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2.

Oracle SQL Developer: PIATK

Connections: PIATK

Tables (PIATK): TEST, WARTOSC, WARTOSC2

Views: ID, WARTOSC, WARTOSC2

Indexes: ID, WARTOSC, WARTOSC2

Procedures: ID, WARTOSC, WARTOSC2

Functions: ID, WARTOSC, WARTOSC2

Operators: ID, WARTOSC, WARTOSC2

Queues: ID, WARTOSC, WARTOSC2

Queues Tables: ID, WARTOSC, WARTOSC2

Triggers: ID, WARTOSC, WARTOSC2

Types: ID, WARTOSC, WARTOSC2

Sequences: ID, WARTOSC, WARTOSC2

Materialized Views: ID, WARTOSC, WARTOSC2

Materialized View Logs: ID, WARTOSC, WARTOSC2

Synonyms: ID, WARTOSC, WARTOSC2

Public Synonyms: ID, WARTOSC, WARTOSC2

Database Links: ID, WARTOSC, WARTOSC2

Public Database Links: ID, WARTOSC, WARTOSC2

Reports: ID, WARTOSC, WARTOSC2

Query: SELECT \* FROM test WHERE wastosc = 12345;

Query Result: 0,011 seconds

Query Plan:

OPERATION	OBJECT_NAME	OPTIONS	CARDINALITY	COST
SELECT STATEMENT	TEST	FULL	2	103
TABLE ACCESS	TEST	FULL	2	103

Other Info:

- Info type="db\_version": 12.1.0.2
- Info type="parse\_schema": "PIATK"
- Info type="plan\_hash\_full": 254573168
- Info type="plan\_hash": 1307691020
- Info type="plan\_hash\_2": 254573168

Batched Access Predicates:

- PULL(@"SEL\$1" "TEST"@"SEL\$1")
- OUTLINE\_LEAF(@"SEL\$1")
- ALL\_ROWS
- DB\_VERSION("12.1.0.2")
- OPTIMIZER\_FEATURES\_ENABLE("12.1.0.2")
- IGNORE\_OPTIM\_EMBEDDED\_HINTS

Zapytanie bez indeksu, koszt wyniósł 103.

Oracle SQL Developer: PIATK

Connections: PIATK

Tables (PIATK): TEST, WARTOSC, WARTOSC2

Views: ID, WARTOSC, WARTOSC2

Indexes: ID, WARTOSC, WARTOSC2

Procedures: ID, WARTOSC, WARTOSC2

Functions: ID, WARTOSC, WARTOSC2

Operators: ID, WARTOSC, WARTOSC2

Queues: ID, WARTOSC, WARTOSC2

Queues Tables: ID, WARTOSC, WARTOSC2

Triggers: ID, WARTOSC, WARTOSC2

Types: ID, WARTOSC, WARTOSC2

Sequences: ID, WARTOSC, WARTOSC2

Materialized Views: ID, WARTOSC, WARTOSC2

Materialized View Logs: ID, WARTOSC, WARTOSC2

Synonyms: ID, WARTOSC, WARTOSC2

Public Synonyms: ID, WARTOSC, WARTOSC2

Database Links: ID, WARTOSC, WARTOSC2

Public Database Links: ID, WARTOSC, WARTOSC2

Reports: ID, WARTOSC, WARTOSC2

Query: SELECT \* FROM test WHERE wastosc = 12345;

Query Result: 0,049 seconds

Query Plan:

OPERATION	OBJECT_NAME	OPTIONS	CARDINALITY	COST
SELECT STATEMENT	TEST	FULL	2	3
TABLE ACCESS	TEST	FULL	2	3

Other Info:

- Info type="db\_version": 12.1.0.2
- Info type="parse\_schema": "PIATK"
- Info type="plan\_hash\_full": 2797499331
- Info type="plan\_hash": 997612314
- Info type="plan\_hash\_2": 2797499331

Batched Access Predicates:

- PULL(@"SEL\$1" "TEST"@"SEL\$1")
- OUTLINE\_LEAF(@"SEL\$1")
- ALL\_ROWS
- DB\_VERSION("12.1.0.2")
- OPTIMIZER\_FEATURES\_ENABLE("12.1.0.2")
- IGNORE\_OPTIM\_EMBEDDED\_HINTS

Zapytanie z indeksem, koszt wyniósł 3, czyli zmniejszył się o 100.

3.

