

Project 2: Payment Transactions RCA Analysis

1. Total Transactions

```
SELECT COUNT(*) AS total_transactions
FROM payment_transactions;
```

2. Successful Payments

```
SELECT COUNT(*) AS success_count
FROM payment_transactions
WHERE status = 'SUCCESS';
```

3. Failed Payments

```
SELECT COUNT(*) AS failure_count
FROM payment_transactions
WHERE status = 'FAILED';
```

4. Success Rate %

```
SELECT
  (COUNT(*) FILTER (WHERE status = 'SUCCESS') * 100.0
   / COUNT(*)) AS success_rate
FROM payment_transactions;
```

5. Failure Rate %

```
SELECT
  (COUNT(*) FILTER (WHERE status = 'FAILED') * 100.0
   / COUNT(*)) AS failure_rate
FROM payment_transactions;
```

6. Transactions by Status

```
SELECT status, COUNT(*) AS count
FROM payment_transactions
GROUP BY status;
```

7. Top Failure Reasons

```
SELECT
  failure_reason,
  COUNT(*) AS occurrences
FROM payment_transactions
WHERE status = 'FAILED'
GROUP BY failure_reason
ORDER BY occurrences DESC;
```

8. Device-wise Failure Rate

```
SELECT
    u.device,
    COUNT(*) FILTER (WHERE t.status = 'FAILED') AS failed_tx,
    COUNT(*) AS total_tx,
    (COUNT(*) FILTER (WHERE t.status = 'FAILED') * 100.0 / COUNT(*)) AS failure_rate
FROM payment_transactions t
JOIN payment_users u ON t.user_id = u.user_id
GROUP BY u.device
ORDER BY failure_rate DESC;
```

9. City-wise Failure Rate

```
SELECT
    u.city,
    COUNT(*) FILTER (WHERE t.status = 'FAILED') AS failed_tx,
    COUNT(*) AS total_tx,
    (COUNT(*) FILTER (WHERE t.status = 'FAILED') * 100.0 / COUNT(*)) AS failure_rate
FROM payment_transactions t
JOIN payment_users u ON t.user_id = u.user_id
GROUP BY u.city
ORDER BY failure_rate DESC;
```

10. Hourly Failure Trend

```
SELECT
    EXTRACT(HOUR FROM created_at) AS hour,
    COUNT(*) FILTER (WHERE status = 'FAILED') AS failed_tx,
    COUNT(*) FILTER (WHERE status = 'SUCCESS') AS success_tx
FROM payment_transactions
GROUP BY hour
ORDER BY hour;
```

11. Amount Spent by User Type

```
SELECT
    u.type,
    SUM(t.amount) AS total_amount
FROM payment_transactions t
JOIN payment_users u ON t.user_id = u.user_id
WHERE t.status = 'SUCCESS'
GROUP BY u.type
ORDER BY total_amount DESC;
```

12. Failure Rate by Device + Reason

```
SELECT
    u.device,
    t.failure_reason,
    COUNT(*) AS count
FROM payment_transactions t
JOIN payment_users u ON t.user_id = u.user_id
WHERE t.status = 'FAILED'
GROUP BY u.device, t.failure_reason
ORDER BY count DESC;
```