

# **Digital Analytics Project – E-Commerce Company**

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# Business Context Overview

## ➤ E-Commerce Company Focused on Selling Stuffed Animal Toys



- Cindy Sharp, the CEO of the company, is preparing for the next round of funding from investors.
- To support this effort, the analytics team is tasked with providing key data-driven insights that will form the foundation of a compelling investor pitch.
- The primary goals are to showcase business performance, growth opportunities, and market potential through customized dashboards and comprehensive analysis.

# Objectives & Problem Statement

## ➤ Objectives



- Create dashboards for different stakeholders to regularly track key business numbers and goals.
- Help stakeholders make informed decisions based on data.
- Provide detailed insights into company performance and analyze new products.
- Deliver a strong business pitch by showcasing website traffic, performance, new product progress, and key insights.

## ➤ Problem Statement



- Developing in-depth dashboards and thorough analyses to attract investment and enhance operational performance..

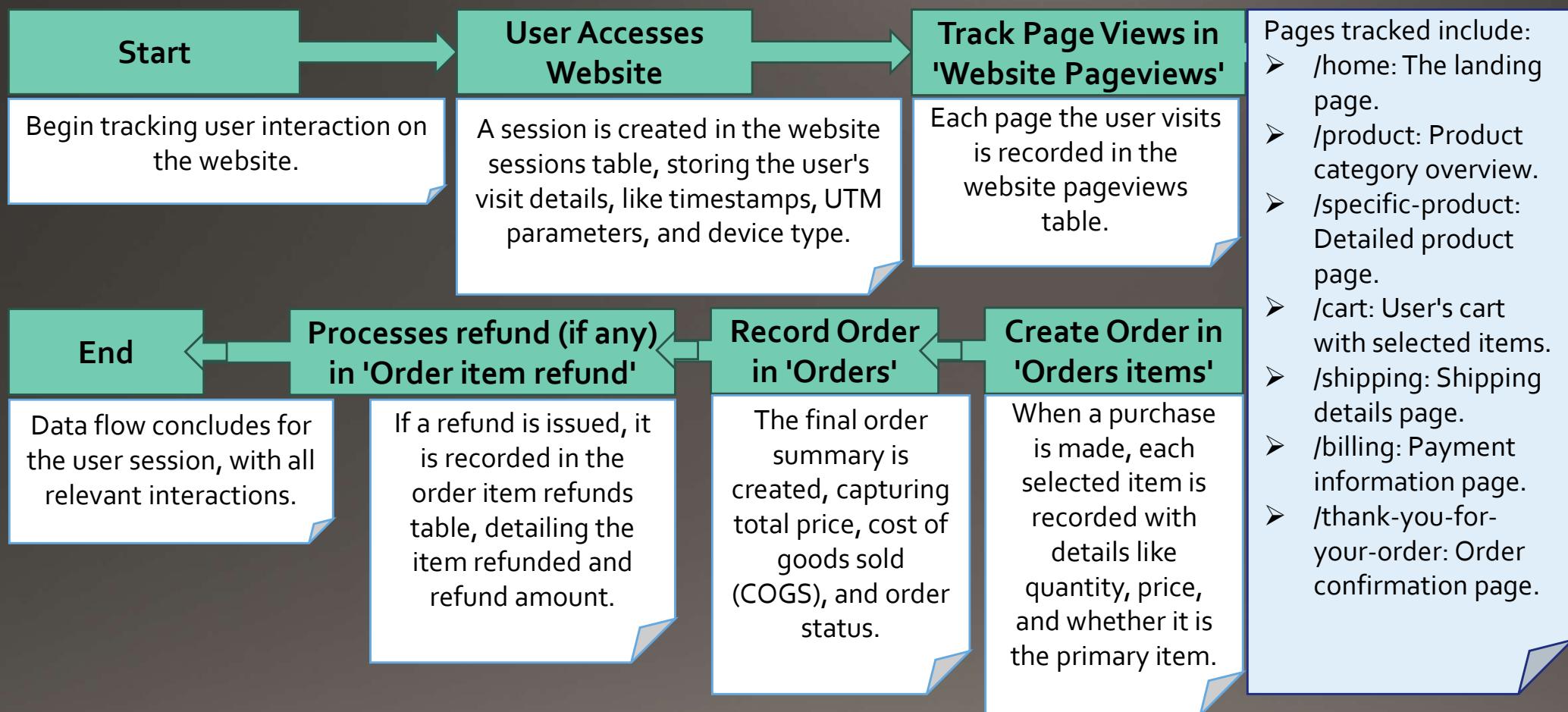
# Data Availability

- The database contains six related tables with ecommerce data about website activity, products and orders.



- The six tables are :
  - Orders Table
  - Order\_Item Table
  - Order\_Item\_Refunds Table
  - Products Table
  - Website\_Sessions Table
  - Website\_Pageviews Table.

# Data Flow Diagram



# Entity-Relationship (ER) Diagram

- Website Session - Order Table:

One-to-many relationship

One website session can hold multiple orders

- Orders - Product Table:

One-to-many relationship

One order can hold multiple products

- Orders - Order Items:

One-to-many relationship

One order can contain multiple order items at a single time

- Orders - Order Items Refunds:

One-to-many relationship

One order can have multiple refunds of items

- Website session - website pageviews:

One-to-many relationship

One website session can have multiple website pageviews

- Order items - Order items refund:

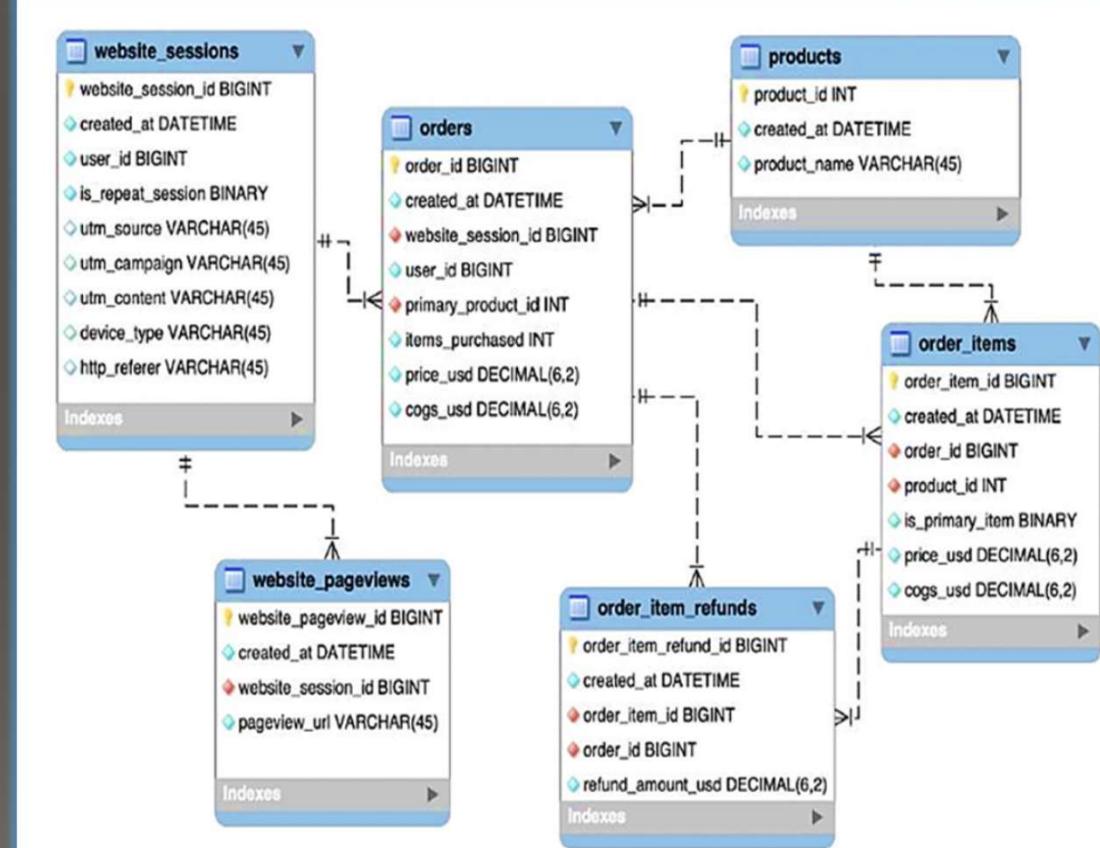
One-to-many relationship

One order item can have multiple refunds due to different orders

- Order items - Products:

Many-to-one relationship

One order item can have multiple products due to different orders.



# Technology Stack



MS EXCEL

Preliminary Data Auditing & Chart Creation

**Reason :** User-friendly interface with powerful functions for quick analysis and basic charts.



Data extraction, Transformation and Analysis

**Reason :** Efficient data retrieval and management, supporting complex queries and maintaining data integrity.



Power BI

Dashboard Preparation

**Reason :** Advanced visualization capabilities and seamless integration with various data sources for dynamic reporting.

# Tables Overview (1/2)

Table Name	No. of columns	No. of rows	Granularity	Primary Key	Foreign Key	Parameters / Details
Orders	8	32,313	Order	Order id	User id, Website session id	<p><b>Parameters:</b> order_id, created_at, website_session_id, user_id, primary_product_id, items_purchased, price_usd, cogs_usd.</p> <p><b>Details:</b> Records information about each order, including primary product, items purchased, and order pricing.</p>
Order items	7	40,025	Order-item	Order item id	Order id, product id	<p><b>Parameters:</b> order_item_id, created_at, order_id, product_id, is_primary_item, price_usd, cogs_usd.</p> <p><b>Details:</b> Lists each item in an order, including its price, whether it's a primary item, and cost of goods.</p>
Order item refunds	5	1,731	Refund	Order item refund id	Order item id, Order id	<p><b>Parameters:</b> order_item_refund_id, created_at, order_item_id, order_id, refund_amount_usd</p> <p><b>Details:</b> Captures refunds for specific order items, including the refund amount.</p>

# Tables Overview (2/2)

Table Name	No. of columns	No. of rows	Granularity	Primary Key	Foreign Key	Parameters / Details
Product	3	4	Product	Product id	-	<p><b>Parameters:</b> product_id, created_at, product_name.</p> <p><b>Details:</b> Contains product details, including product name and creation date, representing each unique product.</p>
Website_Pageview	4	1,118,124	Pageview	Website pageview id	Website session id	<p><b>Parameters:</b> website_pageview_id, created_at, website_session_id, pageview_url.</p> <p><b>Details:</b> Logs each page view within a session, providing a record of all pages visited per session.</p>
Website_Sessions	9	472,871	Session	Website session id	-	<p><b>Parameters:</b> website_session_id, created_at, user_id, is_repeat_session, utm_source, utm_campaign, utm_content, device_type, http_referer.</p> <p><b>Details:</b> Tracks individual sessions on the website, including session source, device, and referral details.</p>

# Columns Description (1/5)

## ➤ Table 1: Orders

Column	Description
order_id	Unique identifier for each order
created_at	Timestamp of when the order was placed
website_session_id	Session identifier on the website
user_id	ID of the user who placed the order
primary_product_id	product ID in the order
items_purchased	Number of items purchased in this order
price_usd	Total price paid (in USD)
cogs_usd	Cost of Goods Sold (COGS) for the order (USD)

## Columns Description (2/5)

### ➤ Table 2: Products

Column	Description
product_id	Unique identifier for each product
created_at	Timestamp indicating when the product was added to the website
product_name	Name of the product

## Columns Description (3/5)

### ➤ Table 3: Order\_items

Column	Description
order_item_id	Unique identifier for the order item
created_at	Timestamp of the order
order_id	10 linking this item to a specific order
product_id	Product identifier for the item
is_primary_item	Indicates if this is the primary product( 1 for primary item and 0 for non primary item)
price_usd	Price of the item in USD
cogs_usd	Cost of goods sold (COGS) for the item

## Columns Description (4/5)

### ➤ Table 4: order\_item\_refunds

Column	Description
order_item_refund_id	Unique identifier for the refund transaction
created_at	Timestamp indicating when the refund was processed
order_item_id	Reference to the item that was refunded
order_id	Reference to the associated order for the refunded item
refund_amount_usd	Amount of the refund in USD

## Columns Description (5/6)

### ➤ Table 5: website\_pageviews

Column	Description
website_pageview_id	Unique identifier for each pageview
created_at	Timestamp of when the pageview occurred
website_session_id	Identifier linking the pageview to a specific website session
pageview_url	URL of the page that was visited

# Columns Description (6/6)

➤ **Table 6: website\_sessions**

Column	Description
website_session_id	Unique identifier for each website session
created_at	Timestamp indicating when the session started
user_id	Unique identifier of the user associated with the session
is_repeat_session	Indicates if this session is a repeat session for the user (0 = No, 1 = Yes)
utm_source	The source of the session's traffic (e.g., gsearch for Google Search)
utm_campaign	Campaign identifier for tracking the session's source (e.g., nonbrand)
utm_content	The content variation of the ad (e.g., g_ad_1)
device_type	The device type used for the session (e.g., desktop or mobile)
http_referer	URL that referred the user to the website

# Column Level Audit (1/6)

## ➤ Table 1: Orders

## Column Level Audit (2/6)

### ➤ Table 2: Order\_items

	order_item_id	created_at	order_id	product_id	is_primary_item	price_usd	cogs_usd
Unique Records	40,025	32,299	32,313	4	2	4	4
Type of Data	Categorical	Date Time	Categorical	Categorical	Categorical	Numerical	Numerical
Missing Values	No	No	No	No	No	No	No
Encoding	No	No	No	No	Yes	No	No

# Column Level Audit (3/6)

## ➤ Table 3: order\_item\_refunds

	order_item_refund_id	created_at	order_item_id	order_id	refund_amount_usd
Unique Records	1,731	1,731	1,731	1,723	4
Type of Data	Categorical	Date Time	Categorical	Categorical	Numerical
Missing Values	No	No	No	No	No
Encoding	No	No	No	No	No

# Column Level Audit (4/6)

➤ Table 4: website\_sessions

	website_session_id	created_at	user_id	is_repeated_session	utm_source	utm_campaign	utm_content	device_type	http_referrer
Unique Records	472,871	470,444	394,318	2	3	4	6	2	3
Type of Data	Categorical	Date Time	Categorical	Categorical	Categorical	Categorical	Categorical	Categorical	Categorical
Missing Values	No	No	No	No	Yes	Yes	Yes	No	Yes
Encoding	No	No	No	Yes	No	No	No	No	No

## Column Level Audit (5/6)

### ➤ Table 5: website\_pageviews

	website_pageview_id	created_at	website_session_id	pageview_url
<b>Unique Records</b>	1,188,124	1,171,962	472,871	16
<b>Type of Data</b>	Categorical	Date Time	Categorical	Categorical
<b>Missing Values</b>	No	No	No	No
<b>Encoding</b>	No	No	No	No

# Column Level Audit (6/6)

## ➤ Table 6: Products

	product_id	created_at	product_name
Unique Records	4	4	4
Type of Data	Categorical	Date Time	Categorical
Missing Values	No	No	No
Encoding	No	No	No

# Exploratory Data Analysis (EDA)

Net Revenue

**\$1,853,171 (\$1.85M)**

Net Profit

**\$1,162,780 (\$1.16M)**

Total Orders

**32,313**

Total Cost

**\$722,370 (\$0.72M)**

Total Units Sold

**40,025**

Net Item Sold

**38,294**

Net Total Cost

**\$690,391 (\$0.69M)**

Gross Revenue

**\$1,938,509 (\$1.94M)**

Return Item Count

**1,731**

Total Return

**\$85,338**

New Users

**343,048**

Returning Users

**51,270**

One Time Buyer

**31,105**

Repeat Buyer

**591**

# Exploratory Data Analysis (EDA)

Average Revenue per Order  
**\$59.50**

Average Revenue per Customer  
**\$60.63**

Profit %  
**62.75%**

Average Number of Items  
per Order  
**1.23**

Average Number of Daily  
Transactions  
**29.49**

Conversion  
Rate  
**6.83%**

Average Profit per Customer  
**\$38.04**

Average No. of Sessions per User  
**1.19**

Bounce Rate  
**44.76%**

Refunded Amount  
Percentage  
**4.04%**

No. of Days between 2 Transactions  
for Repeat Customers  
**35**

Refund Item  
Percentage  
**4.32%**

# Exploratory Data Analysis (EDA)

## Product Wise Revenue

1. The Original Mr. Fuzzy: **\$1,149,220.11 (\$1.15M)**
2. The Forever Love Bear : **\$339,963.33 (\$0.34M)**
3. The Birthday Sugar Panda: **\$215,417.16 (\$0.22M)**
4. The Hudson River Mini Bear: **\$148,570.46 (\$0.14M)**

## Total Sessions

**472,871**

# Website Session Audit

## Utm\_content

1. Social ad 1 and social ad 2
  - Social ad 1 and social ad 2 doesn't direct users to /home page.
  - Social ad 1 is for pilot campaign and for both desktop and mobile users.
  - Social ad 2 is for desktop targeted campaign and desktop users only.
  - Utm source is socialbook only.
2. G\_ad\_1 and g\_ad\_2
  - G\_ad\_1 is for nonbrand campaign and for both mobile and desktop users.
  - G\_ad\_2 is for brand campaign and for both mobile and desktop users.
3. B ad 1 and b ad 2
  - B\_ad\_1 is for nonbrand campaign, doesn't direct users to /home page and for both mobile and desktop users.
  - B\_ad\_2 is for brand campaign and for both mobile and desktop users.

