

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: 11.01.1  
FORMATTED ON DB: SAMPLE  
SOURCE\_NAME: SQLC2O26  
SOURCE\_SCHEMA: NULLID  
SOURCE\_VERSION:  
EXPLAIN\_TIME: 2017-02-21-23.42.24.549000  
EXPLAIN\_REQUESTER: KIMTA

Database Context:

-----

Parallelism: None  
CPU Speed: 4.762804e-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: 22  
QUERYTAG: CLP  
Statement Type: Select  
Updatable: No  
Deletable: No

Query Degree: 1

Original Statement:

-----

```
select
  empno,
  firstnme,
  lastname,
  phoneno
from
  emp
where
  salary =68420
```

Optimized Statement:

-----

```
SELECT
  Q1.EMPNO AS "EMPNO",
  Q1.FIRSTNME AS "FIRSTNME",
  Q1.LASTNAME AS "LASTNAME",
  Q1.PHONENO AS "PHONENO"
FROM
  KIMTA.EMPLOYEE AS Q1
WHERE
  (Q1.SALARY = +0068420.00)
```

Access Plan:

-----

Total Cost:	6.87326
Query Degree:	1

Rows

RETURN

( 1)

Cost

I/O

|

2

TBSCAN

( 2)

6.87326

1

|  
42  
TABLE: KIMTA  
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: "KIMTA"."ADEFUSR".

Diagnostic Identifier: 2  
Diagnostic Details: EXP0148W The following MQT or statistical view was considered in query matching: "KIMTA"."ADEFUSR".

Plan Details:

-----

1) RETURN: (Return Result)

Cumulative Total Cost:	6.87326
Cumulative CPU Cost:	143329
Cumulative I/O Cost:	1
Cumulative Re-Total Cost:	0.0441683
Cumulative Re-CPU Cost:	92736
Cumulative Re-I/O Cost:	0
Cumulative First Row Cost:	6.85067
Estimated Bufferpool Buffers:	1

Arguments:

-----

BLDLEVEL: (Build level)  
DB2 v11.1.1010.160 : s1612051900  
HEAPUSE : (Maximum Statement Heap Usage)  
112 Pages  
PLANID : (Access plan identifier)  
142ea1d762f10598  
PREPTIME: (Statement prepare time)  
309 milliseconds

SEMEVID : (Semantic environment identifier)

f5d13a4f0a012ddb

STMTHEAP: (Statement heap size)

8192

STMTID : (Normalized statement identifier)

79e478bed80c285d

Input Streams:

-----

2) From Operator #2

Estimated number of rows:	2
Number of columns:	4
Subquery predicate ID:	Not Applicable

Column Names:

-----

+Q2.PHONENO+Q2.LASTNAME+Q2.FIRSTNME+Q2.EMPNO

2) TBSCAN: (Table Scan)

Cumulative Total Cost:	6.87326
Cumulative CPU Cost:	143329
Cumulative I/O Cost:	1
Cumulative Re-Total Cost:	0.0441683
Cumulative Re-CPU Cost:	92736
Cumulative Re-I/O Cost:	0
Cumulative First Row Cost:	6.85067
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:

-----

2) Sargable Predicate,

Comparison Operator:	Equal (=)
Subquery Input Required:	No
Filter Factor:	0.047619

Predicate Text:

-----

(Q1.SALARY = +0068420.00)

Input Streams:

-----

1) From Object KIMTA.EMPLOYEE

Estimated number of rows:	42
Number of columns:	6
Subquery predicate ID:	Not Applicable

Column Names:

-----

+Q1.\$RID\$+Q1.SALARY+Q1.PHONENO+Q1.LASTNAME  
+Q1.FIRSTNME+Q1.EMPNO

Output Streams:

-----

## 2) To Operator #1

Estimated number of rows: 2  
Number of columns: 4  
Subquery predicate ID: Not Applicable

Column Names:

-----  
+Q2.PHONENO+Q2.LASTNAME+Q2.FIRSTNME+Q2.EMPNO

### Objects Used in Access Plan:

-----

Schema: KIMTA  
Name: EMP  
Type: Alias (reference only)

