

## DB3 REPORT

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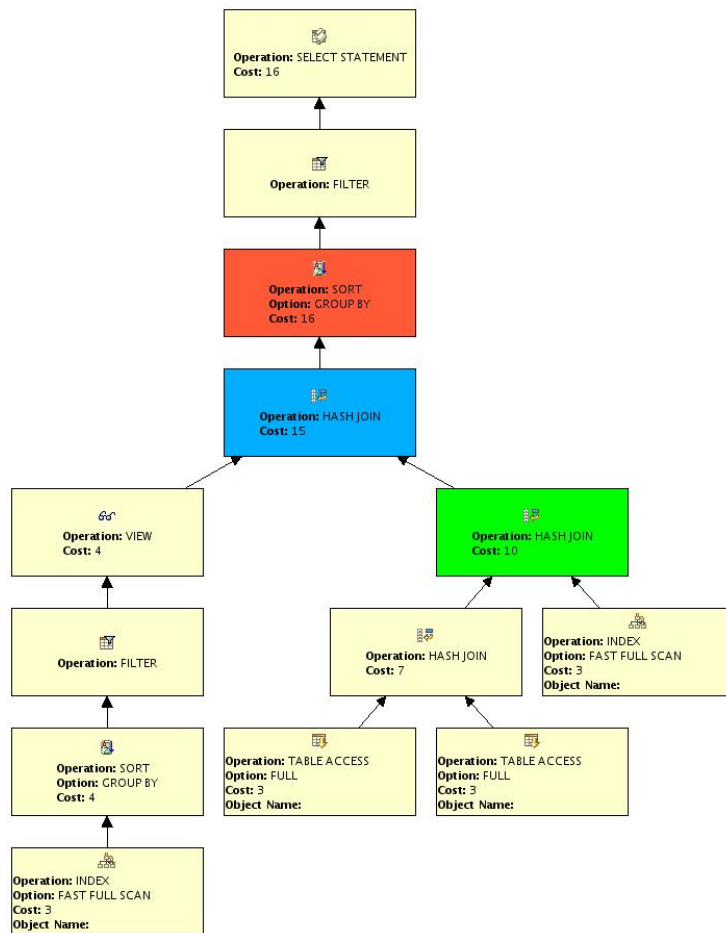
February 6, 2013

## 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
```



## 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.

```

```

*/

```

```

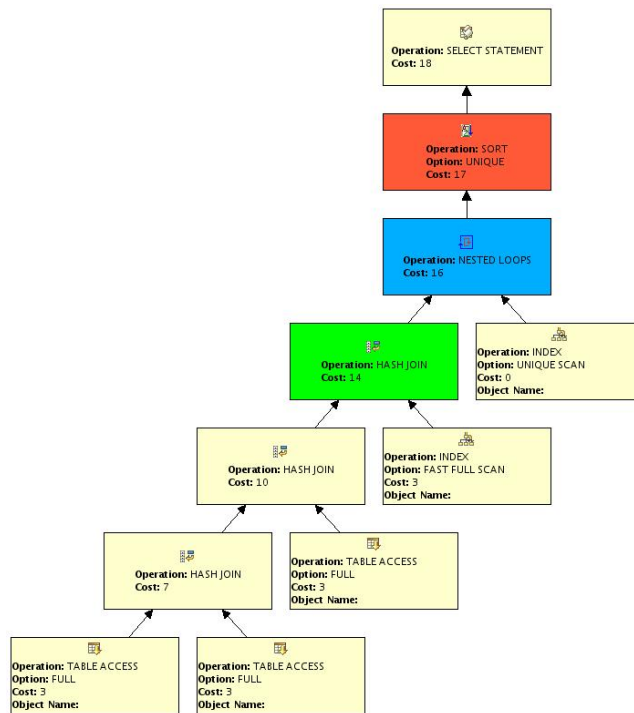
SELECT DISTINCT BAND.NAME AS Band_Name, S1.TITLE AS Song_Title
FROM BAND,RELEASE R1,RELEASE R2 ,SONG S1, SONG S2
WHERE S1.TITLE = S2.TITLE
AND S1.RID <> S2.RID
AND R1.RID = S1.RID
AND R2.RID = S2.RID
AND BAND.BID = R1.BID

