



2025 | RIZKY HABIBIE

E-commerce Customer Behaviour Data Analysis

I N T R O

E-Commerce Customer Behaviour

A Dataset from Kaggle. This dataset contains detailed information about customer interactions on an e-commerce platform, making it ideal for building propensity models, session-based analytics, and consumer behavior analysis.

Goal

Understanding the customer behaviour to enhance the marketing strategy in the future.

M E T H O D O L O G Y

1

Kaggle

E-Commerce Customer Behaviour
data downloaded from Kaggle

2

Data Understanding

Understanding the current data

3

Data Cleaning

Cleaning the data by separating the
data from missing value

4

Data Transformation

Transforming the data to provide a
easy access for PBI

5

EDA

Investigate more the pattern of the
data

6

Visualization by Power BI

Visualize the data, reporting and
recommending the business

Understand the Data

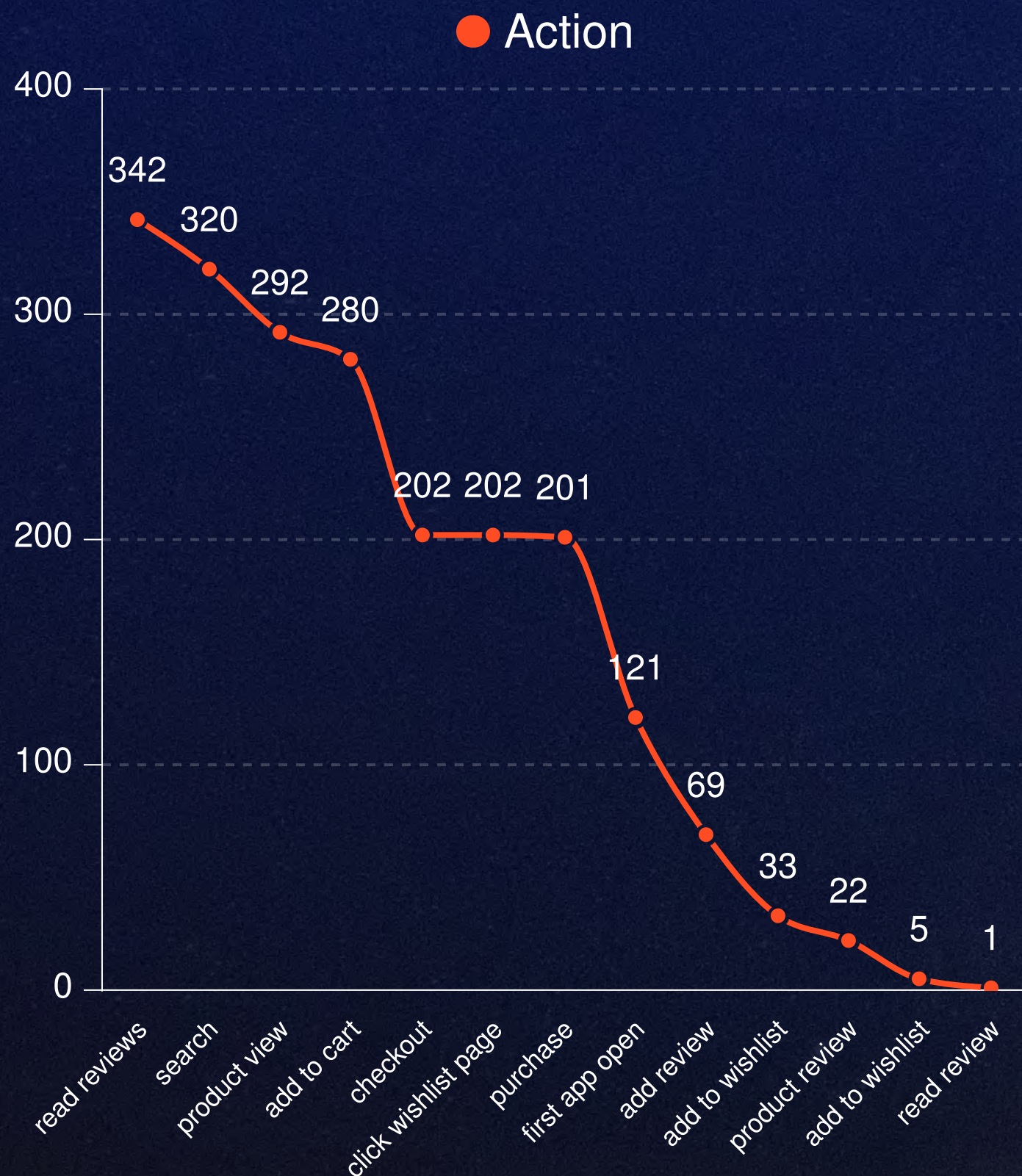
**Customer Behaviour &
Engagement**

Purchase Dynamics & Demand

SECTION 01

Understand the data a bit further...

