

Alexpert Data Innovators Challenge

Ecommerce Dashboard: Insights into Customer, Products & Operation



Executive View

Dive into the core of your business performance. This report offers a comprehensive breakdown of revenue by location and product, along with detailed insights into orders segmented by payment method, device type, and time spent on the website. Empower leadership to make strategic decisions with a clear understanding of the key drivers behind sales and customer



Customer Analysis

Uncover the story behind your customers. This report delves deep into customer demographics, behaviors, and retention trends, revealing actionable insights to optimize customer engagement and drive loyalty.



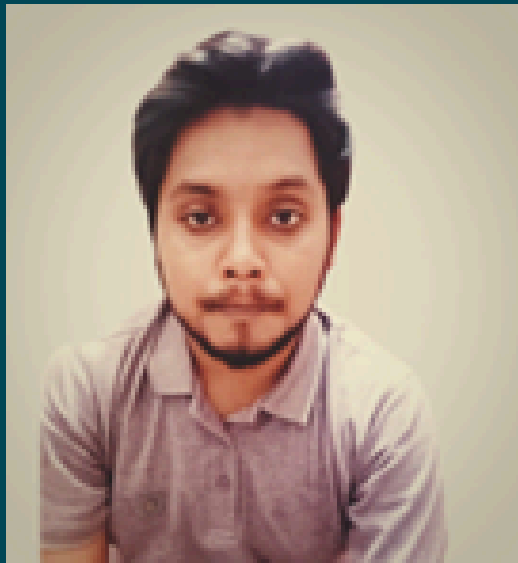
Product Insights

Unlock the secrets of your product portfolio. Analyze top-performing products, categories, and inventory flow to sharpen your product strategy and maximize profitability.

Project Presented by

Team : AlfaFold

✓ Abdur Rahman(Team Leader)



✓ Md Arshad Ahmmed



Visualization Guide

- ❑ **Tooltip alert 1** : Please hover over executive views revenue by location chart , specifically in location bar to get insight about location wise customer impression
 - ❑ **Tooltip alert 2** : Please hover over executive views revenue by product chart to get insight about product wise overall customer impression
 - ❑ **Tooltip alert 3** : Please over customer analysis report's discount availed card to get granular insight about discount availed by customer subscription level
 - ❑ **Tooltip alert 4** : Hover over product insights reports table matrix to gain insight about how many discount availed by products based on customer subscription level
- **Page Navigation** : Navigate through page navigation option from home page , additionally page navigation is also included in report pages to navigate through main reports

✓ Dashboard Interactive link:

<https://app.powerbi.com/view?r=eyJrljoiYzc5MDNhMWMtNDM5Ni00Njk5LWFjYTYtNDMxOTBjNWJlZml4liwidCI6Ijg2OTY0MTdiLTM1NDgtNDFjNC04NTU3LWE0ZWVjN2U4NTQ4MSIsImMiOiJEWfQ%3D%3D>

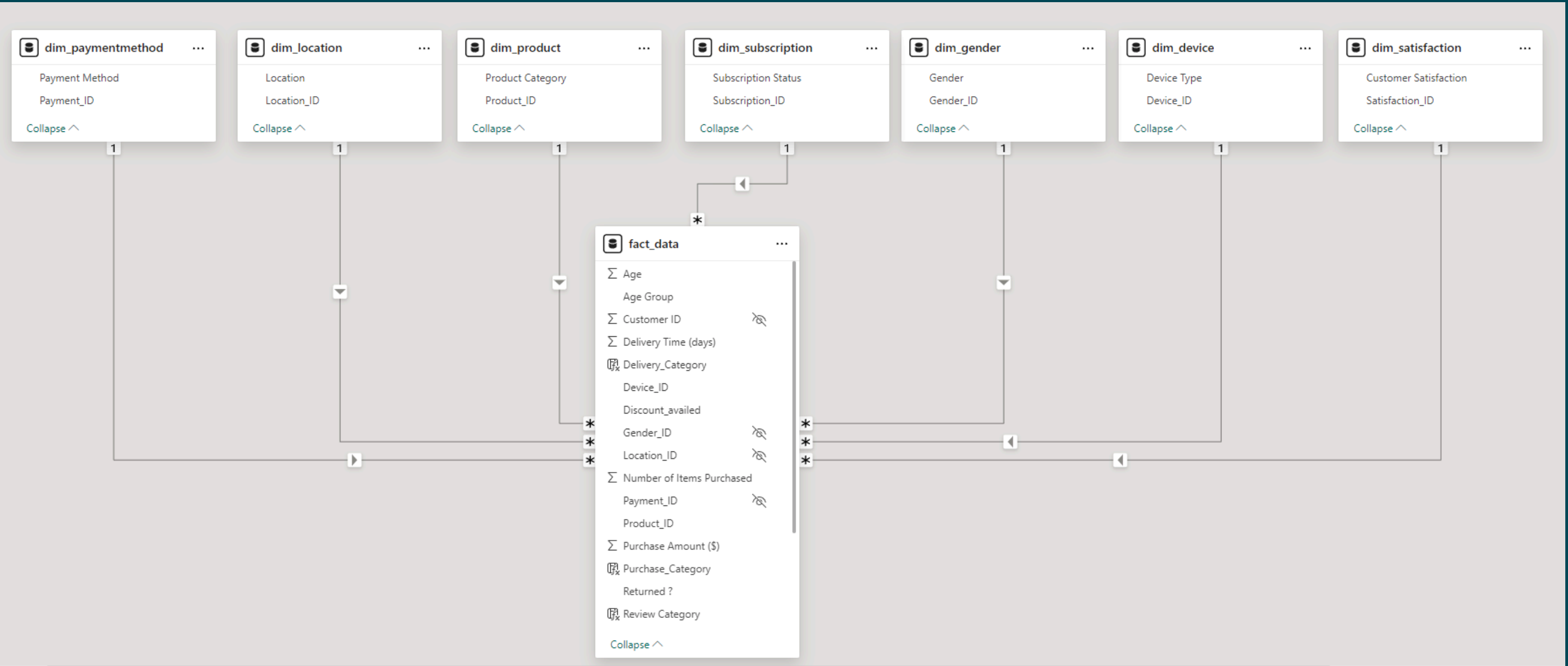
Database Normalization

- As provided database was in “flat schema” , we transformed it to “Star schema” to reduce redundancy as well as optimize the data model.
- Seven dimension and one fact table generated from initial database to optimize our analytical process .

