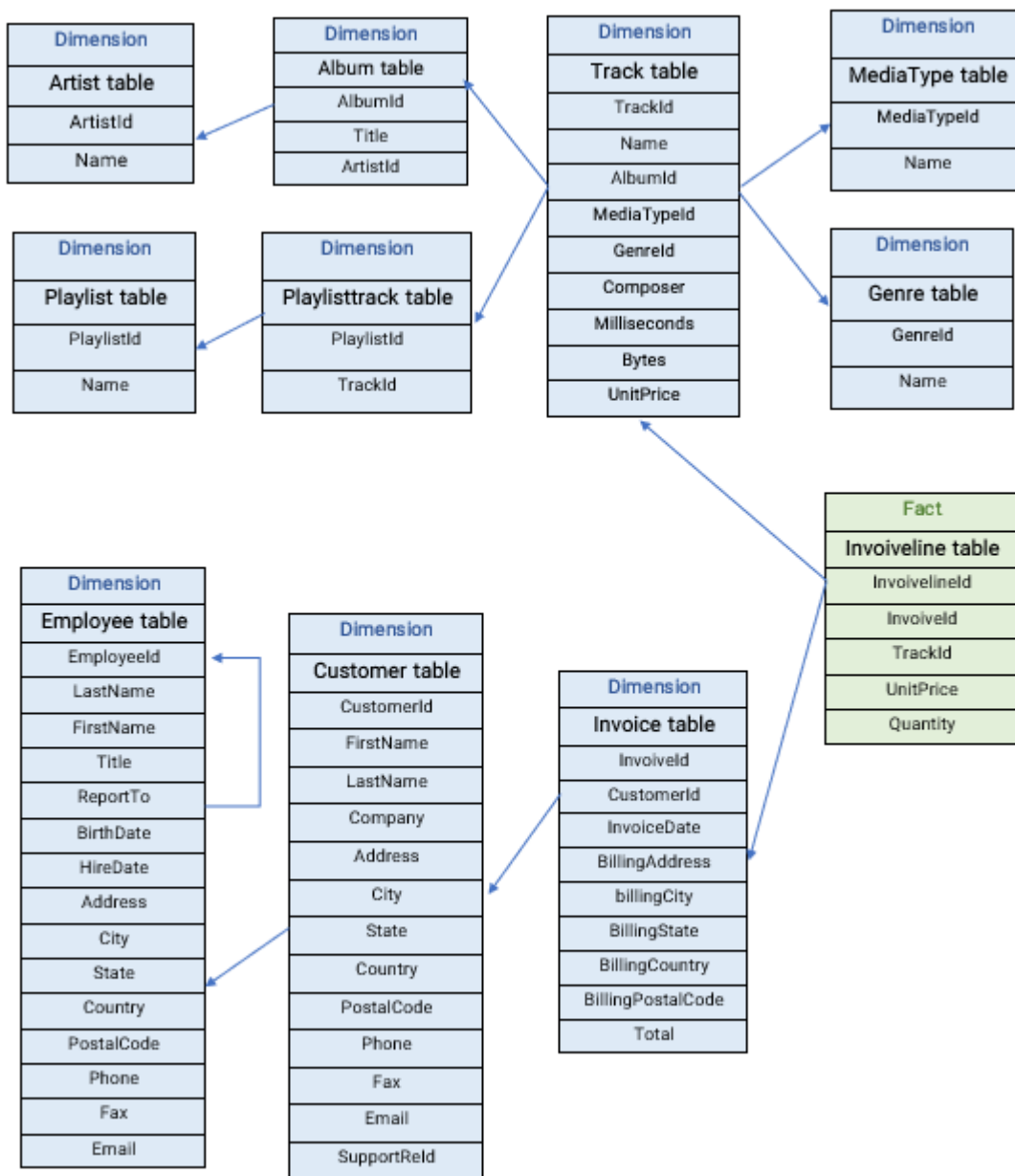


گزارش فاز اول

دیاگرام دیتابیس Chinook



با توجه به دیاگرام رسم شده در بالا می توان دید که این دیتابیس دارای یک جدول Face که Invoiveline است، می باشد و باقی جدول ها Dimension هستند.

