

Lenguaje SQL IV

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05/05/2022

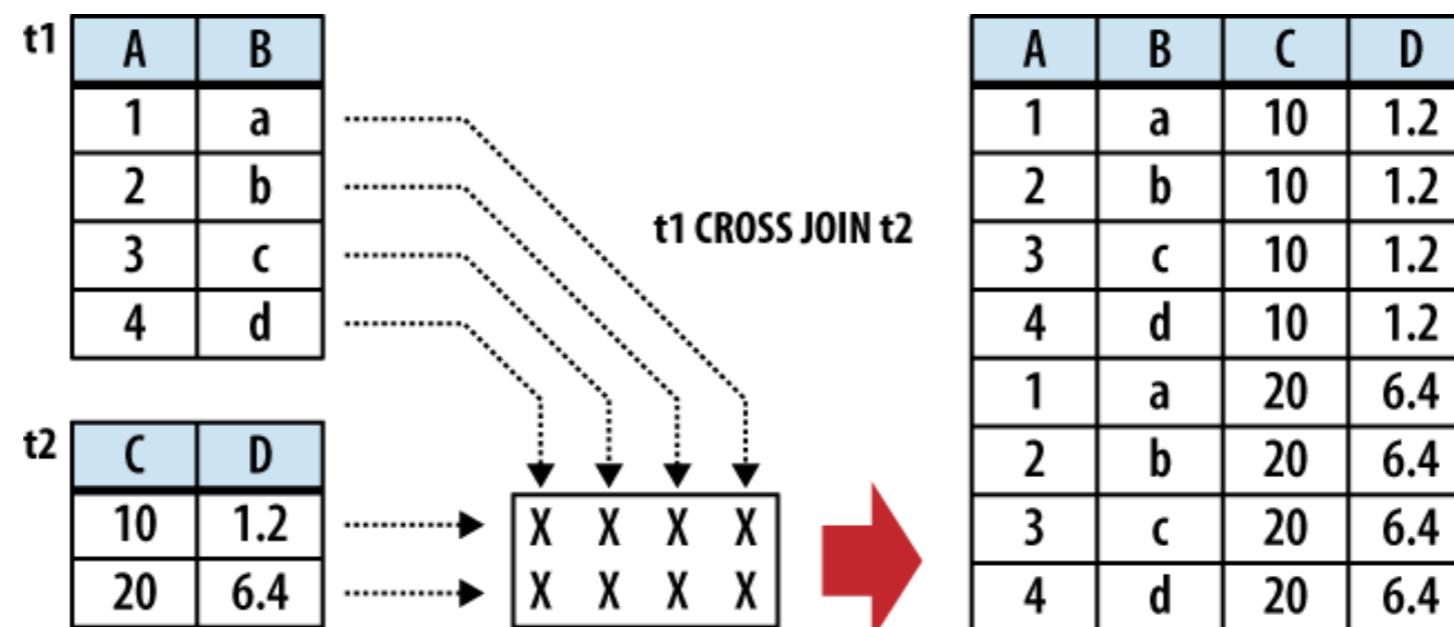
Contenidos

- Repaso
- Consultas avanzadas

SQL

CROSS JOIN

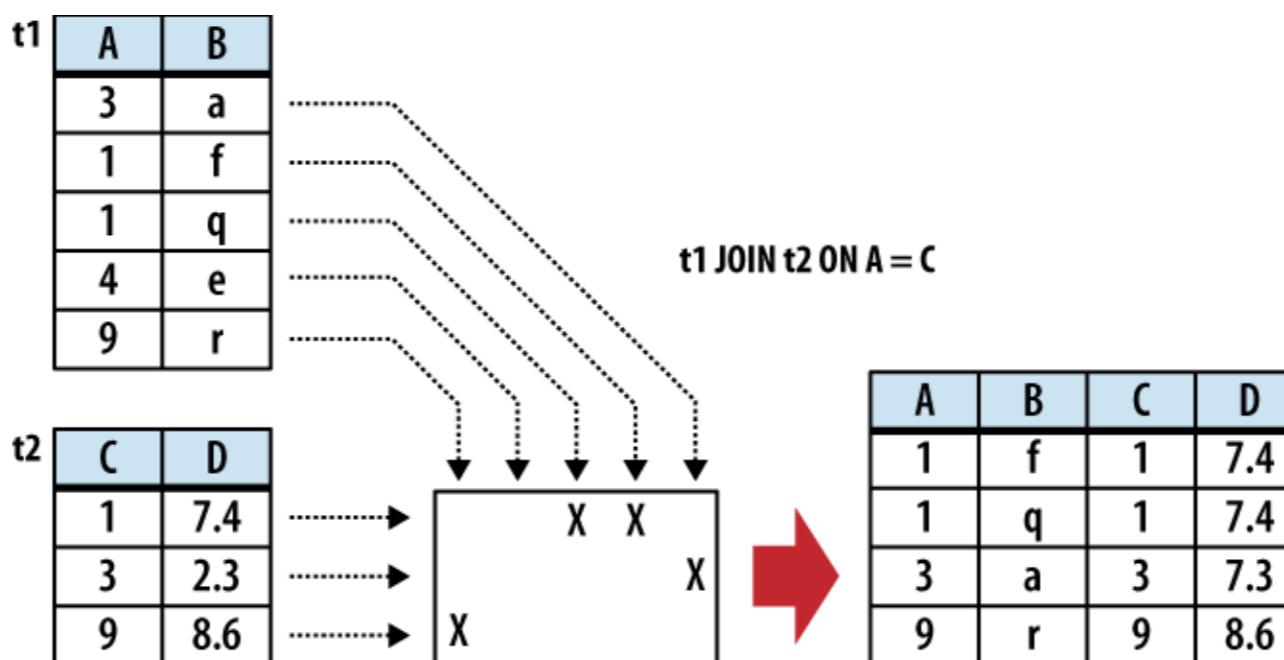
- **SELECT ... FROM t1 CROSS JOIN t2 ...**
- Hace coincidir cada fila de la primera tabla con cada fila de la segunda tabla.
- Si las tablas de entrada tienen x e y columnas, la tabla resultante tendrá x+y columnas.
- Si las tablas de entrada tienen n y m filas, la tabla resultante tendrá n x m filas (producto cartesiano)