```

```

AND BAND.BID = R2.BID
ORDER BY Band_Name

```

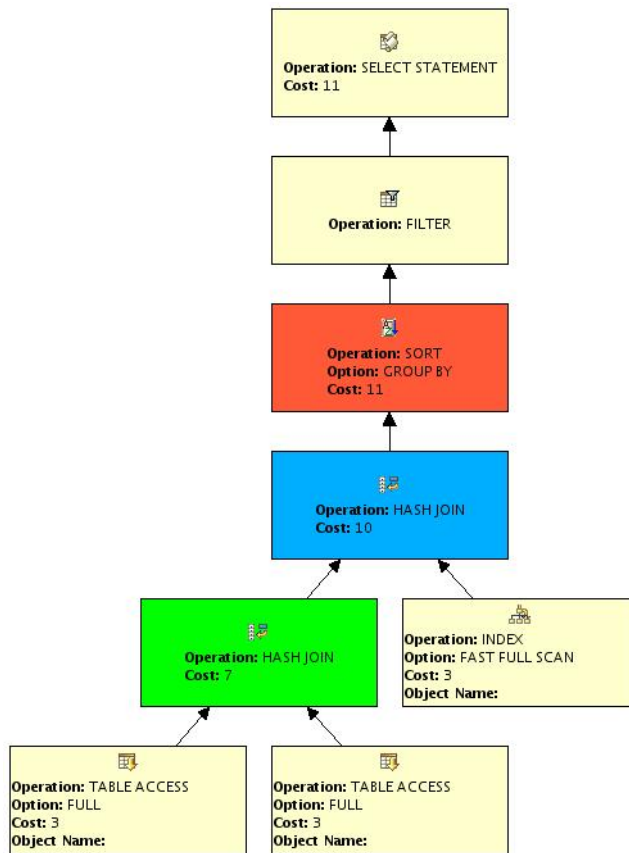


## Query C

```

/* 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

```



## 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

Query C is our optimized query. Even though A and B have the same cost adding indices to either has reduced the cost. Also, we believe that on a larger scale Query A should perform better as the nested query selecting only the songs that are a bonus song should reduce the space complexity of the search.

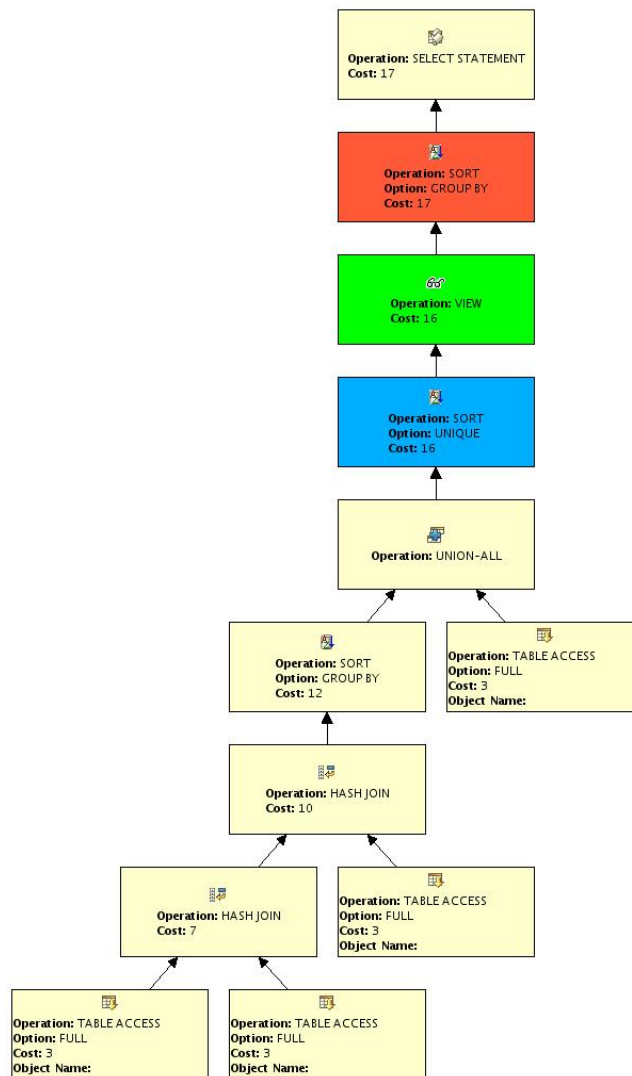
## Query A

```
/* First found all songs considered bonus sons (labelled BSONGS),
created a table of tuples featuring all bands with bonus songs.
Unioned this with a table of all band names and 0s marked as BONUSNUM.
Selected Max BONUSNUM values after Union*/
```

```

SELECT GPLAYERS.NAME AS Band_Name, MAX(BONUSNUM) AS Bonus_Num
FROM
(
    (
        SELECT BAND.NAME, Count(BSONGS.TITLE) AS BONUSNUM
        FROM BAND, RELEASE,
        (
            SELECT *
            FROM SONG
            WHERE SONG.CDBONUS = 'Y'
        ) BSONGS
        WHERE BAND.BID = RELEASE.BID
        AND RELEASE.RID = BSONGS.RID
        GROUP BY BAND.NAME
    )
    UNION
    (
        SELECT BAND.NAME, (0) AS BONUSNUM
        FROM BAND
    )
) GPLAYERS
GROUP BY GPLAYERS.NAME

