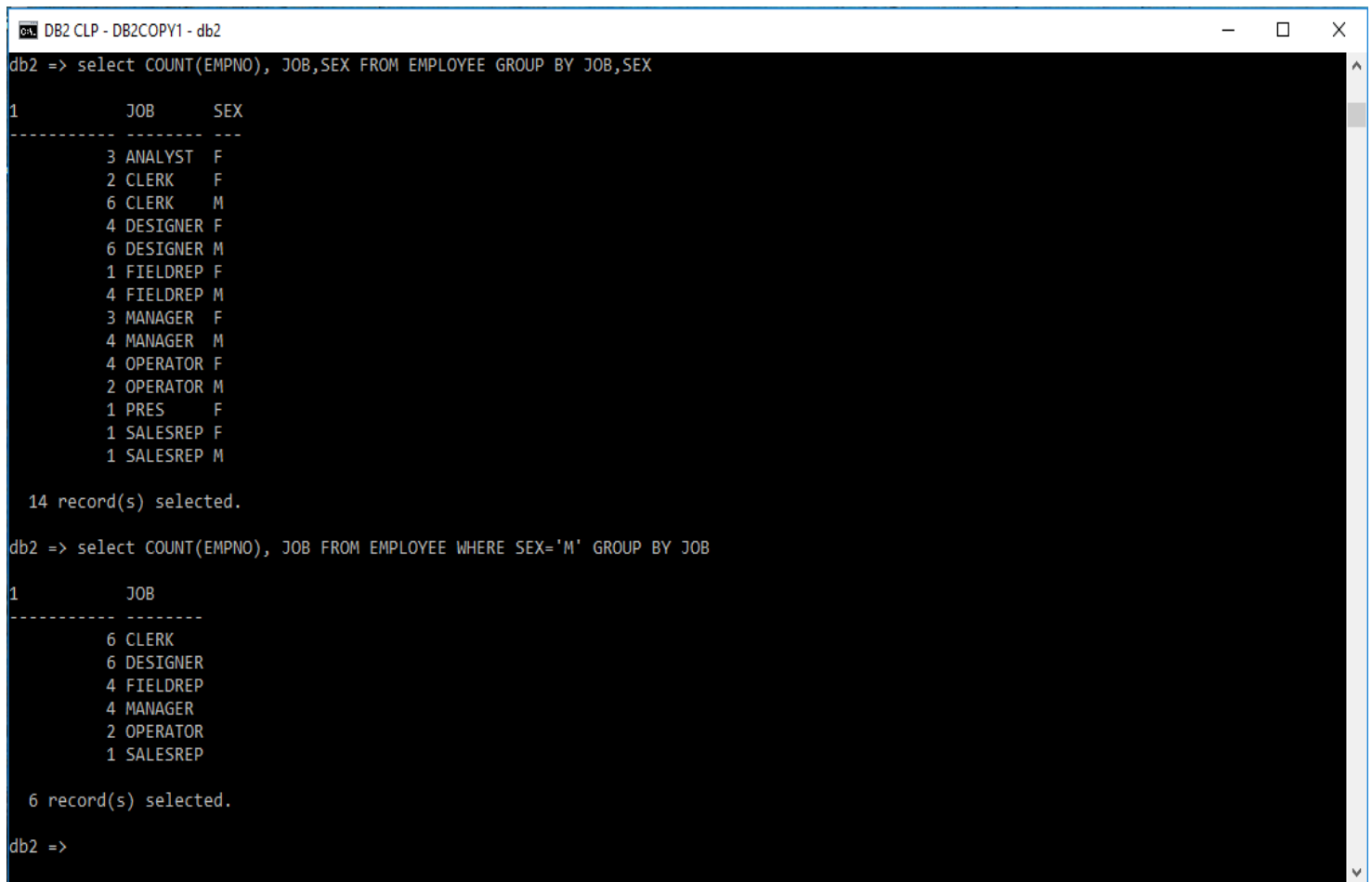


## Mini Projects Part 2 - DB2 Creation and Output File

### DB2 QUERY:

```
select COUNT(EMPNO), JOB FROM EMPLOYEE WHERE SEX='M' GROUP BY JOB
```

### COMMAND PROMPT OUTPUT:



```
DB2 CLP - DB2COPY1 - db2
db2 => select COUNT(EMPNO), JOB,SEX FROM EMPLOYEE GROUP BY JOB,SEX

1          JOB      SEX
-----
          3 ANALYST  F
          2 CLERK    F
          6 CLERK    M
          4 DESIGNER F
          6 DESIGNER M
          1 FIELDREP F
          4 FIELDREP M
          3 MANAGER  F
          4 MANAGER  M
          4 OPERATOR F
          2 OPERATOR M
          1 PRES     F
          1 SALESREP F
          1 SALESREP M

14 record(s) selected.

db2 => select COUNT(EMPNO), JOB FROM EMPLOYEE WHERE SEX='M' GROUP BY JOB

1          JOB
-----
          6 CLERK
          6 DESIGNER
          4 FIELDREP
          4 MANAGER
          2 OPERATOR
          1 SALESREP

6 record(s) selected.
db2 =>
```

## Db2EXFMT Tool OUTPUT

DB2 Universal Database Version 11.1, 5622-044 (c) Copyright IBM Corp. 1991, 2015

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IBM DATABASE 2 Explain Table Format Tool

\*\*\*\*\* EXPLAIN INSTANCE \*\*\*\*\*

DB2\_VERSION: 11.01.2

FORMATTED ON DB: SAMPLE

SOURCE\_NAME: SQLC2026

SOURCE\_SCHEMA: NULLID

SOURCE\_VERSION:

EXPLAIN\_TIME: 2018-02-13-17.10.00.906000

EXPLAIN\_REQUESTER: ABHISHEK