# Website Session Audit

## Utm\_campaign

### 1. Brand

- Utm\_source is gsearch and bsearch.
- Utm\_content is only g\_ad\_2 and b\_ad\_2

### 2. Nonbrand

- Utm\_source is gsearch and bsearch.
- Utm\_content is only g\_ad\_1 and b\_ad\_1.

### 3. Desktop targeted

- Utm\_source is socialbook.
- Utm\_content is only social\_ad\_2
- For desktop users only.

### 4. Pilot

- Utm\_source is socialbook.
- Utm\_content is only social\_ad\_1.
- For both mobile and desktop users.

## Utm\_source

### 1. Gsearch

- Utm\_campaign is brand and nonbrand.
- Utm\_content is only g\_ad\_1 and g\_ad\_2.
- For both mobile and desktop users.

### 2. Bsearch

- Utm\_campaign is brand and nonbrand.
- Utm\_content is only b\_ad\_1 and b\_ad\_2.
- For both mobile and desktop users.

### 3. Socialbook

- Utm\_campaign is desktop targeted and pilot.
- Utm\_content is only social\_ad\_1 and social\_ad\_2.
- For both mobile and desktop users.

# Website Session Audit

Page	Direct	Social and Direct	Campaign Used
/home	g_ad_1, g_ad_2, b_ad_2	social_ad_1, social_ad_2, b_ad_1	Brand, Nonbrand
/lander-1	b_ad_1, g_ad_1,	g_ad_2, b_ad_2, social_ad_1, social_ad_2 ,source (socialbook)	Nonbrand
/lander-2	b_ad_1, g_ad_1, social_ad_1, social_ad_2	g_ad_2, b_ad_2	Nonbrand, desktop targeted
/lander-3	b_ad_1, g_ad_1, social_ad_1	g_ad_2, b_ad_2, social_ad_1, social_ad_2 ,source (socialbook)	Nonbrand,pilot
/lander-4	b_ad_1, g_ad_1	g_ad_2, b_ad_2, social_ad_1, social_ad_2 ,source (socialbook)	Nonbrand
/lander-5	b_ad_1, g_ad_1	g_ad_2, b_ad_2, social_ad_1, social_ad_2 ,source (socialbook)	Nonbrand
/billing /billing-2	g_ad_1, g_ad_2, b_ad_1, b_ad_2 all	social_ad_1, social_ad_2 Nil	Brand, Nonbrand all
/the-handsome-elve-robin-bear	g_ad_1, g_ad_2, b_ad_1, b_ad_2, social_ad_2	social_ad_1	Brand, Nonbrand, desktop targeted
/the-birthday-sugar-panda	all	Nil	all
/the-original-ner-fuzzy	all	Nil	all
/the-forever-love-bear	all	Nil	all

# Website Session Observation

## Important Observations

- /lander-3 is for mobile users only.
- /lander-4 and /lander -5 are for desktop users only.
- Only /home is a page where for some records utm\_source, utm\_campaigns, utm\_content and http referrer is not available(NULL).
- User buying from socialbook are not directed to /billing page for the transactions.

## Traffic Source Observations

- If http referrer is g search & b search

Search Engine



- If http referrer is not available (NULL)

Direct Traffic



- If http referrer is social book

Social Media



# Website Session Assumptions

## ➤ Direct-Visit :

- If http\_referer, utm\_campaign, and utm\_content are all NULL, it indicates that the user directly entered the website's URL into their browser. This suggests that the visitor was already aware of the site and accessed it without clicking any external links
- **Reason-**The absence of an 'http\_referer' and UTM parameters indicates that the user was familiar with the site and chose to visit it directly

## ➤ Organic Search (Unknown):

- When http\_referer is available but utm\_campaign is NULL, it signifies that the user arrived via an organic search engine result. This means the visitor found the site through unpaid search listings on platforms like Google or Bing.
- **Reason-**The existence of an http\_referer without a UTM campaign tag suggests the click originated from a natural search result rather than a paid advertisement.

## ➤ Paid Search :

- If both http\_referer is present and utm\_campaign is **not** NULL, it confirms that the visit resulted from a paid search campaign. This typically means the user clicked on a sponsored ad or promoted listing in search results.
- **Reason-**The combination of a referral source and a UTM campaign tag indicates that the traffic was generated by an advertisement, showing that the user engaged with a paid marketing effort to reach the site.

- If utm\_campaign` is NULL and Traffic Source is Search Engine

## Direct-Visit



- If utm\_campaign` is not NULL and Traffic Source is Search Engine and socialbook

## Paid Search



- If utm\_campaign` is NULL and Traffic Source is Search Engine

## Organic Search

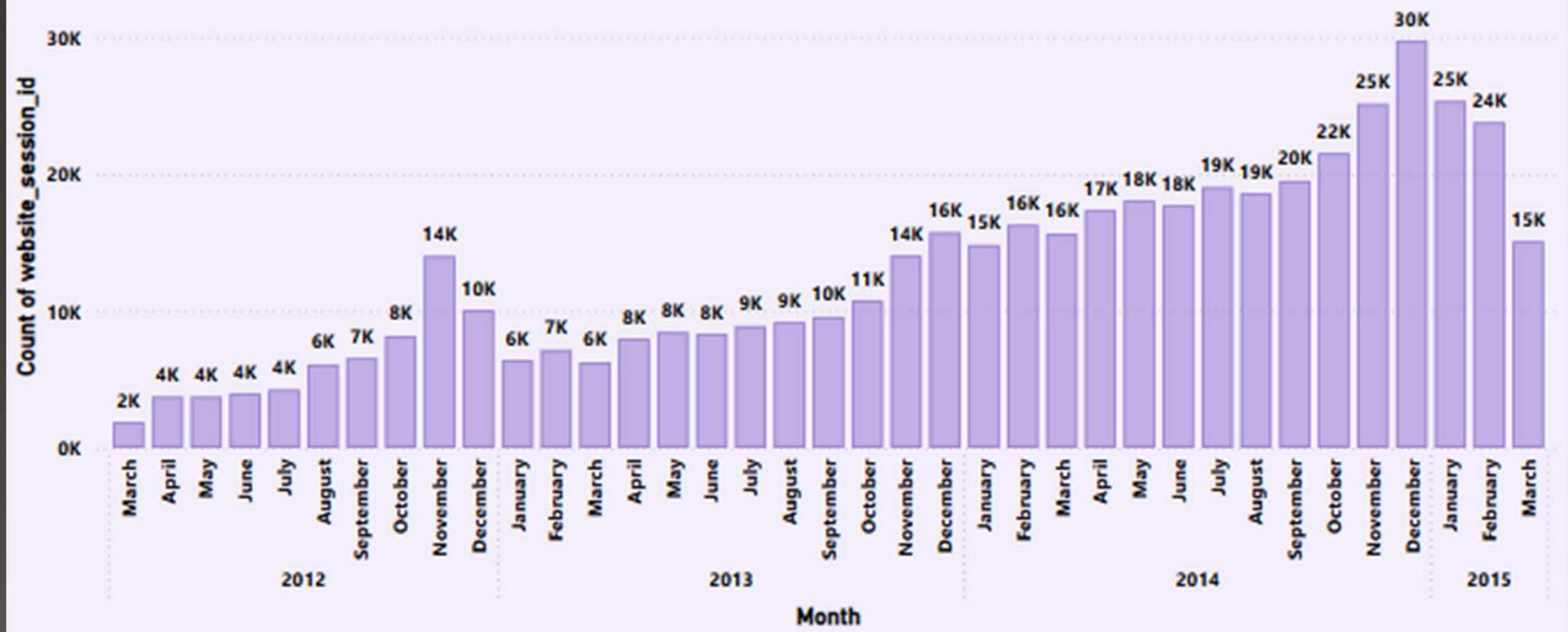


# Website Session Overview

Total Sessions	472.87K
Unique Sessions	343.1K
Total Repeat Sessions	78.55K
Single-Page Session	211.64K
Avg. Session Duration	237 sec
Conversion Rate per Session	6.83%
Total Pageview	11.88M
Bounce Rate	44.75%
Avg Page Viewed Per Session	2

# Website Session Analysis

Session Count by Year and Month



# Website Session Analysis Observations

## Yearly Trend Observation

### **Yearly Growth:**

Session counts steadily increased from 2012 to 2015, with significant growth in 2014 and early 2015.

### **Seasonal Peaks:**

December consistently shows the highest sessions each year, with notable increases in January and February as well, especially in 2015.

### **2014 Surge:**

2014 marks a major rise, with all months suggesting business expansion or successful campaigns.

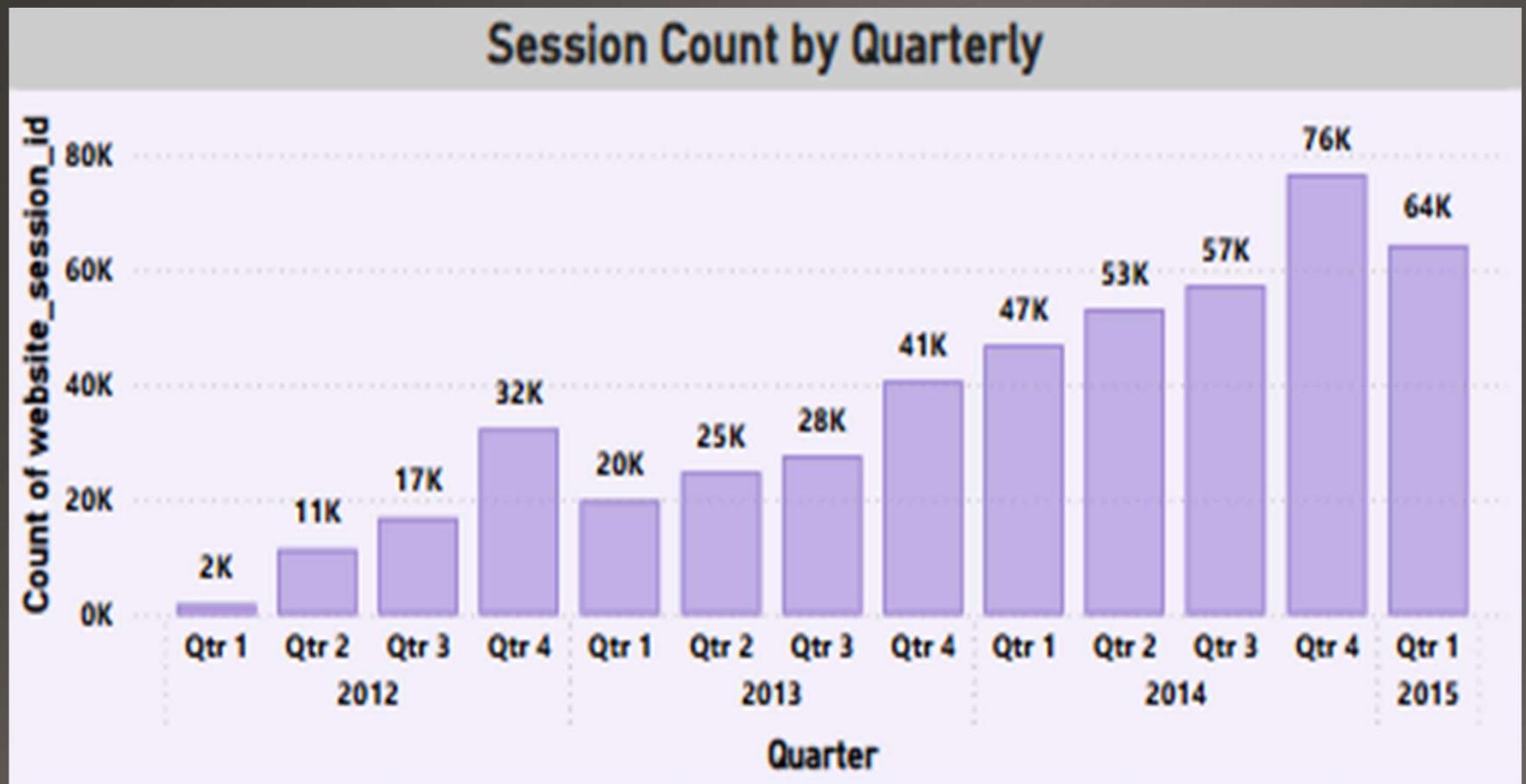
### **Fluctuations:**

Session counts vary month to month, especially in 2012 and 2013, with pronounced jumps in late-year months like November and December.

### **Low Early 2012 Counts:**

March and April 2012 have notably low sessions, indicating a smaller user base initially.

