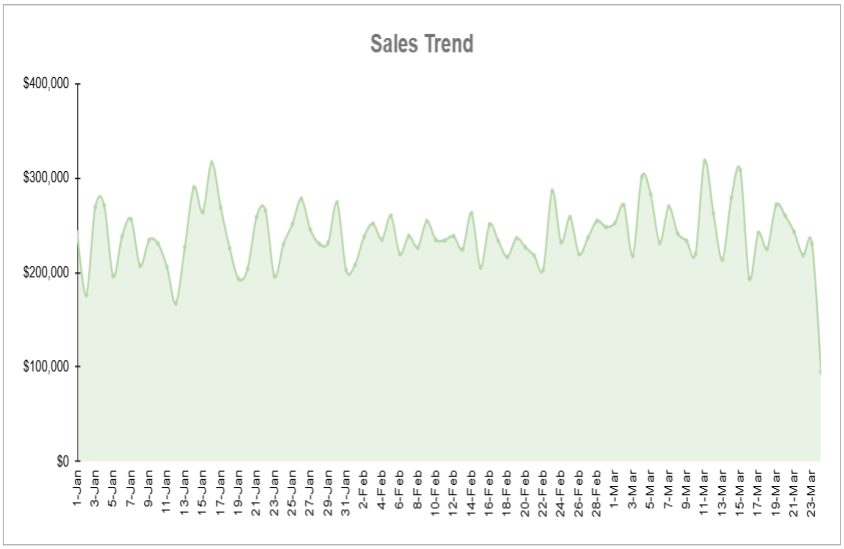
Section A: Google Sheet

Google Sheet Link:

https://docs.google.com/spreadsheets/d/1l4BmBHUQGKc2aRhNeDxZm6AuJQ0WNWr5Mxv2kgNhBBM/edit?usp=sharing

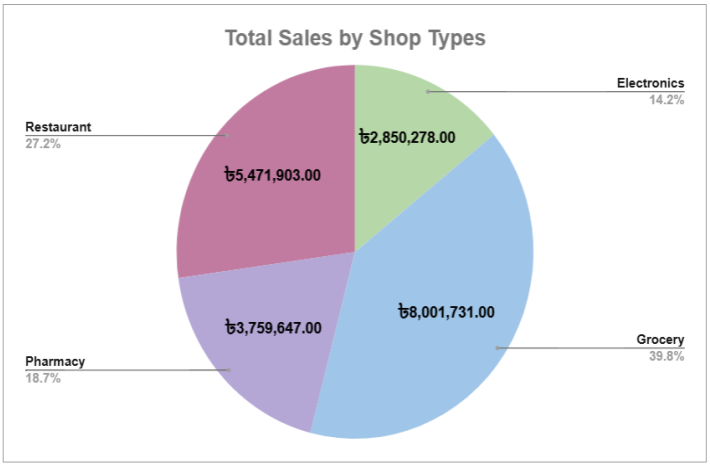
Total sales amount by date

date - Day-Month	Total Sales
1-Jan	৳241,973.00
2-Jan	৳176,197.00
3-Jan	৳269,268.00
4-Jan	৳271,056.00
5-Jan	৳196,218.00
6-Jan	৳238,615.00
7-Jan	৳256,331.00
8-Jan	৳207,249.00
9-Jan	৳234,248.00
10-Jan	৳230,591.00
11-Jan	৳205,899.00
12-Jan	৳167,465.00
13-Jan	৳226,794.00
14-Jan	৳290,105.00
15-Jan	৳263,865.00
16-Jan	৳316,404.00
17-Jan	৳268,961.00
18-Jan	৳225,794.00
19-Jan	৳193,308.00
20-Jan	৳203,684.00
21-Jan	৳258,802.00
22-Jan	৳265,600.00
23-Jan	৳195,924.00



Total sales amount by shop type

shop_type	Total Sales
Electronics	৳2,850,278.00
Grocery	৳8,001,731.00
Pharmacy	৳3,759,647.00
Restaurant	৳5,471,903.00
Grand Total	**৳20,083,559.00**