Database Context:

-----

Parallelism: None

CPU Speed: 3.306410e-007

Comm Speed: 0

Buffer Pool size: 250

Sort Heap size: 256

Database Heap size: 600

Lock List size: 4096

Maximum Lock List: 22

Average Applications: 1

Locks Available: 28835

Package Context:

-----

SQL Type: Dynamic

Optimization Level: 5

Blocking: Block All Cursors

Isolation Level: Cursor Stability

----- STATEMENT 1 SECTION 201 -----

QUERYNO: 2

QUERYTAG: CLP

Statement Type: Select

Updatable: No

Deletable: No

Query Degree: 1

Original Statement:

```
-----
select
  COUNT(EMPNO),
  JOB
FROM
  EMPLOYEE
WHERE
  SEX='M'
GROUP BY
  JOB
```

Optimized Statement:

```
-----
SELECT
  Q3.$C0,
  Q3.JOB AS "JOB"
FROM
  (SELECT
    COUNT(*),
    Q2.JOB
  FROM
    (SELECT
      Q1.JOB
    FROM
      ABHISHEK.EMPLOYEE AS Q1
    WHERE
      (Q1.SEX = 'M')
    ) AS Q2
  GROUP BY
    Q2.JOB
  ) AS Q3
```

Access Plan:

-----	
Total Cost:	6.86369
Query Degree:	1
Rows	
RETURN	
( 1)	
Cost	

```

I/O
|
8
GRPBY
( 2)
6.86236
1
|
8
TBSCAN
( 3)
6.86161
1
|
8
SORT
( 4)
6.86044
1
|
23
TBSCAN
( 5)
6.85239
1
|
42
TABLE: ABHISHEK
EMPLOYEE
Q1

```

#### Extended Diagnostic Information:

-----

Diagnostic Identifier: 1

Diagnostic Details: EXP0073W The following MQT or statistical view was not eligible because one or more data filtering predicates from the query could not be matched with the MQT: "ABHISHEK"."ADEFUSR".