```



## Query B

```

/* Starting innermost, this is a union of (band name,0)
   tuples with (band name that has bonus tracks, number
   of bonus tracks) as this will introduce the results
   of bands that have no bonus tracks. Taking the MAX
   of these will eliminate the duplicates (where elements
   with a bonus track occur twice due to this methodology)
   removes the duplicates (which will be the (band name,
   0) results).
  */

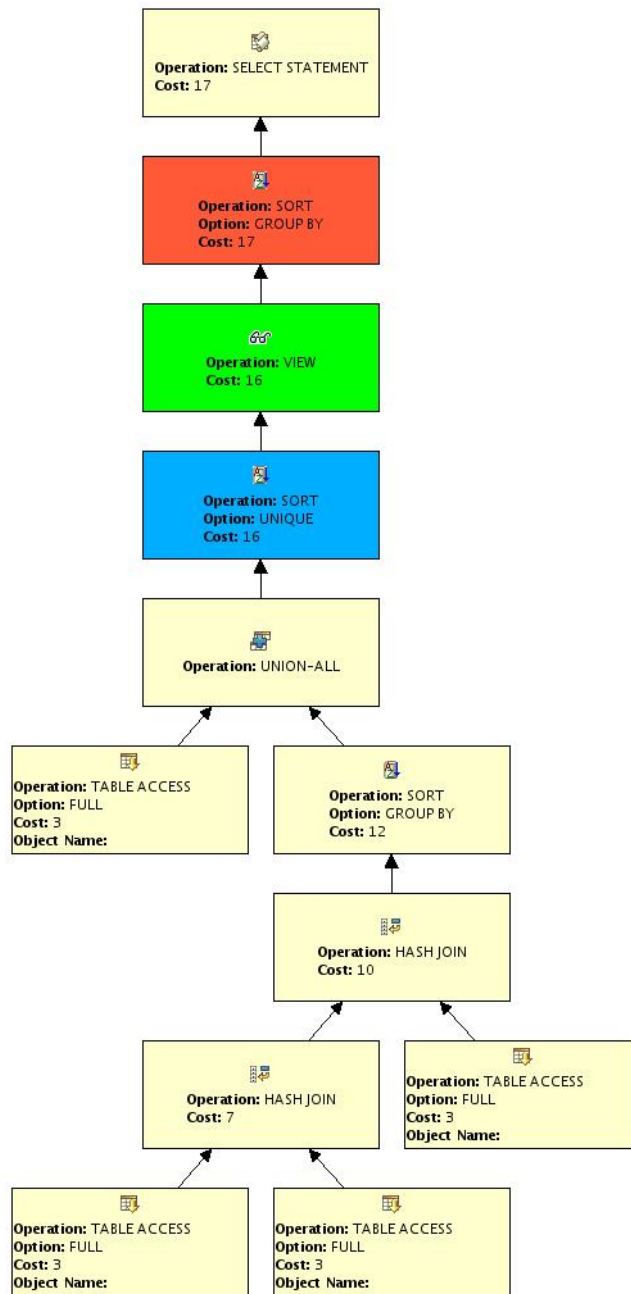
```



```

SELECT RESULTS.NAME AS Band_Name, MAX(RESULTS.TOTS) AS Bonus_Num
FROM(
    SELECT BAND.NAME,(0)as TOTS
    FROM BAND
    UNION
    SELECT BAND.NAME, COUNT(SONG.RID)
    FROM BAND, RELEASE, SONG
    WHERE BAND.BID=RELEASE.BID AND RELEASE.RID=SONG.RID AND
SONG.CDBONUS='Y'
    GROUP BY BAND.NAME
)RESULTS
GROUP BY RESULTS.NAME
GO

```



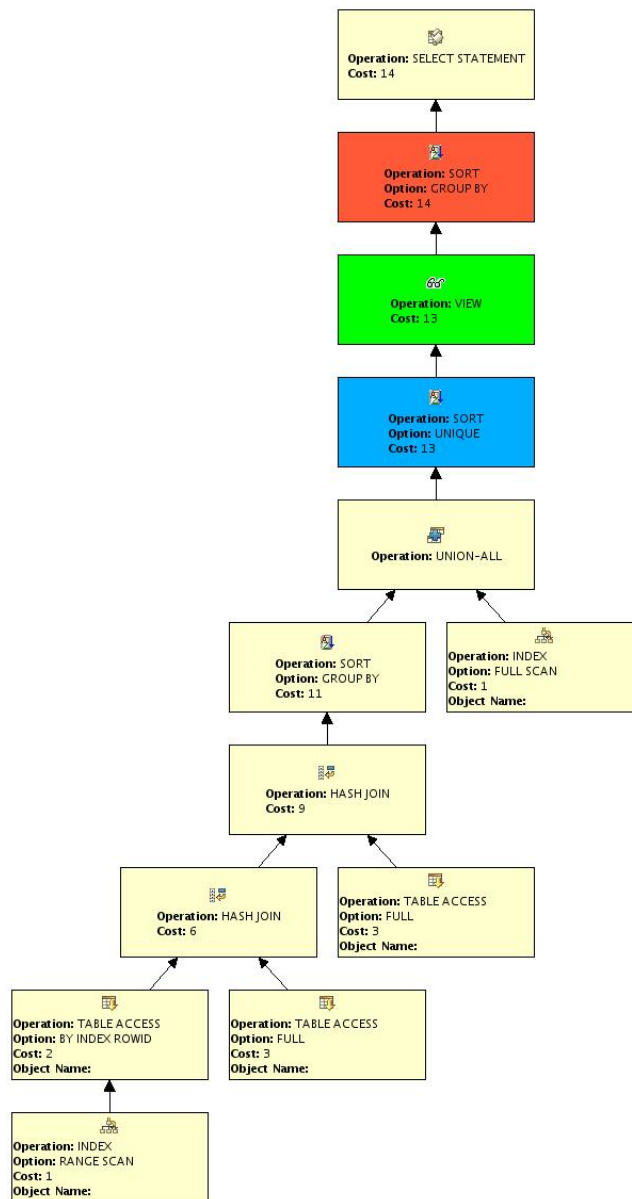
## Query C

/\* First found all songs considered bonus sons (labelled BSONGS),  
created a table of tuples featuring all bands with bonus songs.

Unioned this with a table of all band names and 0s marked as  
BONUSNUM.