Oracle SQL Developer: PIATK

Connections: PIATK

Tables (PIATK): TEST, WARTOSC, WARTOSC2

Views: ID, WARTOSC, WARTOSC2

Indexes: ID, WARTOSC, WARTOSC2

Procedures: ID, WARTOSC, WARTOSC2

Functions: ID, WARTOSC, WARTOSC2

Operators: ID, WARTOSC, WARTOSC2

Queues: ID, WARTOSC, WARTOSC2

Queues Tables: ID, WARTOSC, WARTOSC2

Triggers: ID, WARTOSC, WARTOSC2

Types: ID, WARTOSC, WARTOSC2

Sequences: ID, WARTOSC, WARTOSC2

Materialized Views: ID, WARTOSC, WARTOSC2

Materialized View Logs: ID, WARTOSC, WARTOSC2

Synonyms: ID, WARTOSC, WARTOSC2

Public Synonyms: ID, WARTOSC, WARTOSC2

Database Links: ID, WARTOSC, WARTOSC2

Public Database Links: ID, WARTOSC, WARTOSC2

Reports: ID, WARTOSC, WARTOSC2

Query: SELECT \* FROM test WHERE wastosc2 = 12345;

Query Result: 0,034 seconds

Query Plan:

OPERATION	OBJECT_NAME	OPTIONS	CARDINALITY	COST
SELECT STATEMENT	TEST	FULL	2	103
TABLE ACCESS	TEST	FULL	2	103

Other Info:

- Info type="db\_version": 12.1.0.2
- Info type="parse\_schema": "PIATK"
- Info type="plan\_hash\_full": 254573168
- Info type="plan\_hash": 1307691020
- Info type="plan\_hash\_2": 254573168

Batched Access Predicates:

- PULL(@"SEL\$1" "TEST"@"SEL\$1")
- OUTLINE\_LEAF(@"SEL\$1")
- ALL\_ROWS
- DB\_VERSION("12.1.0.2")
- OPTIMIZER\_FEATURES\_ENABLE("12.1.0.2")
- IGNORE\_OPTIM\_EMBEDDED\_HINTS

Zapytanie bez indeksu, koszt wyniósł 103.

Oracle SQL Developer - PIATK

Connections: Oracle Connections, PIATK, Tables (Piered), TEST, WARTOSC2, Views, Indexes, Packages, Procedures, Functions, Operators, Queues, Queues Tables, Triggers, Types, Sequences, Materialized Views, Materialized View Logs, Synonyms, Public Synonyms, Database Links, Public Database Links.

Reports: All Reports, Analytic View Reports, Data Dictionary Reports, Data Modeler Reports, OLAP Reports, Time Series Reports, User Defined Reports.

Query: `SELECT * FROM test WHERE wartosc2 = 12345;`

Query Result: 0,016 seconds

Query Plan:

OPERATION	OBJECT_NAME	OPTIONS	CARDINALITY	COST
SELECT STATEMENT	TEST	BY INDEX ROWID BATCHED	1	2
TABLE ACCESS	TEST	RANGE SCAN	1	1
INDEX	WARTOSC2_IDX	RANGE SCAN	1	1

Other XML:

```
<info type="db_version">12.1.0.2</info>
<info type="parse_schema">"020752"</info>
<info type="plan_hash_full">64045780</info>
<info type="plan_hash">2955303717</info>
<info type="plan_hash_2">64045780</info>
<info type="table_access_by_rowid">["TEST"@"SEL$1"]</info>
<info type="index_access">["INDEX_RS_ASC(@"SEL$1" "TEST"@"SEL$1" ("WARTOSC2"))</info>
<info type="outline_leaf">["SEL$1"]</info>
<info type="all_rows">ALL_ROWS</info>
<info type="db_version">["12.1.0.2"]</info>
<info type="optimizer_features_enable">["12.1.0.2"]</info>
<info type="optimizer_features_enable">["12.1.0.2"]</info>
```

Zapytanie z indeksem, gdy warunek przyjmuje wartość spoza zakresu wartości kolumny wartosc2 - koszt wyniósł 2, czyli zmniejszył się o 101.

Oracle SQL Developer - PIATK

Connections: Oracle Connections, PIATK, Tables (Piered), TEST, WARTOSC2, Views, Indexes, Packages, Procedures, Functions, Operators, Queues, Queues Tables, Triggers, Types, Sequences, Materialized Views, Materialized View Logs, Synonyms, Public Synonyms, Database Links, Public Database Links.

Reports: All Reports, Analytic View Reports, Data Dictionary Reports, Data Modeler Reports, OLAP Reports, Time Series Reports, User Defined Reports.