# Website Session Analysis



# Website Session Analysis Observations

## Quarterly Trend Observation

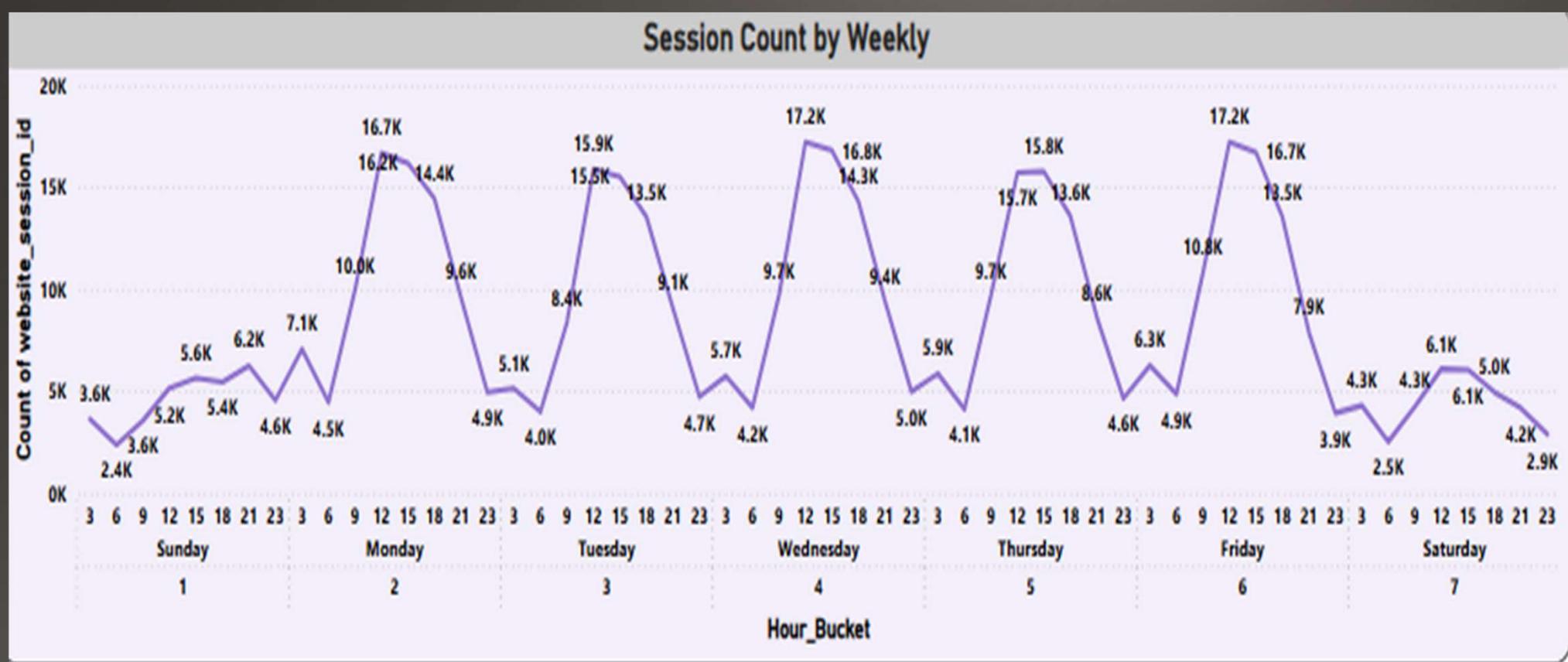
**Quarterly Increases:** Each quarter within a given year typically shows growth, with Q4 often having the highest sessions. For example, Q4 in 2012, 2013, and 2014 are the peak quarters for those years.

**Major increase in 2014:** 2014 shows the highest growth overall, with Q4 sessions reaching 76k indicating a possible expansion in user base or successful campaigns.

**2015 Start with High Sessions:** Q1 of 2015 has already reached 64k sessions, maintaining the upward trend from previous years.

**Steady Acceleration:** Each quarter across years sees progressive increases, especially in the second half of each year, suggesting strong seasonal or end-of-year effects on sessions.

# Website Session Analysis



# Website Session Analysis

WeekDays	hour-0	hour-1	hour-2	hour-3	hour-4	hour-5	hour-6	hour-7	hour-8	hour-9	hour-10	hour-11	hour-12
Sunday	1077	927	841	778	753	780	834	829	1248	1487	1765	1716	1674
Monday	2133	1896	1565	1480	1282	1643	1543	2184	3236	4534	5446	5431	5787
Tuesday	1570	1437	1056	1075	1252	1267	1472	1839	2669	3860	4876	5596	5404
Wednesday	1758	1397	1347	1242	1215	1333	1647	1998	2997	4700	5722	5803	5688
Thursday	1877	1387	1484	1111	1176	1322	1611	2135	3195	4370	5059	5100	5561
Friday	1933	1653	1469	1198	1406	1466	1989	2245	3467	5080	5680	6012	5527
Saturday	1407	1178	890	818	805	827	889	1209	1282	1760	2005	1945	2142

# Website Session Analysis

WeekDays	hour-13	hour-14	hour-15	hour-16	hour-17	hour-18	hour-19	hour-20	hour-21	hour-22	hour-23	Total Session
Sunday	1807	1843	1989	1912	1897	1631	1687	2100	2461	2332	2218	36586
Monday	5464	5290	5429	5188	5295	3960	3519	2980	3087	2683	2252	83307
Tuesday	5181	5185	5149	5367	4391	3788	3284	3011	2769	2513	2205	76216
Wednesday	5532	5513	5760	5608	4745	3957	3261	3269	2903	2859	2113	82367
Thursday	5422	5129	5219	5174	4578	3822	3081	2710	2823	2447	2194	77987
Friday	5358	5569	5781	5641	4272	3628	3133	2484	2268	2000	1928	81187
Saturday	1991	2185	1878	1811	1641	1502	1470	1408	1296	1496	1386	35221

Min session Hourly – Red

Max session Hourly – Green

# Website Session Analysis Observations

## **Peak Hours (10 AM - 4 PM):**

Across all days, session counts peak between 10 AM and 4 PM. Wednesday and Friday show especially high activity, with over 5,000 sessions during these hours.

## **Lower Activity During Early Hours (12 AM - 7 AM):**

Sessions are generally low from midnight to early morning, particularly between 2 AM and 5 AM, with values consistently under 2,000.

## **Weekday vs. Weekend Trends**

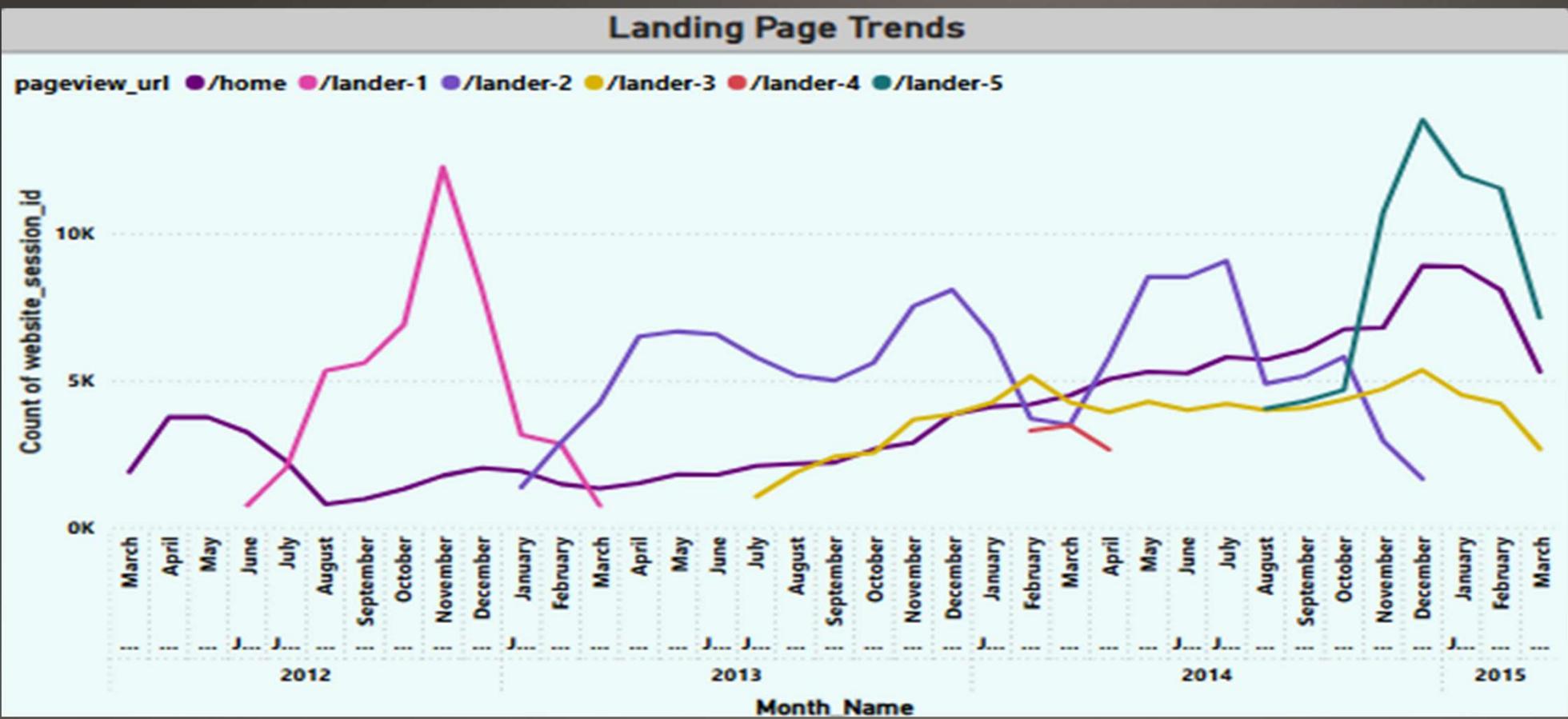
**Higher Weekday Activity:** Specifically Monday, Wednesday, and Friday have higher sessions during work hours compared to Saturday and Sunday.

**Weekend Dips:** Saturday and Sunday show significantly lower sessions, especially in the morning, indicating less weekday-like engagement.

**Late Evening Decline (8 PM Onward):** Session counts drop noticeably after 8 PM across all days, suggesting decreased engagement in the late evening hours.

**Sunday High at Night (10 PM):** Sunday night sessions are higher around 10 PM compared to other days, possibly indicating increased evening activity heading into the weekend.

# Website Session Analysis



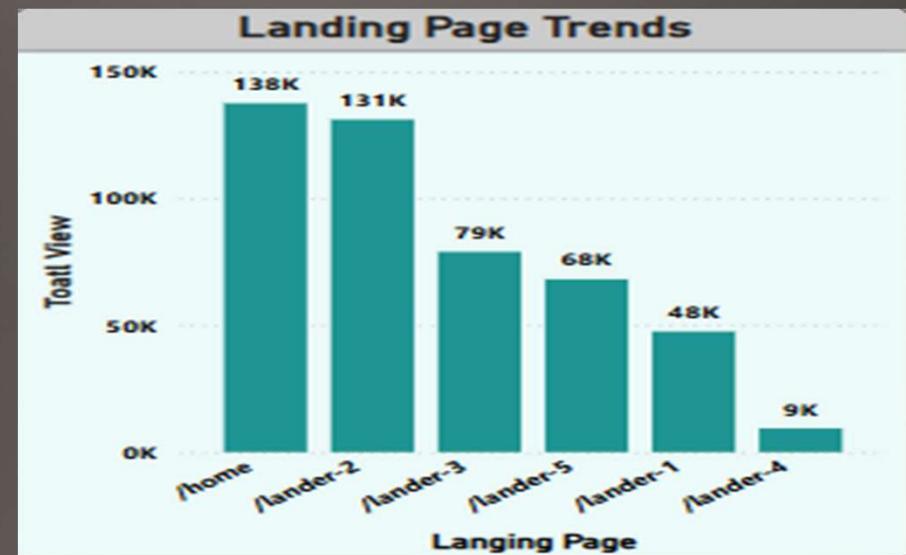
# Website Session Analysis Observations

Name	Date Range	Observation
/home	March 2012 - March 2015	This page was the most popular, with 137,539 sessions and had the longest active period (3 years) and a lot of user interaction.
/lander-1	June 2012 - March 2013	This page was active for 9 months and got 47,574 sessions. Though it was up for a short time, it had good engagement.
/lander-2	January 2013 - December 2014	Active for nearly 2 years, this page reached 131,170 sessions, showing strong, consistent performance.
/lander-3	July 2013 - March 2015	This page was active for almost 2 years and had 79,000 sessions, reflecting solid user engagement.
/lander-4	February 2014 - April 2014	This page was only active for 2 months but still got 9,465 sessions. It had decent engagement during its short run.
/lander-5	August 2014 - March 2015	Active for about 7 months, this page received 68,166 sessions. It was relatively short-lived but still had a good number of visitors.

# Website Session Analysis

## Landing Page and First Impressions

Landing Page	Total Views
/home	137,576
/lander-2	131,170
/lander-3	79,000
/lander-5	68,166
/lander-1	47,574
/lander-4	9,385

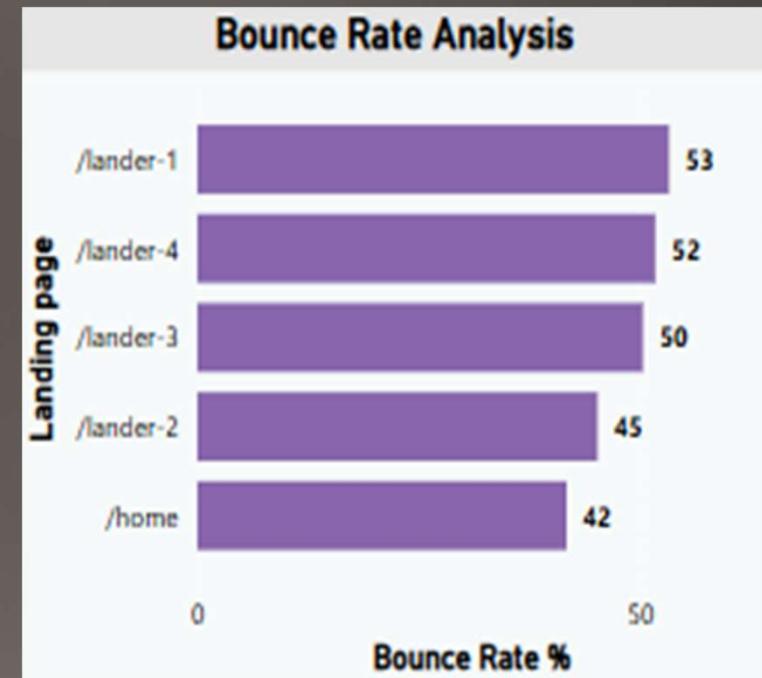


**Conclusion:** The homepage (`/home`) receives the highest number of visits, totaling **137,576 views**, followed closely by `/lander-2` with **131,170 views**. While `/lander-3` and `/lander-5` also draw a notable amount of traffic, the majority of users primarily arrive at either the homepage or `/lander-2`.

# Website Session Analysis

## Bounce Rate & Landing Page Analysis

Landing Page	Total Sessions	Bounced Sessions	Bounce Rate (%)
/lander-1	47,574	25,330	53.24%
/lander-4	9,385	4,851	51.69%
/lander-3	79,000	39,733	50.29%
/lander-2	131,170	59,249	45.17%
/home	137,576	57,346	41.68%
/lander-5	68,166	25,131	36.87%



# Bounce Rate Insights for Various Landing Pages

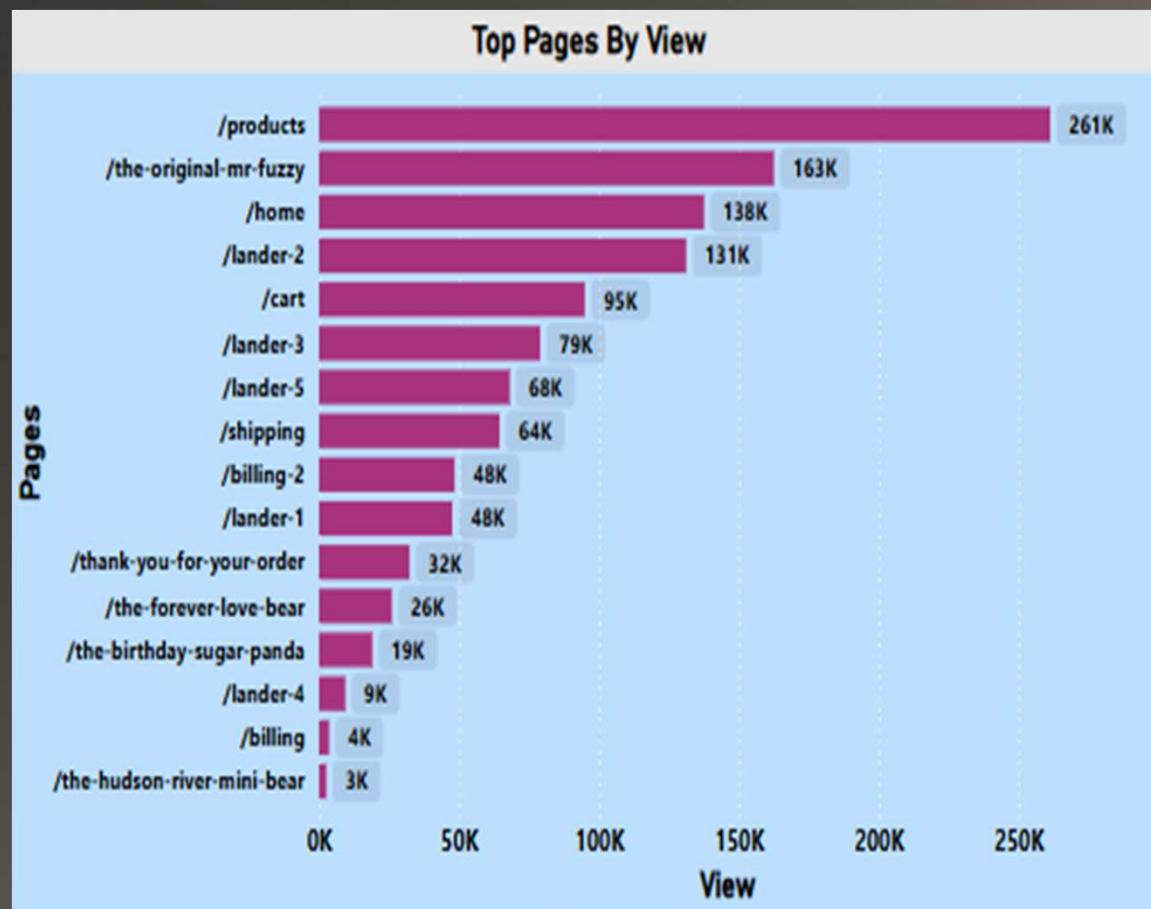
## Insights

- High Bounce Rates: Pages like /lander-1 (53.24%) show high bounce rates, indicating visitors leave without engaging further.
- Content & Navigation Gaps: These high bounce rates suggest issues with content or navigation not meeting user expectations.
- Opportunity for Improvement: Pages like /lander-1 and /lander-4 offer immediate opportunities to boost user engagement.

