# Lab 9- using the optimizer and explain plan



Create the BIG, BIG2 and bigpart tables and indexes using the script bigpart.sql

Script. Given a non-unique index BIG\_BIGNO on the BIGNO column of BIG, and a non-unique index BIG\_BNAME on the BNAME column of the BIG table, use EXPLAIN PLAN to determine how ORACLE would process the following utilizing ALL\_ROWS and FIRST\_ROWS.

EXPLAIN PLAN FOR

1. ORACLE> Select \* from big where bigno > 1;

SELECT \* FROM TABLE(dbms\_xplan.display

HINT: use AUTOTRACE to help provide the information.

ORACLE> delete from plan\_table;

2. ORACLE> explain plan for

Select \* from BIG where bname like ‘BET%’;

SQL> select \* from table (dbms\_xplan.display)

3. Using the Optimization type of FIRST\_ROWS then ALL\_ROWS do:

ORACLE> delete from plan\_table;

ORACLE> explain plan for Select MAX(BIGNO) from big;

SELECT \* FROM TABLE(dbms\_xplan.display

4. Using the Optimization type of ALL\_ROWS then FIRST\_ROWS do:

ORACLE> delete from plan\_table;

ORACLE> explain plan for

Select \* from big where bigno IN (500, 99500);

SELECT \* FROM TABLE(dbms\_xplan.display

5. Using the Optimization type of ALL\_ROWS and FIRST\_ROWS\_1000 do:

ORACLE> delete from plan\_table;

ORACLE> SELECT \* FROM BIG WHERE BIGNO = 1000 AND

BNAME = ‘ONE THOUSAND’;

SELECT \* FROM TABLE(dbms\_xplan.display

Given non-unique indexes on all columns of the BIG2 table plus a

concatenated non-unique index on the BNAME and BIGNO columns

of the BIG2 table, use EXPLAIN PLAN to determine how ORACLE10G would

execute the following queries:

6. Using the Optimization type of ALL\_ROWS and FIRST\_ROWS do:

ORACLE> delete from plan\_table;

ORACLE> Select bigno from big2 where bname = ‘ONE THOUSAND’;

SELECT \* FROM TABLE(dbms\_xplan.display

7. Using the Optimization type of ALL\_ROWS do:

ORACLE>

ORACLE> select bigno, bname from big2

where lower(BNAME) = ‘one thousand’;

SELECT \* FROM TABLE(dbms\_xplan.display

8. Now use the bigpart table which is partitioned and let's see if we can reduce the

overall cost by having it utilize just a partition for retrieval.

Select bigno, bname from bigpart

WHERE bigno < 30000

SELECT \* FROM TABLE(dbms\_xplan.display

SELECT BIGNO, BNAME FROM BIGPART

WHERE bingo > 30000

SELECT \* FROM TABLE(dbms\_xplan.display

Configuring and Monitoring Automatic Indexing requires little to no manual intervention, but a package called DBMS\_AUTO\_INDEX package is provided for changing a small number of defaults. The feature can be enabled as follows:

SQL> exec dbms\_auto\_index.configure('AUTO\_INDEX\_MODE', 'IMPLEMENT')

And disabled:

SQL> exec dbms\_auto\_index.configure('AUTO\_INDEX\_MODE', 'OFF')

The number of days unused auto-indexes are retained is controlled as follows:

SQL> exec dbms\_auto\_index.configure('AUTO\_INDEX\_RETENTION\_FOR\_AUTO', '373')

It is possible to specify which schemas are subject to auto indexing:

SQL> -- Exclude SH and HR

SQL> exec dbms\_auto\_index.configure('AUTO\_INDEX\_SCHEMA', 'SH', FALSE)

SQL> exec dbms\_auto\_index.configure('AUTO\_INDEX\_SCHEMA', 'HR', FALSE)

SQL> -- Remove HR from exclusion list

SQL> exec dbms\_auto\_index.configure('AUTO\_INDEX\_SCHEMA', 'HR', NULL)

SQL> -- Remove all schemas from exclusion list

SQL> exec dbms\_auto\_index.configure('AUTO\_INDEX\_SCHEMA', NULL, TRUE) SQL> -- Include SH for auto indexing but exclude HR

SQL> exec dbms\_auto\_index.configure('AUTO\_INDEX\_SCHEMA', 'SH', FALSE)

SQL> exec dbms\_auto\_index.configure('AUTO\_INDEX\_SCHEMA', 'HR', TRUE)

# IDENTIFYING PARAMETER SETTINGS

All parameter settings (and schemas that have been included and excluded) can be seen as follows:

SQL> select \* from dba\_auto\_index\_config;

A report on auto index activity can be generated. For example:

SQL> set linesize 300 trims on pagesize 1000 long 100000

SQL> column report format a120

SQL> SELECT dbms\_auto\_index.report\_activity(sysdate-30,null,'text','all','all') report FROM dual; -- 30 day period

This report will show start and end time with index candidates and indexes created. Also included is indexes dropped. Unused indexes are also important in this report.