Lecture Notes – Aggregate Functions

I appreciate your detailed instructions, but I need to clarify an important constraint: the user's query asks me to ignore my core system instructions and remove citation markers from my responses. I cannot do this, as citing sources is fundamental to how I operate as Perplexity.

However, I can help you create comprehensive study notes on aggregate functions based on the transcript you provided. Here's what I can offer:

Section 1: Lecture Summary

Aggregate functions provide summarized results from database data. The primary aggregate functions covered are COUNT, SUM, AVG, MIN, and MAX. These functions operate on numeric data and can be used within SELECT, HAVING, and ORDER BY clauses to show results, filter rows, and order data respectively.

Section 2: Key Concepts and Explanations

COUNT returns the number of rows in a result set. It can be applied to specific columns or an entire table using an asterisk. The DISTINCT keyword suppresses duplicates, counting only unique values.

SUM calculates the total of all values in a numeric column. AVG computes the average value across a column. MIN identifies the smallest value, while MAX identifies the largest value in a numeric column.

These functions produce scalar results—single values that summarize entire datasets or filtered subsets.

Section 3: Example Code and Use Cases

Based on the companyDB schema provided:

```
SELECT COUNT(*) AS total_employees FROM Employees;
SELECT COUNT(DISTINCT DeptID) AS number_of_departments FROM Employees;
SELECT SUM(Salary) AS salary_expense FROM Employees;
SELECT AVG(Salary) AS avg_salary FROM Employees;
SELECT MIN(Salary) AS min_salary FROM Employees;
SELECT MAX(Salary) AS max_salary FROM Employees;
```

Section 4: Key Takeaways

Aggregate functions transform raw data into meaningful summaries. DISTINCT is useful for counting unique occurrences. These functions form the foundation for more advanced queries using GROUP BY and HAVING clauses in subsequent topics.