**Execution Plan vs Explain Plan**

Both **Execution Plan** and **EXPLAIN PLAN** are used to understand how a query will be or was executed by the database engine, but they have key differences.

| **Feature** | **Execution Plan** | **EXPLAIN PLAN** |
| --- | --- | --- |
| Definition | The actual execution plan used by the database during query execution. | The predicted execution plan, which estimates how the query *would* be executed. |
| Real Execution? | Yes, the query is executed, and the actual runtime performance is recorded. | No, the query is not executed; it only predicts the execution strategy. |
| Statistics | Includes real-time statistics like execution time, number of rows processed, etc. | Does not include real execution statistics. |
| Use Case | Used for performance tuning and troubleshooting. | Used to analyze how a query *might* perform before execution. |
| Command | EXPLAIN ANALYZE (PostgreSQL, MySQL), DBMS\_XPLAN.DISPLAY\_CURSOR (Oracle). | EXPLAIN PLAN FOR <query> followed by SELECT \* FROM TABLE(DBMS\_XPLAN.DISPLAY). |

**Example and Commands**

**Using EXPLAIN PLAN (Estimated Plan)**

This provides an estimated plan for query execution without actually running the query.

EXPLAIN PLAN FOR

SELECT \* FROM employees WHERE department\_id = 10;

SELECT \* FROM TABLE(DBMS\_XPLAN.DISPLAY);

**Example Output (Estimated Execution Plan)**

| Id | Operation | Name |

|-----|------------------|----------|

| 1 | TABLE ACCESS FULL| EMPLOYEES |

* This indicates a **Full Table Scan** on the employees table.

**Using EXPLAIN ANALYZE (Execution Plan)**

This runs the query and provides actual execution statistics.

EXPLAIN ANALYZE

SELECT \* FROM employees WHERE department\_id = 10;

**Example Output (Actual Execution Plan)**

QUERY PLAN

-------------------------------------------------------------

Seq Scan on employees (cost=0.00..13.00 rows=1 width=48)

Filter: (department\_id = 10)

Rows Removed by Filter: 50

Execution Time: 1.23 ms

* **This output includes:** 
  + Actual rows processed
  + Execution time
  + Filter conditions applied

**Key Takeaways**

* **Use EXPLAIN PLAN** to analyze queries before execution.
* **Use EXPLAIN ANALYZE** to debug slow queries by checking real execution statistics.
* **For Oracle**, DBMS\_XPLAN.DISPLAY\_CURSOR shows the actual execution plan after running a query.

Would you like a specific database example (PostgreSQL, Oracle, MySQL)?