Selected Max BONUSNUM values after Union.

```
*/
CREATE INDEX bnames on BAND(NAME)
go
CREATE INDEX bsongs on SONG(CDBONUS)
go
SELECT GPLAYERS.NAME AS Band_Name, MAX(BONUSNUM) AS Bonus_Num
FROM
(
    (
        SELECT BAND.NAME, Count(BSONGS.TITLE) AS BONUSNUM
        FROM BAND, RELEASE,
        (
            SELECT *
            FROM SONG
            WHERE SONG.CDBONUS = 'Y'
        ) BSONGS
        WHERE BAND.BID = RELEASE.BID
        AND RELEASE.RID = BSONGS.RID
        GROUP BY BAND.NAME
    )
    UNION
    (
        SELECT BAND.NAME, (0) AS BONUSNUM
        FROM BAND
    )
) GPLAYERS
GROUP BY GPLAYERS.NAME
go
```



## 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

Query C is our optimized query. We decided to optimize primarily by using the faster “UNION ALL” instead of using “UNION” and having a distinct higher up the table as this decreased the overall cost of the query. Also adding two indices to the table has helped the overall cost and the expense of making these indices was outweighed by this gain.

### Query A

```

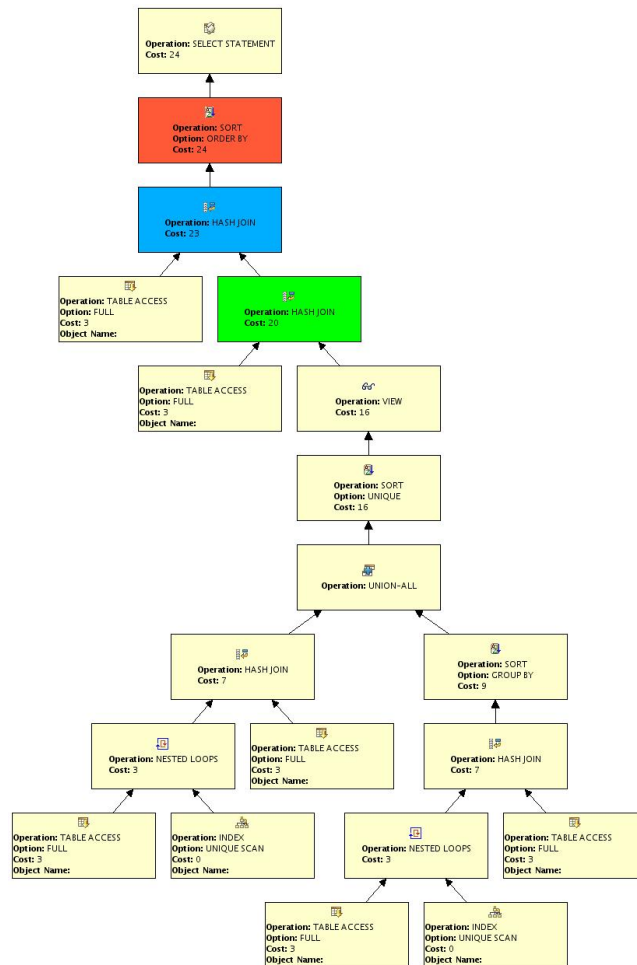
/* Starting innermost, this unions the (BID,StartYear,EndYear) of a
   member where there is a start year relating to that members time in
   a band with the (BID,StartYear,EarliestRelease) where the
   EarliestRelease is the earliest release for that band member in
   that band and where the start year is null.
*/
SELECT MEMBER.NAME as Guitarist_Name, Band.Name as Band_Name,
Mems.STARTYEAR as Start_Year, MEMS.ENDYEAR as END_YEAR
FROM MEMBER, BAND,
(
  (
    SELECT BAND.BID,MEMBEROF.MID, MEMBEROF.STARTYEAR As STARTYEAR,
    MEMBEROF.ENDYEAR as ENDYEAR
    FROM MEMBEROF,BAND,RELEASE
    WHERE MEMBEROF.STARTYEAR>0 AND MEMBEROF.INSTRUMENT='guitar'

```

```

        AND MEMBEROF.BID=BAND.BID AND BAND.BID=RELEASE.BID
    )
UNION
(
    SELECT BAND.BID, MEMBEROF.MID, MIN(RELEASE.YEAR) AS year,
        MEMBEROF.ENDYEAR
    FROM BAND, RELEASE, MEMBEROF
    WHERE BAND.BID=RELEASE.BID AND MEMBEROF.INSTRUMENT='guitar'
    AND MEMBEROF.BID = BAND.BID AND (MEMBEROF.STARTYEAR IS NULL)
    GROUP BY MEMBEROF.MID, BAND.BID, MEMBEROF.ENDYEAR
)
) MEMS
WHERE MEMS.MID=MEMBER.MID AND BAND.BID=MEMS.BID
ORDER BY MEMBER.NAME, MEMS.STARTYEAR
go

```



## Query B

/\* Starting innermost, this unions the (BID,StartYear,EndYear) of a member where there is a start year relating to that members time in a band with the (BID,StartYear,EarliestRelease) where the EarliestRelease is the earliest release for that band member in that band and where the start year is null.

