significant gap with other brands, most of which contribute less than 40 million.**
- **Most small brands generate less than 10 million in profit, indicating an uneven market distribution.**
- **Focusing strategy on the top 3–5 brands will have the greatest impact on the company's total profit.**



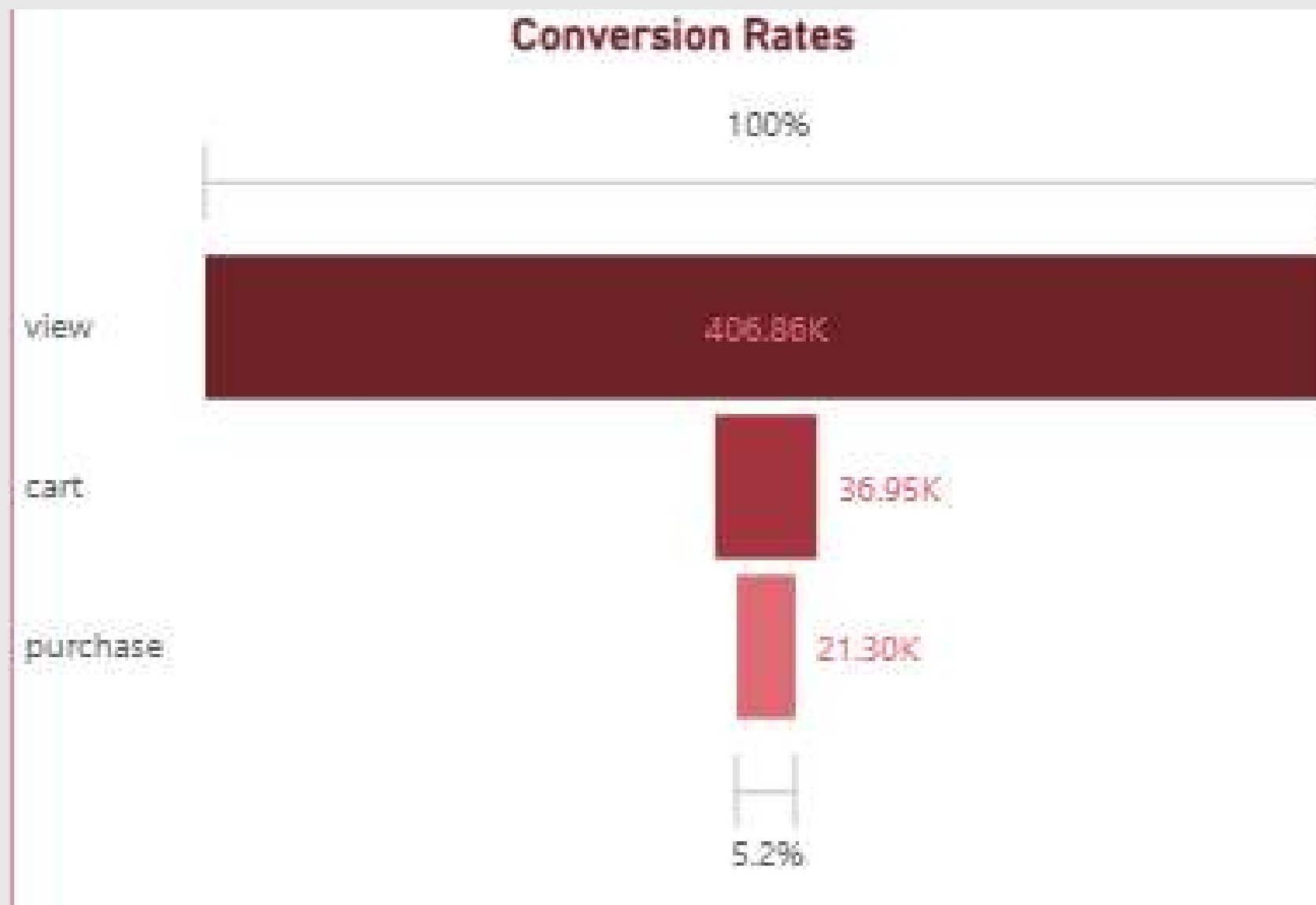
# CONVERSION RATES



EXPLORATORY DATA ANALYTICS

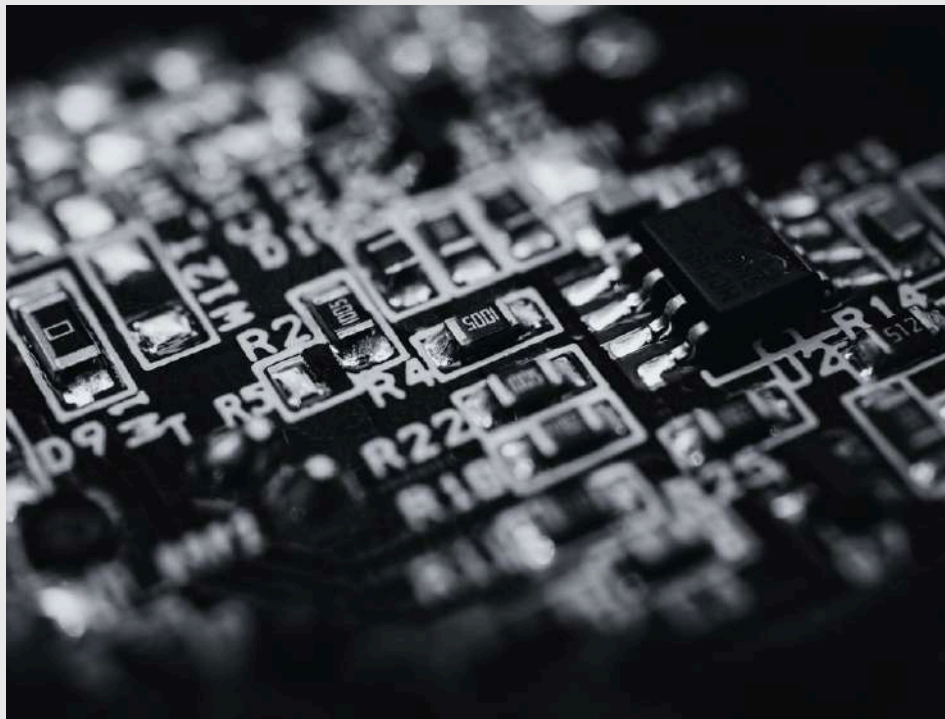
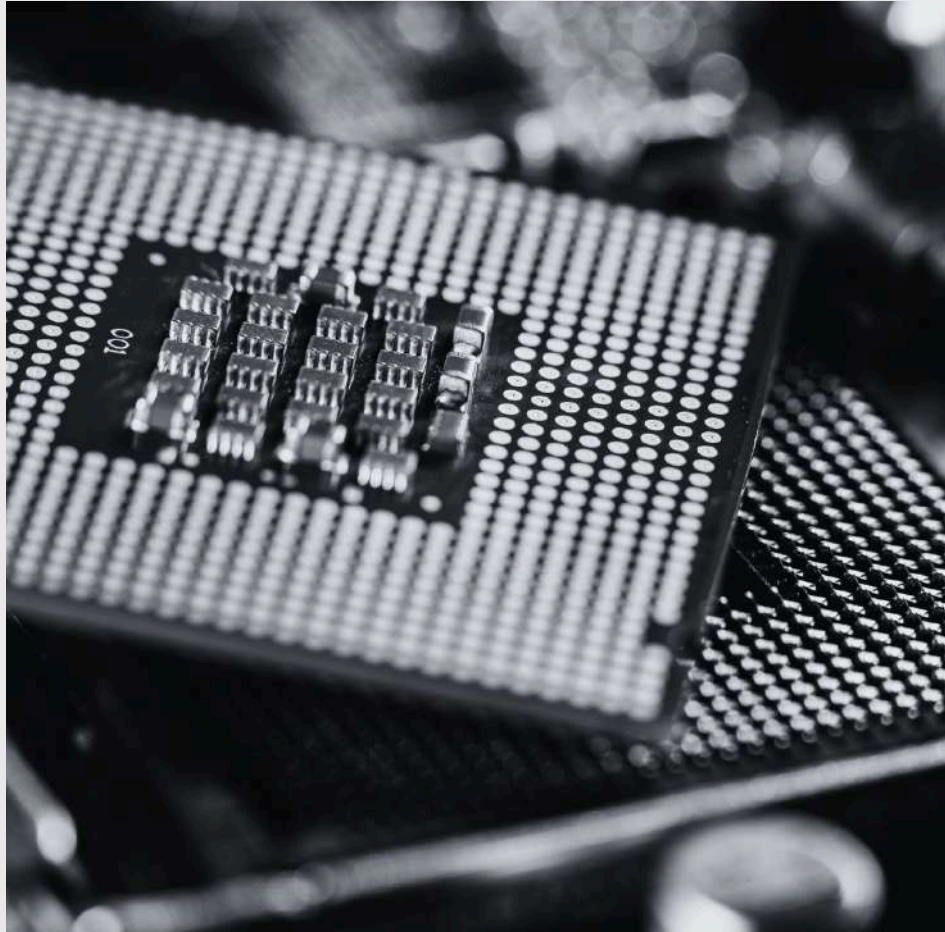
## CONVERSION RATES

