DB3 REPORT

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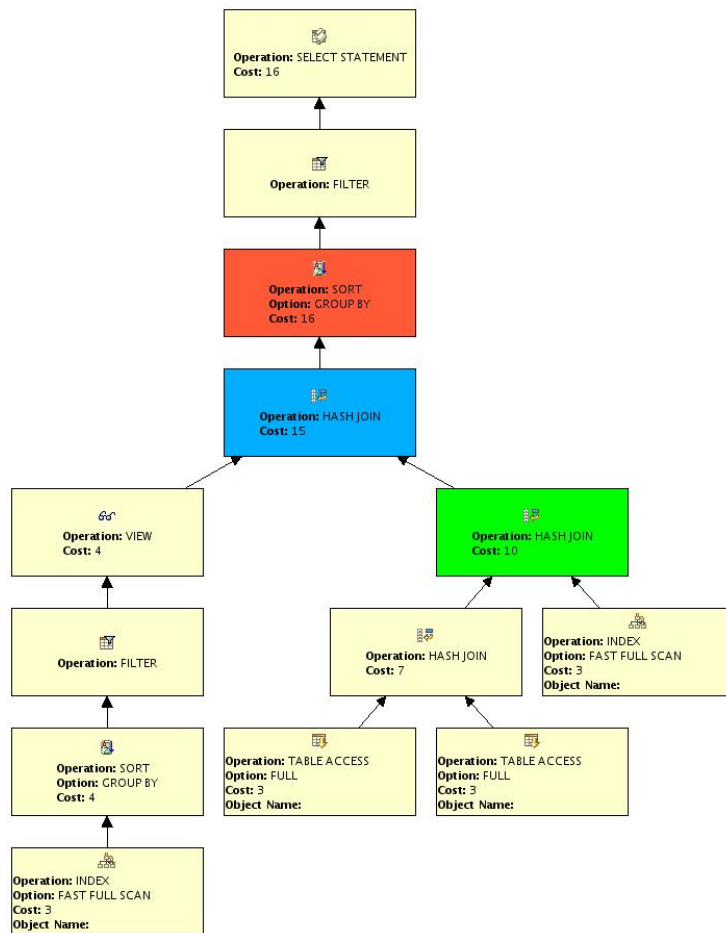
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Query 1

Query C is our optimized query. It has the lowest overall cost in comparison to Query A and B and also a lower size cost. This is due to Query A not having any nested queries and less projections than the other two.

Query A

```
/* Get a song that is on a bands album with the song
   title occurs more than once and remove the duplicates
   (using HAVING count(*)>1)
*/
SELECT BAND.NAME AS Band_Name, SONG.TITLE AS Song_Title
FROM BAND, SONG, RELEASE
WHERE BAND.BID = RELEASE.BID AND SONG.RID = RELEASE.RID
AND SONG.TITLE in
(
    SELECT TITLE
    FROM
    (
        Select TITLE, COUNT(TITLE)
        From Song
        group by title
        having count(title)>1
    )
)
GROUP BY BAND.NAME, SONG.TITLE
HAVING count(*)>1
ORDER BY BAND.NAME
GO
```

Operation: SELECT STATEMENT
Cost: 16

Operation: FILTER

Operation: SORT
Option: GROUP BY
Cost: 16

Operation: HASH JOIN
Cost: 15

Operation: VIEW
Cost: 4

Operation: HASH JOIN
Cost: 10

Operation: FILTER

Operation: HASH JOIN
Cost: 7

Operation: INDEX
Option: FAST FULL SCAN
Cost: 3
Object Name:

Operation: SORT
Option: GROUP BY
Cost: 4

Operation: TABLE ACCESS
Option: FULL
Cost: 3
Object Name:

Operation: TABLE ACCESS
Option: FULL
Cost: 3
Object Name:

Operation: INDEX
Option: FAST FULL SCAN
Cost: 3
Object Name:

Query B

```
/*  Select songs where the titles match,
    the Songs Release ID's (RID) dont match,
    each song is on it's respective release,
    and the band has that song on one of its
    albums.
*/
SELECT DISTINCT BAND.NAME AS Band_Name, S1.TITLE AS Song_Title
  FROM BAND,RELEASE R1,RELEASE R2 ,SONG S1, SONG S2
  WHERE S1.TITLE = S2.TITLE
  AND S1.RID <> S2.RID
  AND R1.RID = S1.RID
  AND R2.RID = S2.RID
  AND BAND.BID = R1.BID
```
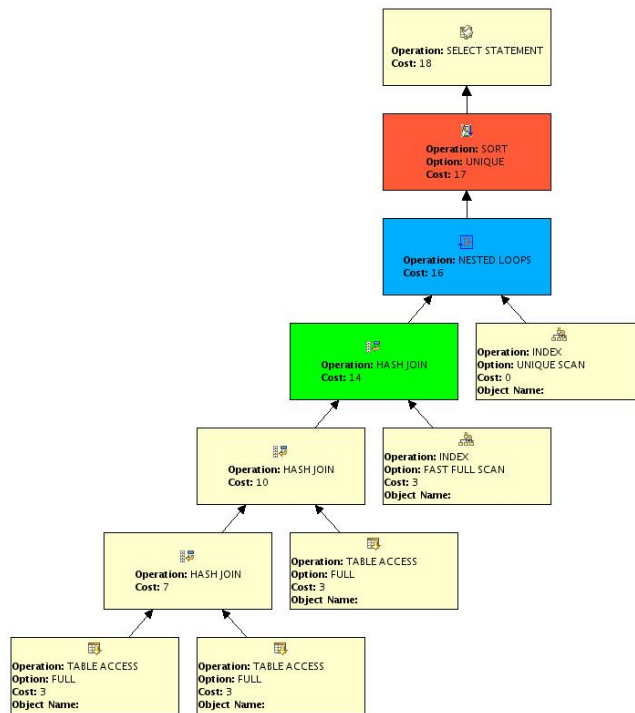
```
   AND BAND.BID = R2.BID
ORDER BY Band_Name
```


Operation: SELECT STATEMENT
Cost: 18

Operation: SORT
Option: UNIQUE
Cost: 17

Operation: NESTED LOOPS
Cost: 16

Operation: HASH JOIN
Cost: 14

Operation: INDEX
Option: UNIQUE SCAN
Cost: 0
Object Name:

Operation: HASH JOIN
Cost: 10

Operation: INDEX
Option: FAST FULL SCAN
Cost: 3
Object Name:

Operation: HASH JOIN
Cost: 7

Operation: TABLE ACCESS
Option: FULL
Cost: 3
Object Name:

Operation: TABLE ACCESS
Option: FULL
Cost: 3
Object Name:

Operation: TABLE ACCESS
Option: FULL
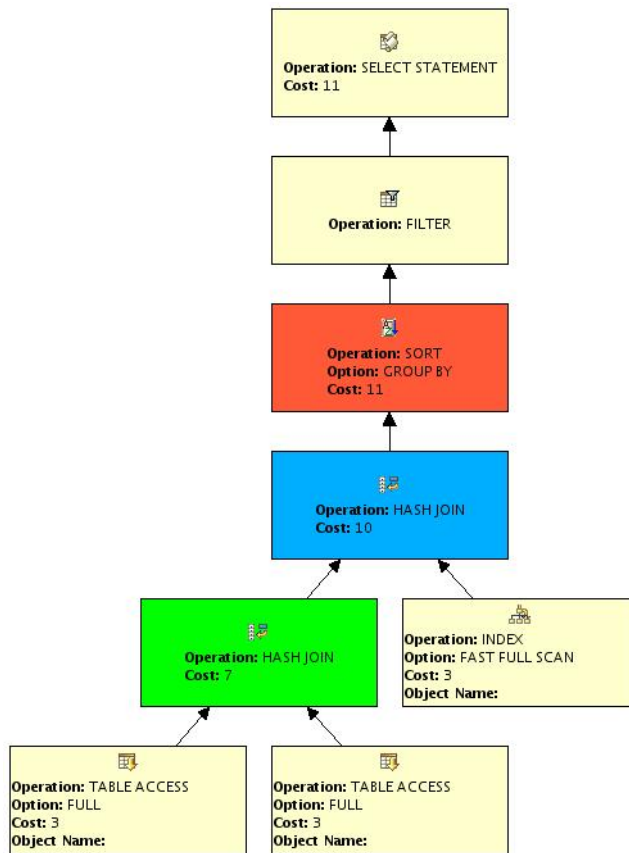Cost: 3
Object Name:

Query C

```
/*  Select every song that is on an album by a band
    and project only those that occur more than once
*/
SELECT BAND.NAME AS Band_Name, SONG.TITLE AS Song_Title
FROM BAND, SONG, RELEASE
WHERE BAND.BID=RELEASE.BID AND RELEASE.RID=SONG.RID
GROUP BY BAND.NAME, SONG.TITLE
HAVING count(*)>1
ORDER BY BAND.NAME
GO
```

Operation: SELECT STATEMENT
Cost: 11

Operation: FILTER

Operation: SORT
Option: GROUP BY
Cost: 11

Operation: HASH JOIN
Cost: 10

Operation: HASH JOIN
Cost: 7

Operation: INDEX
Option: FAST FULL SCAN
Cost: 3
Object Name:

Operation: TABLE ACCESS
Option: FULL
Cost: 3
Object Name:

Operation: TABLE ACCESS
Option: FULL
Cost: 3
Object Name:

Output

```
BAND_NAME        SONG_TITLE
---------------  -----------------------------------
Blind Guardian   Banish From Sanctuary
Blind Guardian   Barbara Ann
Blind Guardian   Goodbye My Friend
Blind Guardian   Inquisition
Blind Guardian   Journey Through The Dark
Blind Guardian   Lost In The Twilight Hall
Blind Guardian   The Quest For Tanelorn
Blind Guardian   Time What Is Time
Blind Guardian   Traveler In Time
Blind Guardian   Valhalla
Blind Guardian   Welcome To Dying
Bruce Dickinson  Accident Of Birth
Bruce Dickinson  Book Of Thel
Bruce Dickinson  Chemical Wedding
```

```
Bruce Dickinson  Gates Of Urizen
Bruce Dickinson  Killing Floor
Bruce Dickinson  King In Crimson
Bruce Dickinson  Laughing In The Hiding Bush
Bruce Dickinson  Tears Of The Dragon
Bruce Dickinson  The Tower
Bruce Dickinson  Trumpets Of Jericho
Candlemass       A Sorcerer's Pledge
Candlemass       At The Gallows End
Candlemass       Bewitched
Candlemass       Dark Are The Veils Of Death
Candlemass       Dark Reflections
Candlemass       Demons Gate
Candlemass       Mirror Mirror
Candlemass       Samarithan
Candlemass       Solitude
Candlemass       The Well Of Souls
Candlemass       Through The Infinitive Halls Of Death
Candlemass       Under The Oak
Crimson Glory    In Dark Places
Savatage         24 Hours Ago
Savatage         Gutter Ballet
Savatage         Hall Of The Mountain King
Savatage         Hounds
Savatage         Legions
Savatage         Of Rage And War
Savatage         Sleep
Savatage         Strange Wings
Savatage         When The Crowds Are Gone

43 record(s) selected
```

Query 2

Output

```
BAND_NAME          BONUS_NUM
-----------------  -----------
Blind Guardian     6
Bruce Dickinson    0
Candlemass         1
Cirith Ungol       1
Crimson Glory      3
Dark Tranquility   0
Demons & Wizards   0
```

```
EverEve              1
Gamma Ray            1
Helloween            1
Iced Earth           1
Iron Maiden          0
Memento Mori         0
Nevermore            1
Opeth                2
Samael               0
Sanctuary            0
Savatage             6
Theatre Of Tragedy   0
Tristania            0

20 record(s) selected
```