\*/

(

```

SELECT MEMBER.NAME AS Guitarist_Name, BAND.NAME AS Band_Name,
GPLAYERS.STARTYEAR AS Start_Year, GPLAYERS.ENDYEAR AS End_Year
FROM MEMBER, BAND,

```

(

```

SELECT *

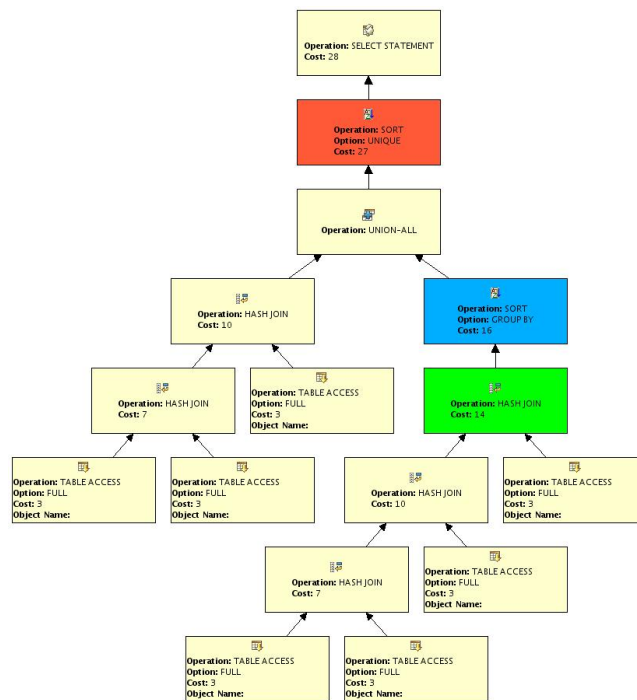
```

```

        FROM MEMBEROF
        WHERE INSTRUMENT='guitar'
    ) GPLAYERS
    WHERE GPLAYERS.STARTYEAR IS NOT NULL
    AND GPLAYERS.MID = MEMBER.MID
    AND GPLAYERS.BID = BAND.BID
)
UNION
(
    SELECT MEMBER.NAME AS Guitarist_Name, BAND.NAME AS Band_Name,
    FIRSTRELEASE.YEAR AS Start_Year, GPLAYERS.ENDYEAR AS End_Year
    FROM MEMBER, BAND,
    (
        SELECT *
        FROM MEMBEROF
        WHERE INSTRUMENT='guitar'
    ) GPLAYERS,
    (
        SELECT BID, MIN(RELEASE.YEAR) AS YEAR
        FROM RELEASE
        GROUP BY BID
    ) FIRSTRELEASE
    WHERE GPLAYERS.STARTYEAR IS NULL
    AND GPLAYERS.MID = MEMBER.MID
    AND GPLAYERS.BID = BAND.BID
    AND GPLAYERS.BID = FIRSTRELEASE.BID
)
ORDER BY Guitarist_Name, Start_Year

```





## Query C

```

/* Starting innermost, this unions the (BID,StartYear,EndYear) of a
member where there is a start year relating to that members time in
a band with the (BID,StartYear,EarliestRelease) where the
EarliestRelease is the earliest release for that band member in
that band and where the start year is null.
*/

```

```

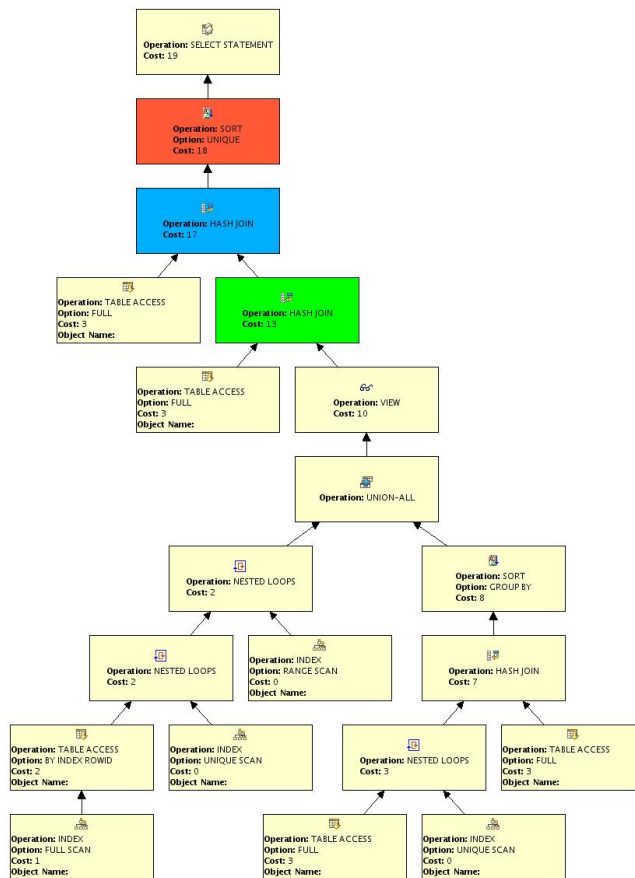
*/
CREATE INDEX syyear ON MEMBEROF(STARTYEAR)
go
CREATE INDEX bnames ON BAND(NAME)
go
CREATE INDEX RELEASEBIDS ON RELEASE(BID)
go
SELECT MEMBER.NAME as Guitarist_Name, Band.Name as Band_Name,
Mems.STARTYEAR as Start_Year, MEMS.ENDYEAR as END_YEAR
FROM MEMBER, BAND,
(
(
SELECT BAND.BID,MEMBEROF.MID, MEMBEROF.STARTYEAR As STARTYEAR,
MEMBEROF.ENDYEAR as ENDYEAR
FROM MEMBEROF,BAND,RELEASE
WHERE MEMBEROF.STARTYEAR>0 AND MEMBEROF.INSTRUMENT='guitar'