## Recommendations

- Content Relevance: Align content with user expectations and add engaging elements.
- Clear Navigation: Improve CTAs and navigation to guide users to relevant pages.
- A/B Testing: Experiment with different layouts and content to reduce bounce rates.

# Bounce Rate Insights for Various Landing Pages



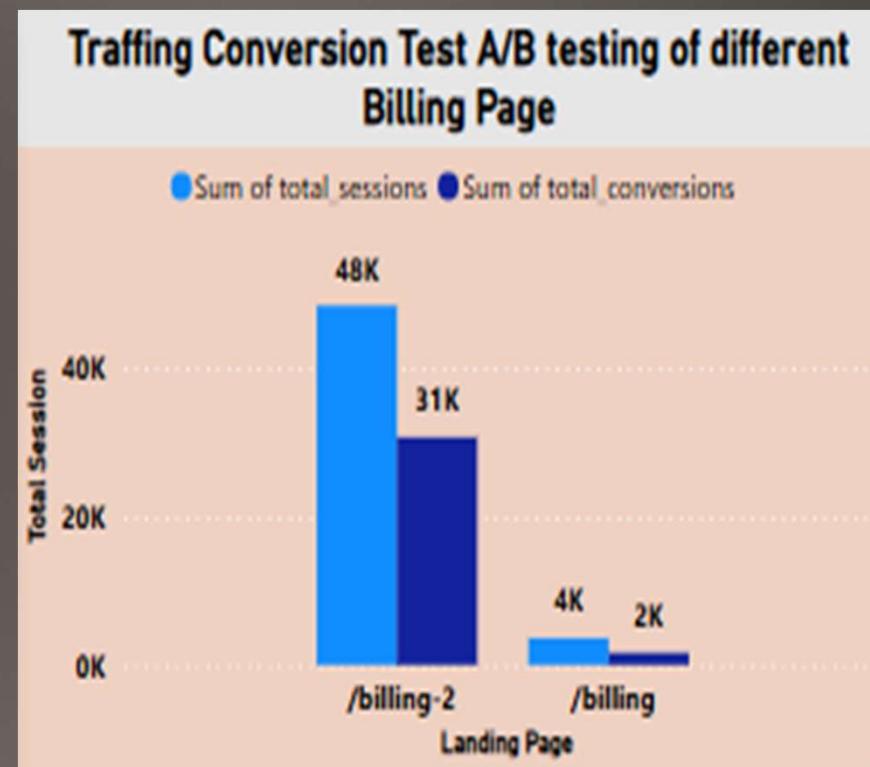
The products page has the highest views, indicating it's a key landing or browsing page, with significantly more views than other pages.

Specific products like the-original-me-fuzzy also have high views, suggesting they are popular among users and could be used for cross-promotion.

Pages like the-hudson-(river-mini-bear) and billing have low views, suggesting less user interest or lower visibility, which may indicate areas for potential improvement or further analysis.

# Traffic Conversion Test For Billing vs. Billing-2

Landing Page	Total Sessions	Total Conversions	Conversion Rate (%)	Avg Order Value
/billing-2	48,441	30,693	63.36	60.52
/billing	3,617	1,620	44.79	49.99



# Traffic Conversion Insights

**Increased Traffic on /billing-2:** The /billing-2 page has significantly more sessions, totaling 48,441, compared to 3,617 on the original /billing page. This suggests that either users show a clear preference for the new billing page or are redirected there more frequently.

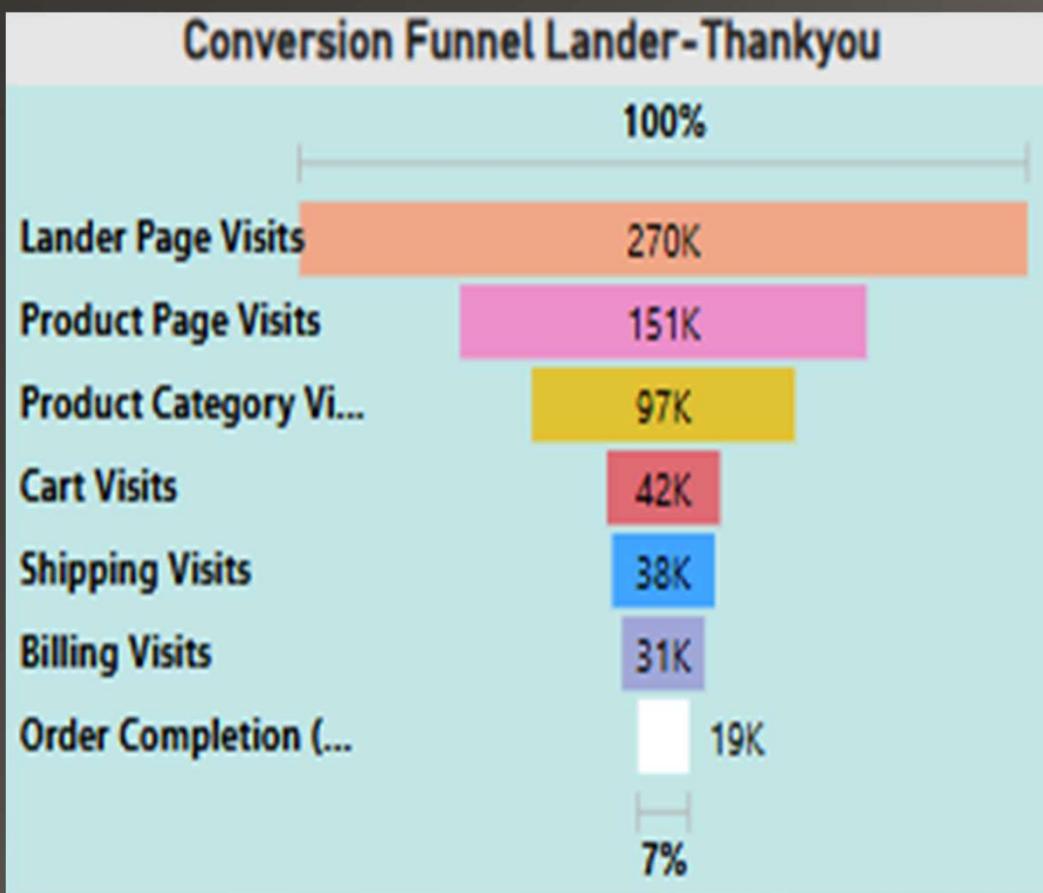
**Higher Conversion Rate on /billing-2:** With a conversion rate of 63.36% on /billing-2 compared to 44.79% on /billing, it's evident that the new billing page is more successful in converting visitors into buyers.

**Substantial Rise in Total Conversions:** The total number of orders completed on /billing-2 is 30,693, which far exceeds the 1,620 orders on /billing. This difference highlights the new page's effectiveness in driving sales.

**Recommendations:** Set /billing-2 as the Default Billing Page: Due to the improved conversion rate and higher order numbers, it is recommended to adopt /billing-2 as the primary billing page. Its strong performance suggests that it provides a better user experience for completing purchases.



# Conversion Funnel Lander-Thankyou



Recommendations:

**Showcase User Reviews:**

Display user reviews and ratings more prominently to build trust and encourage purchases.

**Cart Save Feature:**

Allow users to save their cart for future visits or email the cart contents to themselves.

**Visible Checkout Button:**

Ensure the checkout button is easily noticeable and accessible.

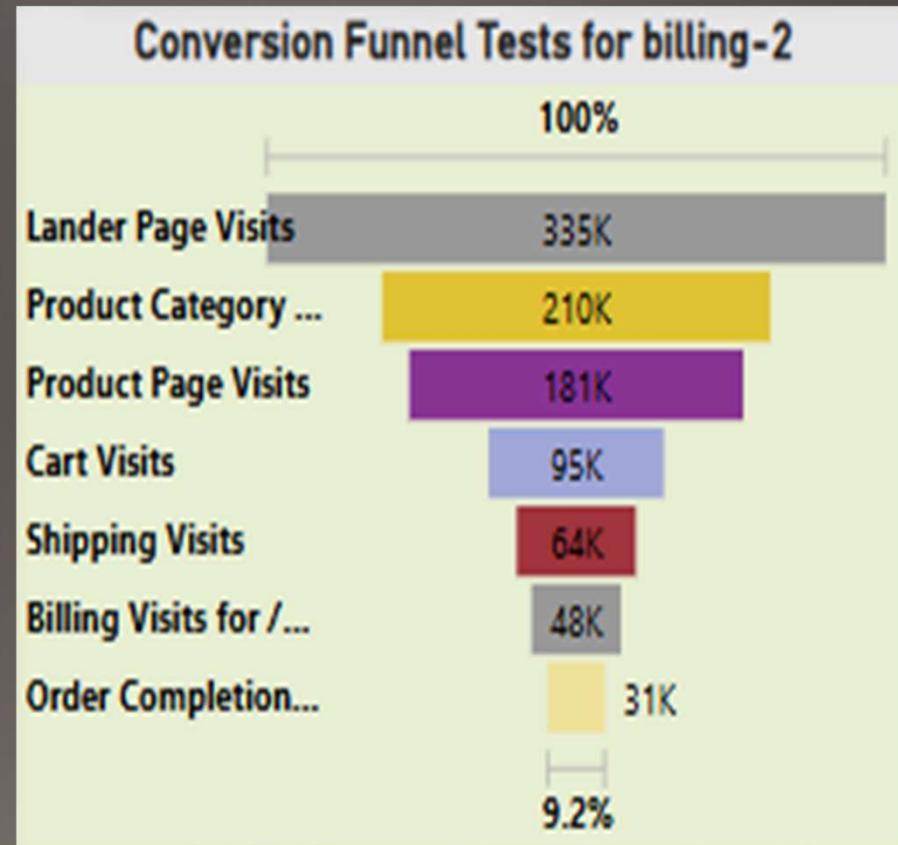
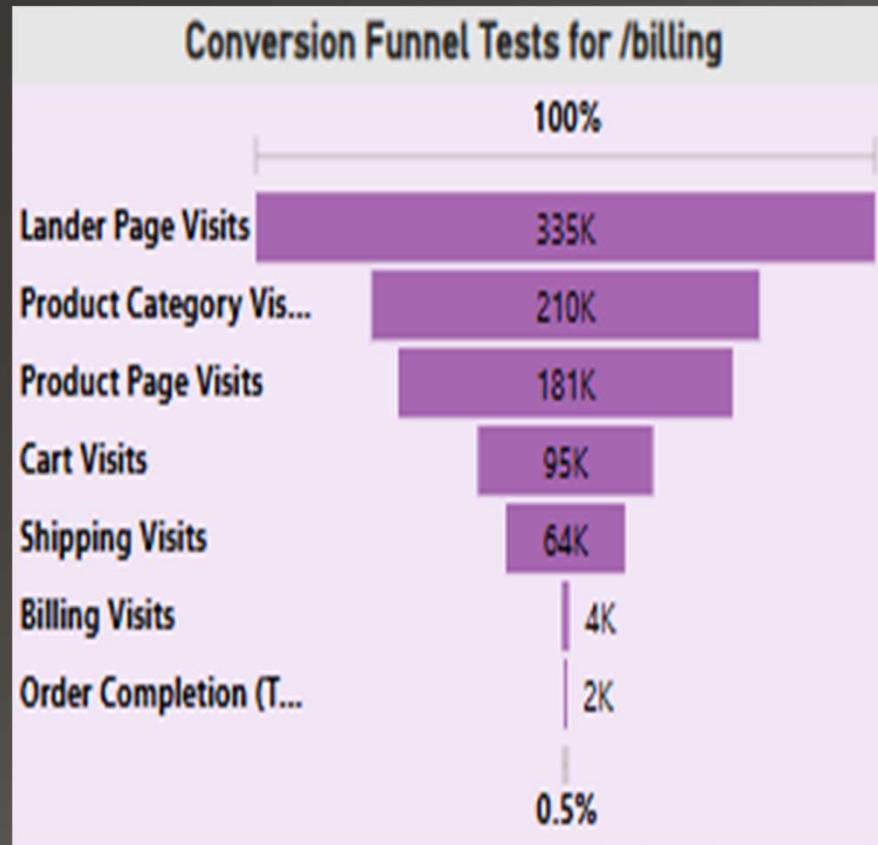
**Offer Multiple Shipping Options:**

Provide various shipping choices to suit different preferences, such as standard and express shipping.

**Flexible Payment Methods:**

Offer multiple payment options to accommodate user preferences and increase convenience.

# Conversion Funnel Tests for /billing vs. /billing-2



# Conversion Funnel Tests for /billing vs. /billing-2

Conversion % of Billing

Funnel Stage	Conversion Percentage (%)
Product Page Visits	53.98%
Product Category Visits	80.47%
Cart Visits	45.17%
Shipping Visits	67.91%
Billing Visits	5.61%
Order Completion (Thank You Page)	44.79%

Conversion % of Billing -2

Funnel Stage	Conversion Percentage (%)
Product Page Visits	53.98%
Product Category Visits	80.47%
Cart Visits	45.17%
Shipping Visits	67.91%
Billing Visits (for /billing-2)	75.12%
Order Completion (Thank You Page)	63.36%

# Conversion Funnel Tests for /billing vs. /billing-2

**Billing (Generic): 5.61% conversion rate → Very low completion rate**

**Billing-2: 75.12% conversion rate → Much higher success rate**

This indicates that **Billing-2** is performing significantly better in converting users compared to the standard Billing page.