Query: `SELECT * FROM test WHERE wartosc2 = 5;`

Query Result: 0,047 seconds

Query Plan:

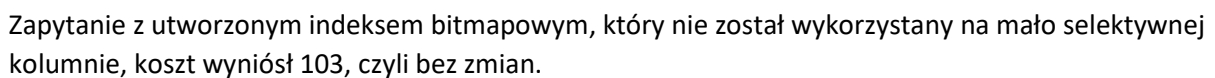
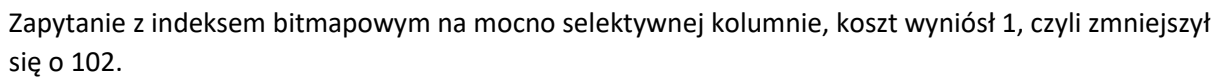
OPERATION	OBJECT_NAME	OPTIONS	CARDINALITY	COST
SELECT STATEMENT	TEST	FULL	10000	103
TABLE ACCESS	TEST	FULL	10000	103
INDEX	WARTOSC2_IDX	RANGE SCAN	1	1

Other XML:

```
<info type="db_version">12.1.0.2</info>
<info type="parse_schema">"020752"</info>
<info type="plan_hash_full">2945673168</info>
<info type="plan_hash">1237084020</info>
<info type="plan_hash_2">2945673168</info>
<info type="table_access_by_rowid">["TEST"@"SEL$1"]</info>
<info type="index_access">["INDEX_RS_ASC(@"SEL$1" "TEST"@"SEL$1" ("WARTOSC2"))</info>
<info type="outline_leaf">["SEL$1"]</info>
<info type="all_rows">ALL_ROWS</info>
<info type="db_version">["12.1.0.2"]</info>
<info type="optimizer_features_enable">["12.1.0.2"]</info>
<info type="optimizer_features_enable">["12.1.0.2"]</info>
```

Zapytanie z utworzonym indeksem, który nie został wykorzystany - gdy warunek przyjmuje wartość z zakresu wartości kolumny wartosc2, koszt wyniósł 103, czyli nic się nie zmniejszył.

4.



Natomiast gdy warunek zapytania przyjmuje wartości spoza zakresu 1-10 koszt wyniósł 1, a indeks został wykorzystany.

5.

Oracle SQL Developer

Connections

Oracle Connections

PIATK

Tables (Filtered)

TEST

WARTOSC

WARTOSC2

Views

Indexes

WARTOSC\_IDX

WARTOSC2\_IDX

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All Reports

Analytic View Reports

Data Dictionary Reports

Data Modeler Reports

OLAP Reports

TimeTen Reports

User Defined Reports

Worksheet

Query Builder

Query Result

Script Output

Explain Plan

0,057 seconds

```
--CREATE BITMAP INDEX wartosc2_idx ON test (wartosc2);
SELECT * FROM test WHERE wartosc = 12345 OR wartosc2 = 5;
```

OPERATION	OBJECT_NAME	OPTIONS	CARDINALITY	COST	
SELECT STATEMENT	TEST	FULL		10001	103
TABLE ACCESS	TEST	FULL		10001	103
Filter Predicates					
OK	WARTOSC2=5				
Other XNL	WARTOSC=12345				
Info type="db_version"					
12.1.0.2					
info type="para_schema"					
"SCOTT"					
info type="plan_hash_full"					
2545673168					
info type="plan_hash"					
1357081020					
info type="plan_hash_2"					
2545673168					
Full(@"SEL\$1" "TEST"@SEL\$1)					
OUTLINE_LEAF(@"SEL\$1")					
ALL_ROWS					
DB_VERSION(12.1.0.2)					
OPTIMIZER_FEATURES_ENABLE(12.1.0.2)					
IGNORE_OPTIM_EMBEDDED_HINTS					

Koszt wyniósł 103, a żaden z indeksów nie został wykorzystany.

6.

Oracle SQL Developer

Connections

Oracle Connections

PIATK

Tables (Filtered)

TEST

WARTOSC

WARTOSC2

Views

Indexes

Procedures

Operators

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Data Dictionary Reports

Data Modeler Reports

OLAP Reports

TimeTen Reports

User Defined Reports

Worksheet

Query Builder

Query Result

Script Output

Explain Plan

0,06 seconds

```
SELECT * FROM test WHERE wartosc2 = 1234;
```

OPERATION	OBJECT_NAME	OPTIONS	CARDINALITY	COST	
SELECT STATEMENT	TEST	FULL		1000	103
TABLE ACCESS	TEST	FULL		1000	103
Filter Predicates					
OK	WARTOSC2=1234				
Other XNL					
Info type="db_version"					
12.1.0.2					
info type="para_schema"					
"SCOTT"					
info type="plan_hash_full"					
2545673168					
info type="plan_hash"					
1357081020					
info type="plan_hash_2"					
2545673168					
Full(@"SEL\$1" "TEST"@SEL\$1)					
OUTLINE_LEAF(@"SEL\$1")					
ALL_ROWS					
DB_VERSION(12.1.0.2)					
OPTIMIZER_FEATURES_ENABLE(12.1.0.2)					
IGNORE_OPTIM_EMBEDDED_HINTS					

Koszt zapytania bez indeksu wyniósł 103.