```

```

        AND MEMBEROF.BID=BAND.BID AND BAND.BID=RELEASE.BID
    )
    UNION
    (
        SELECT BAND.BID, MEMBEROF.MID, MIN(RELEASE.YEAR) AS year,
        MEMBEROF.ENDYEAR
        FROM BAND, RELEASE, MEMBEROF
        WHERE BAND.BID=RELEASE.BID AND MEMBEROF.INSTRUMENT='guitar'
        AND MEMBEROF.BID = BAND.BID AND (MEMBEROF.STARTYEAR IS NULL)
        GROUP BY MEMBEROF.MID, BAND.BID, MEMBEROF.ENDYEAR
    )
) MEMS
WHERE MEMS.MID=MEMBER.MID AND BAND.BID=MEMS.BID
ORDER BY MEMBER.NAME, MEMS.STARTYEAR
go

```



## 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

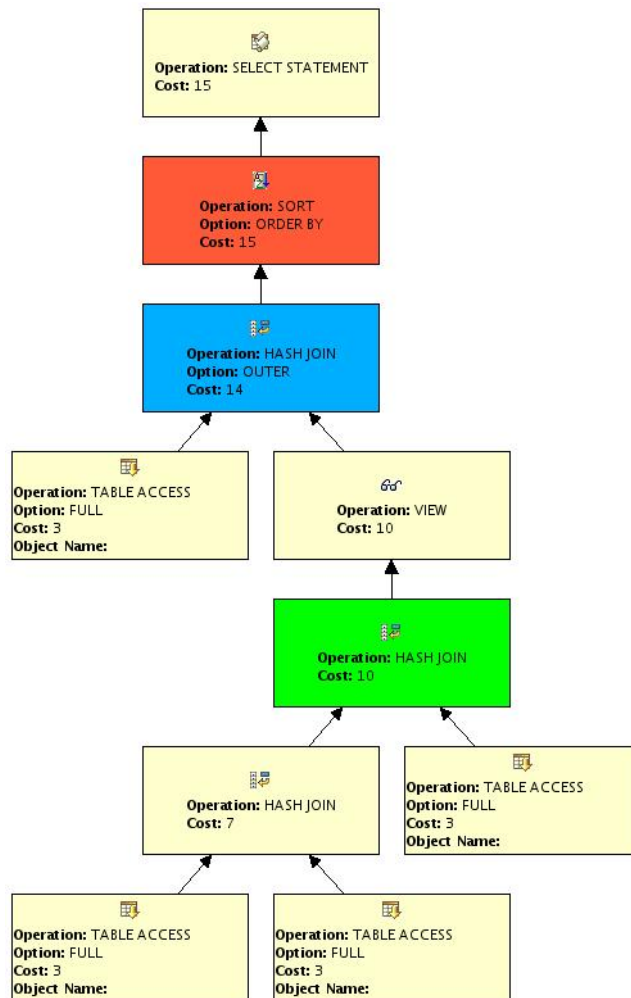
Query C is our optimized query. Query C is Query A optimized by removing redundant code and changing the way we pass tuples through the query. We considered using an index, but the benefits of the index did not counterbalance the cost.

## Query A

```

/* The KPLAYERS Table is that of each keyboard player that has featured
   in a band.
   Band Left Outer Joins with this to give a table of all band names
   with either the keyboard players or nulls.
   Then the only check left is that the band name from band matches that
   of the keyboard player.
*/
SELECT BAND.NAME AS Band_Name, KPLAYERS.MNAME AS Keyboard_Player
FROM BAND LEFT OUTER JOIN
(
  SELECT BAND.NAME AS BNAME, MEMBER.NAME AS MNAME
  FROM BAND, MEMBER, MEMBEROF
  WHERE MEMBEROF.INSTRUMENT = 'keyboards'
  AND BAND.BID = MEMBEROF.BID
  AND MEMBER.MID = MEMBEROF.MID
) KPLAYERS
ON BAND.NAME = KPLAYERS.BNAME
ORDER BY BAND.NAME

```



## Query B

/\* Finds keyboard players and nulls by creating a table with a left outer join between Band and any keyboard Players.  
Then filters this using MIDs and BIDs from MemberOf and Band,  
uses Distinct to remove duplicates that occur

\*/

```

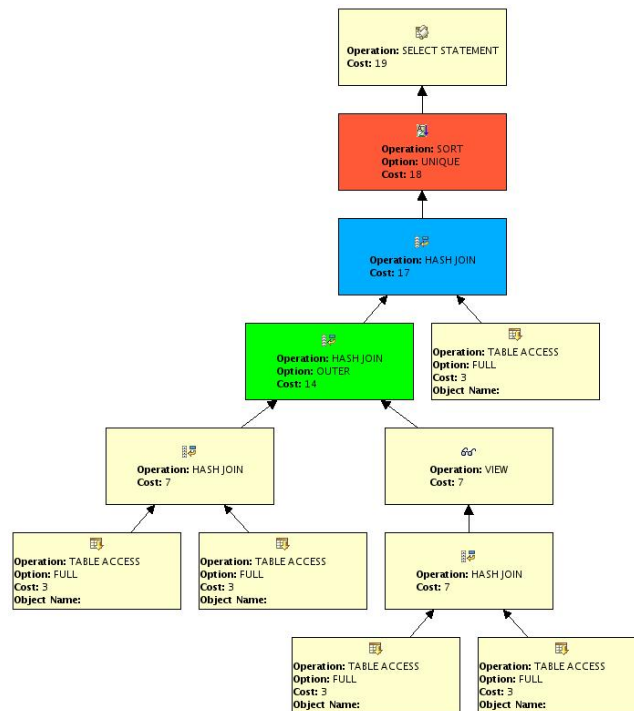
SELECT DISTINCT PLAYERS.BAND_NAME, PLAYERS.Keyboard_Player
FROM MEMBEROF, BAND,
(
  SELECT BAND.NAME AS Band_Name, KEYS.NAME AS Keyboard_Player
  FROM BAND LEFT OUTER JOIN
  (