Because it's a bit unique, I swear...



The Data

Consist with 9 columns :

User_id, Session_id, DateTime, Category, SubCategory, Action, Quantity, Rate, and Total Price.

- Rows: **2,090** • Columns: **9** • Unique users: **401**
- Time ends on: **2019-12-22**
- Missing cells: ~**90%**
- Three value columns are often missing: **Quantity, Rate, Total Price**

So, yes. The missing value is so big. >90%

What will u see next

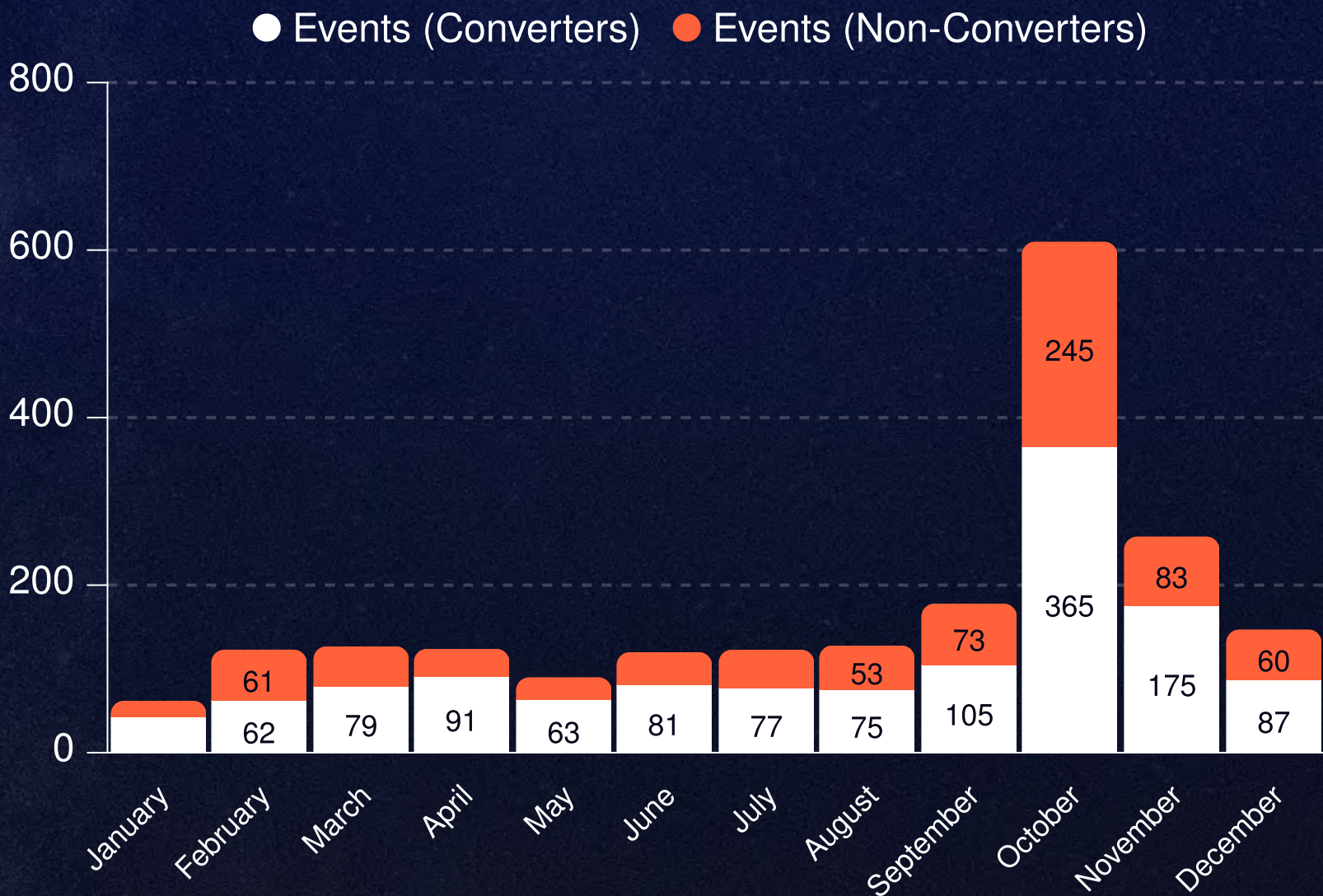
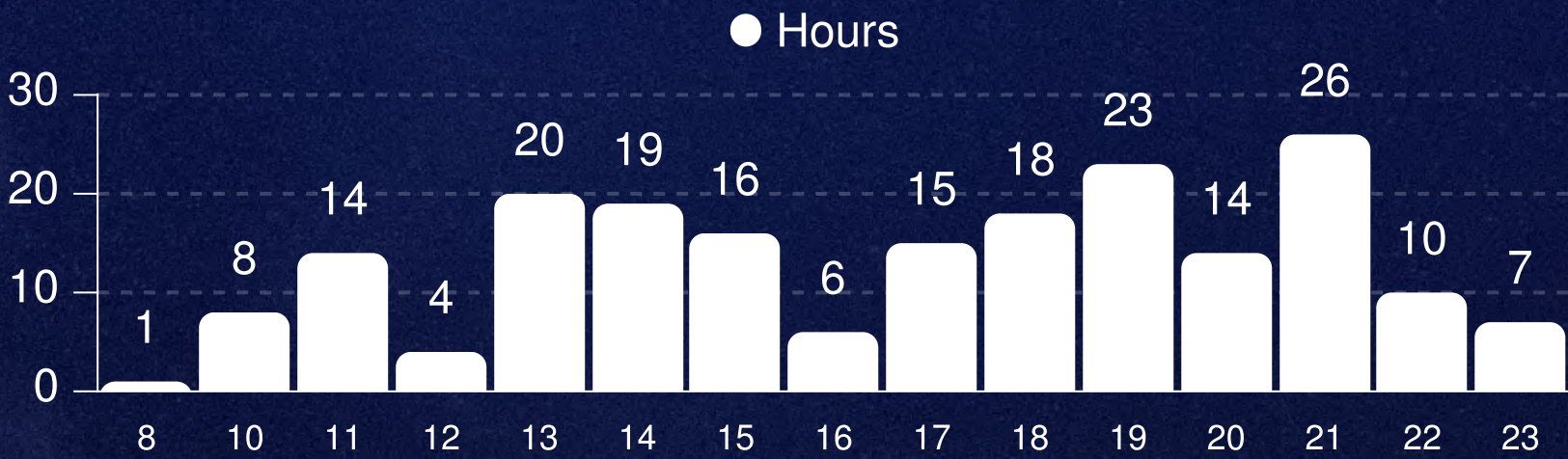
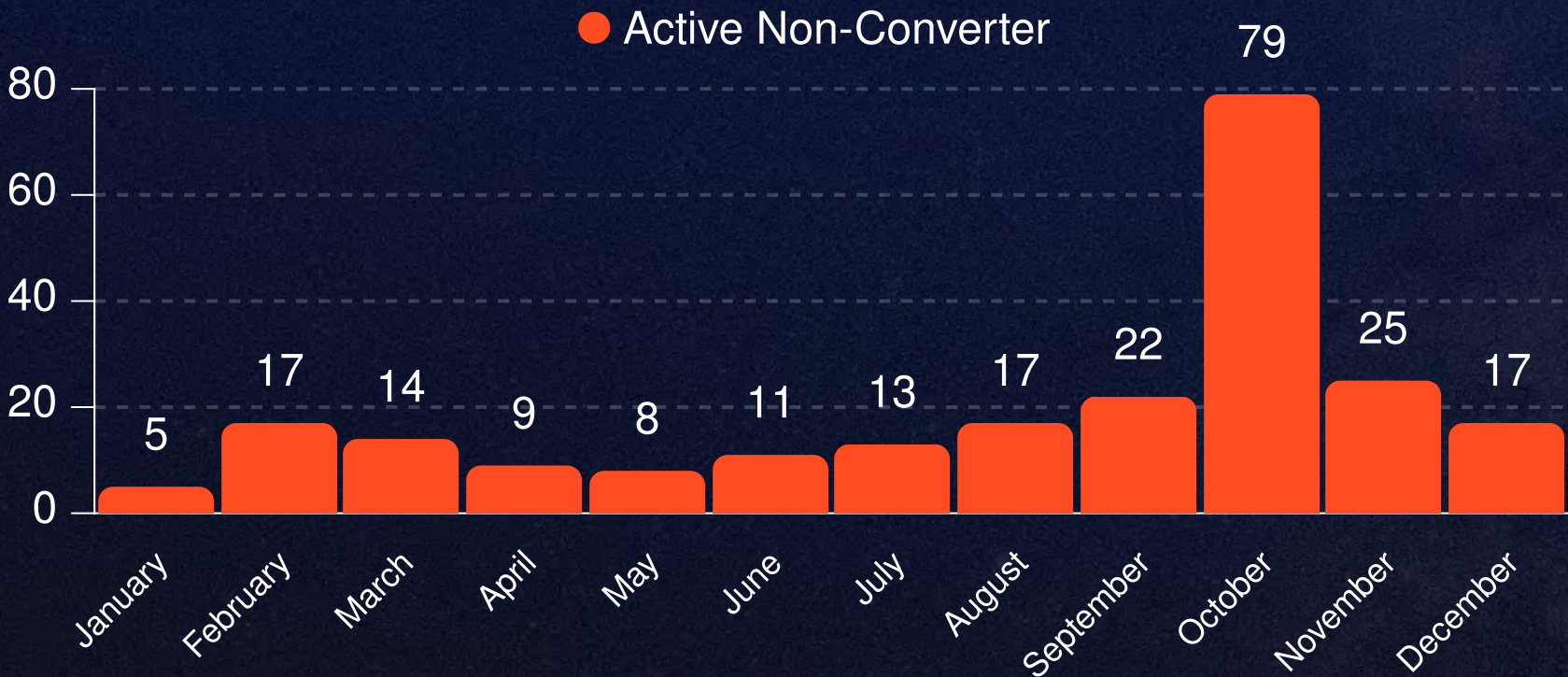
- **Event:** one activity row (timestamped). Might be a visit/view/click/etc.
- **Purchase row:** an event with Quantity + Rate + Total Price present
- **Converter (user-level):** a user with ≥ 1 purchase row
- **Non-converter (user-level):** a user with **0** purchase rows