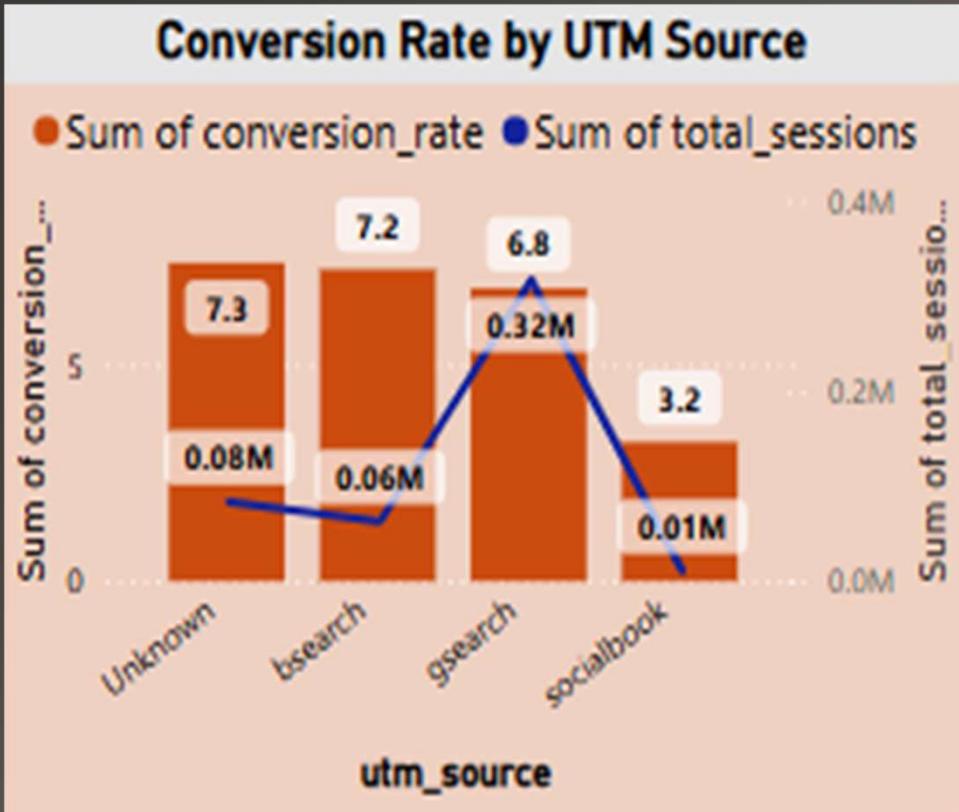
## Recommendations for /billing

- Simplify Checkout Process
- Optimize Payment Methods
- Display **secure payment badges**
- Send **reminder emails** with discounts for users who abandon the checkout

## Recommendations for /billing-2

- Analyze What's Working
- Show **estimated delivery dates** upfront.
- Reduce Distractions

# Conversion Rate By UTM Source



Highest Conversion Rate – "Unknown" (7.3%)

Strong Performance – "bsearch" (7.2%)

High Sessions, Lower Conversion – "gsearch" (6.8%)

Low Conversion & Sessions – "socialbook" (3.2%)

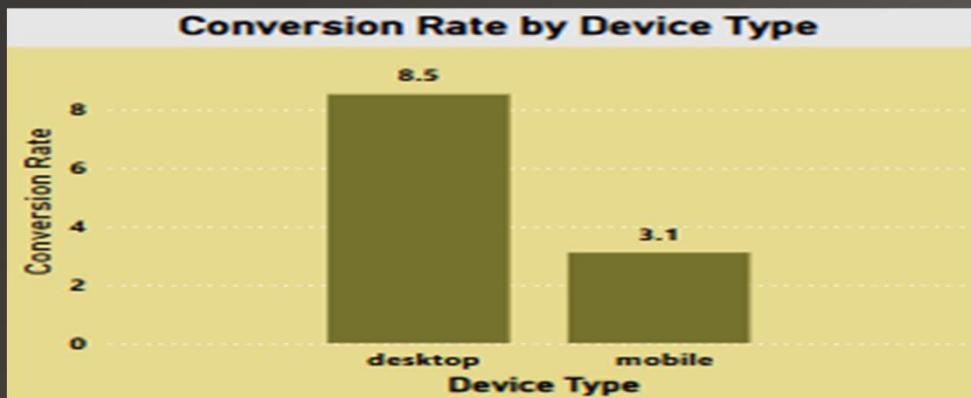
## Recommendations

Since "gsearch" has the highest traffic, improving landing pages and CTAs can **boost conversion rates**.

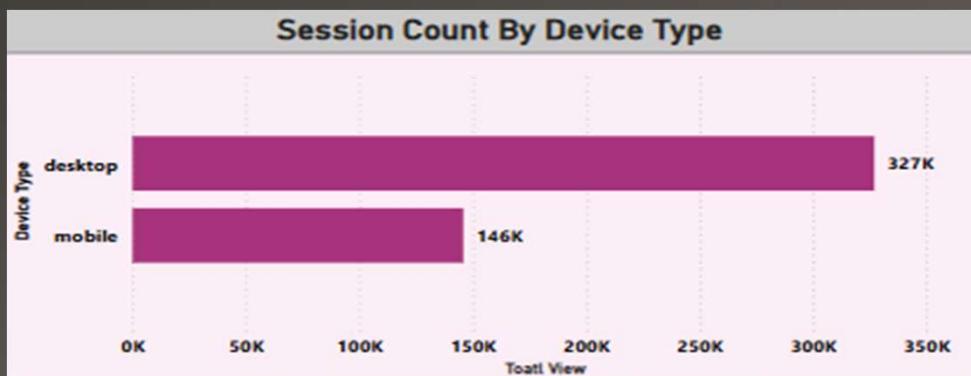
"Unknown" and "bsearch" show **strong conversion potential**; allocate more budget to these sources.

# Traffic Level Analysis

## Session Counts Conversion Rate By Device Type



People using desktop clearly have a much higher conversion rate than people visiting via mobile.



This could be due to the website being poorly optimized for mobile, which discourages users.

# User Analysis

Total Users	3,94,318
One Time Users	3,43,048
Repeat Users	51,270
Total Customer	31,696
New Customer	31,105
Repeat Customer	591

- User : A user is anyone who accesses and interacts with a digital platform, regardless of whether they have made a purchase or not.
- Customer : A customer is a user who has made a purchase or transaction, indicating a financial commitment to the product or service.

# User Analysis

## Session Frequency Breakdown

Sessions Count	Number of Users
1	3,43,048
2	37,386
3	485
4	13399

The majority of the user group (343,048) only uses the platform once, suggesting that many people are either not returning or are only using it once.

# User Analysis

## Analyzing Repeat Behavior

Number of Repeat Visitors after 2014

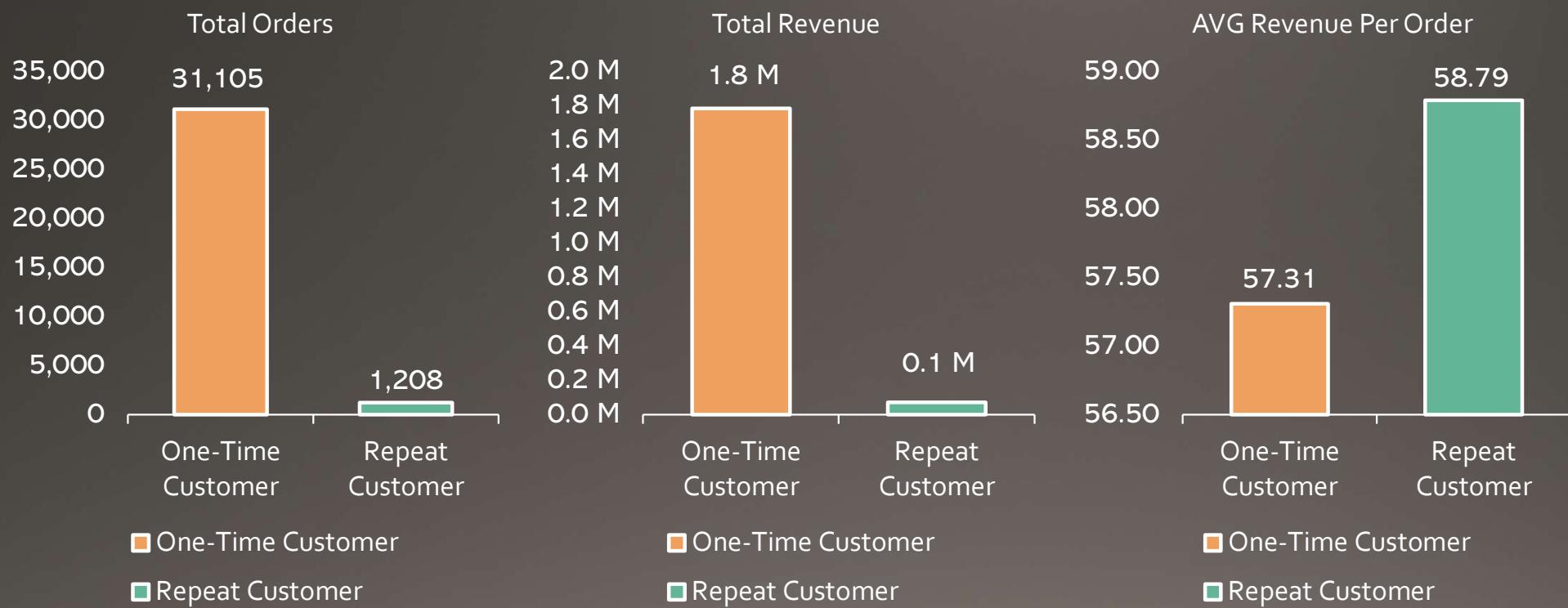
35,005

Minimum, maximum and Average days Between the first and second session  
for customers who do come back after 2014

Min days b/w two sessions	Max days b/w two sessions	Avg days b/w two sessions
1	69	33