Average transactions per shop

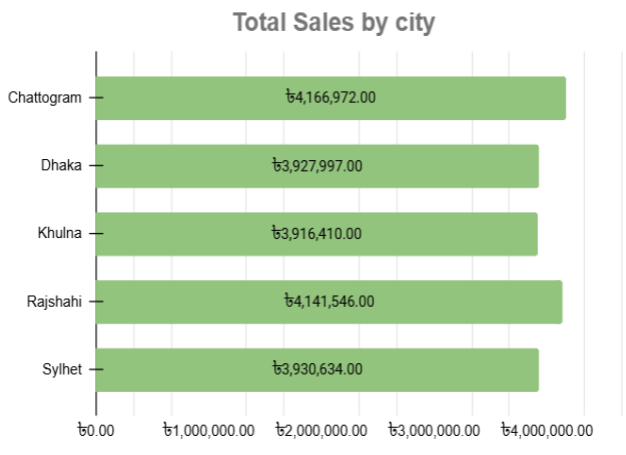
shop_id	total_transactions
1102	283
1179	354
1092	289
1014	453
1106	328
1071	324
1188	255
1020	295
1121	284
1074	252
1087	250
1116	520
1099	237
1103	442
1151	527
1130	389
1149	219
1052	399
1001	263
1157	354
1037	346
1129	371
1191	440
1187	425

shop_id	Average Transaction
1000	26.33
1001	32.88
1002	25.40
1003	34.40
1004	25.71
1005	29.00
1006	25.50
1007	30.36
1008	28.10
1009	28.14
1010	29.42
1011	24.13
1012	20.70
1013	30.64
1014	32.36
1015	29.67
1016	30.86
1017	20.57
1018	34.29
1019	38.00
1020	29.50
1021	35.63
1022	31.43
1023	29.38

Average Transactions per Shop
29.9255

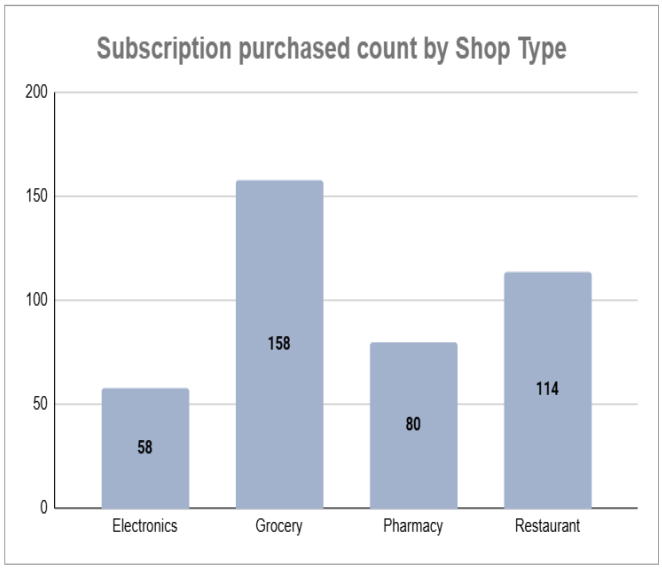
Sales amount by city

city	Total Sales
Chattogram	৳4,166,972.00
Dhaka	৳3,927,997.00
Khulna	৳3,916,410.00
Rajshahi	৳4,141,546.00
Sylhet	৳3,930,634.00



Subscription purchased count by shop type

shop_type	subscription_purchased
Electronics	58
Grocery	158
Pharmacy	80
Restaurant	114
Grand Total	**410**



Section B: SQL

Q1. Daily Performance Classification

MySql Script:

```sql
WITH daily_totals AS (
    SELECT
        DATE(date) AS sales_date,
        SUM(CAST(total_sales_amount AS DECIMAL(10,2))) AS total_sales,
        SUM(CAST(transactions_count AS UNSIGNED)) AS total_transactions
    FROM shop_activity
    GROUP BY DATE(date)
),
ranked_totals AS (
    SELECT *,
           NTILE(3) OVER (ORDER BY total_sales DESC) AS sales_bucket,
           NTILE(3) OVER (ORDER BY total_transactions DESC) AS txn_bucket
    FROM daily_totals
)
```

```sql
    SELECT
        sales_date,
        total_sales,
        total_transactions,
        CASE
            WHEN GREATEST(sales_bucket, txn_bucket) = 3 THEN 'Good'
            WHEN GREATEST(sales_bucket, txn_bucket) = 2 THEN 'Bad'
            ELSE 'Worst'
        END AS activity_type
    FROM ranked_totals
    ORDER BY sales_date;
```