SECTION 02

Customer Behaviour & Engagement

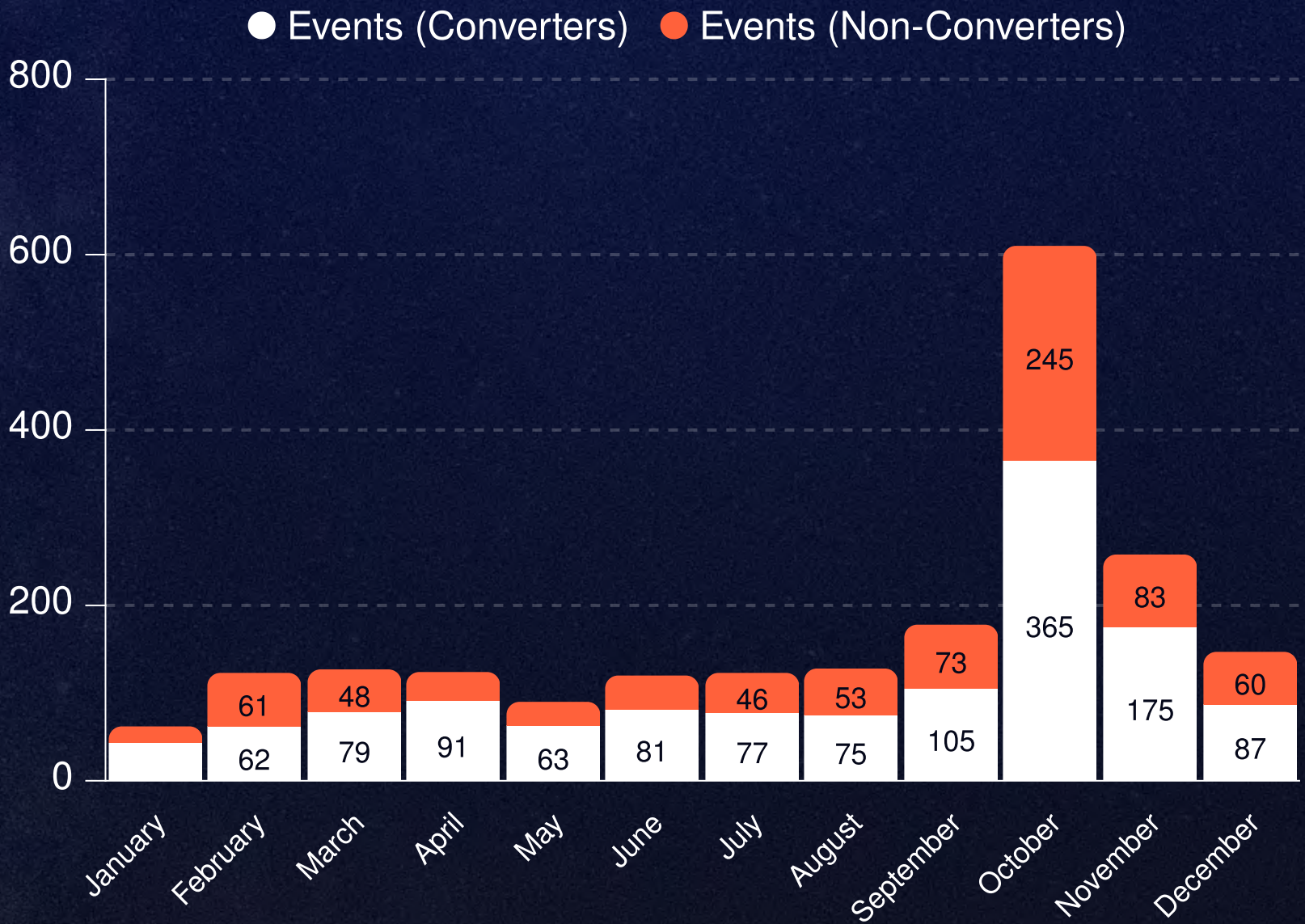