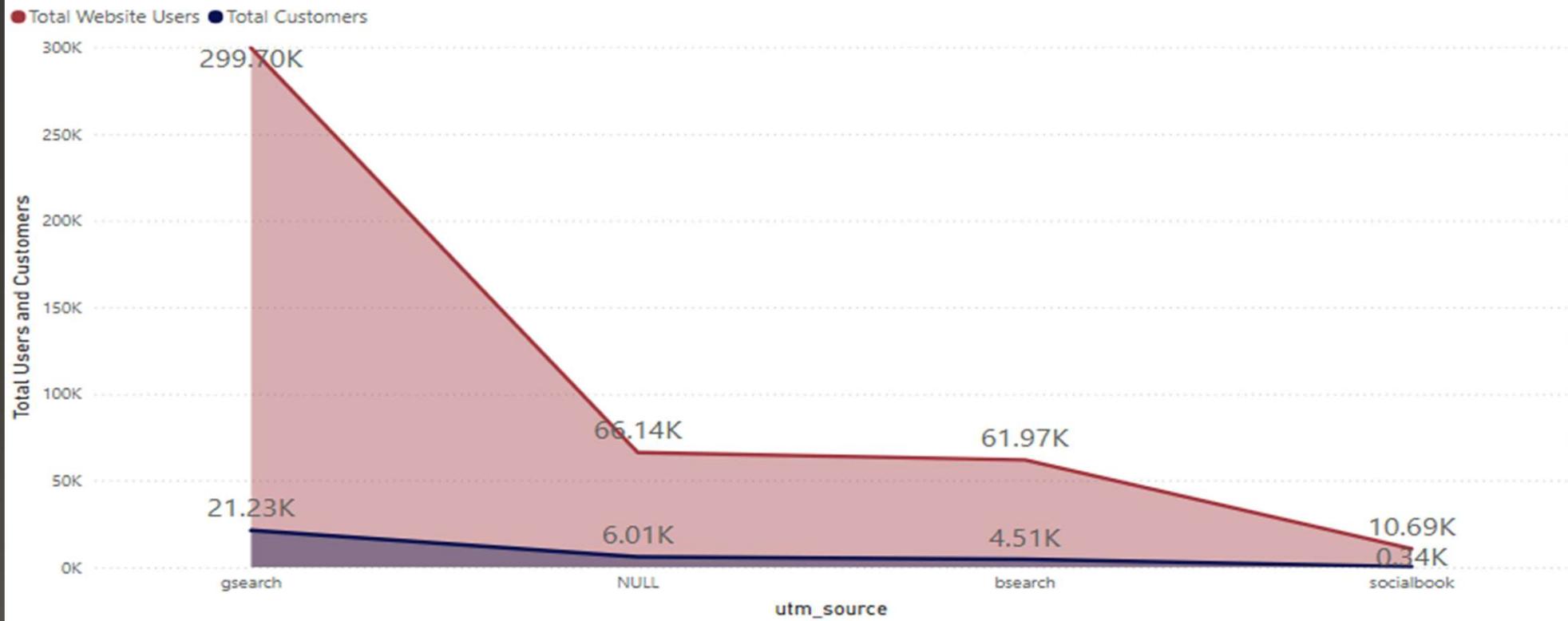
# User Analysis

## One Time and Repeat Customer Behavior

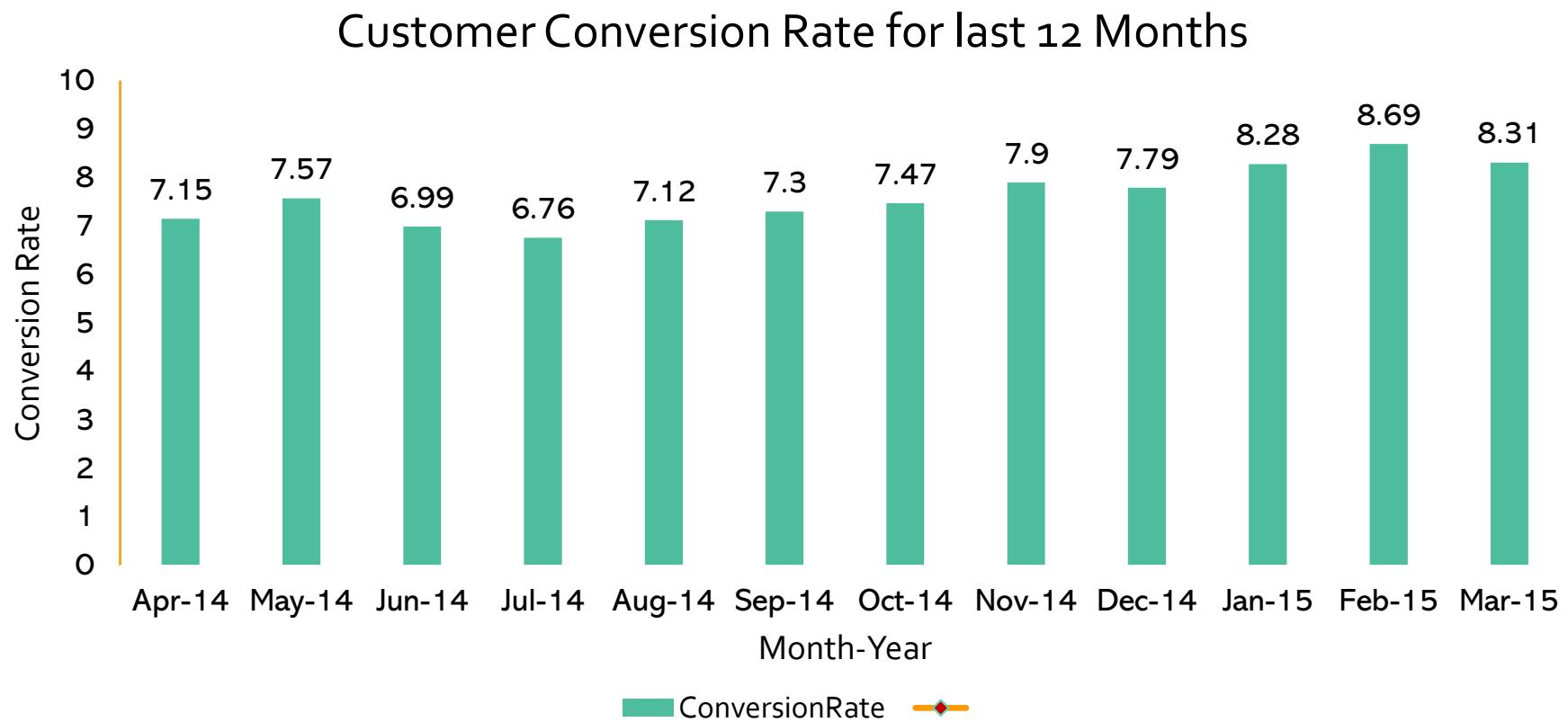


# User Analysis

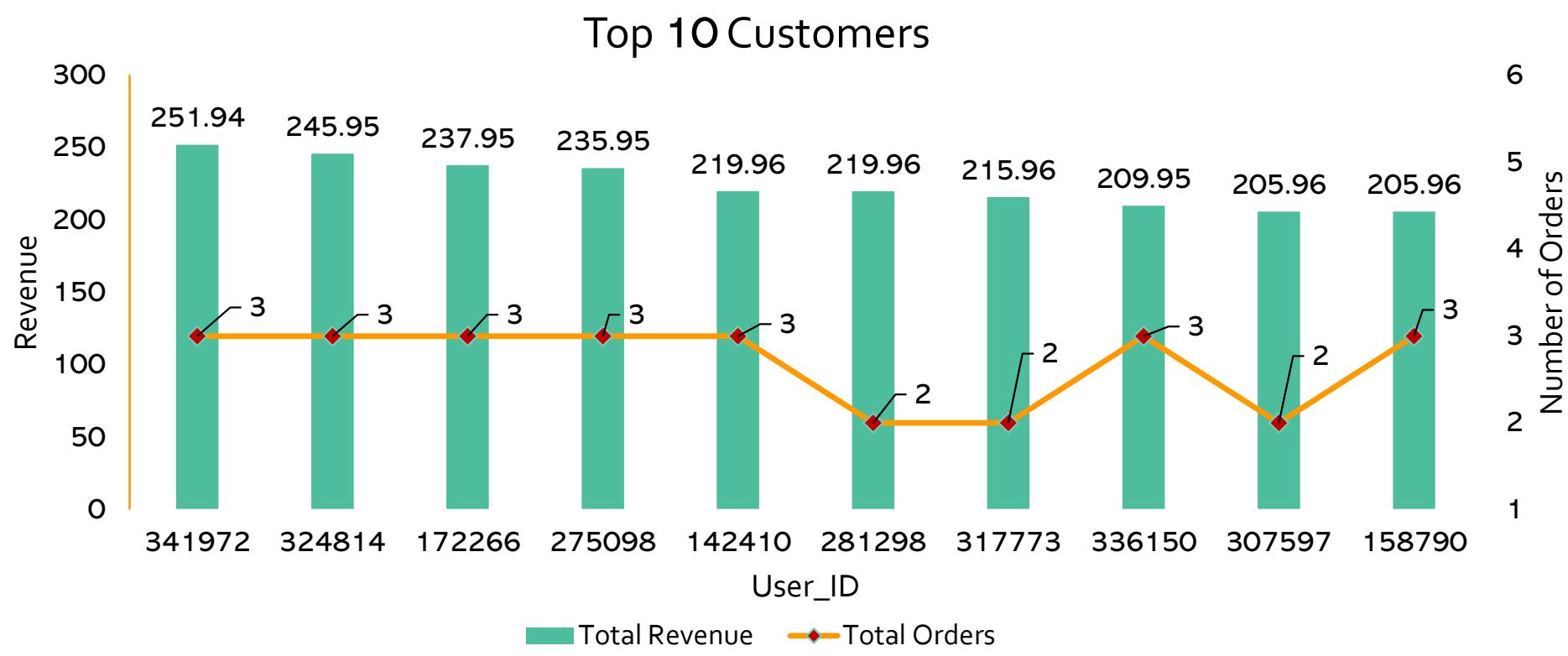
Conversion From Users to Customers by UTM\_Source



# User Analysis



# User Analysis



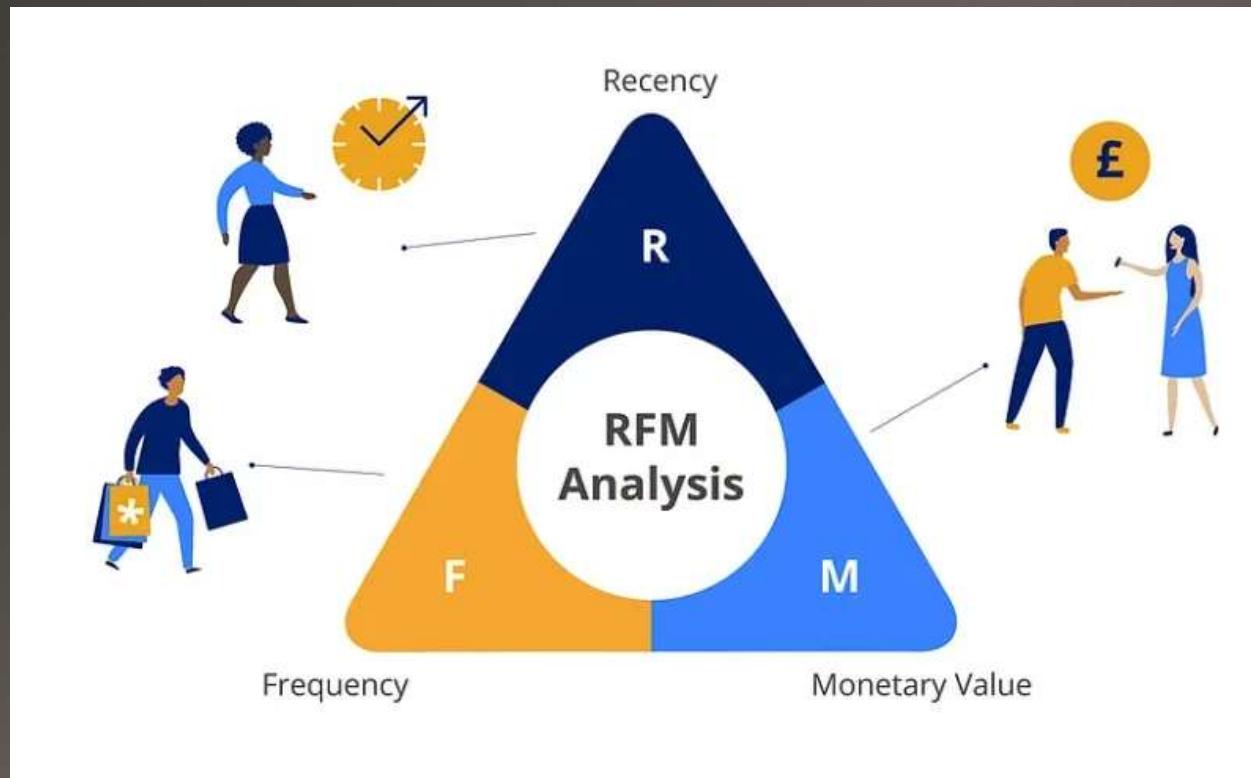
## Observations

- High Proportion of One-Time Customers: The majority of total orders and revenue come from one-time customers, while repeat customers contribute a small percentage.
- Higher Average Revenue Per Order for Repeat Customers: Repeat customers generate slightly higher revenue per order (\$58.79) compared to one-time customers (\$57.31).
- Gsearch Drives the Most Traffic: The majority of website users (299.7K) come from "gsearch," with a significant number converting to customers (21.23K).
- Socialbook Has the Lowest Conversion Rate: Despite having 10.69K users from "socialbook," only 0.34K converted into customers, indicating poor conversion performance.
- Top Customers Have Consistent Revenue Contribution: The top 10 customers generate similar revenue, ranging from ~\$205 to ~\$252.
- Overall Upward Trend: The conversion rate has increased from 7.15% (Apr-14) to 8.31% (Mar-15), peaking at 8.69% in Feb-15.
- Fluctuations Mid-Year: There were slight dips in Jun-14 (6.99%) and Jul-14 (6.76%), but it recovered in the following months.

## Recommendations

- Increase Customer Retention Efforts: Since repeat customers tend to generate higher revenue per order, focus on loyalty programs, personalized offers, and follow-up engagement to encourage repeat purchases.
- Analyze One-Time Customer Drop-off: Investigate why one-time customers do not return. Consider sending post-purchase surveys, offering discounts for second purchases, or improving customer experience.
- Optimize Social Media Campaigns: Since "socialbook" has low conversions, review ad targeting, messaging, and landing page experience to improve engagement and conversion rates.
- Enhance Gsearch Performance: Since "gsearch" is the largest traffic driver, optimize bids, keywords, and ad creatives to maximize conversions while maintaining cost efficiency.
- Plan More Repeat Orders: Introduce loyalty programs or exclusive discounts to incentivize top customers to place more than 3 orders.

# RFM Segmentation



# RFM Segmentation

Recency (R), Frequency (F), and Monetary (M) are key factors used to assess customer behavior:

- Recency (R): Measures how recently a customer made a purchase. The more recent the purchase, the higher the score.
- Frequency (F): Measures how often a customer makes purchases within a given period. The more frequent the purchases, the higher the score.
- Monetary (M): Measures how much money a customer has spent in total. The more money spent, the higher the score.

Each customer is assigned a score for Recency, Frequency, and Monetary using the PERCENT\_RANK function. This function ranks customers based on their behavior, giving a percentage score between 0 and 1. A higher score indicates better performance (e.g., more recent, frequent, or higher spending behavior).

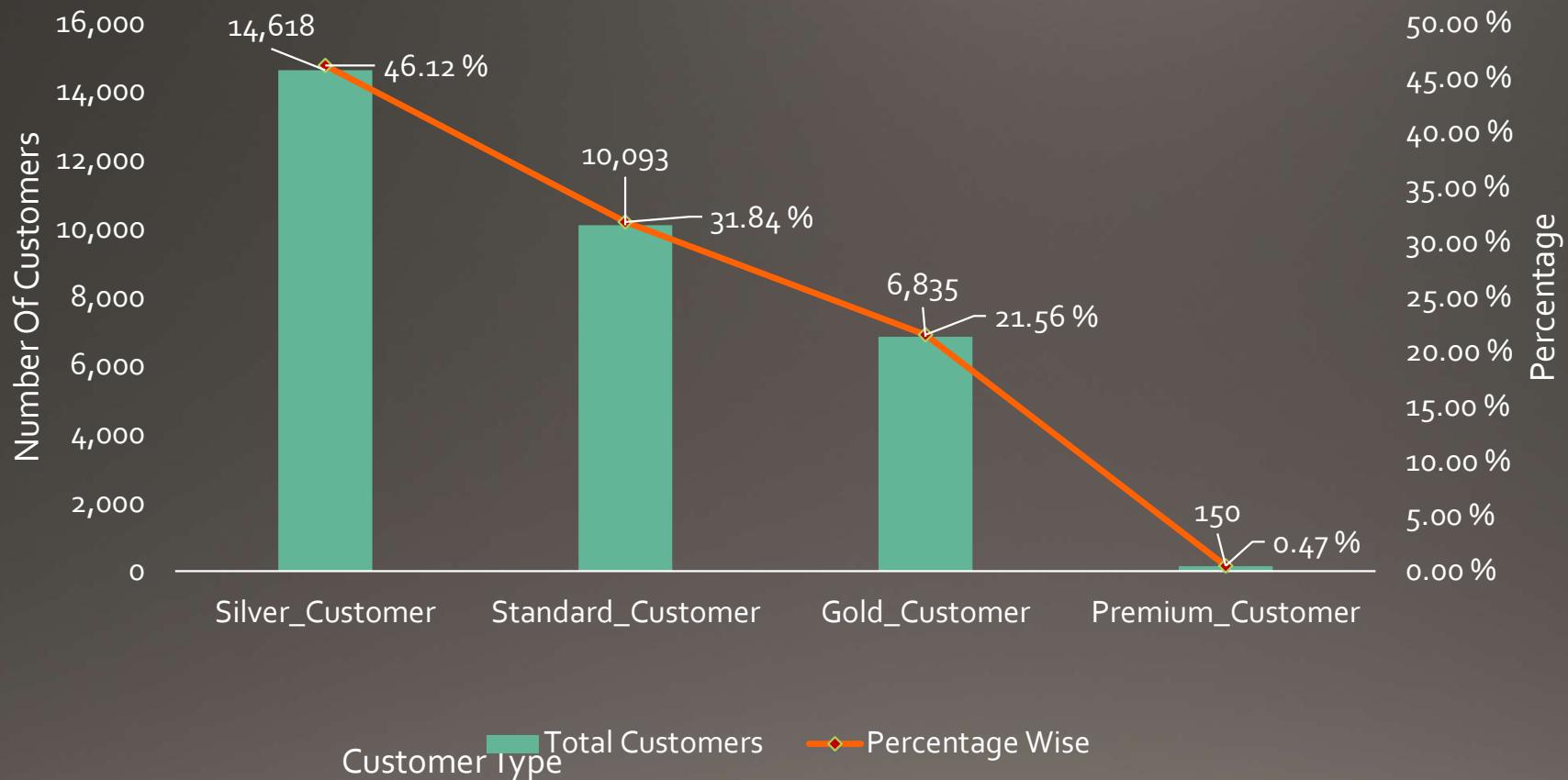
# RFM Segmentation

Total Score is calculated by adding up the scores for Recency, Frequency, and Monetary.

Customer classification is based on the Total Score:

- If the Total Score is greater than 10, the customer is a Premium Customer.
- If the Total Score is between 8 and 10 the customer is a Gold Customer.
- If the Total Score is between 5 and 7 the customer is a Silver Customer.
- If the Total Score is 4 or less, the customer is a Standard Customer.

# RFM Segmentation



## Observations

- Most Customers Are Silver Level: Nearly half (46.12%) of all customers are in the Silver category, making it the largest group.
- Very Few Premium Customers: Only 0.47% of customers are Premium, showing that only a small number reach the highest level.
- Customers Drop Off at Higher Levels: As customers move from Silver to Premium, their numbers decrease significantly, meaning fewer people continue to higher levels.
- Gold & Standard Customers Have Potential: Together, Gold and Standard customers make up more than half of the total, which means there is a huge potential to convert them to premium customers.
- Premium Customers Might Spend More: Even though there are very few Premium customers, if focused well on them they are likely to make bigger purchases, contributing a lot to revenue.
- Many Customers Stay in Lower Levels: Since Silver has the most customers, many people shop but don't move up to higher levels in current scenario.
- Opportunities to Improve Upgrades: Understanding why customers move up levels can help create strategies to increase revenue.

## Recommendations

- Create a Loyalty Program: Offer special rewards to Gold and Silver customers to encourage them to move to Premium.
- Encourage Bigger Purchases: Give personalized discounts or product recommendations to Standard and Silver customers to increase spending.
- Send Targeted Marketing Messages: Use emails and ads that match each customer group, like premium deals for Gold customers and first-time discounts for Standard customers.
- Reward Repeat Customers: Offer special benefits or discounts to customers who buy more than once to increase their lifetime value.
- Analyze What Drives Upgrades: Find out which products or marketing strategy encourage customers to move to higher levels.
- Bundle Products to Increase Sales: Use cross-selling strategies with discounts to suggest product bundles that encourage customers to spend more.

# COHORT ANALYSIS



# Customer Retention By Month (Cohort Analysis)

- Cohort Month: The month when a customer made their first recorded purchase.
- Initial Month (Cohort Customers): The total number of customers who made their first purchase in the cohort month.
- One-Month Customers (Month 1): The number of customers from the cohort month who returned and made a purchase after one month.
- Twelve-Month Customers (Month 12): The number of customers from the cohort month who made repeat purchases after 12 months.