Diagnostic Identifier: 2

Diagnostic Details: EXP0148W The following MQT or statistical view was considered in query matching: "ABHISHEK"."ADEFUSR".

Plan Details:

-----

1) RETURN: (Return Result)

Cumulative Total Cost: 6.86369  
Cumulative CPU Cost: 177499  
Cumulative I/O Cost: 1  
Cumulative Re-Total Cost: 0.0339105  
Cumulative Re-CPU Cost: 102560  
Cumulative Re-I/O Cost: 0  
Cumulative First Row Cost: 6.86118  
Estimated Bufferpool Buffers: 0

Arguments:

-----

BLDLEVEL: (Build level)  
DB2 v11.1.2020.1393 : s1706091900  
HEAPUSE : (Maximum Statement Heap Usage)  
112 Pages  
PLANID : (Access plan identifier)  
fd1f9f22e11420d4  
PREPTIME: (Statement prepare time)  
110 milliseconds  
SEMEVID : (Semantic environment identifier)  
629206d8e20199af  
STMTHEAP: (Statement heap size)  
8192  
STMTID : (Normalized statement identifier)  
bc26ca5d1ea05859

Input Streams:

-----

5) From Operator #2

Estimated number of rows: 8  
Number of columns: 2  
Subquery predicate ID: Not Applicable

Column Names:

-----

+Q4.JOB+Q4.\$C0

2) GRPBY : (Group By)

Cumulative Total Cost: 6.86236  
Cumulative CPU Cost: 173494

Cumulative I/O Cost: 1  
Cumulative Re-Total Cost: 0.0325863  
Cumulative Re-CPU Cost: 98555  
Cumulative Re-I/O Cost: 0  
Cumulative First Row Cost: 6.86103  
Estimated Bufferpool Buffers: 0

Arguments:

-----

AGGMODE : (Aggregation Mode)

FINAL

GROUPBYC: (Group By columns)

TRUE

GROUPBYN: (Number of Group By columns)

1

GROUPBYR: (Group By requirement)

1: Q2.JOB

ONEFETCH: (One Fetch flag)

FALSE

Input Streams:

-----

4) From Operator #3

Estimated number of rows: 8  
Number of columns: 1  
Subquery predicate ID: Not Applicable

Column Names:

-----

+Q2.JOB(A)

Output Streams:

-----

5) To Operator #1

Estimated number of rows: 8  
Number of columns: 2  
Subquery predicate ID: Not Applicable

Column Names:

-----

+Q4.JOB+Q4.\$C0

### 3) TBSCAN: (Table Scan)

Cumulative Total Cost:	6.86161
Cumulative CPU Cost:	171212
Cumulative I/O Cost:	1
Cumulative Re-Total Cost:	0.0318318
Cumulative Re-CPU Cost:	96273
Cumulative Re-I/O Cost:	0
Cumulative First Row Cost:	6.86095
Estimated Bufferpool Buffers:	0

#### Arguments:

-----

MAXPAGES: (Maximum pages for prefetch)

ALL

PREFETCH: (Type of Prefetch)

NONE

SCANDIR : (Scan Direction)

FORWARD

SPEED : (Assumed speed of scan, in sharing structures)

SLOW

THROTTLE: (Scan may be throttled, for scan sharing)

FALSE

VISIBLE : (May be included in scan sharing structures)

FALSE

WRAPPING: (Scan may start anywhere and wrap)

FALSE

#### Input Streams:

-----

3) From Operator #4

Estimated number of rows:	8
Number of columns:	1
Subquery predicate ID:	Not Applicable

Column Names:

-----

+Q2.JOB(A)

#### Output Streams:

-----

4) To Operator #2

Estimated number of rows:	8
Number of columns:	1

Subquery predicate ID: Not Applicable

Column Names:

-----

+Q2.JOB(A)