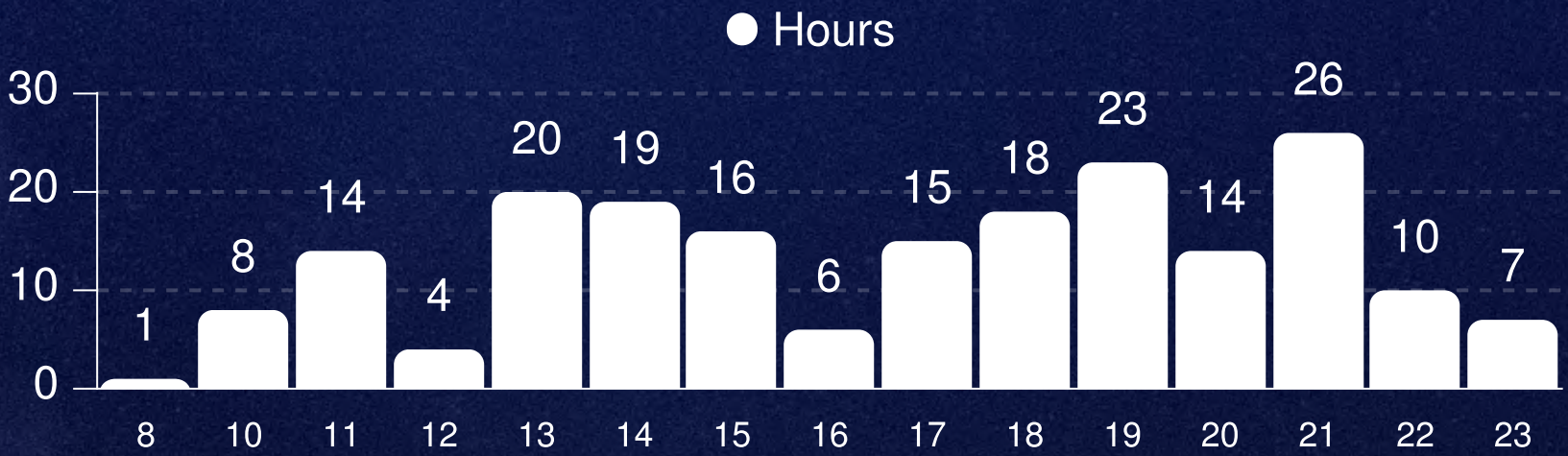
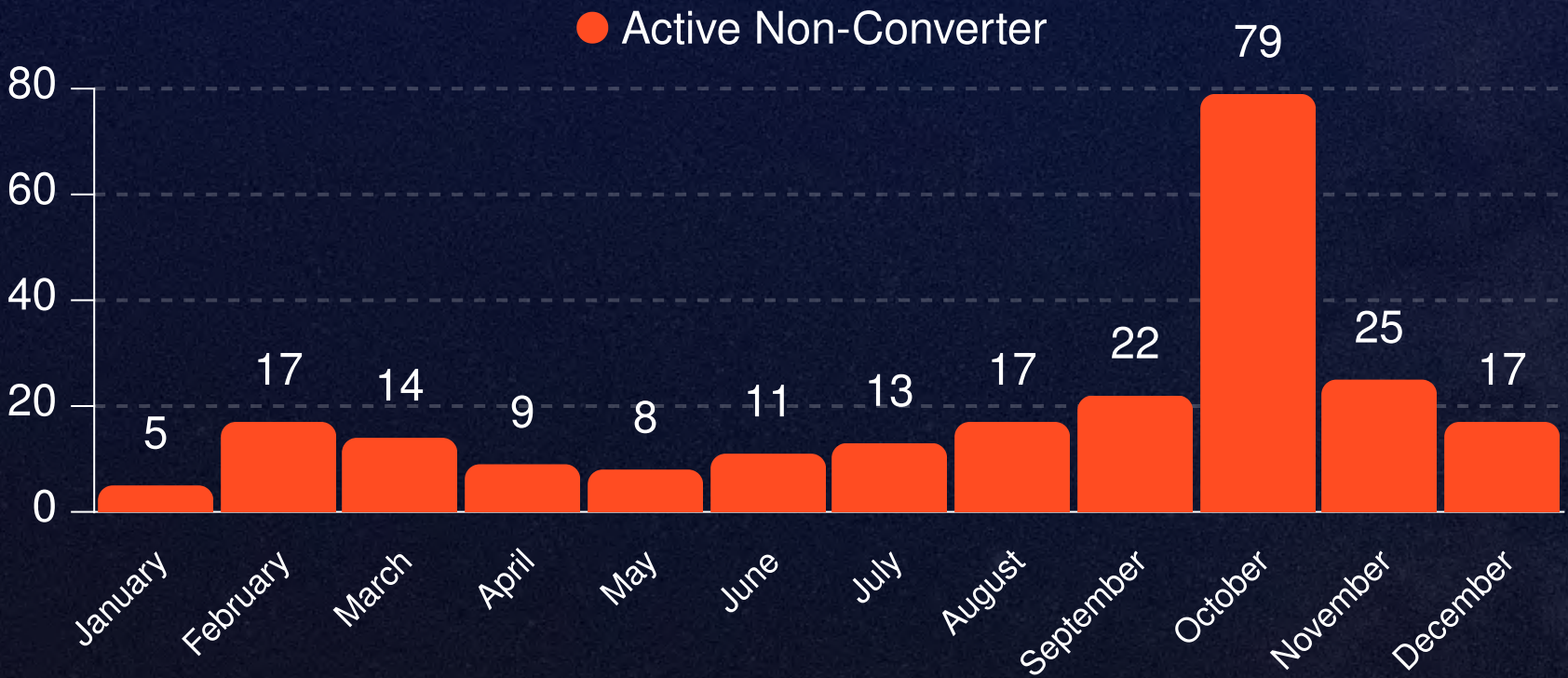
When do we peak—and who's not converting?