- Conversion Step 1: View → Cart
  - Conversion rate: 9.08%
  - This means that only about 1 in 11 users who view a product actually add it to their cart.
  - This indicates that despite high awareness, many users are not interested enough to proceed to the next stage.
- Conversion Step 2: Cart → Purchase
  - The conversion rate is relatively high (21.3K out of 36.9K ≈ 57.6%).
  - This shows that more than half of the users who add products to their cart actually make a purchase.
  - This is an indication of strong purchase intent once users have reached the cart stage.
- Overall Conversion (View → Purchase)
  - Conversion rate: 5.24%
  - Of all users who viewed the product, only about 1 in 20 ended up making a purchase.
  - This rate is still quite reasonable in e-commerce, but there is room for improvement.



```
=== Conversion Funnel ===
Total Unique Users (View): 406863
Total Unique Users (Cart): 36952
Total Unique Users (Purchase): 21304
Conversion Rate View → Cart: 9.08%
Conversion Rate View → Purchase: 5.24%
```





# BUSINESS RECOMMENDATIONS

BUSINESS  
RECOMMENDATIONS

↗

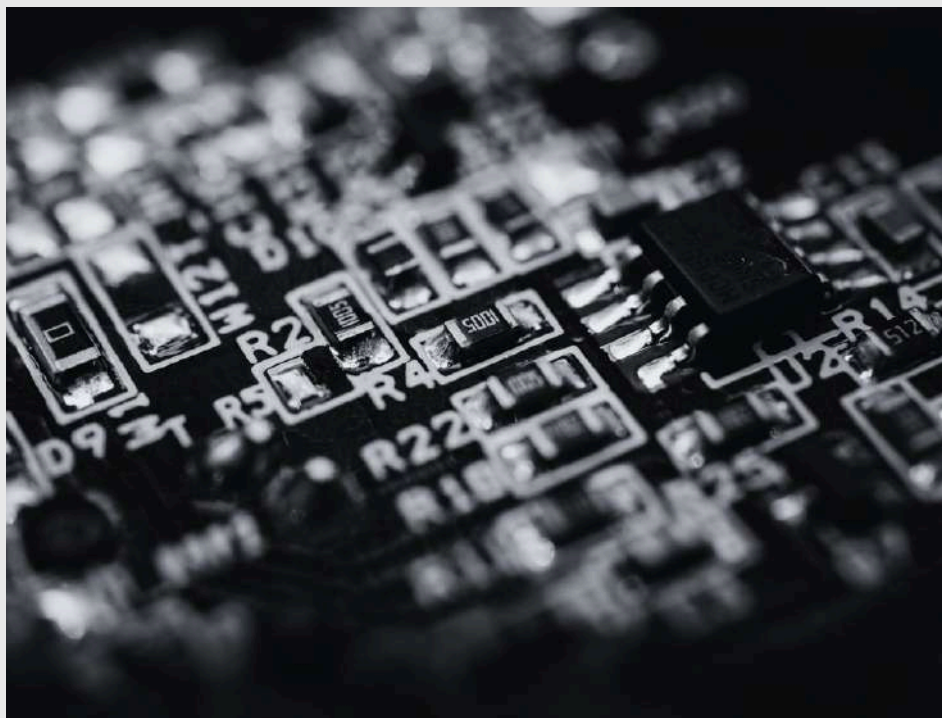
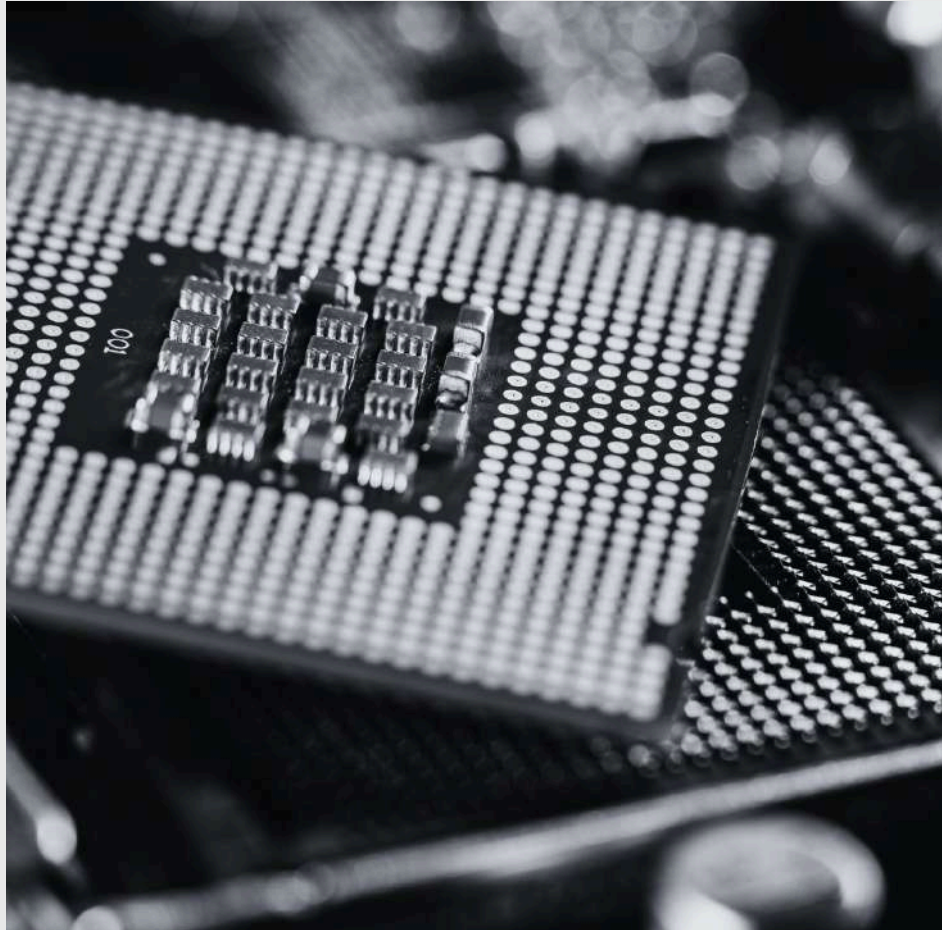
## CONVERSION FUNNEL OPTIMIZATION

- Increase conversions from view → cart through personalized product recommendations, bundling, and more competitive pricing strategies.
- Reduce barriers at the cart → purchase stage by providing flexible payment methods, limited promotions (flash sales, free shipping), and reminders (push notifications/emails).

## SEASONAL & PROMOTIONAL STRATEGIES

- Take advantage of the holiday season momentum (Oct–Jan) with major campaigns, as user activity peaks during this period.
- Create loyalty programs or follow-up promotions to maintain user interest so that it does not drop dramatically after the peak season.





# BUSINESS RECOMMENDATIONS

BUSINESS  
RECOMMENDATIONS



## FOCUS ON DOMINANT BRANDS

- Prioritize cooperation/partnerships with ASUS, MSI, and Gigabyte, which contribute the most profit.
- Explore the potential for increasing awareness of mid-tier brands (Palit, Sapphire, AMD) so as not to be too dependent on the three main brands.