```

```

SELECT MEMBER.NAME, MEMBEROF.BID
FROM MEMBEROF, MEMBER
WHERE INSTRUMENT='keyboards' AND MEMBER.MID=MEMBEROF.MID
)KEYS
ON BAND.BID=KEYS.BID
) PLAYERS
WHERE MEMBEROF.BID = BAND.BID
AND PLAYERS.Band_NAME = BAND.NAME
ORDER BY PLAYERS.BAND_NAME, PLAYERS.Keyboard_Player

```



## Query C

```

/* Selects all bands and the 'LEFT OUTER JOIN' allocates the band
members which are keyboard players to their respective bands and
inserts nulls in place for the other bands.
*/

```

```

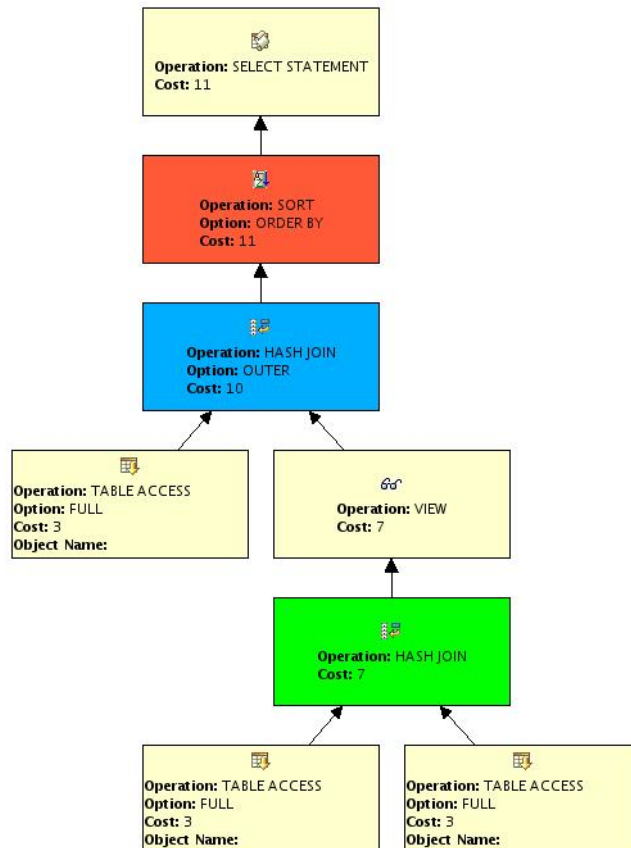
SELECT BAND.NAME AS Band_Name, KEYS.NAME AS Keyboard_Player
FROM BAND
LEFT OUTER JOIN (
    SELECT MEMBER.NAME, MEMBEROF.BID
    FROM MEMBEROF, MEMBER
    WHERE INSTRUMENT='keyboards' AND MEMBER.MID=MEMBEROF.MID

```

```

)KEYS
ON BAND.BID=KEYS.BID
ORDER BY BAND.NAME, KEYS.NAME

```



## 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

### Query A

Query C is our optimized query. Both of our queries return the same results for the given test data, but Query C will guarantee that there is a singer on the top album returned. This was an intricacy discovered too late for the change of one of our queries, so we are aware that both queries may return different information depending on the test data set. The only optimization we could find for Query B (the one that primarily guarantees a singer on the album) was to create an index on the Members instruments. The cost of this is more than the saving of the index, so this is only really valid if the query will be run more than it is updated. However, and more interestingly, Query A will be an optimization on Query B if there is a guarantee that every album has a singer on the album.

```
/* ALLSONGS Shows every release by ID and its corresponding number of
songs, which has been achieved here through a count. MAXSONGS uses
a similar method to find the maximum number of songs that any album
has. This means when they are inner joined, any releases that have
the maximum number of songs are included, allowing for multiple
albums to feature the most songs, for instance two could have 25
and 25 could be the highest any has. What then happens is the
singer is matched to a band through checks on foreign keys.
```

```
*/
```