- Count of **distinct never-purchased users** who showed up.
- **October spike** = many new/non-buyer visitors—big conversion opportunity. Probably because of the Halloween effect
- Non-converters (orange) contribute a large share of **Q4 traffic**, especially **Oct.**
- Hours spike in around 13-15 and 17-21 is definitely because of the break time and a free time after work.



Recommendations

- **Pre-peak (Sep–Oct):** first-purchase offers and guided flows for new visitors.
- **Peak hours/days:** schedule nudges at known windows (Mon, 13–15 & 19–21).
- **Friction check:** simplify checkout / guest purchase to capture Oct surge.
- **Remarket non-converters:** follow up within 7–14 days after their visit.



SECTION 03

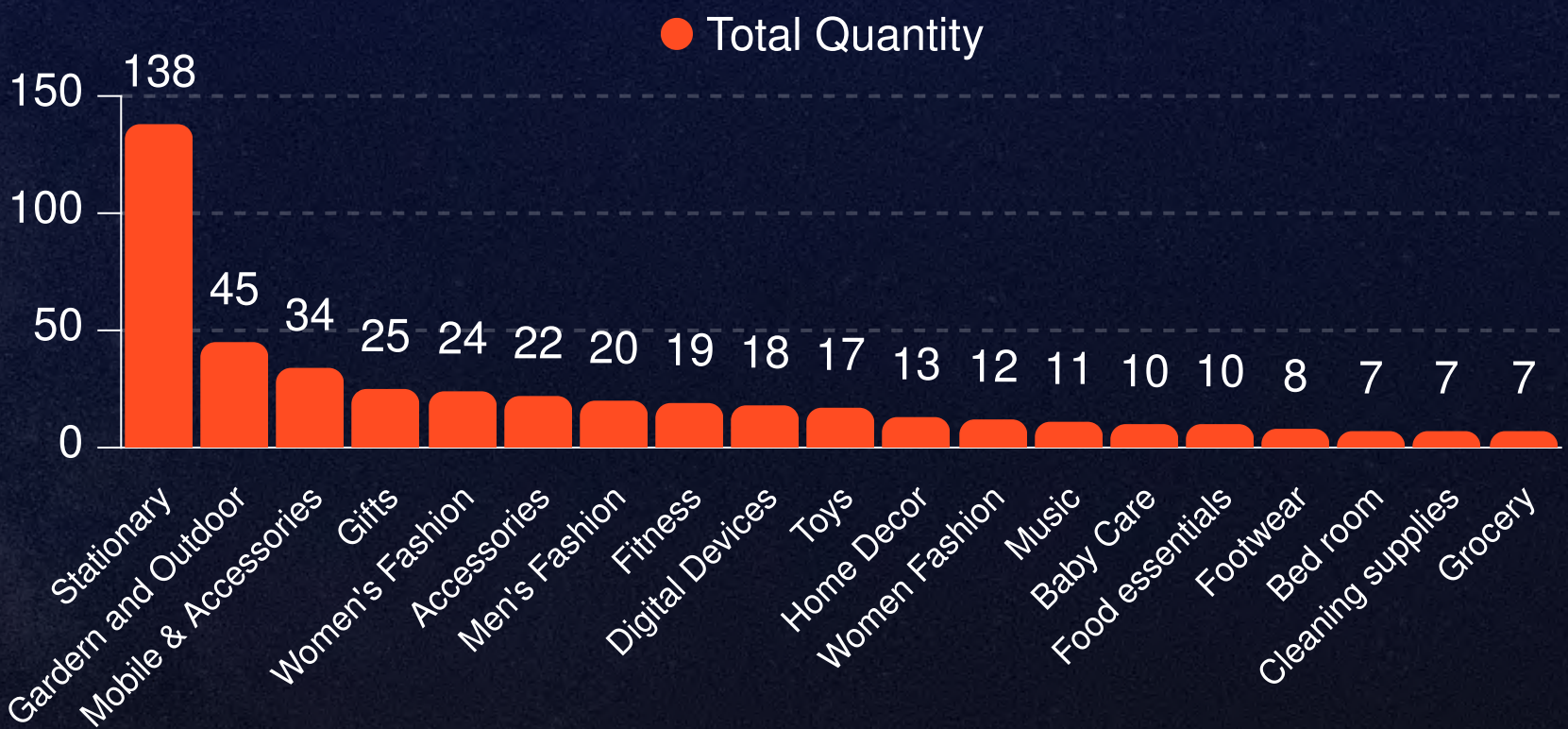
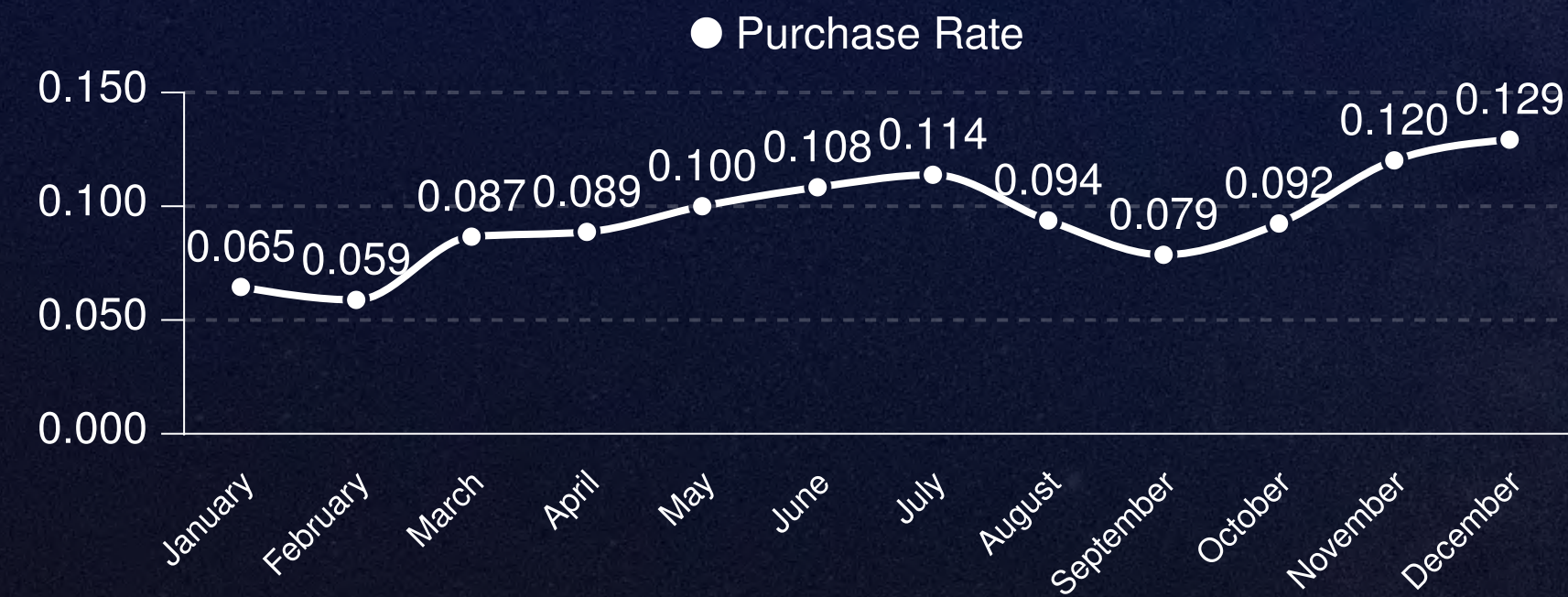
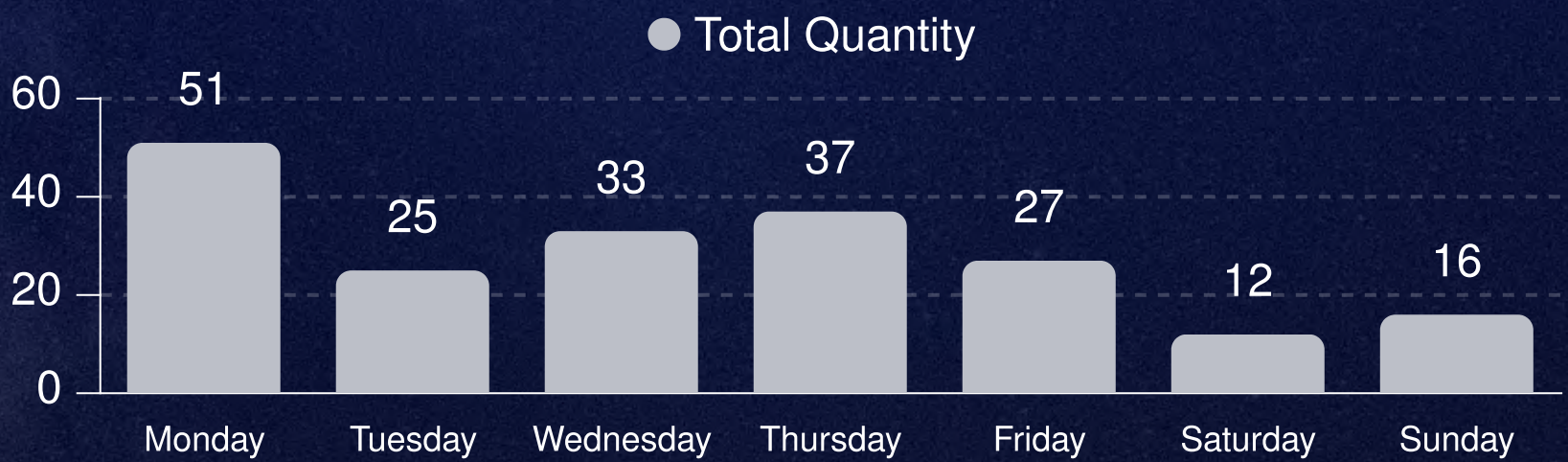
Purchase Dynamics & Demand

What sells—and when do people actually buy?

- **Purchase probability** climbs into **Q4**, peaking **Nov–Dec**.
- Purchases concentrate on **Mondays**. If we look into the category goods, probably it is an office matters purchasing.
- **Demand mix**: a handful of subcategories drive most quantity.

Recommendations

- Schedule promos in **peak months & hours**; align ads/push to Mon/evenings.
- **Feature top sellers** on the homepage; guard against stock-outs.
- Run **first-purchase offers in Oct** to convert the traffic surge into buyers.



The end

For further questions:

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