در نتیجه می توان دید که شمای این دیتابیس به مدل Snowflake نزدیک تر است.

کوئری ها:

1. ده آهنگ برتر که بیشترین درآمد رو داشتن به همراه درآمد ایجاد شده

کوئری:

```
1 • with Invoice_j_Invoiceline as (  
2   select inv.TrackId, inn.Total from  
3   invoice inn join invoiceline inv on inn.InvoiceId = inv.InvoiceId  
4 )  
5  
6 select * from Invoice_j_Invoiceline  
7 order by Total desc  
8 limit 10
```

خروجی:

	TrackId	Total
▶	2814	25.86
	2823	25.86
	2832	25.86
	2841	25.86
	2850	25.86
	2859	25.86
	2868	25.86
	2877	25.86
	2886	25.86
	2895	25.86

2. محبوب ترین ژانر، به ترتیب از نظر تعداد آهنگ های فروخته شده و کل درآمد

کوئری:

```
1 • with Track_j_Invoiceline as (  
2   select t.TrackId, t.GenreId, inv.InvoiceId from  
3   track t join invoiceline inv on t.TrackId = inv.TrackId  
4   ),  
5   Track_j_Invoiceline_j_Invoice as (  
6   select j1.TrackId, j1.GenreId, j1.InvoiceId, inn.Total from  
7   Track_j_Invoiceline j1 join invoice inn on j1.InvoiceId = inn.InvoiceId  
8   )  
9  
10  select j2.GenreId , max(j2.Total) as max_income, count(j2.TrackId) as number_track from Track_j_Invoiceline_j_Invoice j2  
11  group by j2.GenreId  
12  order by number_track desc, max_income  
13  limit 1
```

خروجی:

	GenreId	max_income	number_track
▶	1	25.86	835

3. کاربرانی که تا حال خرید نداشتند

کوئری:

```
1 • select c.CustomerId from
2   customer c join Invoice inn on c.CustomerId = inn.CustomerId
3   where inn.InvoiceId = null
4
```

خروجی:

CustomerId

4. میانگین زمان آهنگ ها در هر آلبوم

کوئری:

```
1 • select t.AlbumId, avg(t.Milliseconds) as average_time from track t
2   group by t.AlbumId
```

خروجی:

	AlbumId	average_time
▶	1	240041.5000
	2	342562.0000
	3	286029.3333
	4	306657.3750
	5	294113.9333
	6	265455.7692
	7	270780.4167
	8	207637.5714
	9	333925.8750
	10	280550.9286
	11	268686.4167
	12	134643.5000
	13	335065.5000
	14	312301.4615
	15	289551.0000
	16	327828.7143
	17	260192.1000
	18	187787.5882
	19	335820.1818

5. کارمندی که بیشترین تعداد فروش را داشته

کوئری:

```
1 • with employee_j_customer as (  
2   select e.EmployeeId, e.FirstName, e.LastName, c.CustomerId from  
3   employee e join customer c on e.EmployeeId = c.SupportRepId  
4   ),  
5  
6   employee_j_customer_j_invoice as (  
7   select j1.EmployeeId, j1.FirstName, j1.LastName, inn.InvoiceId  
8   from employee_j_customer j1 join invoice inn on j1.CustomerId = inn.CustomerId  
9   )  
10  
11   select j2.EmployeeId, j2.FirstName, j2.LastName, sum(inv.Quantity) as sum_quantity  
12   from employee_j_customer_j_invoice j2 join invoiceline inv on j2.InvoiceId = inv.InvoiceId  
13   group by j2.EmployeeId  
14   order by sum_quantity desc  
15   limit 1  
16
```

خروجی:

	EmployeeId	FirstName	LastName	sum_quantity
▶	3	Jane	Peacock	796

6. کاربرانی که از بیش از یک ژانر خرید کردند

کوئری:

```
1 • with invoice_j_invoiceline as (  
2   select inn.CustomerId, inv.TrackId from  
3   invoice inn join invoiceline inv on inn.InvoiceId = inv.InvoiceId  
4   )  
5  
6   select j1.CustomerId, count(distinct(t.GenreId)) as number_of_genre  
7   from invoice_j_invoiceline j1 join track t on j1.TrackId = t.TrackId  
8   group by j1.CustomerId  
9   HAVING number_of_genre > 1  
10
```