SQL

INNER JOIN

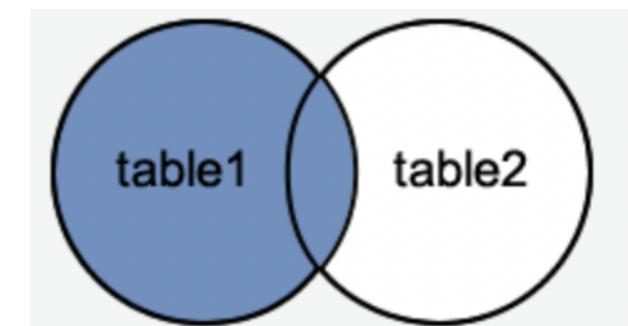
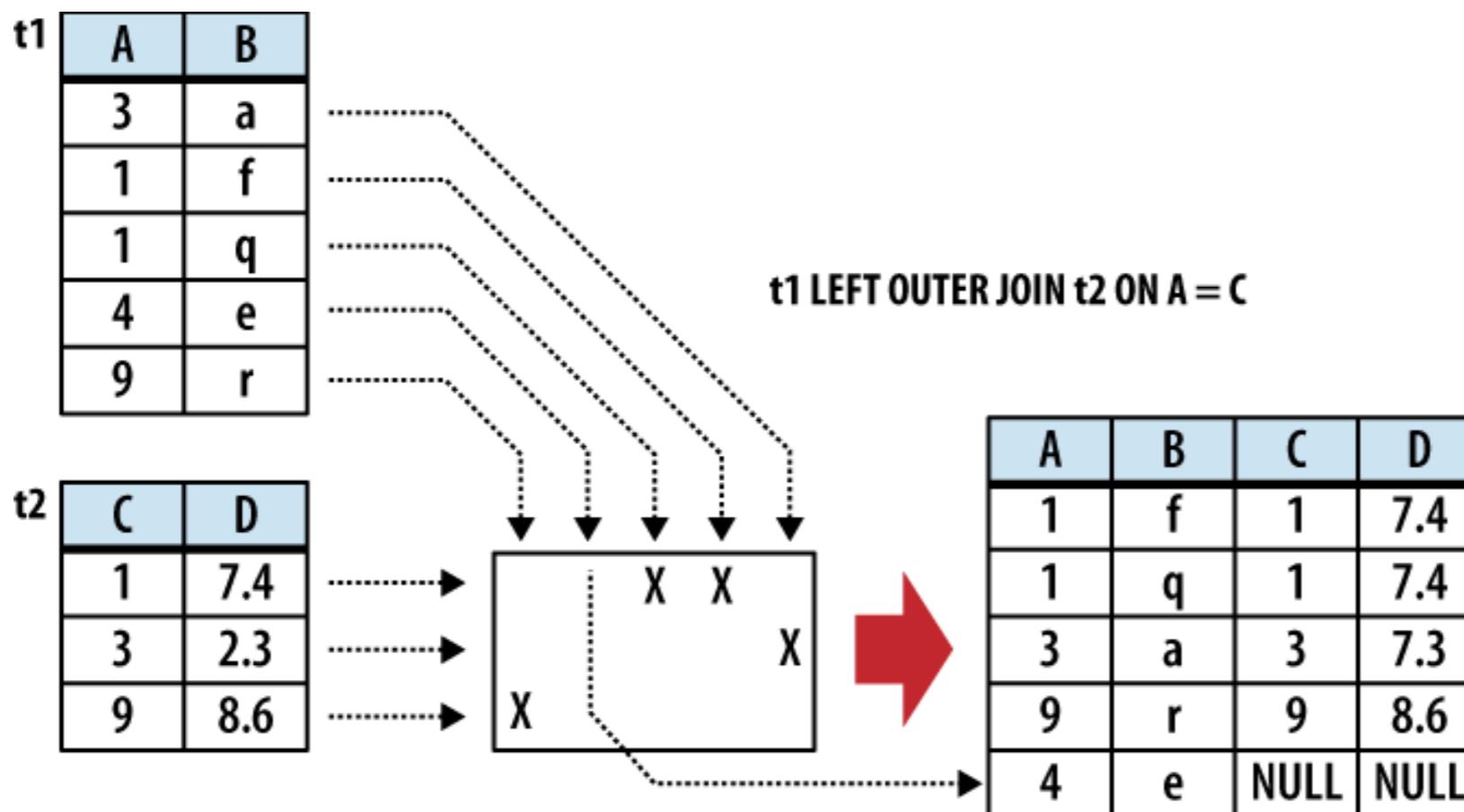
- **SELECT ... FROM alumno JOIN curso ON alumno.id=curso.alum_id...**
- **SELECT ... FROM alumno JOIN curso USING (aid,...)**
 - El atributo debe existir en ambas tablas
- **SELECT ... FROM alumno NATURAL JOIN curso**
 - Join automatico en aid