Flat Schema

Customer	Age	Gender	Location	Product C	Purchase Amount (\$)	Time Spent on V	Device Type	Payment Method	Discount Avai	Number of It	Return Cust	Review Score	Delivery Tim	Subscription	Customer Satisfaction
1	20	Other	Dhaka	Toys	202.54	44	Mobile	Cash on Deliver	TRUE	4	TRUE	5	4	Free	Low
2	39	Male	Rangpur	Sports	655.94	27	Desktop	Bank Transf	TRUE	1	FALSE	1	7	Free	Medium
3	64	Male	Khulna	Home	963.65	9	Tablet	Bank Transfer	FALSE	8	TRUE	4	9	Premium	Medium
4	65	Other	Rajshahi	Beauty	485.59	39	Desktop	Bank Transfer	TRUE	1	TRUE	5	10	Trial	Medium
5	67	Male	Rangpur	Home	143.27	17	Tablet	Debit Card	FALSE	8	TRUE	4	1	Premium	High
6	63	Female	Rajshahi	Books	755.39	54	Tablet	Cash on Deliver	FALSE	6	TRUE	3	4	Trial	High
7	28	Female	Khulna	Groceries	866.41	41	Desktop	Debit Card	TRUE	3	TRUE	2	2	Free	High
8	38	Male	Dhaka	Electronic	103.12	46	Desktop	Debit Card	FALSE	1	FALSE	3	13	Premium	Low
9	54	Other	Sylhet	Books	924.58	47	Mobile	PayPal	FALSE	9	TRUE	2	11	Trial	Medium
10	33	Male	Khulna	Groceries	184.64	18	Mobile	Debit Card	TRUE	9	FALSE	4	1	Trial	Low
11	22	Other	Mymensir	Books	857.99	53	Tablet	Credit Card	FALSE	1	TRUE	3	11	Premium	High
12	63	Male	Barisal	Sports	303.27	12	Tablet	Credit Card	FALSE	1	FALSE	5	2	Premium	Medium
13	64	Male	Barisal	Sports	119.04	29	Mobile	PayPal	FALSE	2	FALSE	4	5	Trial	Low
14	65	Female	Barisal	Beauty	176.72	30	Desktop	PayPal	TRUE	1	TRUE	4	11	Premium	High
15	23	Other	Chittagon	Groceries	703.85	53	Desktop	Credit Card	FALSE	6	TRUE	5	1	Free	Medium
16	64	Female	Mymensir	Groceries	595.08	23	Tablet	PayPal	FALSE	3	FALSE	4	13	Trial	High
17	39	Male	Chittagon	Clothing	920.47	19	Desktop	Bank Transfer	TRUE	6	TRUE	4	13	Trial	High
18	21	Female	Mymensir	Electronic	375.84	50	Tablet	Bank Transfer	FALSE	4	FALSE	5	8	Premium	Medium
19	34	Female	Dhaka	Electronic	142.97	33	Tablet	PayPal	TRUE	4	FALSE	1	5	Trial	Medium
20	38	Other	Khulna	Groceries	68.13	39	Desktop	Cash on Deliver	TRUE	4	TRUE	5	12	Trial	Medium
21	61	Male	Rangpur	Toys	195.74	17	Mobile	Bank Transfer	TRUE	2	FALSE	2	13	Premium	Medium
22	39	Other	Sylhet	Home	252.68	55	Desktop	Debit Card	FALSE	8	FALSE	3	12	Premium	High
23	67	Male	Rangpur	Home	847.11	50	Desktop	Cash on Deliver	TRUE	7	FALSE	3	7	Free	Low
24	54	Other	Mymensir	Home	39.89	38	Tablet	Credit Card	TRUE	7	TRUE	5	3	Trial	High
25	30	Male	Khulna	Sports	143.18	8	Tablet	Credit Card	FALSE	2	TRUE	1	6	Free	High
26	37	Other	Mymensir	Sports	597.65	12	Tablet	Bank Transfer	FALSE	8	FALSE	3	7	Trial	High
27	32	Male	Mymensir	Home	997.24	17	Desktop	Bank Transfer	FALSE	2	TRUE	3	6	Free	High
28	35	Female	Sylhet	Electronic	641.47	34	Desktop	Bank Transfer	FALSE	4	TRUE	1	11	Trial	Low
29	20	Female	Rajshahi	Sports	593.02	17	Mobile	Credit Card	FALSE	5	TRUE	3	1	Premium	Low
30	62	Female	Barisal	Home	141.8	11	Mobile	Cash on Deliver	TRUE	7	TRUE	5	6	Premium	High
31	49	Female	Dhaka	Clothing	678.83	58	Desktop	Bank Transfer	FALSE	8	TRUE	3	6	Free	Low
32	54	Male	Mymensir	Toys	790.16	50	Desktop	Cash on Deliver	TRUE	6	FALSE	1	12	Premium	Medium
33	61	Other	Mymensir	Home	583.35	55	Mobile	Debit Card	TRUE	2	FALSE	5	11	Free	Low
34	66	Female	Rajshahi	Toys	657.74	44	Mobile	Bank Transfer	TRUE	9	TRUE	3	9	Premium	High
35	25	Other	Barisal	Clothing	614.48	33	Mobile	Cash on Deliver	TRUE	5	FALSE	1	9	Premium	Medium
36	32	Female	Mymensir	Groceries	438.99	18	Desktop	Cash on Deliver	FALSE	3	TRUE	5	2	Trial	Low
37	65	Male	Rangpur	Sports	655.94	27	Desktop	Bank Transf	TRUE	1	FALSE	1	7	Free	Medium