Query: `SELECT * FROM test WHERE wastoc2 = id = 1234;`

OPERATION	OBJECT_NAME	OPTIONS	CARDINALITY	COST
SELECT STATEMENT				5
TABLE ACCESS	TEST	BY INDEX ROWID BATCHED	10000	5
INDEX	WASTOC2_ID=1234	RANGE SCAN	400	1

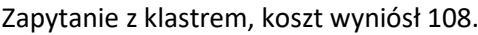
Koszt zapytania z indeksem funkccyjnym wyniósł 5.

7.

Query: `SELECT * FROM test WHERE id BETWEEN 10000 AND 20000;`

OPERATION	OBJECT_NAME	OPTIONS	CARDINALITY	COST
SELECT STATEMENT				103
TABLE ACCESS	TEST	FULL	10000	103

Koszt bez indeksu wyniósł 103.



Oracle SQL Developer: PIATK

Connections: PIATK

Worksheet: Query Builder

SQL: 0,057 seconds

SELECT \* FROM Pracownik INNER JOIN Dial ON Pracownik.IdDzial = Dial.IdDzial

Query Result: X | Script Output: X | Explain Plan: X

SQL: 0,057 seconds

OPERATION	OBJECT_NAME	OPTIONS	CARDINALITY	COST	
SELECT STATEMENT				108742	140
HASH JOIN				108742	140
Access Predicates					
TABLE ACCESS	PRACOWNIK	FULL	10	3	
TABLE ACCESS	DZIAL	FULL	108742	137	

Other SQL:

```

info type='db_version'
  12.1.0.2
info type='para_schema'
  'SCOTT'
info type='dynamic_sampling' note='Y'
  2
info type='plan_hash_full'
  177032713
info type='plan_hash'
  313491093
info type='plan_hash_2'
  177032713
(End)
USE_HASH(@SEL$0@SEL$1@PRACOWNIK@SEL$1)
LEADING(@SEL$0@SEL$1@PRACOWNIK@SEL$1)
FULL(@SEL$0@SEL$1@PRACOWNIK@SEL$1)
FULL(@SEL$0@SEL$1@DZIAL@SEL$1)
OUTLINE(@SEL$1)
OUTLINE(@SEL$2)
MERGE(@SEL$1)
OUTLINE_LEAF(@SEL$0@SEL$1)
ALL_ROWS
DB_ROWID@C(12.1.0.2)
OPTIMIZER_FEATURES_ENABLE(12.1.0.2)
IGNORE_OPTIM_EMBEDDED_HINTS

```

Koszt bez klastra wyniósł 140.

9.

Oracle SQL Developer: PIATK

Connections: PIATK

Worksheet: Query Builder

SQL: 0,016 seconds

select \* from pmi

Query Result: X | Script Output: X | Explain Plan: X

SQL: 0,016 seconds

OPERATION	OBJECT_NAME	OPTIONS	CARDINALITY	COST	
SELECT STATEMENT				10	3
MAT_VIEW_ACCESS	PMI	FULL	10	3	

Other SQL:

```

info type='db_version'
  12.1.0.2
info type='para_schema'
  'SCOTT'
info type='plan_hash_full'
  68703427
info type='plan_hash'
  335949016
info type='plan_hash_2'
  68703427
(End)
FULL(@SEL$1"PMI"@SEL$1)
OUTLINE_LEAF(@SEL$1)
ALL_ROWS
DB_ROWID@C(12.1.0.2)
OPTIMIZER_FEATURES_ENABLE(12.1.0.2)
IGNORE_OPTIM_EMBEDDED_HINTS

```

Koszt wybrania wszystkich rekordów z perspektywy wyniósł 3.

