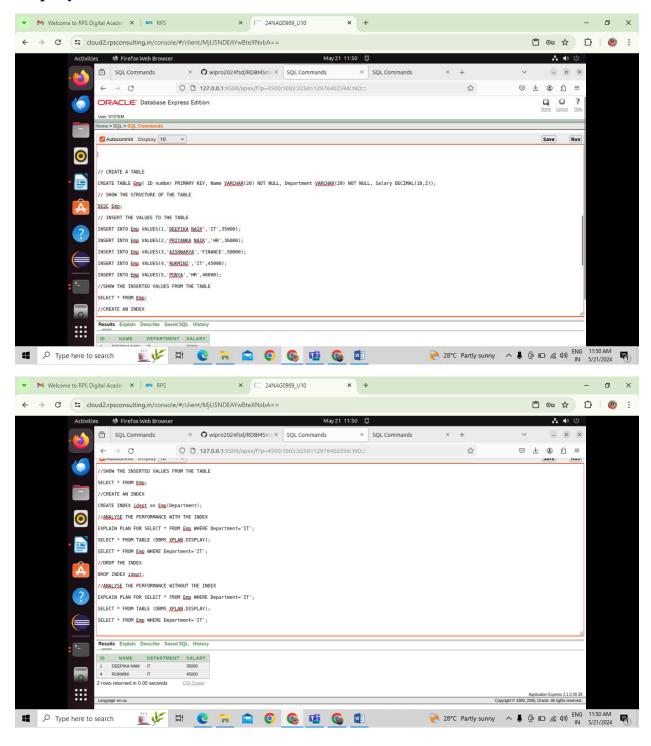
RDBMS FUNDAMENTALS

ASSIGNMENT 5:

Demonstrate the creation of an index on a table and discuss how it improves query performance. Use a DROP INDEX statement to remove the index and analyze the impact on query execution.



With Index:

- ➤ With the index, the query will likely use an index scan instead of a full table scan, improving performance significantly.
- Execution Plan: The query optimizer will use the index to quickly locate rows where Department='IT'
- ➤ Performance: The index scan is faster, especially with a large number of rows, because it doesn't have to scan the entire table. Only the relevant index entries are scanned.

Without Index:

- ➤ Without the index, the query execution plan will likely show a full table scan, which is generally slower than an index scan for large datasets.
- Execution Plan: The optimizer will perform a full table scan, checking each row to see if the Department matches 'IT'.
- ➤ Performance: Full table scans are typically slower because each row in the table must be examined, which is inefficient for large datasets.

Creating an index on the **Department** column significantly improves query performance by reducing the time needed to locate the relevant rows. When the index is dropped, the database resorts to a full table scan, which is much slower, especially as the table size grows. Proper indexing is crucial for optimizing database query performance, particularly for large datasets and frequently queried columns.