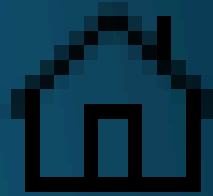
Star Schema



Gender
All

Subscription Status
All

Age Group
All



Home



Customer analysis

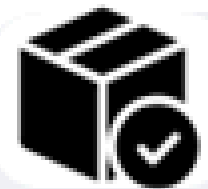


Product & others



\$5.04M

Total Revenue



50K

Quantity



3.00

Avg review score



4,996

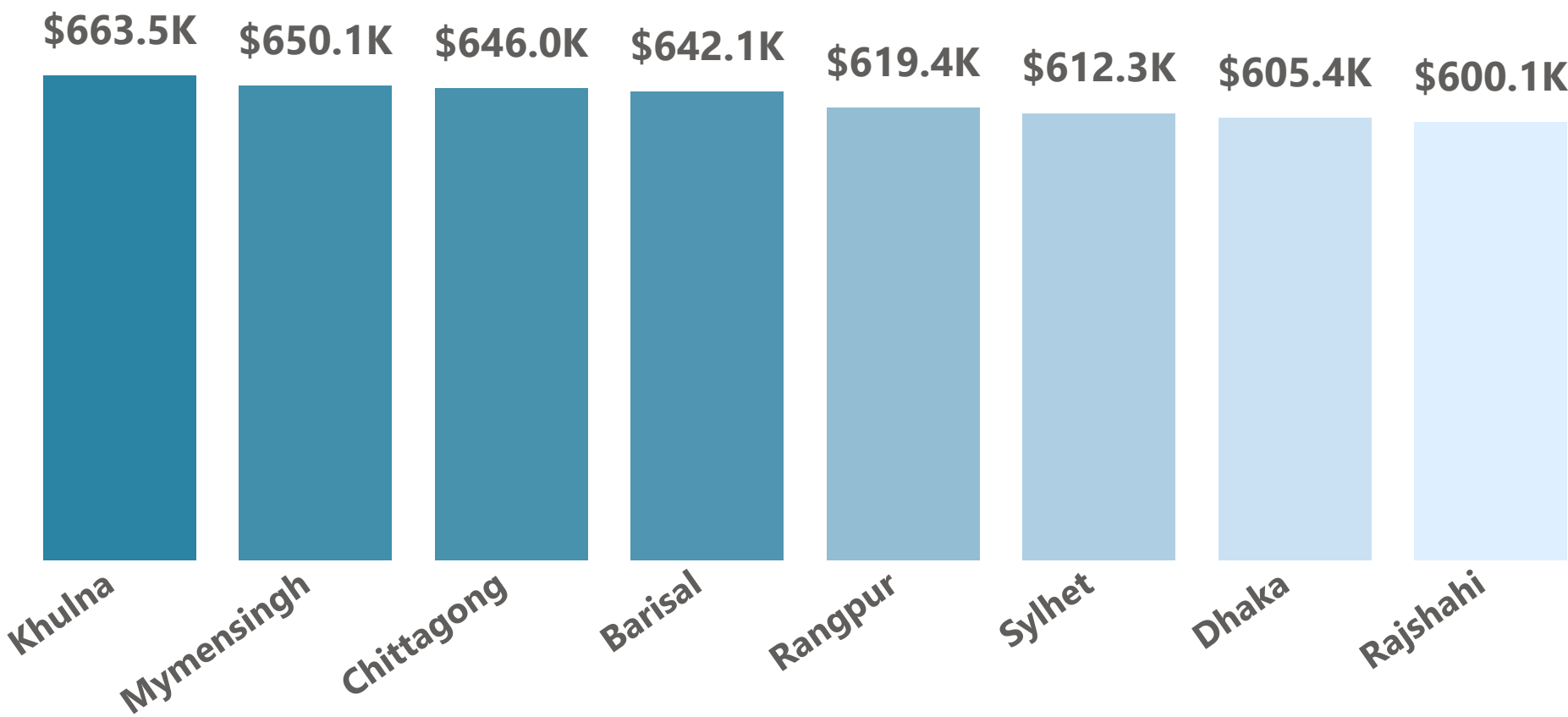
Returned customer



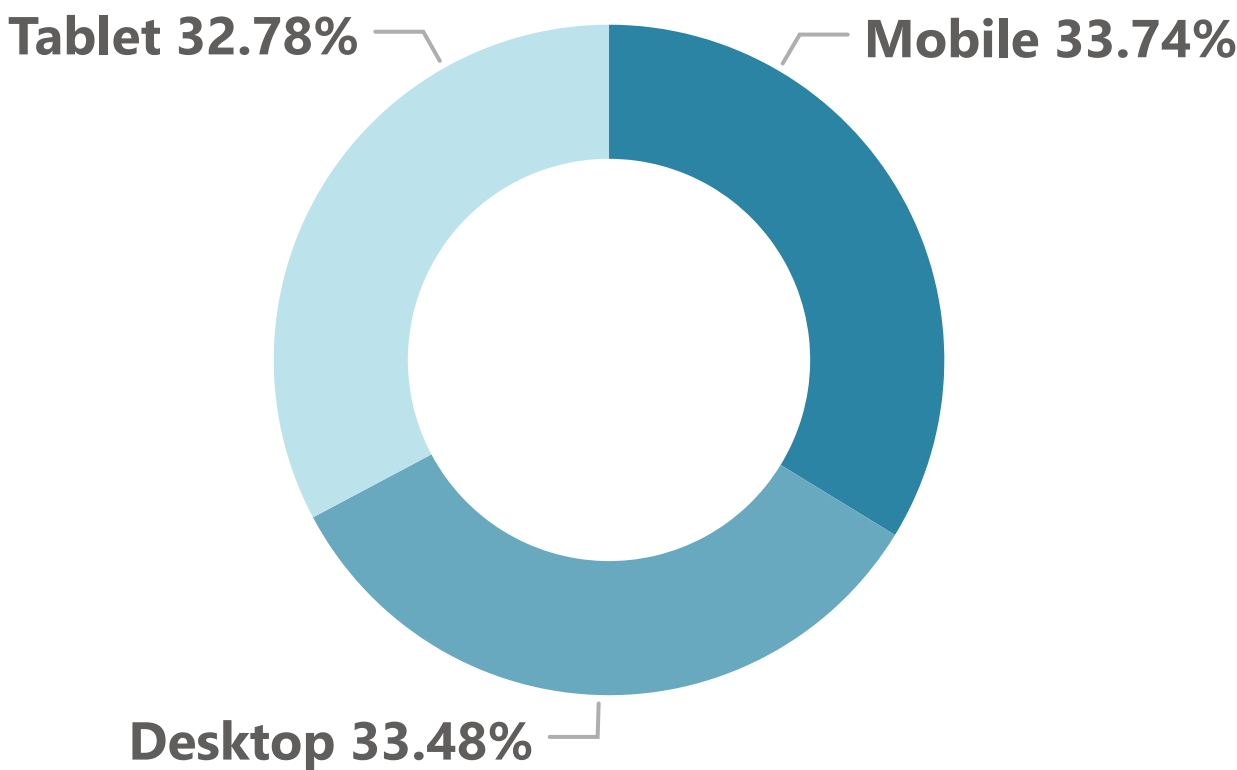
7.0

Avg delivery day

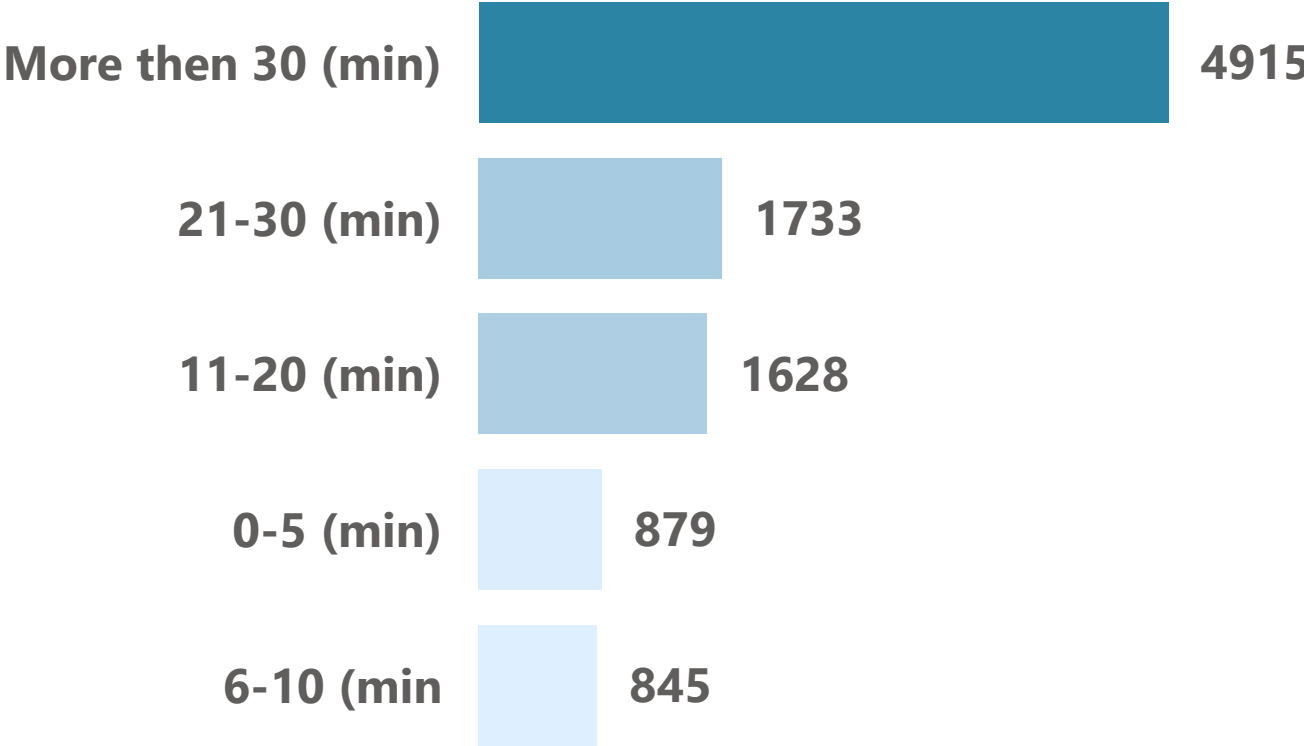
Total Revenue by location



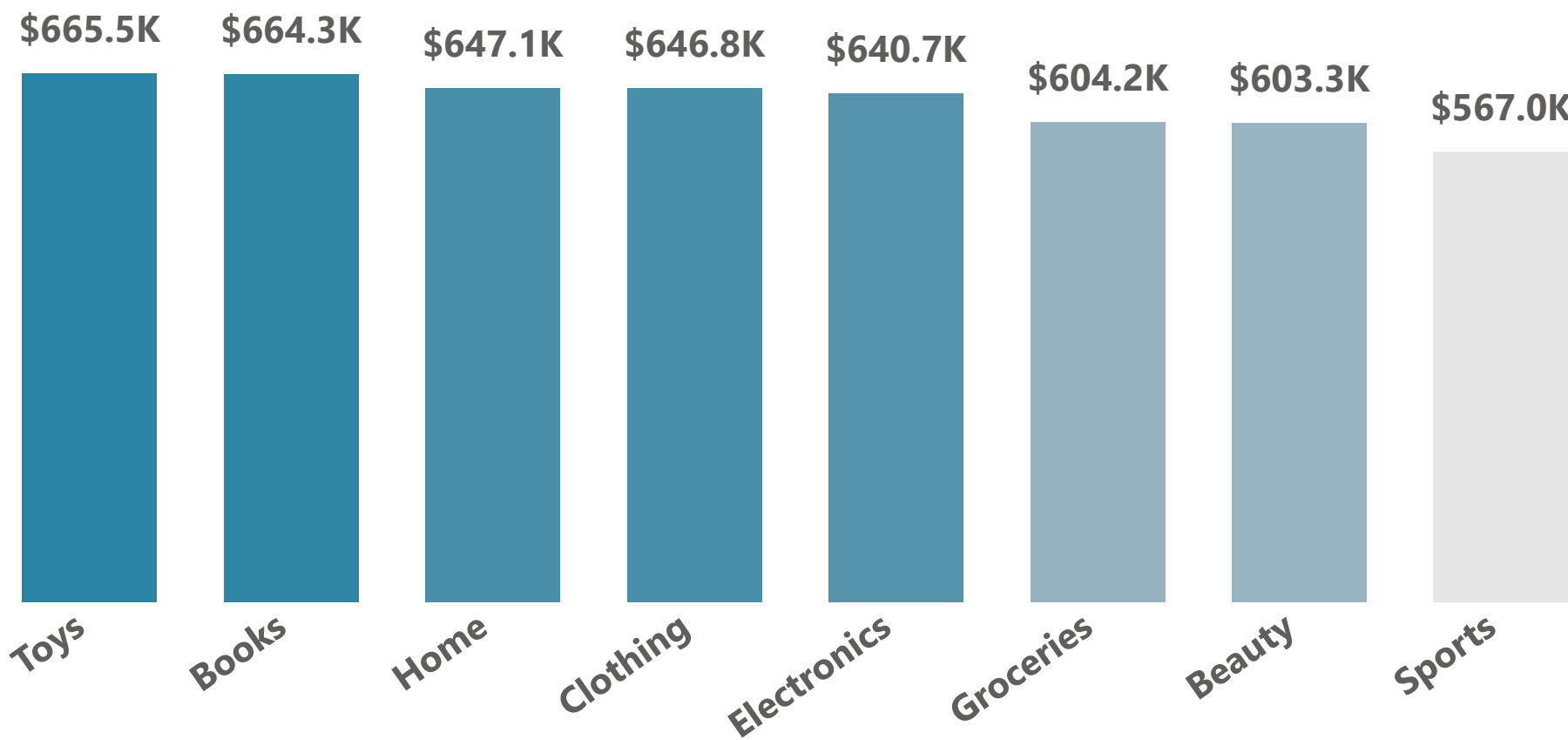