SQL

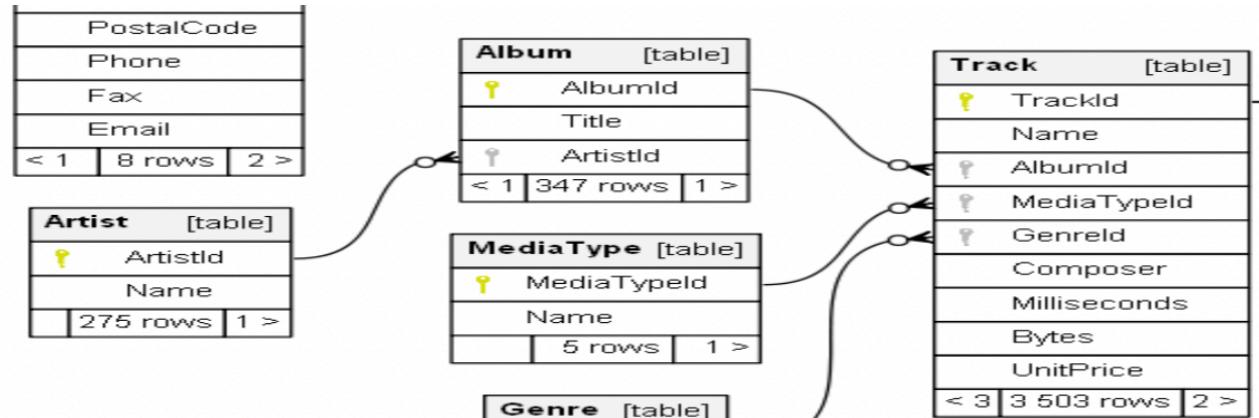
OUTER JOIN

- **SELECT ... FROM alumno LEFT OUTER JOIN curso ON alumno.id=curso.alum_id...**
- Extension del INNER JOIN
- OUTER JOINS = LEFT, RIGHT, FULL (SQLite2 solo LEFT)
- Condiciones con ON, USING, NATURAL



SQL

Multiples JOIN (JOIN & JOIN & JOIN...)



```
select * from album JOIN Artist USING (artistId) limit 5;
```

```
select * from album JOIN Artist USING (artistId) JOIN Track USING (albumid) limit 5;
```

```
[12] 1 %%sql
2 select * from album JOIN Artist USING (artistId) limit 5;

* sqlite:///content/chinook-database/ChinookDatabase/DataSources/Chinook_Sqlite.sqlite
Done.



| AlbumId | Title                                 | ArtistId | Name      |
|---------|---------------------------------------|----------|-----------|
| 1       | For Those About To Rock We Salute You | 1        | AC/DC     |
| 2       | Balls to the Wall                     | 2        | Accept    |
| 3       | Restless and Wild                     | 2        | Accept    |
| 4       | Let There Be Rock                     | 1        | AC/DC     |
| 5       | Big Ones                              | 3        | Aerosmith |


```

```
1 %%sql
2 select * from album JOIN Artist USING (artistId) JOIN Track USING (albumid) limit 5;

* sqlite:///content/chinook-database/ChinookDatabase/DataSources/Chinook_Sqlite.sqlite
Done.



| AlbumId | Title                                 | ArtistId | Name   | TrackId | Name_1                                  | MediaTypeId | GenreId | Composer                                                              | Milliseconds |   |
|---------|---------------------------------------|----------|--------|---------|-----------------------------------------|-------------|---------|-----------------------------------------------------------------------|--------------|---|
| 1       | For Those About To Rock We Salute You | 1        | AC/DC  | 1       | For Those About To Rock (We Salute You) | 1           | 1       | Angus Young, Malcolm Young, Brian Johnson                             | 343719       | 1 |
| 2       | Balls to the Wall                     | 2        | Accept | 2       | Balls to the Wall                       | 2           | 1       | None                                                                  | 342562       | 5 |
| 3       | Restless and Wild                     | 2        | Accept | 3       | Fast As a Shark                         | 2           | 1       | F. Baltes, S. Kaufman, U. Dirksneider & W. Hoffman                    | 230619       | 3 |
| 3       | Restless and Wild                     | 2        | Accept | 4       | Restless and Wild                       | 2           | 1       | F. Baltes, R.A. Smith-Diesel, S. Kaufman, U. Dirksneider & W. Hoffman | 252051       | 4 |
| 3       | Restless and Wild                     | 2        | Accept | 5       | Princess of the Dawn                    | 2           | 1       | Deaffy & R.A. Smith-Diesel                                            | 375418       | 6 |