## Customer Retention By Month (Cohort Analysis)

# Customer Retention By Month (Cohort Analysis)

## Customer Retention By Month (Cohort Analysis)

## Observations

- Most repeat purchases happen in Month\_1 after the first purchase, with a noticeable decline in later months
- After Month\_3, the number of repeat purchases drops significantly.
- Certain months have higher repeat rates, while others have poor long-term retention.
- A few cohorts show low repeat purchases even in the first month.
- January cohort from each financial year retained highest customers for the next month. (Month\_1)
- Some months have a high number of new customers (large cohort size) but repeat purchase rates remain low.(Oct-15 to Feb-15)
- The rate of retention increased month on month over years but still the values are very low comparing to the orders recorded in the cohort months.
- The overall repeat purchase rate across all cohorts may be lower than industry standards.
- The number of customers for each cohort month rose significantly during the previous 12 months, but within the past three months, the number of customers began to decline, suggesting some issues with the product or service.

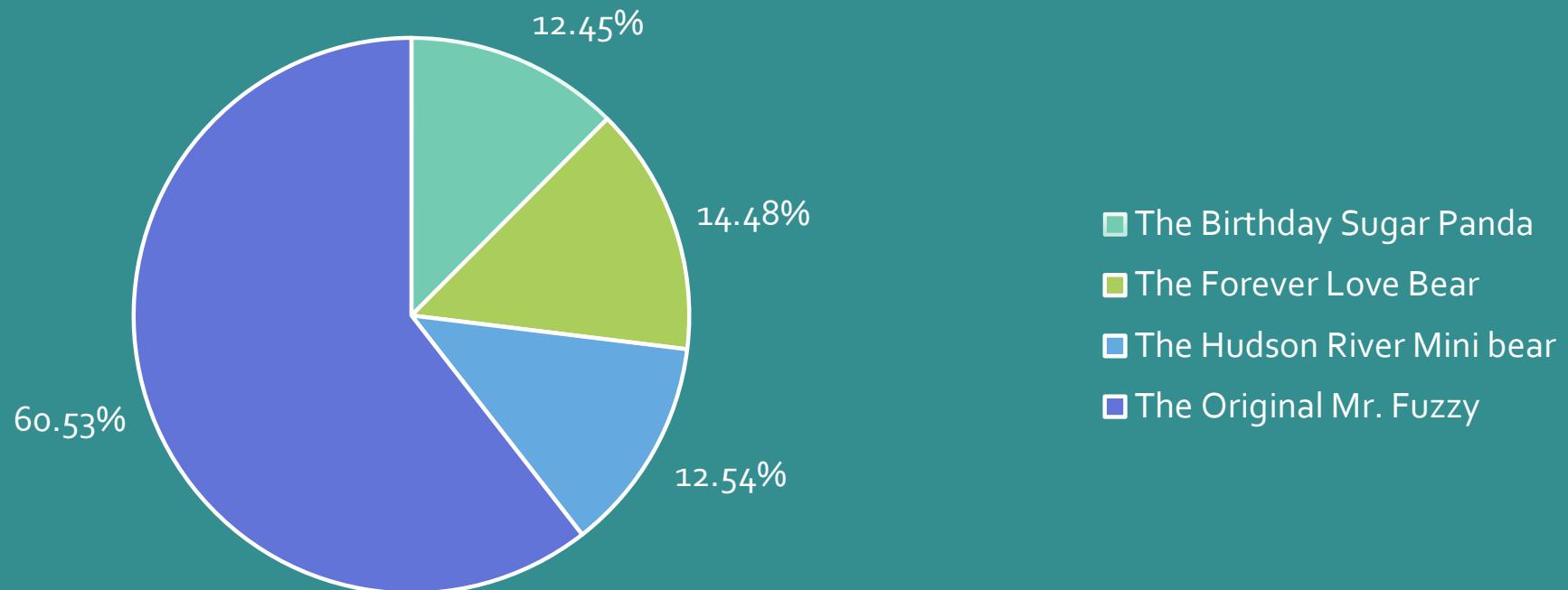
# Recommendations

- Use targeted email marketing, incentives, or loyalty benefits to attract inactive consumers to return, as users are not coming back in subsequent months beyond month three.
- Since growth has slowed over the past three months, we need to look into everything to determine the underlying cause and then figure out a solution that would boost sales.
- Determine the factors that contributed to January 15 and February 15's greater success and duplicate those strategies (e.g., special discounts, better customer experience).
- Track performance, test several retention techniques, and always advance depending on results.
- Analyze usage data or conduct customer feedback polls to learn why consumers depart and handle issues.
- Increasing marketing expenditures on certain projects(creative ads and campaigns) could also result in notable sales and improve retention.
- Retention may be aided by bettering the product or the price.



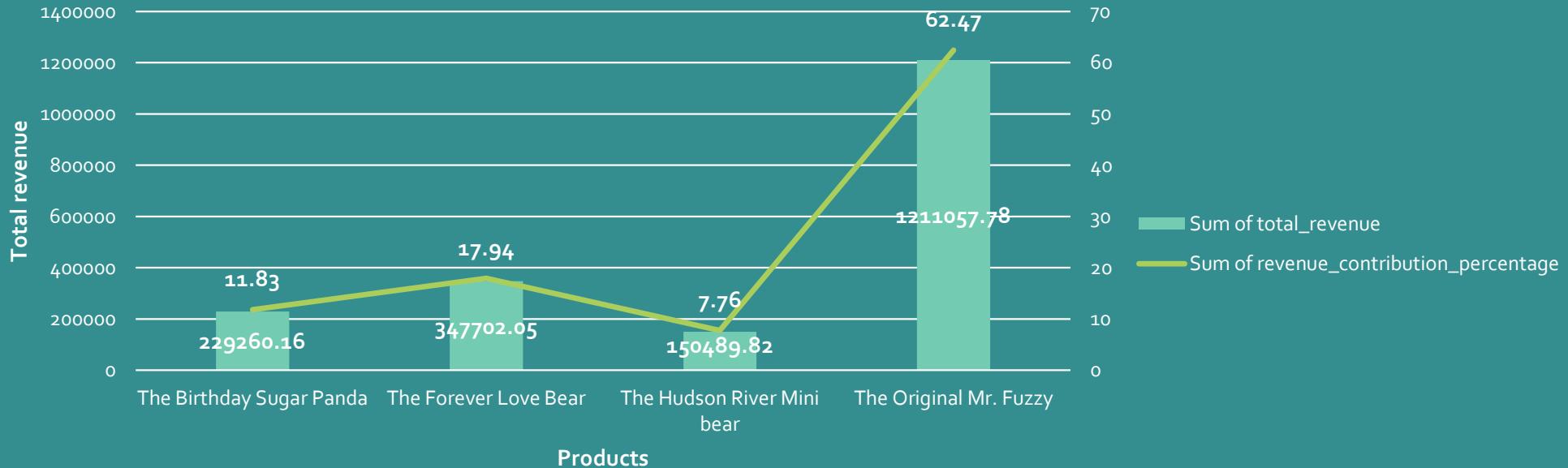
## ➤ Product analysis

Sales distribution by product



## ➤ Product analysis

### Product-Wise Revenue Contribution

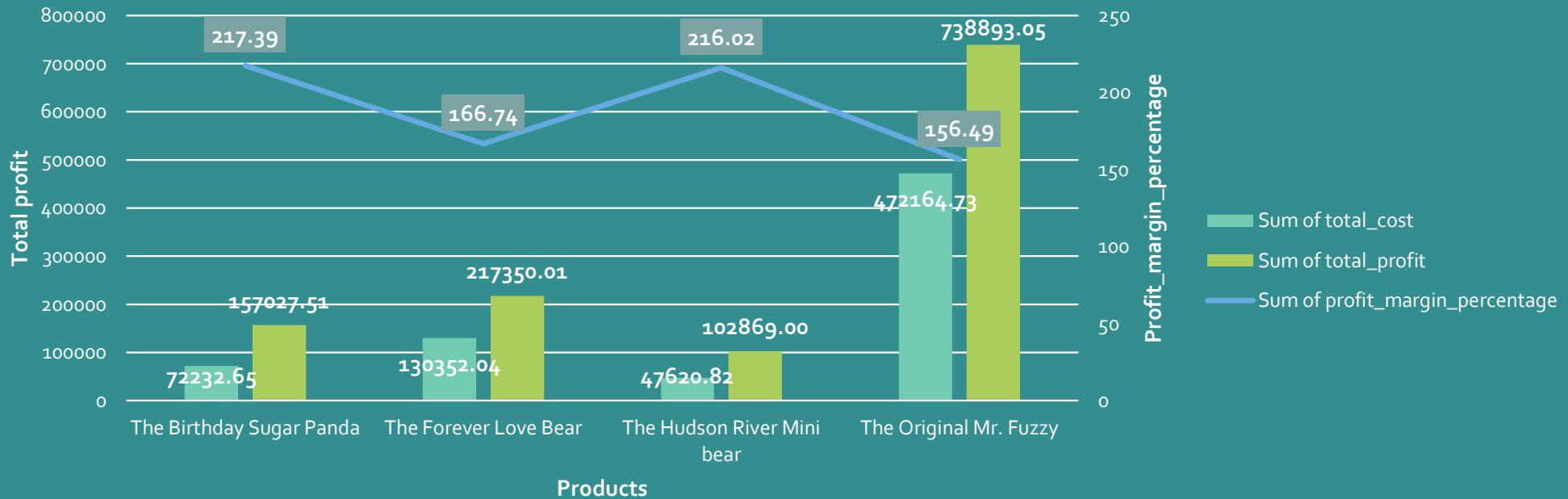


#### ❑ Observation:

- The Original Mr. Fuzzy contributes **62.47%** of the total revenue.
- The Forever Love Bear and The Birthday Sugar Panda have a **smaller revenue share**.
- Revenue distribution follows a similar pattern as sales, meaning **high sales drive high revenue**.

## ➤ Product analysis

### Profitability of Each Product

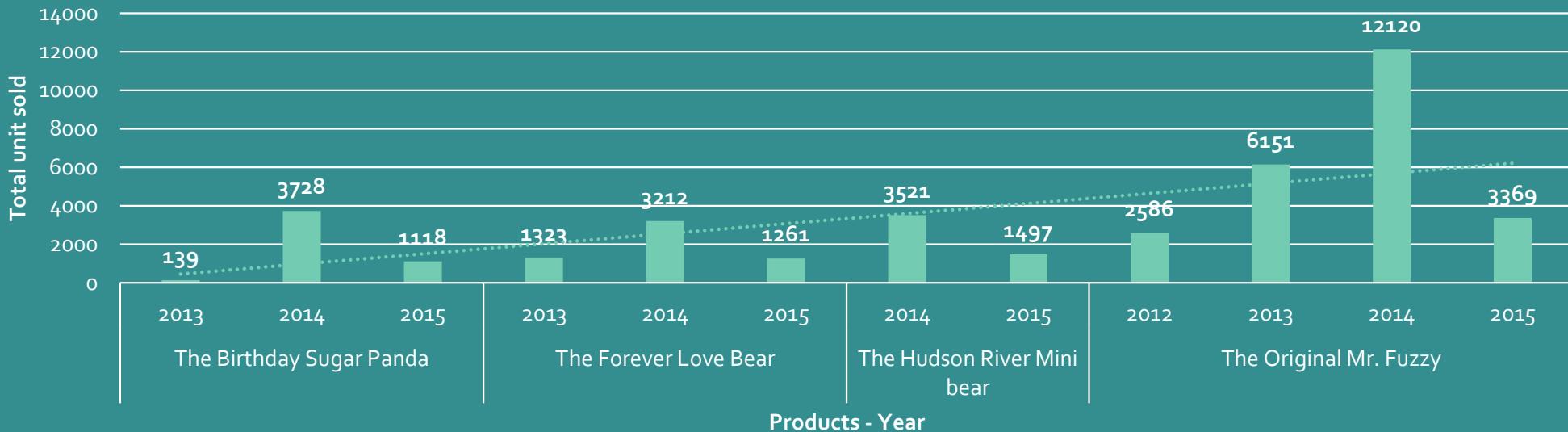


#### □ Observation:

- The Original Mr. Fuzzy generates the highest profit (\$738,893.05) but has a **moderate profit margin (156.49%)**.
- The Hudson River Mini Bear has a **higher profit margin (216.02%)** but lower total profit.

## ➤ Product analysis

### Product demand trends over time



#### ❑ Observations:

- "The Original Mr. Fuzzy" (2014) had the highest sales (12,120 units), making it the most popular product.
- "The Birthday Sugar Panda" and "The Hudson River Mini Bear" saw peak demand in 2014 but declined in 2015.
- Sales trends indicate **fluctuations**, suggesting possible seasonal demand or changing customer preferences.
- Overall, **2014 was the best-performing year**, with multiple products reaching their highest sales.

## ➤ Product analysis

### Product return rate analysis

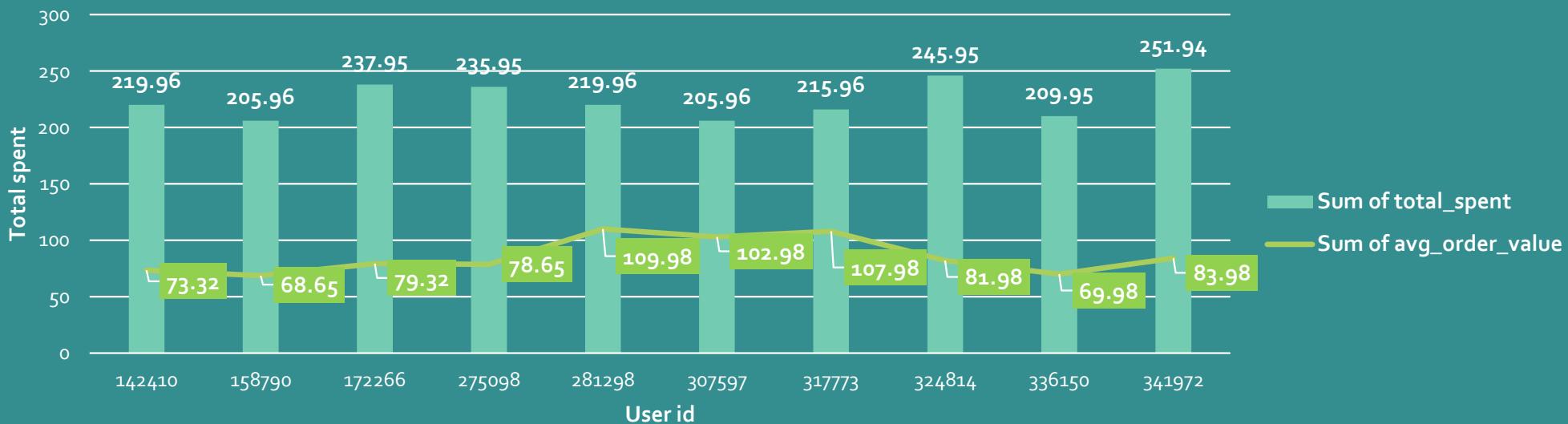


#### ❑ Observations:

- "The Birthday Sugar Panda" has the highest return rate (6.04%), indicating potential quality issues or customer dissatisfaction.
- "The Original Mr. Fuzzy" has the highest number of total orders (24,226), but its return rate (5.11%) is also relatively high.
- "The Hudson River Mini Bear" has the lowest return rate (1.28%), suggesting better customer satisfaction or fewer defects.

## ➤ User analysis

Top 10 users based on Total spent



### ❑ Observation:

- The highest spender (User ID 34972) has spent \$251.94, followed closely by other users with similar spending patterns, suggesting a strong engagement from a few high-value customers.
- Despite high total spending, the **average order value fluctuates**, ranging from \$68.65 to \$109.98. Some users make more frequent but lower-value purchases, while others place fewer but higher-value orders.