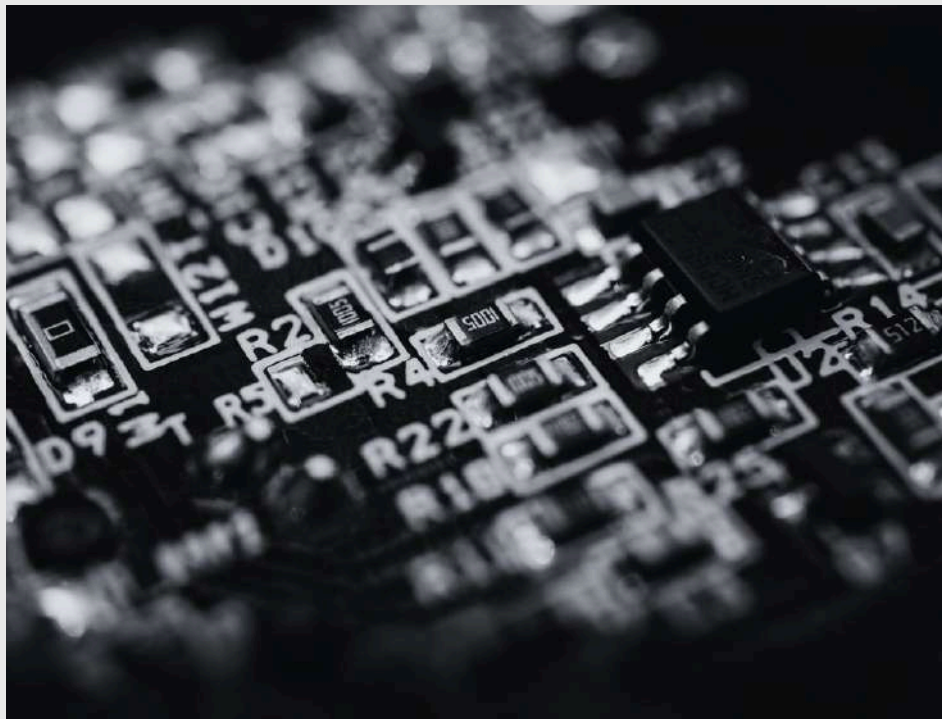
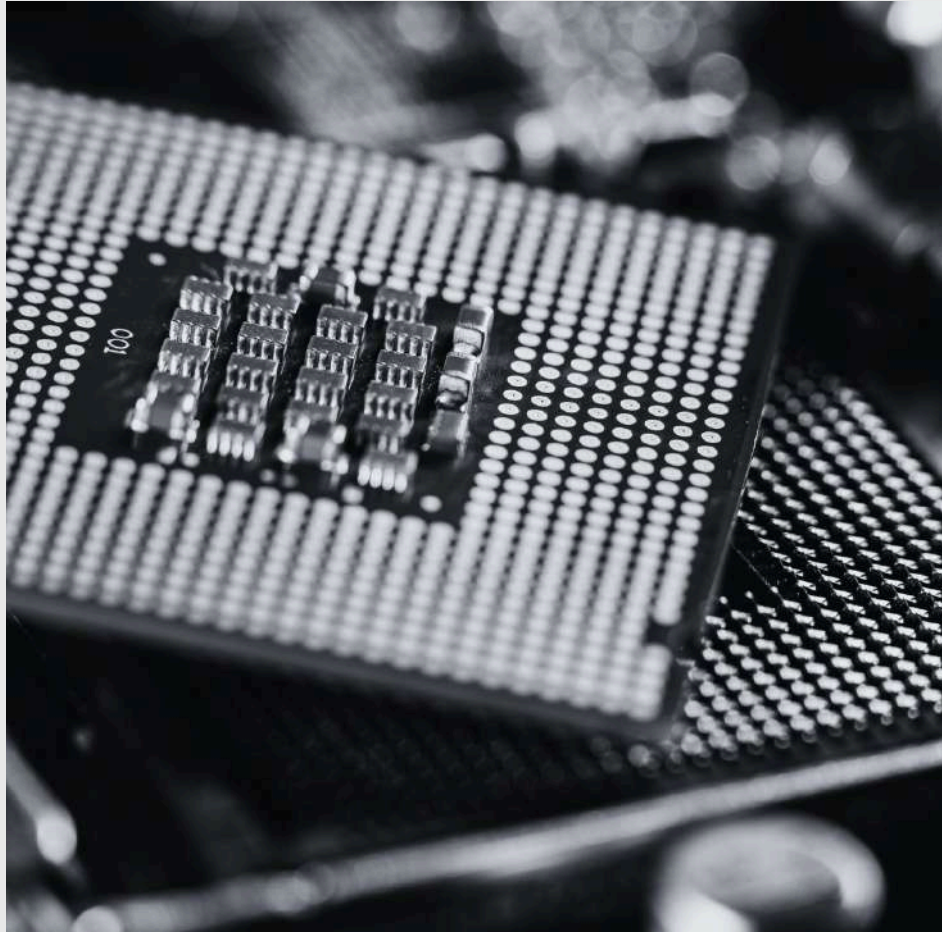
## IMPROVE UX & CUSTOMER JOURNEY