Oracle SQL Developer: PIATK

Connections: PIATK

Worksheet: Query Builder

SQL: 0,059 seconds

SELECT Dial.Nazwa, COUNT(\*) FROM Dial  
INNER JOIN Pracownik ON Pracownik.IdDzial = Dial.IdDzial  
GROUP BY Dial.Nazwa  
ORDER BY 2;

Query Result: X | Script Output: X | Explain Plan: X

SQL: 0,059 seconds

OPERATION	OBJECT_NAME	OPTIONS	CARDINALITY	COST	
SELECT STATEMENT				108742	146
Sort				108742	146
Hash				108742	146
Access Predicates				108742	140
TABLE ACCESS	PRACOWNIK	FULL	10	3	
TABLE ACCESS	DZIAL	FULL	108742	137	

Other SQL:

```

info type='db_version'
  12.1.0.2
info type='para_schema'
  'SCOTT'
info type='dynamic_sampling' note='Y'
  2
info type='plan_hash_full'
  120633312
info type='plan_hash'
  153490543
info type='plan_hash_2'
  120633312
(End)
USE_HASH_AGGREGATION(@SEL$0@SEL$1)
USE_HASH(@SEL$0@SEL$1@PRACOWNIK@SEL$1)
LEADING(@SEL$0@SEL$1@PRACOWNIK@SEL$1)
FULL(@SEL$0@SEL$1@PRACOWNIK@SEL$1)
FULL(@SEL$0@SEL$1@DZIAL@SEL$1)
OUTLINE(@SEL$1)
OUTLINE(@SEL$2)
MERGE(@SEL$1)
OUTLINE_LEAF(@SEL$0@SEL$1)
ALL_ROWS
DB_ROWID@C(12.1.0.2)
OPTIMIZER_FEATURES_ENABLE(12.1.0.2)
IGNORE_OPTIM_EMBEDDED_HINTS

```

Natomiast koszt wykonania instrukcji SELECT bez perspektywy wyniósł 146.

Oracle SQL Developer: PIATK

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Connections

Oracle Connections

PJATK

Tables (Filtered)

TEST

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All Reports

Analytic View Reports

Data Dictionary Reports

Data Modeler Reports

OLAP Reports

TimesTen Reports

User Defined Reports

Worksheet

Query Builder

SELECT \* FROM PRACOWNIK WHERE IdDzial IN (1, 2, 3);

Query Result

Script Output

Explain Plan

SQL

0,358 seconds

OPERATION	OBJECT_NAME	OPTIONS	CARDINALITY	COST
SELECT STATEMENT				137
TABLE ACCESS	PRACOWNIK	FULL		29311

Filter Predicates

OR

IDDZIAL=1

IDDZIAL=2

IDDZIAL=3

Other XML

info type="db\_version"

12.1.0.2

info type="parse\_schema"

"S26752"

info type="dynamic\_sampling" note="Y"

2

info type="plan\_hash\_full"

1164667630

info type="plan\_hash"

1601986135

info type="plan\_hash\_2"

1164667630

(hint)

FULL(@"SEL\$1" PRACOWNIK@"SEL\$1")

OUTLINE\_LEAF(@"SEL\$1")

ALL\_ROWS

DB\_VERSION("12.1.0.2")

OPTIMIZER\_FEATURES\_ENABLE("12.1.0.2")

IGNORE\_OPTIM\_EMBEDDED\_HINTS

Koszt wykonania zapytania wyniósł 137.

Oracle SQL Developer: PIATK

File Edit View Navigate Run Source Team Tools Window Help

Connections

Oracle Connections

PJATK

Tables (Filtered)

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Analytic View Reports

Data Dictionary Reports

Data Modeler Reports

OLAP Reports

TimesTen Reports

User Defined Reports

Worksheet

Query Builder

SELECT \* FROM PRACOWNIK WHERE IdDzial IN (1, 2, 3);

Query Result

Script Output

Explain Plan

SQL

0,023 seconds

OPERATION	OBJECT_NAME	OPTIONS	PARTITION_START	PARTITION_STOP	PARTITION_ID	CARDINALITY	COST
SELECT STATEMENT							276
PARTITION LIST			KEY(DZIAL)	KEY(DZIAL)		3	8272
TABLE ACCESS	PRACOWNIK	FULL	KEY(DZIAL)	KEY(DZIAL)		1	8272

Other XML

info type="heded@flags"

2.9

info type="heded@flags"

1.9

info type="db\_version"

12.1.0.2

info type="parse\_schema"

"S26752"

info type="dynamic\_sampling" note="Y"

2

info type="plan\_hash\_full"

304886743

info type="plan\_hash"

304886743

info type="plan\_hash\_2"

304886743

(hint)

FULL(@"SEL\$1" PRACOWNIK@"SEL\$1")

OUTLINE\_LEAF(@"SEL\$1")

ALL\_ROWS

DB\_VERSION("12.1.0.2")

OPTIMIZER\_FEATURES\_ENABLE("12.1.0.2")

IGNORE\_OPTIM\_EMBEDDED\_HINTS

Kosz wykonania zapytania na partycjonowanej tabeli wyniósł 276.