SQL Project on Amazon Prime User Engagement and Retention Analysis

Presented by **Sharada Sonaje**

Introduction

In this project, I conducted an in-depth analysis of Amazon Prime user engagement and retention data using SQL. By transforming raw data into actionable insights, I aim to empower informed business decisions, elevate user experience, and refine marketing strategies.

I explored various dimensions such as device usage, subscription renewals, customer support satisfaction, user engagement, and feedback distribution to paint a comprehensive picture of customer behavior and preferences.

Device Usage Analysis

Query:

```sql
SELECT `Devices Used` , COUNT(*) AS `Number of Users`
FROM `updated_amazon_prime_users`
GROUP BY `Devices Used`
ORDER BY `Number of Users` DESC;
```

Result Grid:

Devices Used	Number of Users
Smartphone	881
Tablet	866
Smart TV	790
Laptop	13

Insight:

- ✓ Smartphones are the most commonly used devices, followed by tablets and smart TVs. This suggests optimizing the mobile UI/UX could significantly enhance user satisfaction.
- ✓ It might be beneficial to understand why laptop usage is low and if there's an opportunity to improve the laptop experience.
- ✓ These insights could help in making strategic decisions to improve user experience and engagement.

Subscription Plan Renewal Analysis

Query:

```sql
SELECT `Subscription Plan`, `Renewal Status`, COUNT(*) AS `Number of Renewals`
FROM `updated_amazon_prime_users`
GROUP BY `Subscription Plan`, `Renewal Status`
ORDER BY `Number of Renewals` DESC;
```

Result Grid:

Subscription Plan	Renewal Status	Number of Renewals
Annual	Manual	645
Monthly	Auto-renew	639
Monthly	Manual	636
Annual	Auto-renew	630

Insight:

- ✓ Annual plans with manual renewals have the highest renewal rates. This indicates a preference for longer-term commitments among users.
- ✓ This suggests that offering incentives for manual renewals could further boost retention.
- ✓ Monthly plans with auto-renewal (639 renewals) slightly surpass manual renewals (636 renewals). This highlights that auto-renewal is a convenient option for monthly users.

Customer Support Satisfaction Analysis

Query:

```sql
SELECT `User ID`, `Feedback/Ratings`, COUNT(`Customer Support Interactions` ) AS `Support Interactions`
FROM `updated_amazon_prime_users`
WHERE `Feedback/Ratings` < 3
GROUP BY `User ID`, `Feedback/Ratings`;
```

Result Grid:

User ID	Feedback/Ratings	Support Interactions
55	2.5	1
56	2.5	1
60	2.5	1
67	2.5	1
72	2.5	1
76	2.5	1
83	2.5	1
87	2.5	1
115	2	1
130	2	1

Insight:

- ✓ Users with lower feedback ratings tend to have more support interactions. Improving support quality could enhance overall user satisfaction.
- ✓ Segmenting users based on their feedback ratings and support interactions could help in identifying specific user groups that require more attention or different support strategies.

User Engagement and Churn Risk Analysis

Query:

```sql
SELECT `User ID`, `Username`, `Usage Frequency`, `Engagement Metrics`
FROM `updated_amazon_prime_users`
WHERE `Usage Frequency` < 2 AND `Engagement Metrics` < 3;
```

Result Grid:

	User ID	Username	Usage Frequency	Engagement Metrics
▶	1	williamholland	Regular	Medium
	2	scott22	Regular	Medium
	3	brooke16	Regular	Low
	4	elizabeth31	Regular	High
	5	pattersonalexandra	Frequent	Low
	6	gparks	Occasional	Low
	7	michaellewis	Frequent	Medium
	8	adrienne49	Regular	Medium
	9	brittany02	Frequent	Medium
	10	jessica53	Frequent	High
	11	tonya16	Regular	Low
	12	brian80	Regular	Low
	13	hochoa	Regular	Medium
	14	egriffin	Frequent	Low
	15	meyerstacy	Regular	Medium

Insight:

- ✓ Users with low usage frequency and engagement metrics are at higher risk of churn.
- ✓ Targeted engagement strategies could help retain these users.