Orders by device type



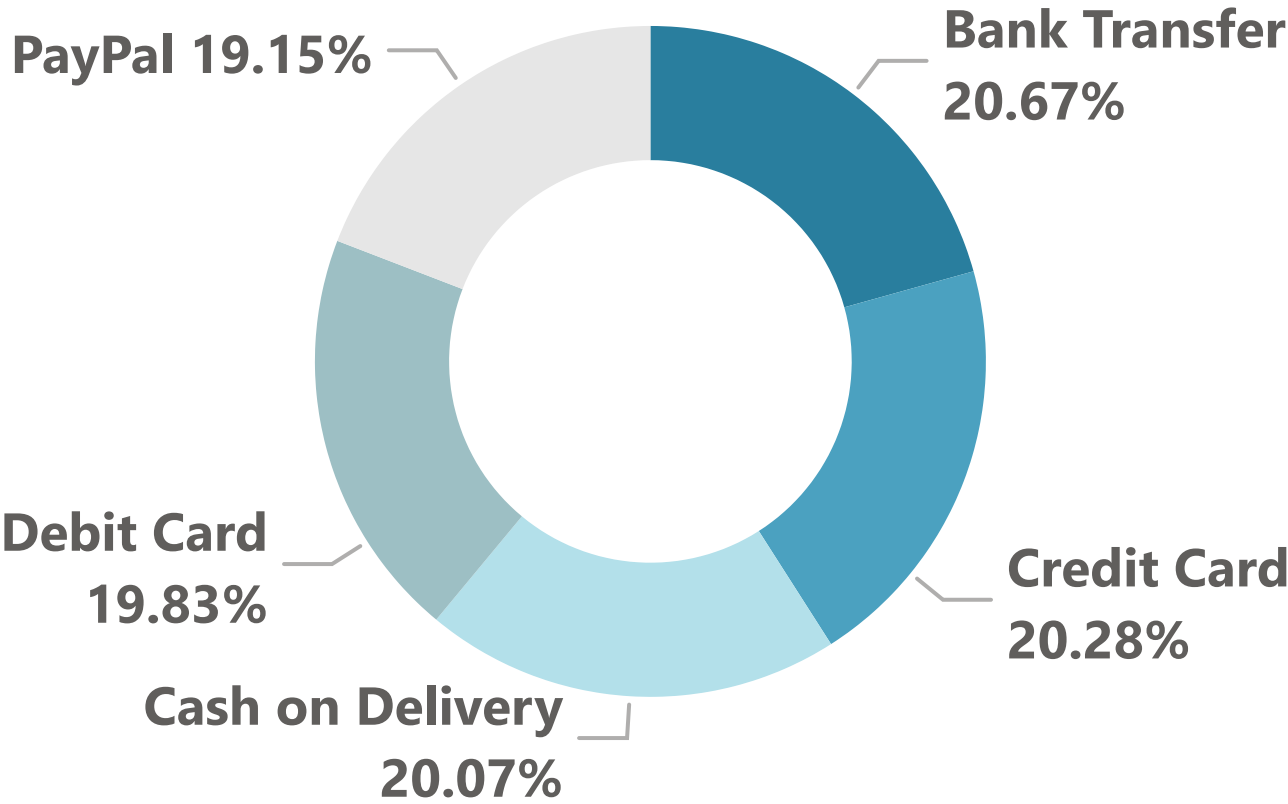
Orders by Website Interaction(min)



Total Revenue by Product Category



Order by Payment Method



Location vs Subscription by Purchased item

Location	Free	Premium	Trial
Barisal	1,897	2,095	2,275
Chittagong	2,214	2,255	1,863
Dhaka	2,128	2,011	1,916
Khulna	2,150	2,042	2,214
Mymensingh	2,011	2,211	2,137
Rajshahi	1,967	2,050	1,994
Rangpur	2,246	2,046	1,982
Sylhet	2,349	1,989	1,943
Total	16,962	16,699	16,324