- Evaluate the user experience at the cart stage (e.g., additional costs, lengthy checkout flow).
- Provide a save cart/wishlist feature to reduce drop-offs before purchase.

## MONITORING & SEGMENTATION

- Conduct more detailed analysis on user segments (e.g., frequent buyers vs. one-time visitors) to create retention strategies.
- Consistently monitor monthly trends to quickly anticipate declines in activity outside of peak seasons.





# CONCLUSION OF PROJECT

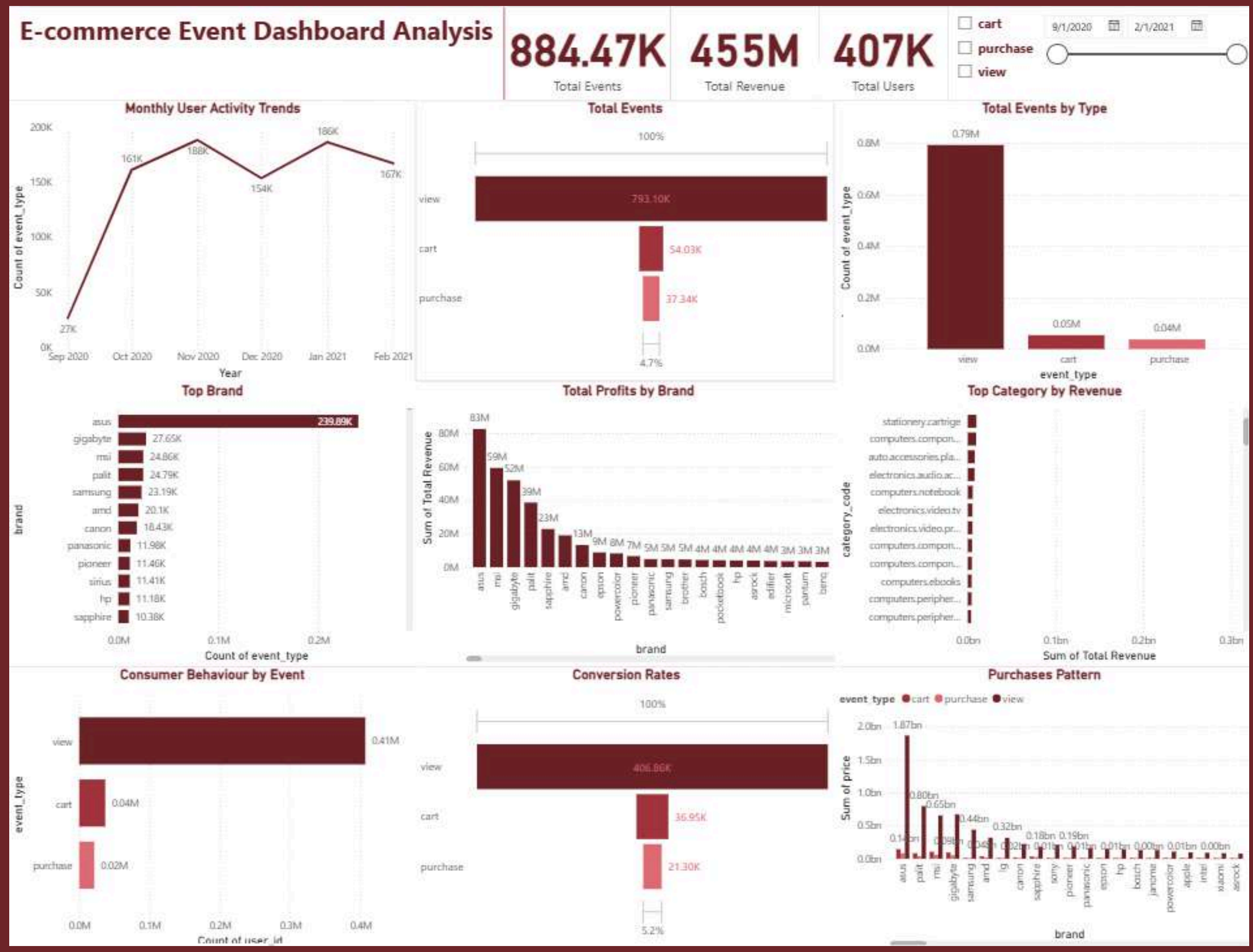
CONCLUSION OF PROJECT



## CONCLUSION

- User activity is dominated by views (90%), but conversion is low (overall 5.2%).
- ASUS, MSI, and Gigabyte contribute the most profit → focusing on dominant brands has a significant impact.
- Peak activity occurs in October–January (holiday season) → seasonal strategies are very important.
- The biggest obstacle is at the View → Cart stage → a strategy is needed to increase purchase interest from the start.
- These insights can serve as a basis for decision-making regarding funnel optimization, brand strategy, and seasonal promotions.

# DECK POWERBI



#### Monthly User Activity Trends

Year	Count of event_type
Sep 2020	27K
Oct 2020	161K
Nov 2020	188K
Dec 2020	154K
Jan 2021	186K
Feb 2021	167K

#### Total Events

event_type	Count
view	793.10K
cart	54.03K
purchase	37.34K

#### Total Events by Type

event_type	Count
view	0.79M
cart	0.05M
purchase	0.04M

#### Top Brand

brand	Count of event_type