```

SQL

SELECT

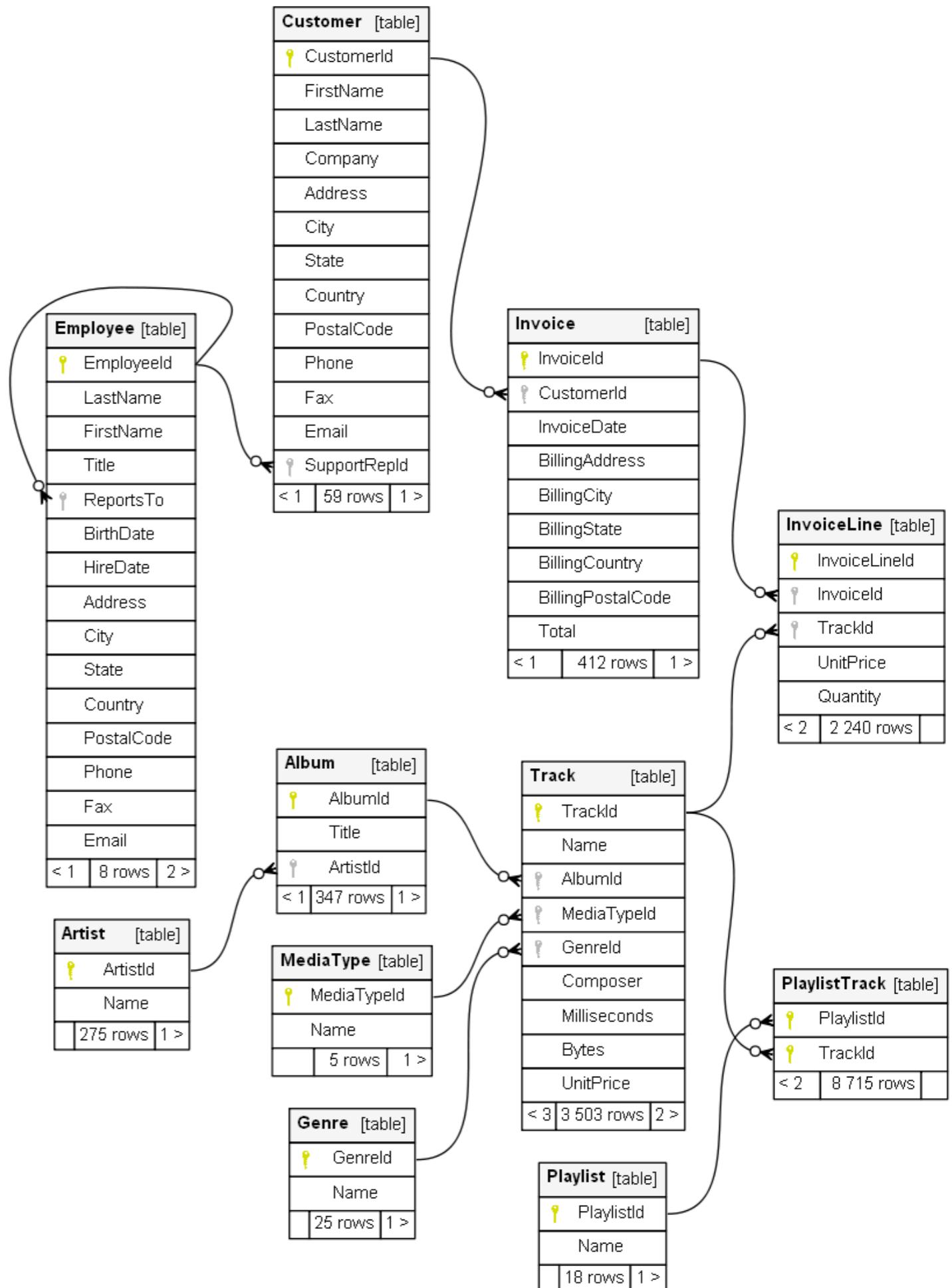
- **SELECT** pipeline

```
SELECT [DISTINCT] select_header
      FROM tablas
      WHERE expresion_filtrado
      GROUP BY expresion_de_agrupamiento
      HAVING expresion_filtrado
      ORDER BY expresion_orden
      LIMIT contador
      OFFSET indice
```