Payment Method

All

Gender

All

Location

All



3,369

Subscribed customers



\$504

AOV



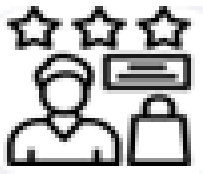
3.00

Avg review score



49.96%

Retention rate



5,004

New customers

Average Customer age | 44

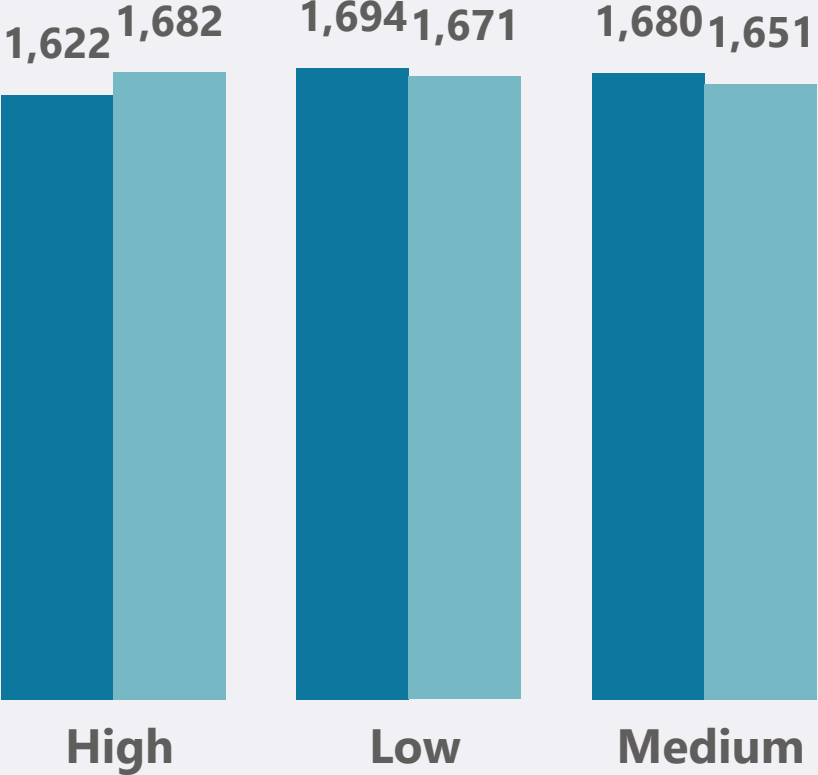
Male customers | 3,349

Female customers | 3,338

Discount Aailed | 5,017