Query 3

Output

```
GUITARIST_NAME        BAND_NAME            START_YEAR    END_YEAR
--------------------  -------------------  ------------  -----------
Adrian Smith          Iron Maiden          1981          1988
Adrian Smith          Bruce Dickinson      1997          1999
Adrian Smith          Iron Maiden          2000          (null)
Al Pitrelli           Savatage             1995          1998
Alex Skolnick         Savatage             1994          1994
Anders H. Hidle       Tristania            1997          (null)
Andre Olbrich         Blind Guardian       1990          (null)
Ben Jackson           Crimson Glory        1986          (null)
Chris Caffery         Savatage             1989          1989
Chris Caffery         Savatage             1995          (null)
Criss Oliva           Savatage             1985          1993
Dave Murray           Iron Maiden          1982          (null)
Frank Claussen        Theatre Of Tragedy   1998          (null)
Fredrik Johansson     Dark Tranquility     1999          1999
Geir Flikkeid         Theatre Of Tragedy   1996          1996
Janick Gers           Iron Maiden          1990          (null)
Jeff Loomis           Nevermore            1995          (null)
Jerry Fogle           Cirith Ungol         1984          1986
Jim Morris            Demons & Wizards     1999          1999
Jon Drenning          Crimson Glory        1986          (null)
Jon Schaffer          Iced Earth           1991          (null)
Jon Schaffer          Demons & Wizards     1999          (null)
Kai Hansen            Helloween            1985          1988
```

```
Kai Hansen          Gamma Ray           1989    (null)
Klas Bergwall       Candlemass          1986    1986
Larry Tarnowski     Iced Earth          1998    (null)
Lars Johansson      Candlemass          1987    1990
Lenny Rutledge      Sanctuary           1988    1990
Marcus Siepen       Blind Guardian      1990    (null)
Martin Henriksson   Dark Tranquility    2000    (null)
Mats Bjorkman       Candlemass          1986    1990
Michael Weikath     Helloween           1985    (null)
Mikael Akerfeldt    Opeth               1996    (null)
Mike Wead           Memento Mori        1993    1994
Morten Veland       Tristania           1997    (null)
Nikkey Argento      Memento Mori        1993    1994
Niklas Sundin       Dark Tranquility    1999    (null)
Pal Bjastad         Theatre Of Tragedy  1995    1995
Pat O'Brien         Nevermore           1996    1996
Peter Lindgren      Opeth               1996    (null)
Randy Shawver       Iced Earth          1991    1996
Roy Z               Bruce Dickinson     1994    1999
Sean Blosl          Sanctuary           1988    1990
Stefan Kiefer       EverEve             1996    (null)
Thorsten Weibenberger EverEve           1996    (null)
Tim Calvert         Nevermore           1999    1999
Tommy Lindal        Theatre Of Tragedy  1995    1996
Tommy Olsson        Theatre Of Tragedy  1998    (null)
Vorphalak           Samael              1995    (null)

49 record(s) selected
```

Query 4

Output

```
BAND_NAME           KEYBOARD_PLAYER
------------------  ------------------
Blind Guardian      (null)
Bruce Dickinson     (null)
Candlemass          (null)
Cirith Ungol        (null)
Crimson Glory       (null)
Dark Tranquility    Martin Brandstrom
Demons & Wizards    (null)
EverEve             Michael Zeissl
Gamma Ray           (null)
Helloween           (null)
```

```
Iced Earth         (null)
Iron Maiden        (null)
Memento Mori       Miguel Robaina
Nevermore          (null)
Opeth              (null)
Samael             Rodolphe H.
Samael             Xy
Sanctuary          (null)
Savatage           Jon Oliva
Theatre Of Tragedy Lorentz Aspen
Tristania          Einar Moen

21 record(s) selected
```

Query 5

Output

```
BAND_NAME       SINGER_NAME     ALBUM_NAME                  SONG_NUM
--------------  --------------  ------------------------    -----------
Blind Guardian  Hansi Kursch    Nightfall In Middle Earth   22

1 record(s) selected
```