

Lecture Notes – String Functions-SubStrings

Section 1: Lecture Summary

The lecture covers **string functions** focused on substrings in MySQL, including **SUBSTRING**, **LEFT**, and **RIGHT** functions. It explains indexing starts at 1, not 0, and demonstrates extracting parts of strings and dates. Practical queries from the **eCommerceDB** Customers table show extracting joining months and filtering emails by domain using **SUBSTRING_INDEX**.

Section 2: Key Concepts and Explanations

SUBSTRING extracts a portion of a string starting from a specified position (index 1-based) with a given length. For example, `SUBSTRING('ABCDEF', 2, 4)` returns 'BCDE' since it starts at position 2 for 4 characters[transcript].

LEFT takes characters from the start of a string, e.g., `LEFT('ABCDEF', 3)` returns 'ABC'[transcript].

RIGHT takes characters from the end, e.g., `RIGHT('ABCDEF', 3)` returns 'DEF'[transcript].

String functions work on strings and dates, treating dates as strings for extraction[transcript].

SUBSTRING_INDEX splits a string at a delimiter and returns left or right portion: positive count for left, -1 for right. For example, `SUBSTRING_INDEX(email, '@', -1) = 'gmail.com'` checks domain after @[transcript].

Use **LOWER** to handle case-insensitivity in comparisons[transcript].

Section 3: Example Code and Use Cases

Query to find joining month from Customers.JoinDate:

```
SELECT CustomerID, FirstName, SUBSTRING(JoinDate, 6, 2) AS JoinMonth
FROM Customers
ORDER BY JoinMonth;[transcript]
```

This extracts month (positions 6-7 from 'YYYY-MM-DD') and sorts results[transcript].

Query to find customers with Gmail:

```
SELECT CustomerID, FirstName, LastName, Email
FROM Customers
WHERE SUBSTRING_INDEX(LOWER(Email), '@', -1) = 'gmail.com'
ORDER BY CustomerID;
```

This extracts domain after '@', converts to lowercase, and matches 'gmail.com'.

Basic demos:

```
SELECT SUBSTRING('ABCDEF', 2, 4); -- Returns 'BCDE'
SELECT LEFT('ABCDEF', 3); -- Returns 'ABC'
SELECT RIGHT('ABCDEF', 3); -- Returns 'DEF'
```

Section 4: Key Takeaways

Indices in MySQL string functions start at **1**.

SUBSTRING(string, start, length) extracts fixed portions.

LEFT and **RIGHT** simplify start/end extractions.

SUBSTRING_INDEX(string, delimiter, count) handles delimiter-based splits (-1 for right side).

Apply to **Customers** table for dates (JoinDate) and emails (Email) in **eCommerceDB**.

Combine with **LOWER** and **ORDER BY** for robust filtering and sorting.