Consultas avanzadas

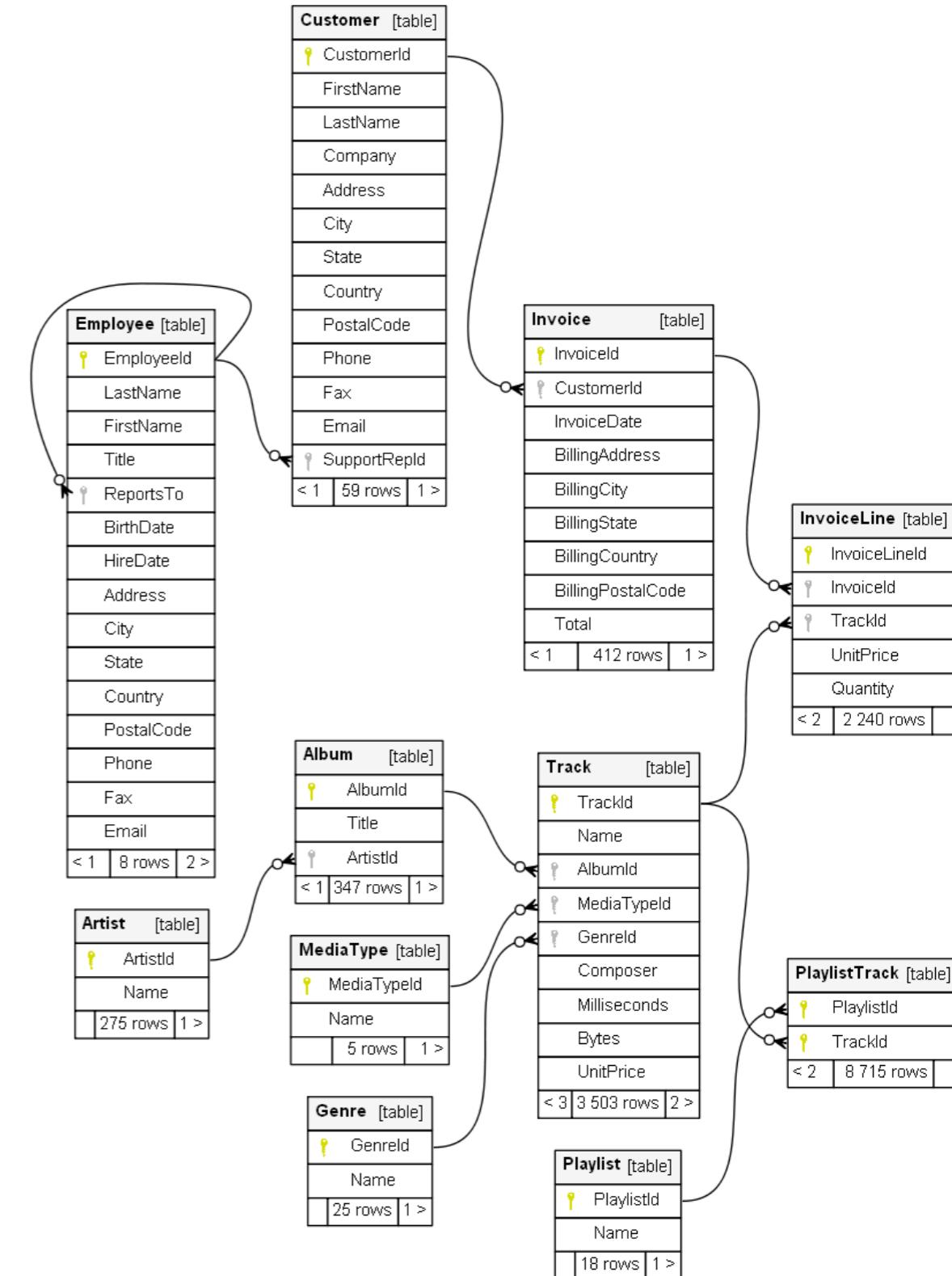
Consultas avanzadas

Chinook database



Cuales son los 5 artistas que venden más canciones?

```
SELECT a.Name 'Artista', sum(li.UnitPrice) 'Total vendido'  
FROM InvoiceLine li, Track t, Album al, Artist a  
WHERE li.TrackId = t.Trackid  
and al.AlbumId = t.AlbumId  
and a.ArtistId = al.ArtistId  
GROUP BY a.Name  
ORDER BY COUNT(a.ArtistId) DESC  
limit 5;
```

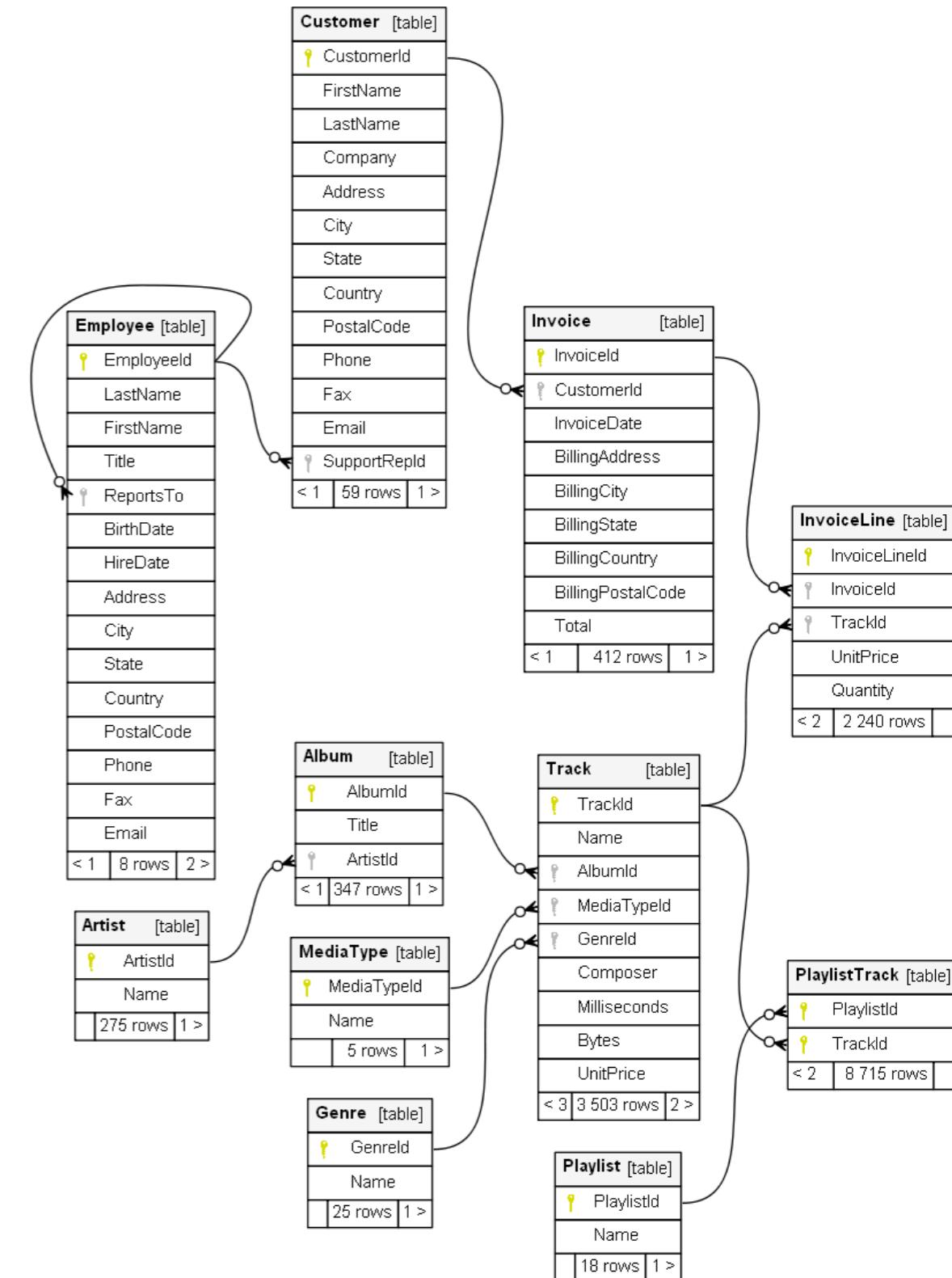


Cuales son los 5 artistas que venden más canciones?

```
SELECT a.Name 'Artista', sum(li.UnitPrice) 'Total vendido'  
FROM InvoiceLine li, Track t, Album al, Artist a  
WHERE li.TrackId = t.Trackid  
and al.AlbumId = t.AlbumId  
and a.ArtistId = al.ArtistId  
GROUP BY a.Name  
ORDER BY COUNT(a.ArtistId) DESC  
limit 5;
```