asus	239.89K
gigabyte	27.65K
msi	24.86K
palit	24.79K
samsung	23.19K
amd	20.1K
canon	18.43K
panasonic	11.98K
pioneer	11.46K
sinus	11.41K
hp	11.18K
sapphire	10.38K

#### Total Profits by Brand

brand	Sum of Total Revenue
asus	83M
msi	59M
gigabyte	52M
palit	39M
sapphire	23M
amd	13M
canon	9M
epson	8M
powercolor	7M
pioneer	5M
panasonic	5M
samsung	5M
brother	4M
booth	4M
pocketbook	4M
hp	4M
asrock	4M
edifier	4M
microsoft	3M
panum	3M
benq	3M

#### Top Category by Revenue

category_code	Sum of Total Revenue
stationery.cartridge	0.3bn
computers.compon...	0.2bn
auto.accessories.pla...	0.1bn
electronics.audio.ac...	0.05bn
computers.notebook	0.05bn
electronics.video.tv	0.05bn
electronics.video.pr...	0.05bn
computers.compon...	0.05bn
computers.compon...	0.05bn
computers.ebooks	0.05bn
computers.peripher...	0.05bn
computers.peripher...	0.05bn

#### Consumer Behaviour by Event

event_type	Count of user_id
view	0.41M
cart	0.04M
purchase	0.02M

#### Conversion Rates

event_type	Count
view	406.88K
cart	36.95K
purchase	21.30K

#### Purchases Pattern

brand	Sum of price
asus	1.87bn
palit	0.80bn
msi	0.65bn
gigabyte	0.44bn
samsung	0.32bn
amd	0.32bn
lg	0.32bn
sapphire	0.18bn
sony	0.18bn
pioneer	0.18bn
panasonic	0.18bn
epson	0.18bn
hp	0.18bn
booth	0.18bn
janome	0.18bn
powercolor	0.18bn
apple	0.18bn
inter	0.18bn
xiaomi	0.18bn
asrock	0.18bn







DATA ANALYST



# THANK YOU



[Github](#)



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