Schema: KIMTA  
Name: ADEFUSR  
Type: Materialized View (reference only)

Schema: KIMTA  
Name: EMPLOYEE  
Type: Table

### Extended Statistics Information:

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### Tablespace Context:

-----

Name:	USERSPACE1
Overhead:	6.725000
Transfer Rate:	0.080000
Prefetch Size:	32
Extent Size:	32
Type:	Database managed
Partition Group Name:	NULLP
Buffer Pool Identifier:	0

### Base Table Statistics:

-----

Name : EMPLOYEE

Schema: KIMTA

Number of Columns:	14
Number of Pages with Rows:	1
Number of Meta Pages:	0
Number of Pages:	1
Number of Rows:	42
Table Overflow Record Count:	0
Width of Rows:	85
Time of Creation:	2017-02-18-22.07.32.026008
Last Statistics Update:	2017-02-18-22.36.04.744000
Primary Tablespace:	USERSPACE1
Tablespace for Indexes:	USERSPACE1
Tablespace for Long Data:	NULLP
Number of Referenced Columns:	14
Number of Indexes:	2
Volatile Table:	No
Number of Active Blocks:	-1
Number of Column Groups:	0
Number of Data Partitions:	1
Average Row Compression Ratio:	-1.000000
Percent Rows Compressed:	-1.000000
Average Compressed Row Size:	-1
Statistics Type:	A
Number of Worker Nodes:	0

Column Information:

-----

Number:	14
Name:	COMM
DFS Partition Column:	No
Statistics Available:	No

Column Information:

-----

Number:	13
Name:	BONUS
DFS Partition Column:	No
Statistics Available:	No

Column Information:

-----

Number:	12
Name:	SALARY
DFS Partition Column:	No

Statistics Available: Yes

Column Statistics:

-----

Schema name of the column type:	SYSIBM
Name of column type:	DECIMAL
Maximum column length:	5
Scale for decimal or timestamp column:	2
Number of distinct column values:	40
Average column length:	6
Number of most frequent values:	2
Number of quantiles:	20
Second highest data value:	+0098250.00
Second lowest data value:	+0035340.00
Column sequence in partition key:	0
Average number of sub-elements:	-1
Average length of delimiters:	-1
Percentage encoded column values:	-1
Column clustering:	-1
Average encoded column length:	-1.000000

Column Distribution Statistics:

-----

Frequency Statistics:

Valcount	Value
2	+0068420.00
2	+0035900.00

Quantile Statistics:

Valcount	Value	Distcount
1	+0031840.00	0
2	+0035340.00	0
5	+0035900.00	0
7	+0037380.00	0
9	+0037760.00	0
11	+0039950.00	0
13	+0043840.00	0
15	+0045370.00	0
18	+0047250.00	0
20	+0049180.00	0
22	+0049840.00	0
24	+0051340.00	0



27	+0062250.00	0
29	+0066500.00	0
32	+0068420.00	0
33	+0069840.00	0
35	+0073800.00	0
38	+0089750.00	0
40	+0096170.00	0
42	+0152750.00	0

Column Information:

-----

Number:	11
Name:	BIRTHDATE
DFS Partition Column:	No
Statistics Available:	No

Column Information:

-----

Number:	10
Name:	SEX
DFS Partition Column:	No
Statistics Available:	No

Column Information:

-----

Number:	9
Name:	EDLEVEL
DFS Partition Column:	No
Statistics Available:	No

Column Information:

-----

Number:	8
Name:	JOB
DFS Partition Column:	No
Statistics Available:	No

Column Information:

-----

Number:	7
Name:	HIREDATE
DFS Partition Column:	No
Statistics Available:	No

#### Column Information:

-----  
Number: 6  
Name: PHONENO  
DFS Partition Column: No  
Statistics Available: Yes