خروجی:

	CustomerId	number_of_genre
▶	1	8
	2	7
	3	10
	4	8
	5	8
	6	9
	7	9
	8	4
	9	5
	10	7
	11	6
	12	5
	13	7
	14	10
	15	8
	16	7

7. سه آهنگ برتر از نظر درآمد فروش برای هر ژانر

کوئری:

```

1 with track_j_invoiceline as (
2   select t.GenreId, t.TrackId, t.Name, inv.InvoiceId from
3   track t join invoiceline inv on t.TrackId = inv.TrackId
4 ),
5
6 track_j_invoiceline_invoice as (
7   select j1.GenreId, j1.TrackId, j1.Name, inn.Total from
8   track_j_invoiceline j1 join invoice inn on j1.InvoiceId = inn.InvoiceId
9 ),
10
11 ranked_data AS (
12   SELECT
13     *,
14     ROW_NUMBER() OVER (PARTITION BY track_j_invoiceline_invoice.GenreId ORDER BY track_j_invoiceline_invoice.Total DESC) AS row_num
15   FROM
16     track_j_invoiceline_invoice
17 )
18
19 select * from ranked_data
20 WHERE row_num <= 3;

```

خروجی:

	GenreId	TrackId	Name	Total	row_num
▶	1	2931	So Cruel	25.86	1
	1	2927	Even Better Than The Real Thing	23.86	2
	1	2936	Acrobat	23.86	3
	2	66	Por Causa De Você	13.86	1
	2	71	Falando De Amor	13.86	2
	2	75	O Boto (Bôto)	13.86	3
	3	3133	Here I Go Again	21.86	1
	3	3142	The Deeper The Love	21.86	2
	3	3137	Now You're Gone	18.86	3
	4	2814	Insensível	25.86	1
	4	2803	Sonifera Ilha	14.91	2
	4	2809	Amanhã Não Se Sabe	14.91	3
	5	111	Money	13.86	1
	5	112	Long Tall Sally	13.86	2
	5	116	C'Mon Everybody	13.86	3
	6	198	When My Left Eye Jumps	13.86	1
	6	894	Sunshine Of Your Love	13.86	2
	6	903	Lay Down Sally	13.86	3
	7	3124	So Por Amor	21.86	1
	7	3151	Seu Balancê	21.86	2
	7	3160	Sapopemba e Maxambomba	21.86	3

8. تعداد آهنگ های فروخته شده به صورت تجمعی در هر سال به صورت جداگانه

کوئری:

```
1 with invoice_j_invoiceline as (  
2   select YEAR(inn.InvoiceDate) as years, count(inv.TrackId) as num_of_tracks from  
3   invoice inn join invoiceline inv on inn.InvoiceId = inv.InvoiceId  
4   group by YEAR(inn.InvoiceDate)  
5 )  
6  
7 SELECT j1.years, j1.num_of_tracks, sum(j1.num_of_tracks) over (order by j1.years) as cumulative_sum  
8 FROM invoice_j_invoiceline j1  
9
```

خروجی:

	years	num_of_tracks	cumulative_sum
►	2021	454	454
	2022	455	909
	2023	442	1351
	2024	447	1798
	2025	442	2240

9. کاربرانی که مجموع خریدشان بالاتر از میانگین مجموع خرید تمام کاربران است

کوئری:

```
1 • with totall as(  
2   select CustomerId, sum(Total) as total from invoice  
3   group by CustomerId  
4 )  
5  
6   select CustomerId, total from totall  
7   where total > (select AVG(total) from totall)  
8
```

خروجی:

	CustomerId	total
▶	1	39.62
	3	39.62
	4	39.62
	5	40.62
	6	49.62
	7	42.62
	17	39.62
	20	39.62
	22	39.62
	24	43.62
	25	42.62
	26	47.62
	28	43.62
	34	39.62
	37	43.62
	42	39.62
	43	40.62
	44	41.62
	45	45.62
	46	45.62
	48	40.62
	57	46.62