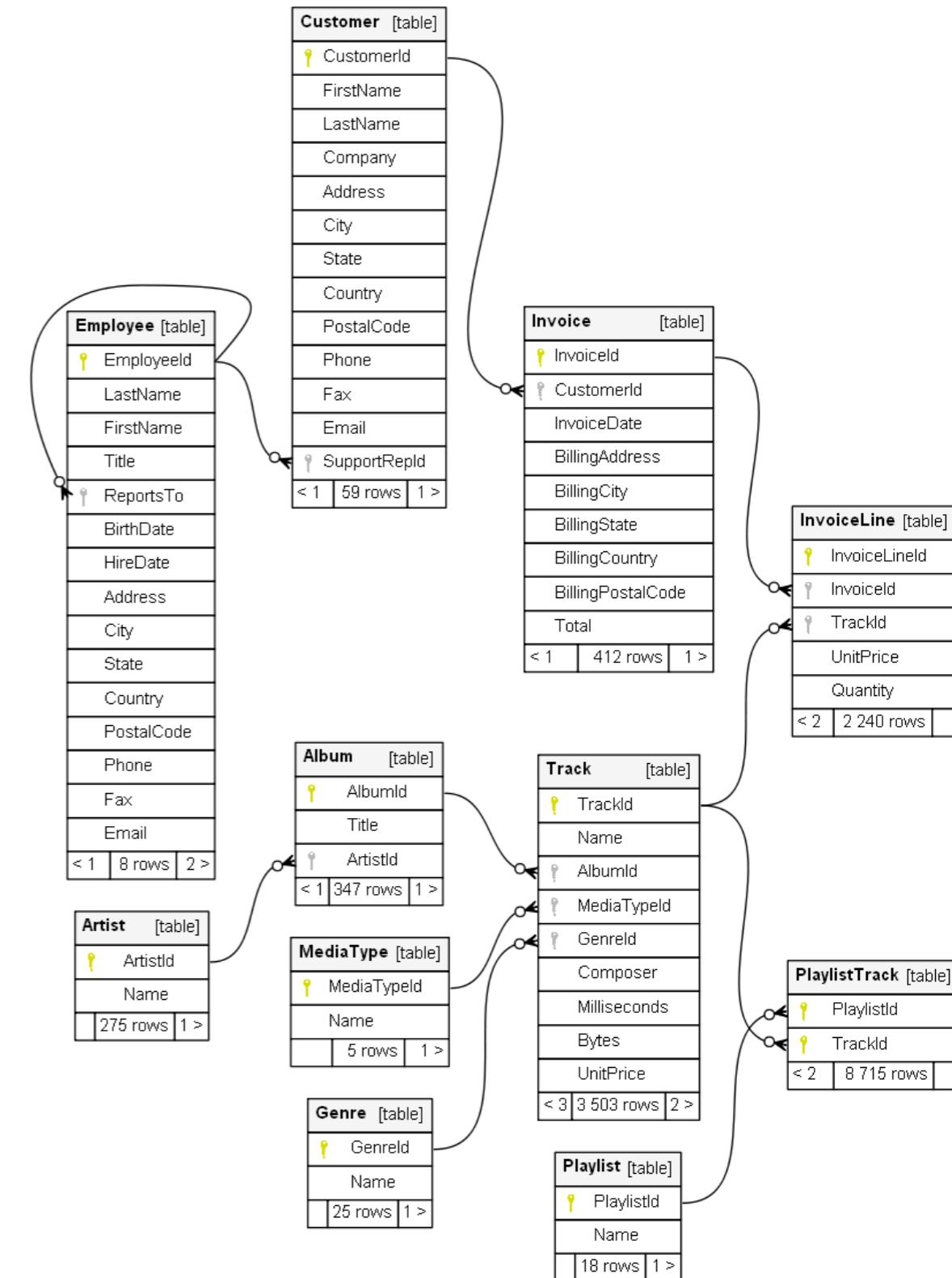
Usando Join?

```
SELECT a.Name 'Artista', sum(li.UnitPrice) 'Total vendido'  
FROM InvoiceLine as li  
join Track USING (TrackId)  
join Album USING (AlbumId)  
join Artist as a USING (ArtistId)  
GROUP BY a.Name  
ORDER BY COUNT(a.ArtistId) DESC  
limit 5;
```



Cuales son los tipos de medio más vendido?