#### Column Statistics:

-----  
Schema name of the column type: SYSIBM  
Name of column type: CHARACTER  
Maximum column length: 4  
Scale for decimal or timestamp column: 0  
Number of distinct column values: 32  
Average column length: 5  
Number of most frequent values: 10  
Number of quantiles: 20  
Second highest data value: 9001  
Second lowest data value: 0942  
Column sequence in partition key: 0  
Average number of sub-elements: -1  
Average length of delimiters: -1  
Percentage encoded column values: -1  
Column clustering: -1  
Average encoded column length: -1.000000

#### Column Distribution Statistics:

##### Frequency Statistics:

Valcount Value

-----  
2 0672  
2 3332  
2 3780  
2 3978  
2 5698  
2 1793  
2 8997  
2 2103  
2 2167  
2 2890

##### Quantile Statistics:

Valcount Value Distcount

0	0672	0
2	0672	0
4	0961	0
7	1793	0
9	2094	0
11	2103	0
14	2167	0
16	2890	0
18	3332	0
21	3490	0
23	3780	0
26	3978	0
28	4502	0
30	4578	0
33	5698	0
35	6423	0
37	7831	0
40	8997	0
42	9990	0
42	9990	0

#### Column Information:

-----

Number: 5  
 Name: WORKDEPT  
 DFS Partition Column: No  
 Statistics Available: No

#### Column Information:

-----

Number: 4  
 Name: LASTNAME  
 DFS Partition Column: No  
 Statistics Available: Yes

#### Column Statistics:

-----

Schema name of the column type: SYSIBM  
 Name of column type: VARCHAR  
 Maximum column length: 15  
 Scale for decimal or timestamp column: 0  
 Number of distinct column values: 41  
 Average column length: 11

Number of most frequent values:	1
Number of quantiles:	20
Second highest data value:	YAMAMOTO
Second lowest data value:	ALONZO
Column sequence in partition key:	0
Average number of sub-elements:	-1
Average length of delimiters:	-1
Percentage encoded column values:	-1
Column clustering:	-1
Average encoded column length:	-1.000000

#### Column Distribution Statistics:

##### Frequency Statistics:

Valcount	Value
----------	-------

2	SMITH
---	-------

##### Quantile Statistics:

Valcount	Value	Distcount
----------	-------	-----------

1	ADAMSON	0
2	ALONZO	0
4	GEYER	0
7	HEMMINGER	0
9	JEFFERSON	0
11	JOHNSON	0
13	KWAN	0
15	LUCCHESSI	0
18	MEHTA	0
20	NATZ	0
22	O'CONNELL	0
24	PARKER	0
27	PULASKI	0
29	SCHNEIDER	0
31	SCOUTTEN	0
34	SMITH	0
35	SPENSER	0
38	THOMPSON	0
40	WONG	0
42	YOSHIMURA	0

#### Column Information:

Number: 3  
 Name: MIDINIT  
 DFS Partition Column: No  
 Statistics Available: No

Column Information:

Number: 2  
 Name: FIRSTNME  
 DFS Partition Column: No  
 Statistics Available: Yes

Column Statistics:

Schema name of the column type: SYSIBM  
 Name of column type: VARCHAR  
 Maximum column length: 12  
 Scale for decimal or timestamp column: 0  
 Number of distinct column values: 39  
 Average column length: 10  
 Number of most frequent values: 3  
 Number of quantiles: 20  
 Second highest data value: WILLIAM  
 Second lowest data value: CHRISTINE  
 Column sequence in partition key: 0  
 Average number of sub-elements: -1  
 Average length of delimiters: -1  
 Percentage encoded column values: -1  
 Column clustering: -1  
 Average encoded column length: -1.000000

Column Distribution Statistics:

Frequency Statistics:

Valcount	Value
2	JAMES
2	JOHN
2	EILEEN

Quantile Statistics:

Valcount	Value	Distcount
1	BRUCE	0

2	CHRISTINE		0
4	DAVID	0	
8	EILEEN	0	
9	ELIZABETH		0
11	EVA	0	
13	HEATHER		0
15	IRVING	0	
18	JASON	0	
21	JOHN	0	
22	KIM	0	
24	MARIA	0	
27	MAUDE	0	
29	MICHELLE		0
31	RAMLAL		0
33	ROBERT	0	
35	SALLY	0	
38	SYBIL	0	
40	VINCENZO		0
42	WING	0	