## ➤ User analysis

### New vs repeat customers

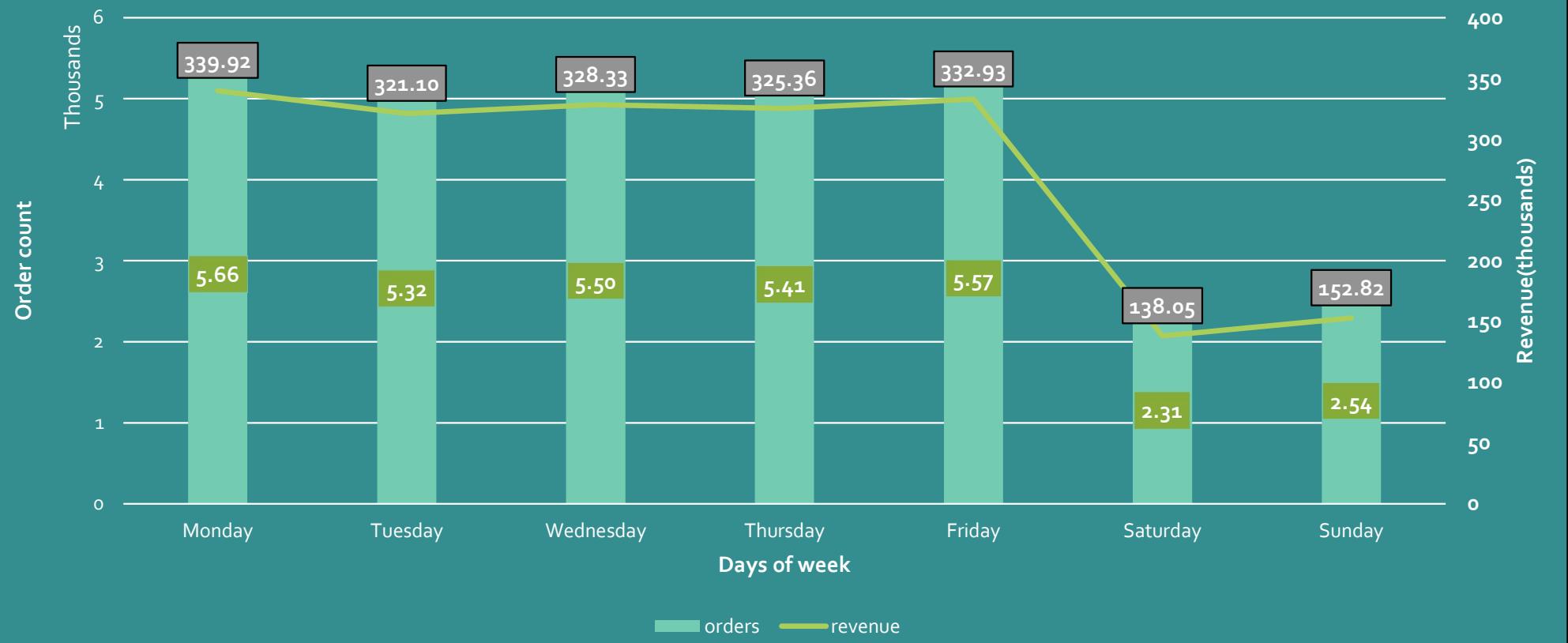


### ❑ Observations

- The majority (88.49%) of the customers are **new** (394,318 customers), indicating strong customer acquisition efforts.
- Only **11.51%** of the customers are **repeat users** (51,270 customers), suggesting that customer retention needs improvement.
- The company should focus on retention strategies, such as loyalty programs, personalized offers, or better post-purchase engagement, to increase repeat customers.

## ➤ Business Patterns and Seasonality

### Orders and Revenue by Weekday



## ➤ Business Patterns and Seasonality

### ❑ Observations:

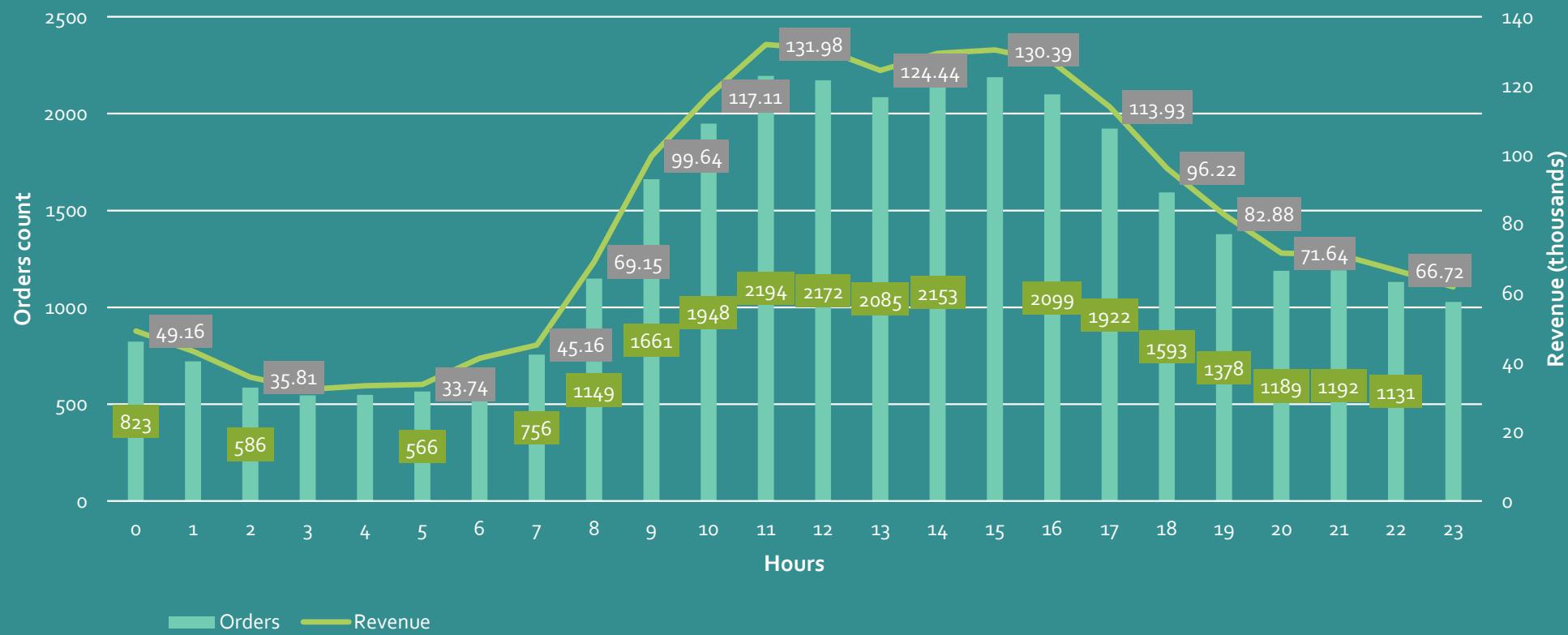
- **Weekday Consistency:** Orders and revenue remain consistently high from **Monday to Friday**, peaking on **Friday** (332.93K orders and 5.57K revenue).
- **Weekend Drop:** A sharp decline in both orders and revenue is observed on **Saturday and Sunday**.
- **Revenue Stability:** Despite fewer orders on weekends, **revenue per order** remains stable, suggesting higher-value purchases.

### ❑ Recommendations:

- **Focus on weekday performance** by improving order handling and customer service during peak days.
- Introduce **weekend-specific promotions** to drive customer engagement and increase sales.
- Optimize staffing and logistics for higher efficiency on high-demand days.

## ➤ Business Patterns and Seasonality

### Hourly Analysis of Revenue and No of Orders



## ➤ Business Patterns and Seasonality

### □ Observations:

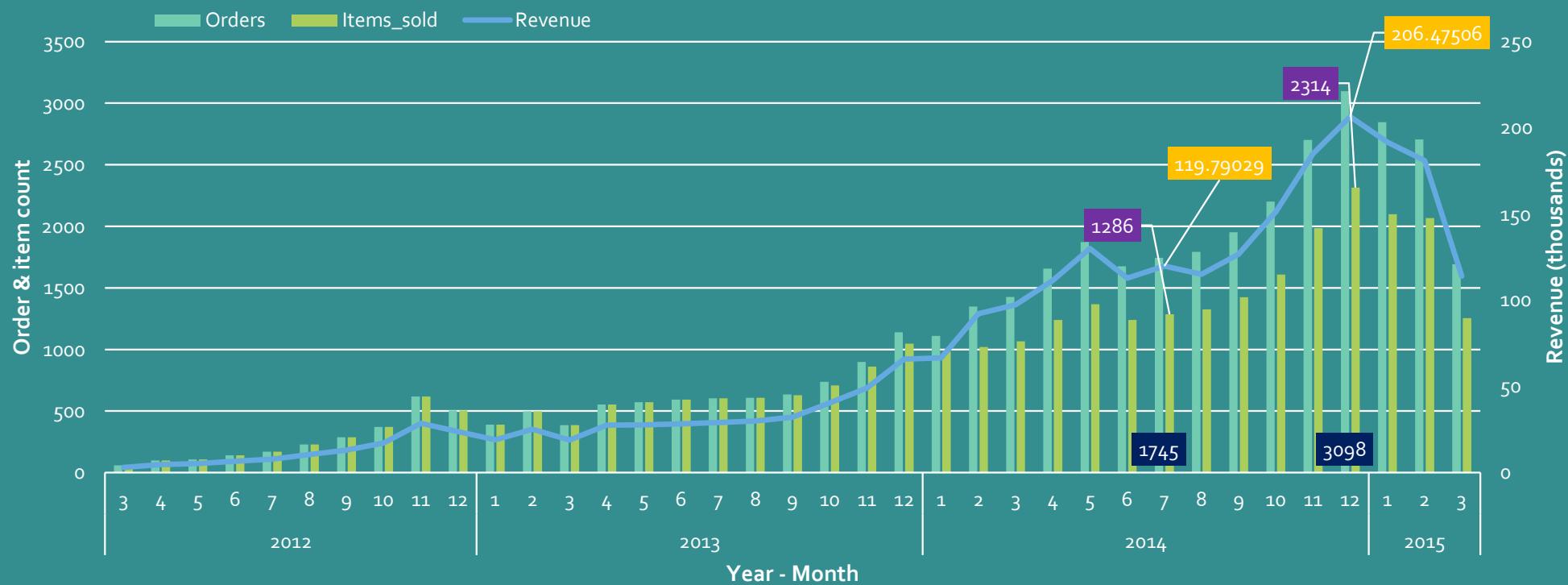
- **Peak Activity:** Orders and revenue peak between **12 PM and 3 PM**, with the highest order count at **2,472** and revenue at **131.98K** at **1 PM**.
- **Morning and Evening Lows:** Orders and revenue remain low during early morning (**12 AM to 6 AM**) and late evening (**7 PM onwards**).
- **Steady Decline:** After **3 PM**, there is a gradual decline in both orders and revenue through the evening and night.

### □ Recommendations:

- Optimize marketing and customer engagement during peak hours to **maximize revenue**.
- Introduce targeted promotions or discounts to increase activity during **morning and evening hours**.
- Enhance order fulfillment capabilities during peak periods to prevent delays.

## ➤ Business Patterns and Seasonality

### Trend analysis



## ➤ Business Patterns and Seasonality

### □ Observations:

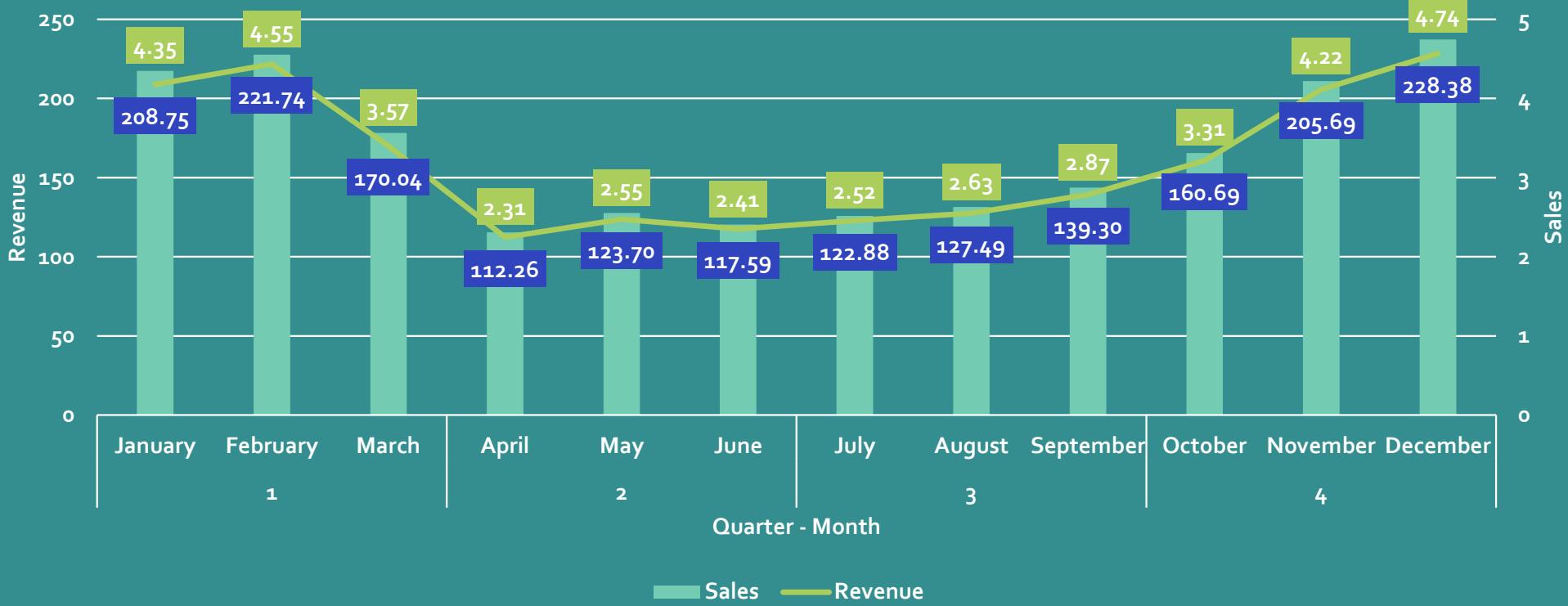
- **Consistent Growth:** Steady increase in orders, items sold, and revenue from **2012 to 2014**, peaking in **late 2014**.
- **Seasonality:** Noticeable spikes in revenue and order count during **Q3 and Q4** of each year, suggesting higher demand during these periods.
- **2015 Decline:** Sharp drop in all metrics in early **2015**, indicating a possible change in market conditions or strategy shift.

### □ Recommendations:

- Implement a **seasonal marketing strategy** to capitalize on Q3 and Q4 demand.
- Conduct a root cause analysis for the **2015 decline** and adjust pricing, product offerings, or marketing accordingly.
- Strengthen inventory and supply chain management to support increased demand during peak periods.

## ➤ Business Patterns and Seasonality

Monthly seasonality of total sales volume, revenue



## ➤ Business Patterns and Seasonality

### □ Observations:

- **Highest Performance:** December shows the highest revenue (228.38K) and sales volume (4.74K), indicating strong seasonal demand due to holiday shopping.
- **Lowest Performance:** April recorded the lowest sales (112.26K) and revenue (2.31K), reflecting a seasonal slowdown after the holiday period.
- **Quarterly Trend:** Q4 (October to December) outperforms other quarters in both sales and revenue, highlighting the impact of seasonal shopping patterns.

### □ Recommendations:

- **Maximize Q4 Opportunities:** Increase marketing spend and targeted promotions during Q4 to capitalize on strong seasonal demand.
- **Boost Q2 Performance:** Implement special discounts and loyalty programs in Q2 (April to June) to address the slowdown.
- **Inventory Planning:** Adjust inventory levels based on seasonal demand to avoid stockouts during high-demand periods and reduce excess stock during low periods.