Output:

sales_date	total_sales	total_transactions	activity_type
2024-01-01	241973.00	654	Good
2024-01-02	176197.00	744	Good
2024-01-03	269268.00	778	Worst
2024-01-04	271056.00	640	Good
2024-01-05	196218.00	850	Good
2024-01-06	238615.00	620	Good
2024-01-07	256331.00	530	Good
2024-01-08	207249.00	763	Good
2024-01-09	234248.00	594	Good
2024-01-10	230591.00	843	Bad
2024-01-11	205899.00	690	Good
2024-01-12	167465.00	606	Good
2024-01-13	226794.00	685	Good
2024-01-14	290105.00	729	Bad
2024-01-15	263865.00	809	Worst
2024-01-16	316404.00	813	Worst
2024-01-17	268961.00	764	Worst
2024-01-18	225794.00	660	Good
2024-01-19	193308.00	749	Good
2024-01-20	203684.00	774	Good
2024-01-21	258802.00	754	Bad
2024-01-22	265600.00	681	Bad
2024-01-23	195924.00	828	Good
2024-01-24	229961.00	697	Bad

Q2. New vs Existing User Analysis

MySql Script:

```sql
SELECT
    CASE
        WHEN new_user = 1 THEN 'New User'
        ELSE 'Existing User'
    END AS user_type,
    SUM(CAST(total_sales_amount AS DECIMAL(10,2))) AS total_sales,
    COUNT(DISTINCT shop_id) AS number_of_shops,
    SUM(CAST(subscription_purchased AS UNSIGNED)) AS total_subscriptions
FROM shop_activity
GROUP BY new_user
ORDER BY new_user DESC;
```

Output:

user_type	total_sales	number_of_shops	total_subscriptions
New User	5769975.00	189	139
Existing User	14313584.00	200	271

Q3. Subscription Conversion by Shop Type

MySql Script:

```sql
SELECT
    shop_type,
    SUM(CAST(subscription_purchased AS UNSIGNED)) AS total_subscriptions,
    COUNT(DISTINCT shop_id) AS total_shops,
    ROUND(
        SUM(CAST(subscription_purchased AS UNSIGNED)) / COUNT(DISTINCT shop_id) * 100,
        2
    ) AS subscription_conversion_rate_percentage
FROM shop_activity
GROUP BY shop_type
ORDER BY subscription_conversion_rate_percentage DESC;
```

Output:

shop_type	total_subscriptions	total_shops	subscription_conversion_rate_percentage
Grocery	158	194	81.44
Restaurant	114	184	61.96
Pharmacy	80	163	49.08
Electronics	58	159	36.48

Q4. City Performance

MySql Script:

```sql
SELECT
    city as Top_5_Cities,
    SUM(CAST(total_sales_amount AS DECIMAL(10,2))) AS total_sales,
    SUM(CAST(subscription_purchased AS UNSIGNED)) AS total_subscriptions,
    COUNT(DISTINCT shop_id) AS total_shops
FROM shop_activity
WHERE CAST(subscription_purchased AS UNSIGNED) > 0
GROUP BY city
ORDER BY total_sales DESC
LIMIT 5;
```

Output:

Top_5_Cities	total_sales	total_subscriptions	total_shops
Chattogram	1130053.00	99	77
Khulna	850847.00	74	60
Sylhet	843488.00	88	70
Dhaka	776632.00	78	62
Rajshahi	629466.00	71	60

Section C: Business Insights

1. **Which shop type appears to be the most valuable for the business? Why?**

Answer:

Based on the subscription conversion analysis and total sales data, Grocery shops appear to be the most valuable for the business. They not only generate the highest total sales (**৳8,001,731**) but also show a strong subscription adoption rate (**81.44**) compared to other shop types. This combination of high revenue and higher subscription conversion indicates that Grocery shops are a stable and profitable segment, making them a key focus for business growth.

2. **Do new users or existing users contribute more to total sales? What does this imply?**

Answer:

The analysis of new versus existing users shows that **existing users contribute more to total sales (৳1,43,13,584)** than new users. While new users provide additional revenue, existing users demonstrate **higher repeat purchase behavior** and are more likely to purchase subscriptions. This implies that **customer retention is crucial** for sustaining revenue, and initiatives such as loyalty programs or personalized offers could further increase sales from the existing user base**.**

3. **Suggest one business or product improvement based on the data.**

Answer:

Focus on high-performing shop types and retain existing users to maximize revenue.
Use data-driven promotions to improve subscription conversion in lower-performing segments.