Customer Satisfaction by Return Customer and New Customer

Returned_customer New customers

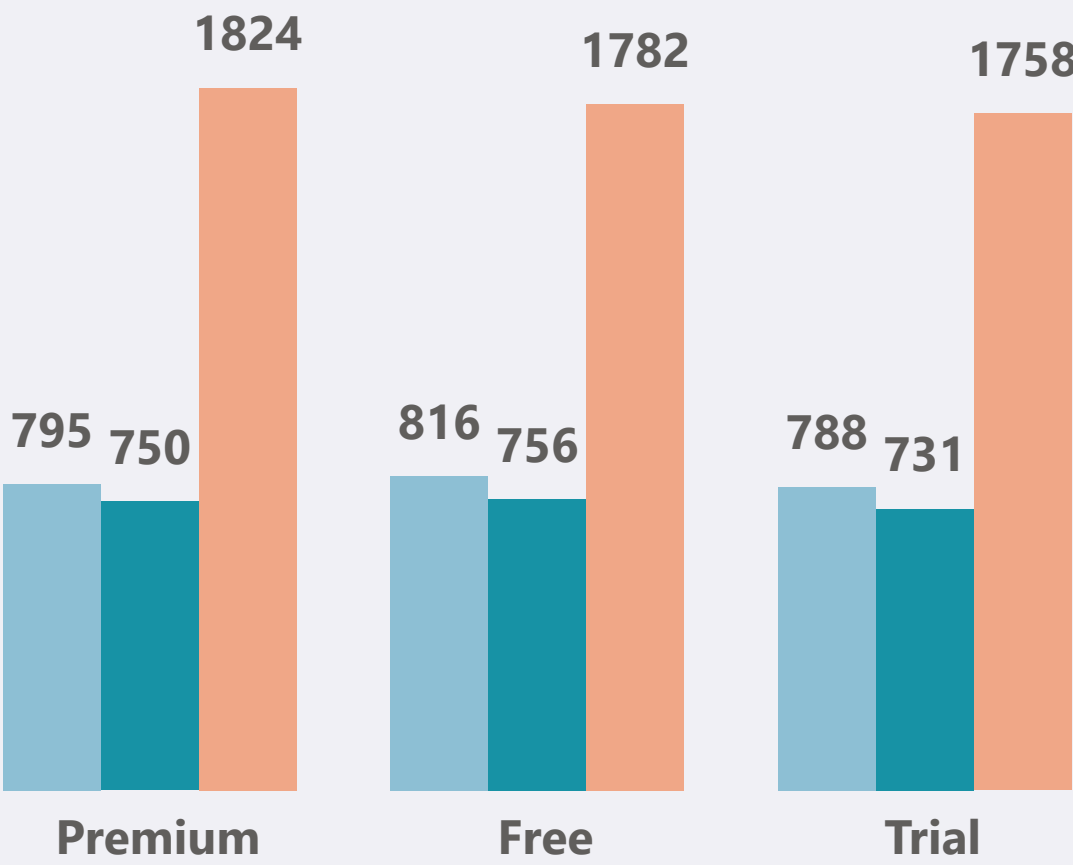


Returned Customer by Product Category

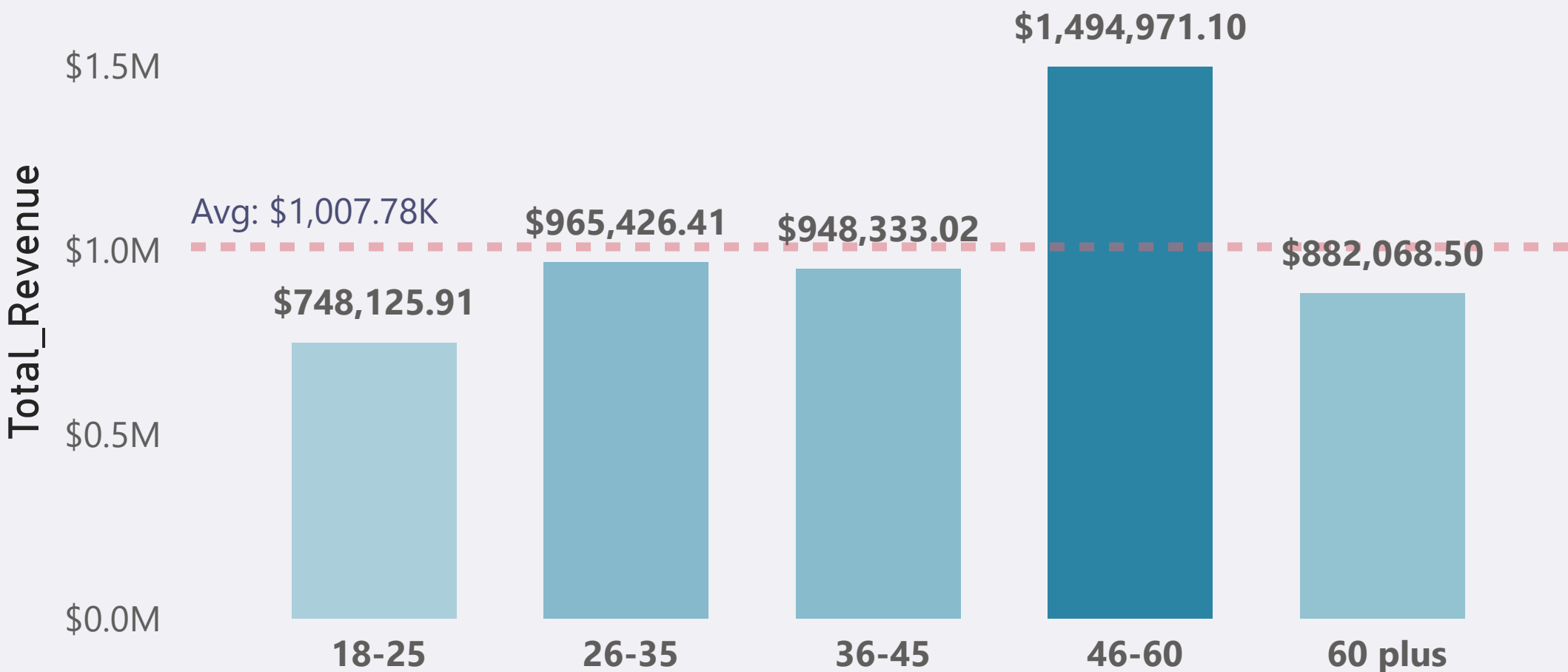


Subscription Status by Delivery Category

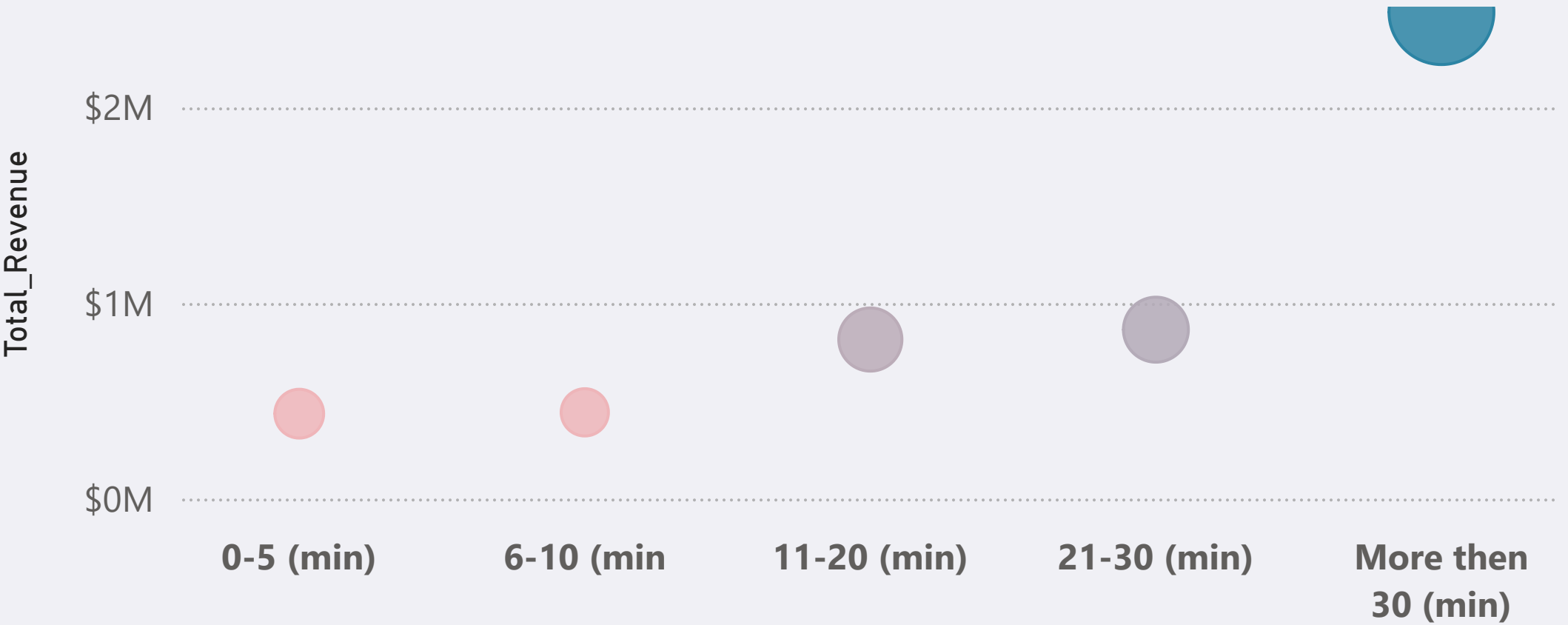
Delivery_Categ... Late Delivery Quick Delivery Very Late Delivery



