

Query

```
SELECT
  DATE_FORMAT(trans_date, '%Y-%m') AS month,
  country,
  COUNT(id) AS trans_count,
  SUM(IF(state = 'approved', 1, 0)) AS approved_count,
  SUM(amount) AS trans_total_amount,
  SUM(IF(state = 'approved', amount, 0)) AS approved_total_amount
FROM Transactions
GROUP BY month, country;
```

Objective

This query provides a **monthly and country-wise transaction report**, including:

- Total number of transactions
 - Number of approved transactions
 - Total transaction amount
 - Total amount of approved transactions
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Detailed Explanation

1. DATE_FORMAT(trans_date, '%Y-%m') AS month

- Converts a full date (e.g., 2025-05-13) to a **year-month format** (e.g., 2025-05).
- This helps in grouping data by **month** for monthly reporting.

◆ New Concept: DATE_FORMAT()

- **Syntax:** DATE_FORMAT(date_column, 'format_string')
 - **Common formats:**
 - %Y → year
 - %m → month (01–12)
 - %d → day
 - %Y-%m → year and month
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2. country

- Includes the **country** associated with the transaction.
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3. COUNT(id) AS trans_count

- Counts the total number of transactions for each (month, country) group.
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4. SUM(IF(state = 'approved', 1, 0)) AS approved_count

- Counts how many of those transactions were **approved**.

◆ Key Concept: IF(condition, true_val, false_val)

- This is a **row-level conditional** logic.
 - In this case:
 - Adds 1 if state = 'approved'
 - Otherwise, adds 0
 - SUM(...) then adds up all the 1s to get a count.
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5. SUM(amount) AS trans_total_amount

- Adds up the total **transaction amount** per group.
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6. SUM(IF(state = 'approved', amount, 0)) AS approved_total_amount

- Sums only the **amounts of approved transactions**.
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7. GROUP BY month, country

- Groups data so that all calculations happen per (month, country).
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Key SQL Concepts & Their Role

Concept	Description
DATE_FORMAT()	Used for formatting dates into year-month format.
COUNT()	Counts total records.
SUM(IF(...))	A powerful pattern for conditional aggregation.
GROUP BY	Essential for grouping data for summary reports.

Sample Output

month	country	transactions	approved_transactions	total_transaction_amount	total_approved_transaction_amount
2025-05	USA	100	85	12500	11200
2025-05	India	50	45	7600	7000

Summary for Revision

Section	Meaning
DATE_FORMAT(..., '%Y-%m')	Extracts month for grouping.
SUM(IF(condition, X, 0))	Used to aggregate only selected rows.
COUNT(id)	Total transactions in a group.
SUM(amount)	Total transaction volume.

Real-Life Use Case

This kind of query is essential in **financial reporting**, **monthly dashboards**, and **auditing tools**, where you need summary statistics of business activity broken down by time and region.