#### Column Information:

-----

Number:	1
Name:	EMPNO
DFS Partition Column:	No
Statistics Available:	Yes

#### Column Statistics:

-----

Schema name of the column type:	SYSIBM
Name of column type:	CHARACTER
Maximum column length:	6
Scale for decimal or timestamp column:	0
Number of distinct column values:	42
Average column length:	6
Number of most frequent values:	-1
Number of quantiles:	20
Second highest data value:	200330
Second lowest data value:	000020
Column sequence in partition key:	0
Average number of sub-elements:	-1
Average length of delimiters:	-1
Percentage encoded column values:	-1
Column clustering:	-1

Average encoded column length: -1.000000

Column Distribution Statistics:

-----  
Quantile Statistics:

Valcount	Value	Distcount
1	000010	1
2	000020	2
4	000050	4
7	000090	7
9	000110	9
11	000130	11
13	000150	13
15	000170	15
18	000200	18
20	000220	20
22	000240	22
24	000260	24
27	000290	27
29	000310	29
31	000330	31
33	200010	33
35	200140	35
38	200240	38
40	200310	40
42	200340	42

Indexes defined on the table:

-----  
Name : XEMP2

Schema: KIMTA

Unique Rule:	Duplicate index
Used in Operator:	No
Page Fetch Pairs:	Not Available
Number of Columns:	1
Index Leaf Pages:	1
Index Tree Levels:	1
Index First Key Cardinality:	8
Index Full Key Cardinality:	8
Index Cluster Ratio:	100
Index Cluster Factor:	-1.000000
Time of Creation:	2017-02-18-22.07.32.260004
Last Statistics Update:	2017-02-18-22.36.04.744000

Index Sequential Pages:	0
Index First 2 Keys Cardinality:	-1
Index First 3 Keys Cardinality:	-1
Index First 4 Keys Cardinality:	-1
Index Avg Gap between Sequences:	0.000000
Fetch Avg Gap between Sequences:	-1.000000
Index Avg Sequential Pages:	0.000000
Fetch Avg Sequential Pages:	-1.000000
Index Avg Random Pages:	1.000000
Fetch Avg Random Pages:	-1.000000
Index RID Count:	42
Index Deleted RID Count:	0
Index Empty Leaf Pages:	0
Avg Partition Cluster Ratio:	-1
Avg Partition Cluster Factor:	-1.000000
Data Partition Cluster Factor:	1.000000
Data Partition Page Fetch Pairs:	Not Available

Name : PK\_EMPLOYEE

Schema: KIMTA

Unique Rule:	Primary key index
Used in Operator:	No
Page Fetch Pairs:	Not Available
Number of Columns:	1
Index Leaf Pages:	1
Index Tree Levels:	1
Index First Key Cardinality:	42
Index Full Key Cardinality:	42
Index Cluster Ratio:	100
Index Cluster Factor:	-1.000000
Time of Creation:	2017-02-18-22.07.32.026008
Last Statistics Update:	2017-02-18-22.36.04.744000
Index Sequential Pages:	0
Index First 2 Keys Cardinality:	-1
Index First 3 Keys Cardinality:	-1
Index First 4 Keys Cardinality:	-1
Index Avg Gap between Sequences:	0.000000
Fetch Avg Gap between Sequences:	-1.000000
Index Avg Sequential Pages:	0.000000
Fetch Avg Sequential Pages:	-1.000000
Index Avg Random Pages:	1.000000
Fetch Avg Random Pages:	-1.000000
Index RID Count:	42
Index Deleted RID Count:	0



Index Empty Leaf Pages:	0
Avg Partition Cluster Ratio:	-1
Avg Partition Cluster Factor:	-1.000000
Data Partition Cluster Factor:	1.000000
Data Partition Page Fetch Pairs:	Not Available