Total Revenue by Age Group



Total Revenue vs Website Interaction(min)



Home



Executive View



Product & others



Home



Executive View



Customer Analysis



10K

Total Orders



50K

Total Quantity



\$5.04M

Total Revenue



29.92

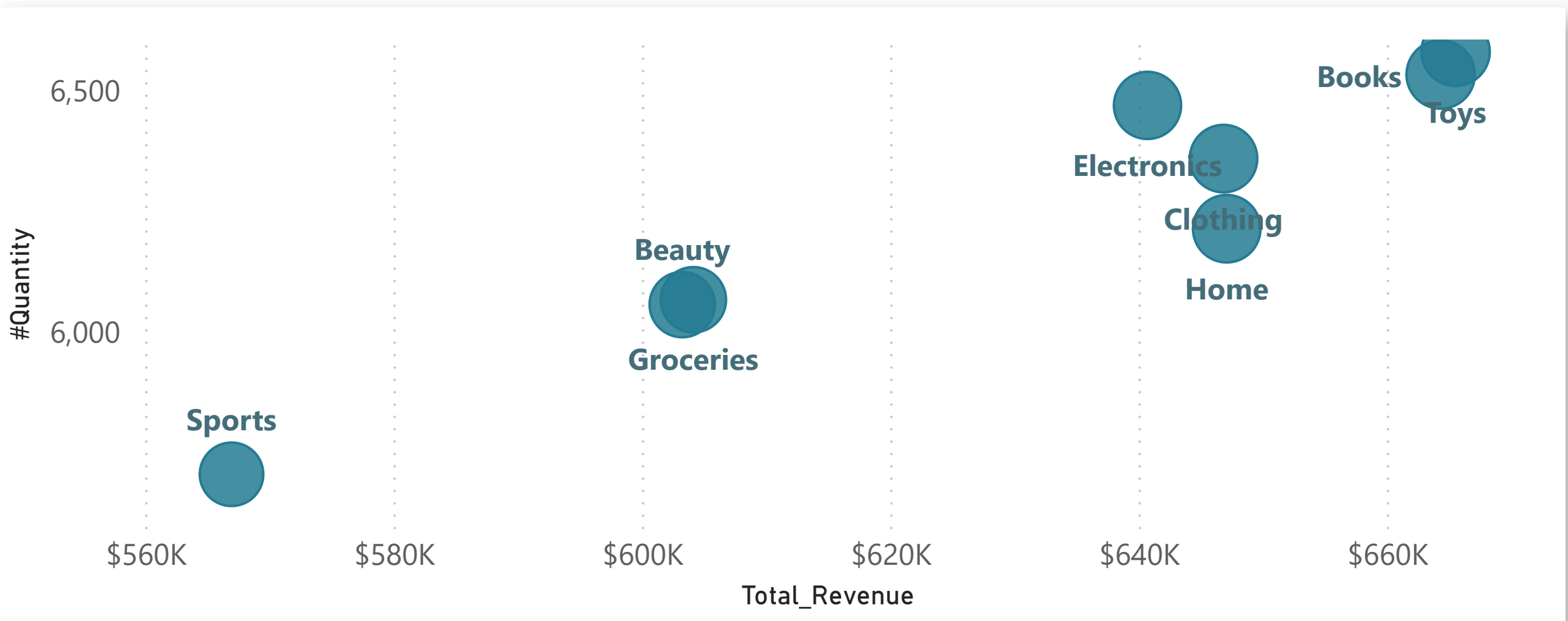
Avg time spent on web



3.00

Avg review score

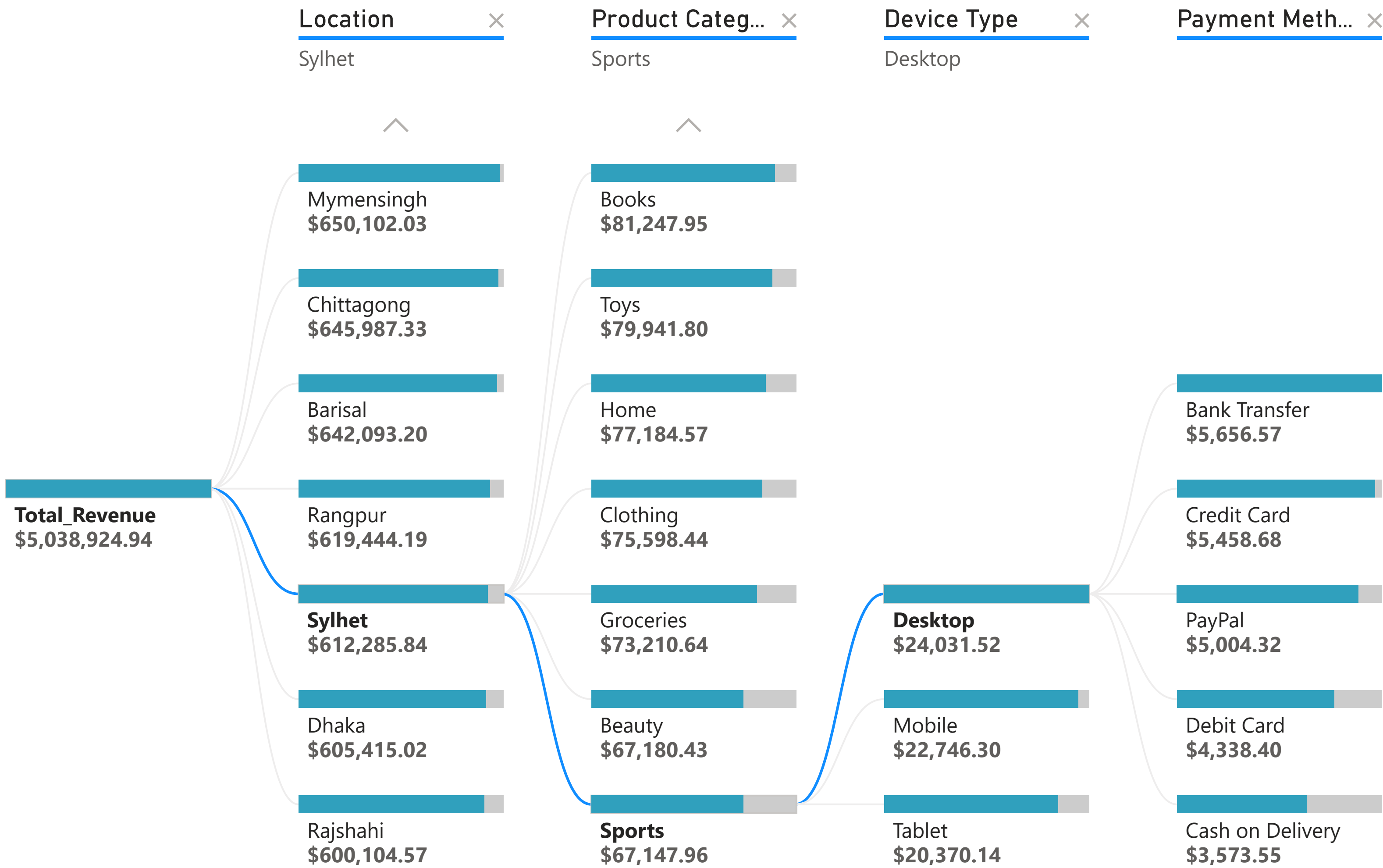
Balance between revenue & quantity by products