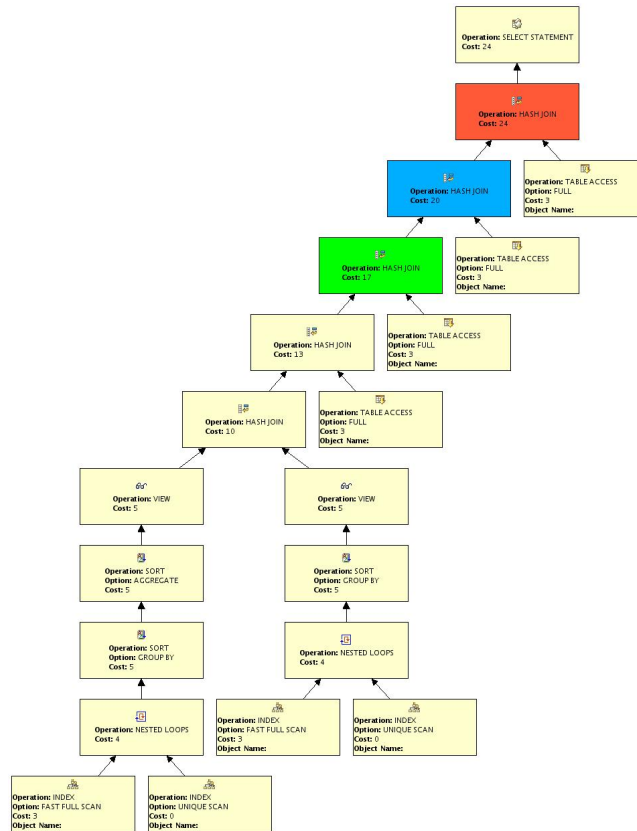
```
SELECT BAND.NAME as Band_Name, MEMBER.NAME as Singer_Name,
RELEASE.TITLE AS Album_Name, THESONGS.SONG_NUMBER AS Song_Num
FROM RELEASE, MEMBER, MEMBEROF, BAND,
(
  SELECT ALLSONGS.RID, ALLSONGS.NUM as Song_Number
  FROM
```



```

SELECT RELEASE.RID as RID, count(SONG.TITLE)as NUM
FROM RELEASE, SONG
WHERE RELEASE.RID = SONG.RID
GROUP BY RELEASE.RID
) ALLSONGS
INNER JOIN
(
SELECT MAX(count(SONG.TITLE))as NUM
FROM RELEASE, SONG
WHERE RELEASE.RID = SONG.RID
GROUP BY RELEASE.RID
) MAXSONGS
ON ALLSONGS.NUM = MAXSONGS.NUM
) THESONGS
WHERE RELEASE.RID = THESONGS.RID
AND RELEASE.BID = BAND.BID
AND MEMBER.MID = MEMBEROF.MID
AND MEMBEROF.BID = BAND.BID
AND MEMBEROF.INSTRUMENT = 'vocals'

```



## Query B

```
/* MostProlific picks the album with the largest number of songs that
   has a singer. This ensures that the album returned HAS a singer on
   the album. This is achieved by finding the number of tracks on the
   album with the most number of tracks that has a singer and then
   inner joining this with all the albums and the number of tracks on
   them. Then the singer is found for these albums.
*/
SELECT BAND.NAME AS Band_Name, MEMBER.NAME AS Singer_Name,
RELEASE.TITLE AS Album_Name, MostProlific.Total AS Song_Num
From BAND, RELEASE, MEMBEROF, MEMBER,
(
    SELECT AlbumTracks.RID, AlbumTracks.Total
    FROM
    (
        SELECT RELEASE.RID, COUNT(RELEASE.Title) AS total
        FROM RELEASE, SONG
        WHERE RELEASE.RID=SONG.RID
        GROUP BY RELEASE.RID
        ORDER BY COUNT(RELEASE.Title) DESC
    ) AlbumTracks
    INNER JOIN
    (
        SELECT MAX(COUNT(RELEASE.Title)) AS total
        FROM RELEASE, SONG, MEMBEROF
        WHERE RELEASE.RID=SONG.RID AND RELEASE.BID=MEMBEROF.BID
        AND
        (
            RELEASE.YEAR>=MEMBEROF.STARTYEAR
            OR
            MEMBEROF.STARTYEAR IS NULL
        )
    ) AND
    (
        RELEASE.YEAR<=MEMBEROF.ENDYEAR
        OR
        MEMBEROF.ENDYEAR IS NULL
    )
    AND MEMBEROF.INSTRUMENT='vocals'
    GROUP BY RELEASE.RID
    ORDER BY COUNT(RELEASE.TITLE) DESC
) MostSongs
ON AlbumTracks.total=MostSongs.total
) MostProlific
WHERE BAND.BID=Release.BID AND Release.RID=MostProlific.RID
```

go



### Query C

(

```

FROM
(
    SELECT RELEASE.RID, COUNT(RELEASE.Title) AS total
    FROM RELEASE, SONG
    WHERE RELEASE.RID=SONG.RID
    GROUP BY RELEASE.RID
    ORDER BY COUNT(RELEASE.Title) DESC
) AlbumTracks
INNER JOIN
(
    SELECT MAX(COUNT(RELEASE.Title)) AS total
    FROM RELEASE, SONG, MEMBEROF
    WHERE RELEASE.RID=SONG.RID AND RELEASE.BID=MEMBEROF.BID
    AND
    (
        RELEASE.YEAR>=MEMBEROF.STARTYEAR
        OR
        MEMBEROF.STARTYEAR IS NULL
    )
    AND
    (
        RELEASE.YEAR<=MEMBEROF.ENDYEAR
        OR
        MEMBEROF.ENDYEAR IS NULL
    )
    AND MEMBEROF.INSTRUMENT='vocals'
    GROUP BY RELEASE.RID
    ORDER BY COUNT(RELEASE.TITLE) DESC
) MostSongs
ON AlbumTracks.total=MostSongs.total
) MostProlific
WHERE BAND.BID=Release.BID AND Release.RID=MostProlific.RID
AND MEMBEROF.INSTRUMENT='vocals' AND MEMBEROF.MID=MEMBER.MID
AND (MEMBEROF.STARTYEAR <= Release.YEAR or MEMBEROF.STARTYEAR IS NULL)
AND (MEMBEROF.ENDYEAR >=RELEASE.YEAR OR MEMBEROF.ENDYEAR IS NULL)
AND MEMBEROF.BID=BAND.BID
go

```