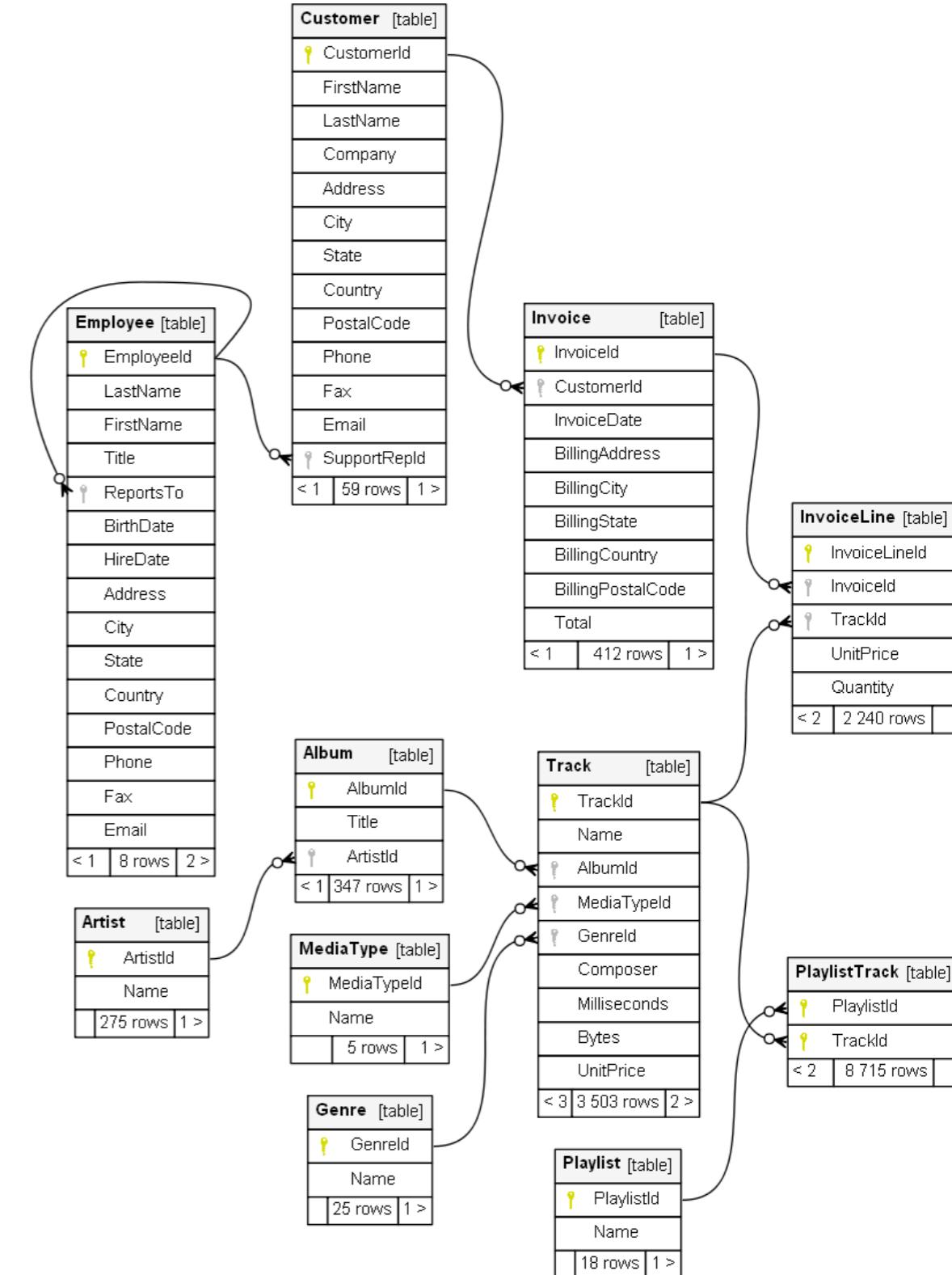
```
SELECT m.Name AS 'Tipo de Medio', COUNT(m.MediaTypeId)
'Total'
FROM InvoiceLine li, Track t, MediaType m
WHERE li.TrackId = t.TrackId
and m.MediaTypeId = t.MediaTypeId
GROUP BY m.Name
ORDER BY m.MediaTypeId;
```



mejor vendedor del 2009?

```
select e.firstName || " " || e.lastName as 'Mejor Vendedor 2009',
sum(i.total) as Total
from Invoice i
join customer c on c.customerid = i.customerid
join employee e on e.employeeid = c.supportrepid
where i.invoiceDate like '2009%'
group by e.Employeeid
order by sum(i.total) desc
limit 1
```

```
select "Mejor Vendedor 2009", max("Total") from (
select e.firstName || " " || e.lastName as "Mejor Vendedor 2009",
sum(i.total) as "Total" from Invoice i
join customer c on c.customerid = i.customerid
join employee e on e.employeeid = c.supportrepid
where i.invoiceDate like '2009%'
group by e.Employeeid
)
```



