

Database Systems
B.Sc. (Hons) in IT
Laboratory Worksheet 07
IT22919328

Practical 7- EXPLAIN PLAN

```
SQL> @F:\Y3S2\y3s1\DS\Lab\labsheets\IT3020_Prac07_supportfiles\utlxplan
Table created.
```

```
SQL> @F:\Y3S2\y3s1\DS\Lab\labsheets\IT3020_Prac07_supportfiles\SampleDB
```

```
SQL> ALTER SESSION SET OPTIMIZER_MODE = ALL_ROWS;
Session altered.

SQL> ALTER SESSION SET "_optimizer_cost_model" = CPU;
Session altered.
```

```
SQL> EXPLAIN PLAN FOR
 2  SELECT c.clno, c.name
 3  FROM client c, purch p
 4  WHERE c.clno = p.clno AND p.qty > 1000;

Explained.
```

```
SQL> @F:\Y3S2\y3s1\DS\Lab\labsheets\IT3020_Prac07_supportfiles\utlxpls
```

Plan Table

Operation and options	Object	cost	cpu_cost	io_cost
SELECT STATEMENT		5	7121096	4
HASH JOIN		5	7121096	4
TABLE ACCESS FULL	CLIENT	2	7461	2
TABLE ACCESS FULL	PURCH	2	9721	2

7 rows selected.

```
SQL> CREATE INDEX purch_index ON purch(qty, clno);
Index created.

SQL> CREATE INDEX client_index ON client(clno, name);
Index created.
```

```
SQL> EXPLAIN PLAN FOR
2  SELECT c.clno, c.name
3  FROM client c, purch p
4  WHERE c.clno = p.clno AND p.qty > 1000;
```

Explained.

```
SQL> @F:\Y3S2\y3s1\DS\Lab\labsheets\IT3020_Prac07_supportfiles\utlxlpls
```

Plan Table

Operation and options	Object	cost	cpu_cost	io_cost
SELECT STATEMENT		3	7118756	2
HASH JOIN		3	7118756	2
INDEX FULL SCAN	CLIENT_IN	1	7521	1
INDEX RANGE SCAN	PURCH_IND	1	7321	1

7 rows selected.

After creating the unclustered B+ tree indexes on purch(qty, clno) and client(clno, name), the execution plan shows a more optimized access path. Full table scans are replaced by index range scans, and the cost values are significantly reduced. This proves that the indexes improved the performance of the query by reducing the data retrieval effort.

Additional Notes:

```
SQL> select index_name
  2   from user_indexes
  3  where table_name = 'CLIENT';
```

```
INDEX_NAME
```

```
-----
```

```
SYS_C0011175
```

```
CLIENT_INDEX
```

```
SQL> select DBMS_METADATA.GET_DDL('INDEX',u.index_name)
  2   from user_indexes u
  3  where table_name = 'CLIENT';
```

```
DBMS_METADATA.GET_DDL('INDEX',U.INDEX_NAME)
```

```
-----
```

```
CREATE UNIQUE INDEX "SYSTEM"."SYS_C0011175" ON "SYSTEM"."CLIENT" ("CLNO")
```

```
CREATE INDEX "SYSTEM"."CLIENT_INDEX" ON "SYSTEM"."CLIENT" ("CLNO", "NAME")
```