#### 4) SORT : (Sort)

Cumulative Total Cost: 6.86044  
Cumulative CPU Cost: 167675  
Cumulative I/O Cost: 1  
Cumulative Re-Total Cost: 0.0306623  
Cumulative Re-CPU Cost: 92736  
Cumulative Re-I/O Cost: 0  
Cumulative First Row Cost: 6.86044  
Estimated Bufferpool Buffers: 1

Arguments:

-----

AGGMODE : (Aggregation Mode)

PARTIAL

DUPLWARN: (Duplicates Warning flag)

FALSE

KEYS : (Key cardinality)

8

NUMROWS : (Estimated number of rows)

8

ROWWIDTH: (Estimated width of rows)

20.000000

SORTKEY : (Sort Key column)

1: Q2.JOB(A)

TEMPSIZE: (Temporary Table Page Size)

8192

UNIQUE : (Uniqueness required flag)

FALSE

Input Streams:

-----

2) From Operator #5

Estimated number of rows: 23

Number of columns: 1

Subquery predicate ID: Not Applicable

Column Names:

-----



+Q2.JOB

Output Streams:

-----

3) To Operator #3

Estimated number of rows: 8  
Number of columns: 1  
Subquery predicate ID: Not Applicable

Column Names:

-----

+Q2.JOB(A)

5) TBSCAN: (Table Scan)

Cumulative Total Cost: 6.85239  
Cumulative CPU Cost: 143329  
Cumulative I/O Cost: 1  
Cumulative Re-Total Cost: 0.0306623  
Cumulative Re-CPU Cost: 92736  
Cumulative Re-I/O Cost: 0  
Cumulative First Row Cost: 6.82303  
Estimated Bufferpool Buffers: 1

Arguments:

-----

CUR\_COMM: (Currently Committed)

TRUE

LCKAVOID: (Lock Avoidance)

TRUE

MAXPAGES: (Maximum pages for prefetch)

ALL

PREFETCH: (Type of Prefetch)

NONE

ROWLOCK : (Row Lock intent)

SHARE (CS/RS)

SCANDIR : (Scan Direction)

FORWARD

SKIP\_INS: (Skip Inserted Rows)

TRUE

SPEED : (Assumed speed of scan, in sharing structures)

FAST

TABLOCK : (Table Lock intent)

INTENT SHARE

TBISOLVL: (Table access Isolation Level)

CURSOR STABILITY

THROTTLE: (Scan may be throttled, for scan sharing)

TRUE

VISIBLE : (May be included in scan sharing structures)

TRUE

WRAPPING: (Scan may start anywhere and wrap)

TRUE

Predicates:

-----

3) Sargable Predicate,

Comparison Operator: Equal (=)

Subquery Input Required: No

Filter Factor: 0.547619

Predicate Text:

-----

(Q1.SEX = 'M')

Input Streams:

-----

1) From Object ABHISHEK.EMPLOYEE

Estimated number of rows: 42

Number of columns: 3

Subquery predicate ID: Not Applicable

Column Names:

-----

+Q1.\$RID\$+Q1.JOB+Q1.SEX

Output Streams:

-----

2) To Operator #4

Estimated number of rows: 23

Number of columns: 1

Subquery predicate ID: Not Applicable

Column Names:

-----

+Q2.JOB

Objects Used in Access Plan:

-----

Schema: ABHISHEK

Name: ADEFUSR

Type: Materialized View (reference only)

Schema: ABHISHEK

Name: EMPLOYEE

Type: Table

Time of creation: 2018-02-13-15.24.01.492008

Last statistics update: 2018-02-13-15.49.45.088001

Number of columns: 14

Number of rows: 42

Width of rows: 47

Number of buffer pool pages: 1

Number of data partitions: 1

Distinct row values: No

Tablespace name: USERSPACE1

Tablespace overhead: 6.725000

Tablespace transfer rate: 0.080000

Source for statistics: Single Node

Prefetch page count: 32

Container extent page count: 32

Table overflow record count: 0

Table Active Blocks: -1

Average Row Compression Ratio: 0

Percentage Rows Compressed: 0

Average Compressed Row Size: 0