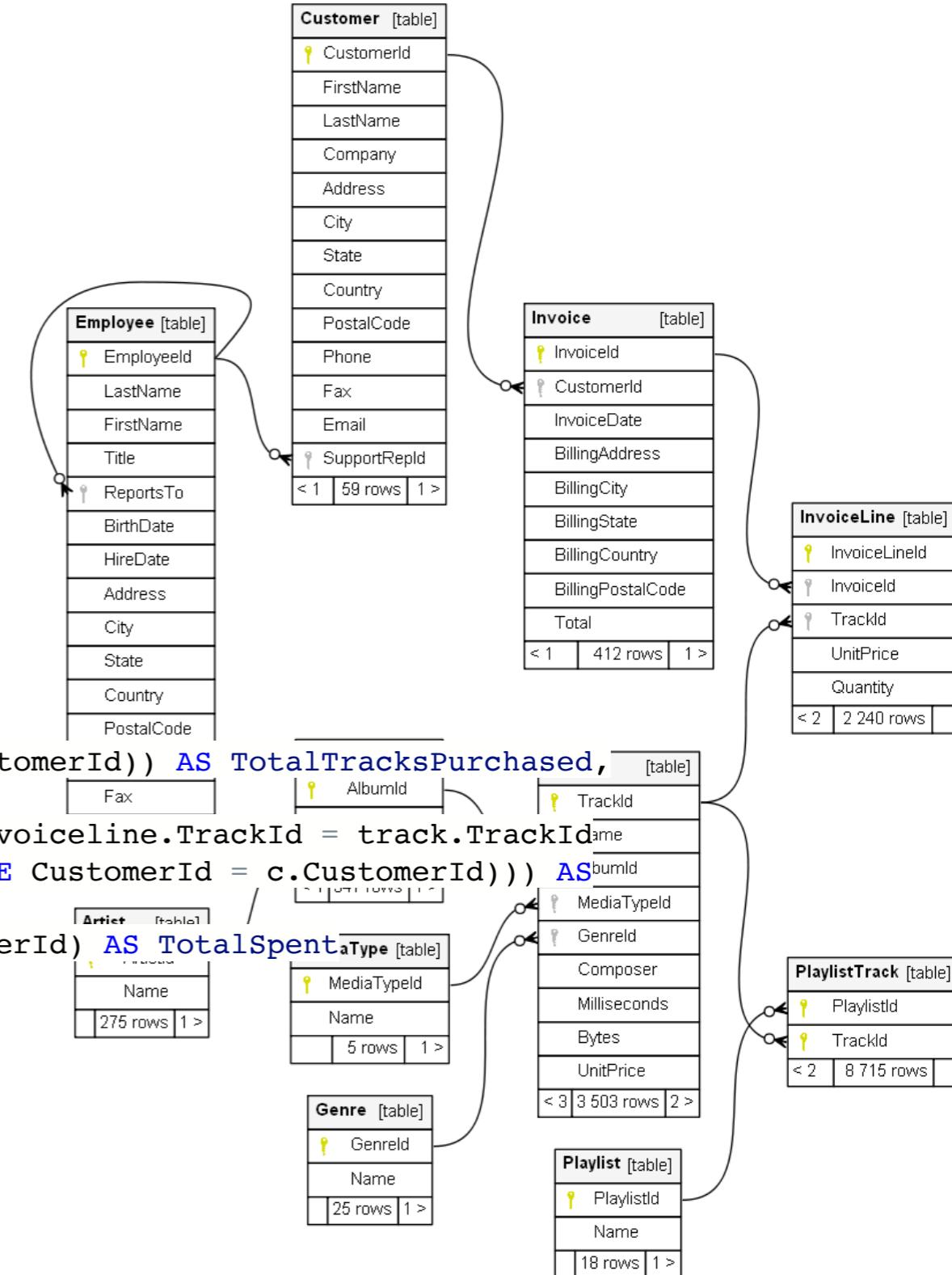
Muestre todas las canciones pero sin el ID. El resultado debe incluir el nombre del Album, el tipo de Medio y el Genero

```
select t.name as 'Nombre Cancion', t.composer, t.unitprice,
a.title as 'Nombre Album', m.name as 'Tipo de Medio',
g.name as 'Nombre de Genero' from Track t
join album a on a.albumid = t.albumid
join genre g on g.genreid = t.genreid
join MediaType m on m.mediatypeid = t.mediatypeid
limit 10
```

```
%sql
SELECT c.FirstName || ' ' || c.LastName AS CustomerName,
       (SELECT COUNT(*) FROM invoiceline WHERE InvoiceId IN
            (SELECT InvoiceId FROM invoice WHERE CustomerId = c.CustomerId)) AS TotalTracksPurchased,
       (SELECT COUNT(DISTINCT AlbumId) FROM
            (SELECT AlbumId FROM invoiceline INNER JOIN track ON invoiceline.TrackId = track.TrackId
             WHERE InvoiceId IN (SELECT InvoiceId FROM invoice WHERE CustomerId = c.CustomerId))) AS TotalAlbumsPurchased,
       (SELECT SUM(Total) FROM invoice WHERE CustomerId = c.CustomerId) AS TotalSpent
FROM customer c;
```

Done.

CustomerName	TotalTracksPurchased	TotalAlbumsPurchased	TotalSpent
Luis Gonçalves	38	22	39.62
Leonie Köhler	38	22	37.620000000000005
François Tremblay	38	26	39.62
Bjørn Hansen	38	25	39.62
František Wichterlová	38	22	40.620000000000005
Helena Holý	38	19	49.620000000000005
Astrid Gruber	38	21	42.62
Daan Peeters	38	19	37.62
Kara Nielsen	38	20	37.620000000000005



Practicar en GoogleColab!!!

The screenshot shows a Google Colab notebook interface. The title bar indicates the file is 'SQL_IV_chinook_db.ipynb'. The notebook contains several sections and code cells:

- SQL con Chinook**: A section containing a note about primary keys and a table preview.
- Joins**: A section with two code cells demonstrating joins:
 - The first cell shows a **CROSS Join example** with the following SQL query and output:

```
1 # CROSS Join example
2 %%sql
3 select * from album CROSS JOIN Artist limit 5;
```

* sqlite:///content/chinook-database/ChinookDatabase/DataSources/Chinook_Sqlite.sqlite
Done.

AlbumId	Title	ArtistId	ArtistId_1	Name
1	For Those About To Rock We Salute You 1	1	AC/DC	
1	For Those About To Rock We Salute You 1	2	Accept	
1	For Those About To Rock We Salute You 1	3	Aerosmith	
1	For Those About To Rock We Salute You 1	4	Alanis Morissette	
1	For Those About To Rock We Salute You 1	5	Alice In Chains	
 - The second cell shows an **INNER Join** with the following SQL query and output:

```
1 #INNER Join
2 %%sql
3 select * from album JOIN Artist ON album.artistId=Artist.artistId limit 5;
```

* sqlite:///content/chinook-database/ChinookDatabase/DataSources/Chinook_Sqlite.sqlite
Done.

AlbumId	Title	ArtistId	ArtistId_1	Name
1	For Those About To Rock We Salute You 1	1	AC/DC	
2	Balls to the Wall	2	Accept	
3	Restless and Wild	2	Accept	
4	Let There Be Rock	1	AC/DC	
5	Big Ones	3	Aerosmith	
- At the bottom, there is a code cell starting with '#SELECT ... FROM alumno JOIN curso USING (aid,...)'.

https://github.com/adigenova/uohdb/blob/main/code/SQL_V_chinook_db.ipynb

Consultas?

Consultas o comentarios?

Muchas gracias