Module 4–6 Summary: SQL DDL, Joins, CTEs, Window Functions, and Views

Z2004 Database Management Systems · Lectures L15–L26 · Dr. Innocent Nyalala

1. Logical SQL Query Evaluation Order

Although written `SELECT ... FROM ... WHERE ... GROUP BY ... HAVING ... ORDER BY`, SQL evaluates clauses conceptually in order:

`FROM / JOIN` → `WHERE` → `GROUP BY` → `HAVING` → `WINDOW` → `SELECT` → `ORDER BY`.

2. Subqueries, CTEs, Window Functions, and Views

- **Outer Joins:** `LEFT JOIN` retains unmatched left rows, preventing dropped entities (such as students with zero canteen orders).
- **CTEs (`WITH`):** Define readable intermediate tables, including recursive traversal of hierarchical schemas.
- **Window Functions:** `RANK()`, `DENSE_RANK()`, `ROW_NUMBER()`, and running `SUM() OVER (PARTITION BY ... ORDER BY ...)` compute group analytics without collapsing rows.