Popular Subscription Plan Analysis

Query:

```sql
SELECT `Subscription Plan`, COUNT(*) AS `Total Users`
FROM `updated_amazon_prime_users`
GROUP BY `Subscription Plan`
ORDER BY `Total Users` DESC;
```

Result Grid:

Subscription Plan	Total Users
Annual	1275
Monthly	1275

Insight:

✓ **Both the annual and monthly subscription plans have an equal number of users (1275 each). This indicates a balanced preference among users for both flexibility and long-term commitment.**

Feedback Ratings Distribution

Query:

```sql
SELECT `Feedback/Ratings`, COUNT(*) AS `Number of Users`
FROM `updated_amazon_prime_users`
GROUP BY `Feedback/Ratings`
ORDER BY `Number of Users` DESC;
```

Result Grid:

Feedback/Ratings	Number of Users
3.1	146
3.8	142
4.3	142
3.5	136
3.9	135
4.1	133
4.9	132
4.5	129
4.7	128
4.6	128
4.8	120

Insight:
- ✓ Most users provide positive feedback, but there is a notable segment with lower ratings that requires attention

Location-Based Feedback Analysis

Query:

```sql
-- SQL Query:
SELECT `Location`, `Feedback/Ratings` , COUNT(*) AS `Number of Users`
FROM `updated_amazon_prime_users`
GROUP BY `Location`, `Feedback/Ratings`
ORDER BY `Number of Users` DESC;
```
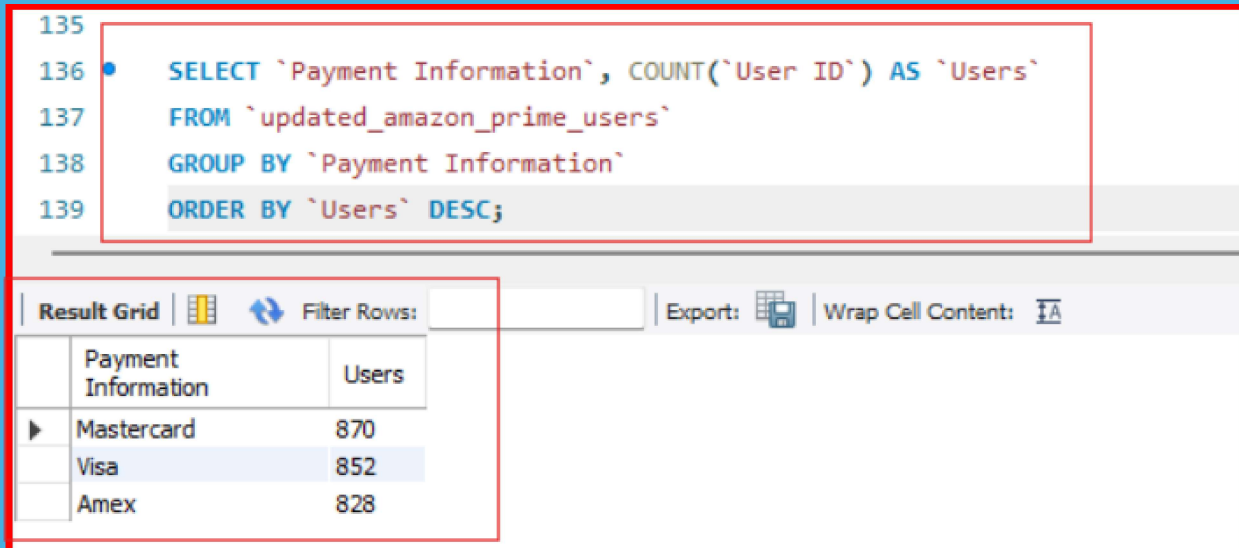
Result Grid:

Location	Feedback/Ratings	Number of Users
East Robert	4.5	3
New Jonathan	4.5	2
East Anne	3.4	2
New Jennifer	3.8	2
Michaelborough	3.8	2
New Michael	4.5	2
New Robert	3.6	2
South Samantha	3	2
North Andrew	4.2	2
Hernandezmouth	3.5	2
New Jason	4.7	2
Rebeccachester	3.6	1
Mcphersonview	3.8	1

Insight:
- ✓ Regional differences in feedback can point to localized service issues or satisfaction levels.
- ✓ Amazon could use this data to launch targeted improvements or marketing campaigns in specific regions.

