

## Lecture Notes – String Functions-Replace&Search

### Section 1: Lecture Summary

The lecture covers MySQL string functions for replacing and searching, specifically `REPLACE`, `REVERSE`, `INSTR`, and `POSITION`. These functions enable modifying strings by replacement and locating substrings by returning their starting position (1-based index) or 0 if not found. A practical query demonstrates using `POSITION` with `LOWER` to find products containing "book" in their name from the eCommerceDB `Products` table.

### Section 2: Key Concepts and Explanations

`REPLACE(string, old_string, new_string)` replaces all occurrences of `old_string` with `new_string` in the given string. For example, `REPLACE('frontend developer', 'developer', 'dev.')` returns 'frontend dev.'

`REVERSE(string)` reverses the characters in the string.

`INSTR(string, substring)` returns the 1-based position of the first occurrence of `substring` in `string`, or 0 if not found. For example, `INSTR('user@grade.com', '@grade')` returns 5.

`POSITION(substring IN string)` functions identically to `INSTR`, returning the same position value. Both are interchangeable for substring searches.

To handle case-insensitivity, wrap the column in `LOWER()` and use a lowercase substring, then check if the result > 0.

### Section 3: Example Code and Use Cases

Query to retrieve products whose name includes "book" (eCommerceDB `Products` table):

```
SELECT ProductID, ProductName
FROM Products
WHERE POSITION('book' IN LOWER(ProductName)) > 0;
```

This returns products like Bookshelf and Cookbook, as **POSITION** returns > 0 only if the lowercase substring matches.

#### Section 4: Key Takeaways

- Use **REPLACE** to swap substrings in any string field.
- **INSTR** and **POSITION** both locate substrings, starting count from 1; use with > 0 in WHERE clauses.
- Apply **LOWER** for case-insensitive searches on varchar columns like **ProductName**.
- These functions work across eCommerceDB tables with varchar fields, such as **CategoryName**, **ProductName**, **FirstName**, **LastName**, **Email**, **City**, **OrderStatus**, **PaymentMode**.