

*** Create a table based on dba_tables

```
SQL> CREATE TABLE test_nulls AS SELECT * FROM dba_tables;
```

Table created.

*** Note the PCT_FREE column contains 50 null values

```
SQL> SELECT COUNT(*) FROM test_nulls WHERE PCT_FREE IS NULL;
```

```
  COUNT(*)  
-----  
         50
```

*** create an index on the PCT_FREE column

```
SQL> CREATE INDEX test_nulls_i ON test_nulls(pct_free);
```

Index created.

```
SQL> exec DBMS_STATS.GATHER_TABLE_STATS(ownname=>'BOWIE', tabname=>'TEST_NULLS', estimate_percent=>NULL,  
cascade=>true, method_opt=>'FOR ALL COLUMNS SIZE 1');
```

PL/SQL procedure successfully completed.

*** Perform a search for all NULL values

```
SQL> SELECT * FROM test_nulls WHERE pct_free IS NULL;  
50 rows selected.
```

Execution Plan

```
-----  
| Id | Operation | Name | Rows | Bytes | Cost (%CPU) | Time |  
-----  
| 0 | SELECT STATEMENT | | 50 | 10250 | 12 (0) | 00:00:01 |  
|* 1 | TABLE ACCESS FULL | TEST_NULLS | 50 | 10250 | 12 (0) | 00:00:01 |  
-----
```

*** Note the index is ignored

```
SQL> SELECT /*+ INDEX(tn, test_nulls_i) */ * FROM test_nulls tn WHERE pct_free IS NULL;  
50 rows selected.
```

Execution Plan

```
-----  
| Id | Operation | Name | Rows | Bytes | Cost (%CPU) | Time |  
-----  
| 0 | SELECT STATEMENT | | 50 | 10250 | 12 (0) | 00:00:01 |  
|* 1 | TABLE ACCESS FULL | TEST_NULLS | 50 | 10250 | 12 (0) | 00:00:01 |  
-----
```

*** Hints do no good. A block dump on the index shows that the NULL values are not indexed

*** However, create a concatenated index with the OWNER column, which has a NOT NULL constraint ...

```
SQL> CREATE INDEX test_nulls_i2 ON test_nulls(pct_free, owner) COMPUTE STATISTICS;  
Index created.
```

```
SQL> SELECT * FROM test_nulls WHERE pct_free IS NULL;  
50 rows selected.
```

Execution Plan

```
-----  
| Id | Operation | Name | Rows | Bytes | Cost (%CPU) | Time |  
-----  
| 0 | SELECT STATEMENT | | 50 | 10250 | 6 (0) | 00:00:01 |  
| 1 | TABLE ACCESS BY INDEX ROWID | TEST_NULLS | 50 | 10250 | 6 (0) | 00:00:01 |  
|* 2 | INDEX RANGE SCAN | TEST_NULLS_I2 | 50 | | 2 (0) | 00:00:01 |  
-----
```

*** And we see the index is now used

*** However, create another index with just a space ' ' tagged on the end

```
SQL> CREATE INDEX test_nulls_i3 ON test_nulls(pct_free, ' ') COMPUTE STATISTICS;  
Index created.
```

```
SQL> SELECT * FROM test_nulls WHERE pct_free IS NULL;  
50 rows selected.
```

Execution Plan

```
-----
```

| Id | Operation | Name | Rows | Bytes | Cost (%CPU) | Time |
|-----|-----------------------------|---------------|------|-------|-------------|----------|
| 0 | SELECT STATEMENT | | 50 | 10250 | 5 (0) | 00:00:01 |
| 1 | TABLE ACCESS BY INDEX ROWID | TEST_NULLS | 50 | 10250 | 5 (0) | 00:00:01 |
| * 2 | INDEX RANGE SCAN | TEST_NULLS_I3 | 50 | | 2 (0) | 00:00:01 |

*** And again, the index is used to retrieve all rows where the PCT_FREE column is null ...