Product category by key KPI's

Product Category	#Quantity	Total_Revenue	Avg_order_value	Discount availed	Returned_ customer	New customers
Books	6,533	\$664.34K	\$523.10	621	610	660
Toys	6,580	\$665.54K	\$516.72	663	663	625
Home	6,214	\$647.11K	\$511.55	647	630	635
Groceries	6,067	\$604.15K	\$506.41	608	583	610
Clothing	6,359	\$646.85K	\$498.73	658	666	631
Sports	5,706	\$566.96K	\$493.44	543	565	584
Beauty	6,057	\$603.26K	\$490.85	615	613	616
Electronics	6,469	\$640.73K	\$489.48	662	666	643
Total	49,985	\$5,038.92K	\$503.89	5,017	4,996	5,004

Total revenue by location , product, device and payment method



Female

Male

Other

High

Low

Medium

Free

Premium

Trial

Insights

❖ Customer Behavior: Who's Buying What?

Our analysis revealed striking differences in purchasing patterns based on both gender and device type. **Toys, books, and electronics** dominate the top-selling product categories. Interestingly, there is a gender split: **men prefer toys, books, and beauty products**, while **women lean toward electronics, books, and clothing**. This suggests that both genders are engaging deeply with specific segments, but the products they prioritize vary.

Further deepening the insights, device preferences also reflect a gender divide: **males mostly place orders via mobile devices** (33.74% overall), while **females favor desktops** for their purchases. This information is crucial when designing targeted marketing campaigns, ensuring that messages and promotions are optimized by device type and audience preferences.

❖ Payment Preferences: Age Drives Choices

When it comes to payment methods, the trends are driven largely by age groups. **Consumers aged 18-35** show a strong preference for **cash-on-delivery (COD), bank transfers, and credit cards**, while the **older age group (35+)** opts more frequently for **bank transfers, credit cards, and debit cards**. This insight suggests that age-based targeting for different payment options could improve checkout experiences, increasing conversion rates among specific age groups.

❖ Engagement is Key: Time Spent on Website Correlates with Revenue

One of the strongest correlations we identified is between **time spent on the website and revenue**. On average, customers spend about **29 minutes** on our website, but nearly **50% of orders come from users who engage for over 30 minutes**. This relationship underscores the importance of improving website content, navigation, and overall engagement, as it directly influences purchasing behavior. The more time users spend interacting, the more likely they are to convert into paying customers with larger basket sizes.

❖ Geographical Trends: Rajshahi, Barishal, and Chittagong Shine

On a geographical level, **Rajshahi, Barishal, and Chittagong** stand out for having higher **average review scores** compared to other regions. While these areas demonstrate strong customer satisfaction, it's also notable that **Khulna** leads in **discount redemptions**, with customers from this area significantly contributing to both quantity and revenue. These insights can inform targeted campaigns that focus on retaining high-satisfaction regions while nurturing regions that respond well to promotions.

❖ Customer Retention: The Surprising Trends in Satisfaction

While one might expect highly satisfied customers to return more frequently, our data tells a different story. In fact, **low- and medium-satisfied customers** tend to return more often than their highly satisfied counterparts. **Medium-satisfied customers** purchase the most products (16.8K units), followed closely by **high-satisfied (16.3K)** and **low-satisfied** customers. This counterintuitive trend suggests that further analysis is needed to understand **how** satisfaction is measured and categorized. There may be overlooked factors that impact why satisfied customers aren't returning at expected rates.

❖ Delivery Issues: An Alarming Bottleneck

Delivery performance is a major area of concern. A staggering **70% of orders experience delays**, with **50% facing very late delivery (over 7 days)**. Worryingly, premium customers—who represent a critical revenue segment—are most affected by these delays. This is a clear indicator of operational bottlenecks that need immediate attention. While the average delivery time doesn't vary significantly by location (ranging from **6.8 to 7.1 days**), the sheer volume of delayed orders is alarming and likely driving dissatisfaction, particularly among high-value customers.

❖ Products and Revenue: Key Segments and Underperformers

On the product front, **toys, books, and electronics** are the top-performing categories, generating high revenue while maintaining a balance between revenue and quantity sold. On the other hand, **sports products** are underperforming, with low sales, revenue, and return customer engagement. This represents an opportunity to either improve this segment or allocate resources toward higher-performing products.

A notable insight is that **premium subscribed customers**—who generally drive high average order values—are not necessarily the most satisfied. In fact, **low-satisfied premium customers** tend to have higher order values than their high-satisfied peers, hinting at the need for a deeper look into what drives satisfaction beyond just product offerings.

Recommendation

❑ Targeted Marketing by Gender and Device

Leverage the gender and device preference insights to craft **device-optimized campaigns**. Tailor messaging based on product preferences to maximize engagement and conversions across these demographics.

❑ Enhance Website Engagement Features

Leverage the gender and device preference insights to craft **device-optimized campaigns**. Tailor messaging based on product preferences to maximize engagement and conversions across these demographics.

❑ Address Delivery Bottlenecks:

Urgently optimize the **delivery process** to reduce delays, especially for premium customers. This could involve reworking logistics, partnering with faster delivery services, or offering priority shipping options for high-value customers.

❑ Re-evaluate Customer Satisfaction Metrics:

Dig deeper into how customer satisfaction is measured. Since **low- and medium-satisfied customers are returning more often**, refine the **feedback collection process** to better understand pain points and identify areas for improvement.

❑ Leverage Discounts and Promotions:

Double down on **top-performing categories** like toys, books, and electronics, and reconsider the strategy for underperforming segments like sports products. Consider discontinuing low-engagement products or refreshing the product line with new offerings.

❑ Focus on High-Performing Product Segments:

Since **discounts are a major revenue driver**, especially in regions like Khulna, continue offering well-targeted promotions. Consider expanding loyalty programs or offering exclusive deals to further boost engagement and retention.

❑ Assess customer satisfaction level further:

Provide clear & concise view what factors was taken into consideration to classify satisfaction level as low satisfied customers are purchasing more ! Further analysis is needed .