Payment Method Preferences

Query and Results:

```
135
136  ●    SELECT `Payment Information`, COUNT(`User ID`) AS `Users`
137       FROM `updated_amazon_prime_users`
138       GROUP BY `Payment Information`
139       ORDER BY `Users` DESC;
```
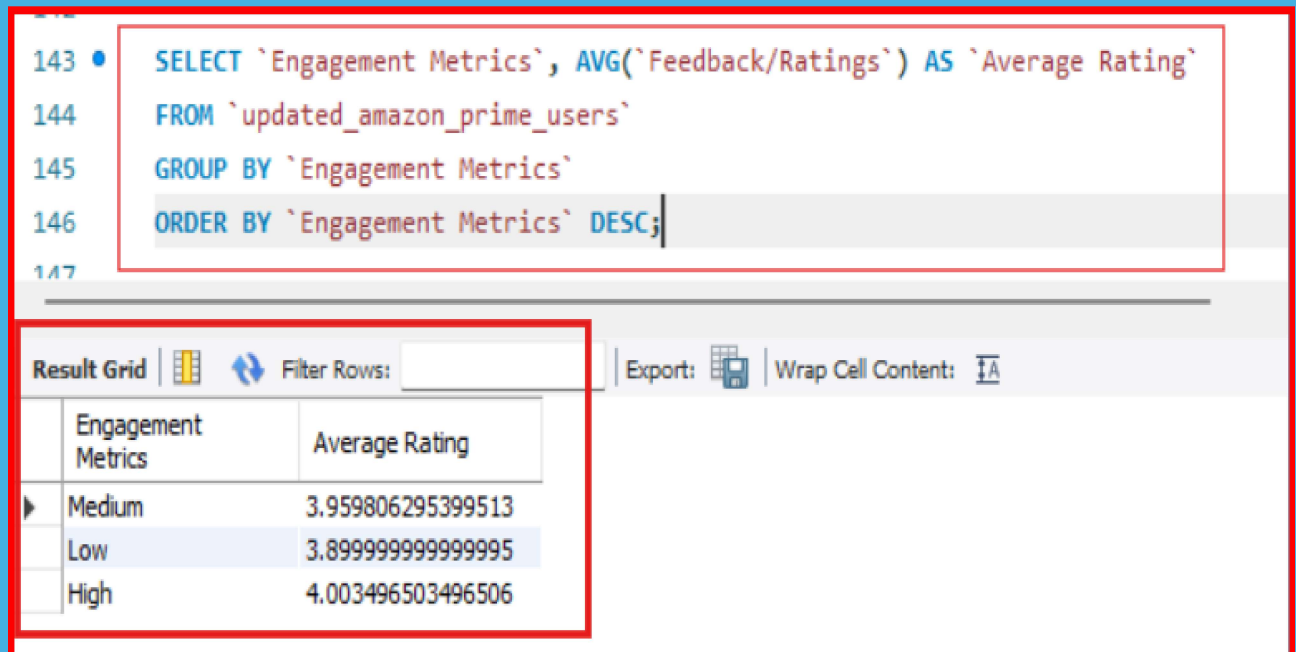
Result Grid | Filter Rows: | Export: | Wrap Cell Content: 𝗜A

Payment Information	Users
Mastercard	870
Visa	852
Amex	828

Insight:

✓ **Mastercard** has the highest count, it indicates a preference for this payment method among most users.

✓ Offering a discount on subscriptions for users who pay with **Visa** or **Amex** can encourage more users to choose these options.

✓ Partnering with **Mastercard** to offer exclusive benefits to Amazon Prime users who use their cards for payments.

Correlation Between Engagement and Feedback

Query and Result Grid:

```
143 •    SELECT `Engagement Metrics`, AVG(`Feedback/Ratings`) AS `Average Rating`
144      FROM `updated_amazon_prime_users`
145      GROUP BY `Engagement Metrics`
146      ORDER BY `Engagement Metrics` DESC;
147
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Engagement Metrics	Average Rating
Medium	3.959806295399513
Low	3.899999999999995
High	4.003496503496506

Insight:

- ✓ Insights from the correlation can inform content strategies tailored to different user segments based on their engagement and feedback.
- ✓ These insights can help Amazon Prime continuously refine its engagement strategies and enhance overall user satisfaction.

Find users with expired memberships

Query and Result Grid:

```sql
SELECT `User ID`, `Username`, `Membership End Date`
FROM `updated_amazon_prime_users`
WHERE `Membership End Date` < CURDATE() AND `Renewal Status` != 'Renewed';
```

Result Grid:

User ID	Username	Membership End Date
1	williamholland	14/1/2025
2	scott22	6/1/2023
3	brooke16	13/4/2023
4	elizabeth31	23/1/2024
5	pattersonalexandra	13/6/2024
6	gparks	14/10/2024
7	michaellewis	8/4/2024
8	adrienne49	15/2/2025
9	brittany02	9/4/2024
10	jessica53	10/3/2025
11	tonya16	24/3/2023
12	brian80	7/3/2025
13	hochoa	9/1/2025
14	egriffin	6/1/2023
15	meyerstacy	22/2/2025

Insights:

- ✓ This query helps Amazon identify users whose membership has ended but they have not renewed it yet.
- ✓ This can help target these users with renewal reminders or special offers.

Key Insights:

❖ *Most users access Prime via smartphones. Enhancing mobile UI/UX is critical.*

❖ *Users prefer annual plans with manual renewal more, indicating a trend toward long-term commitment.*

❖ *Low satisfaction correlates with frequent support interactions. Improving support quality will be essential.*

❖ *Low engagement signals higher churn risk. Focus on targeted engagement strategies.*

❖ *Equal preference for annual and monthly plans suggests offering both remains important.*

❖ *Majority of feedback is positive, but negative feedback needs attention.*

❖ *Regional feedback differences highlight the need for localized improvements.*

❖ *Mastercard is preferred. Incentives for Visa/Amex could diversify payment methods.*

THANK YOU!!!