

Question 1

۱۰ آهنگ برتر که بیشترین درآمد رو داشتن به همراه درآمد ایجاد شده

1	2	3	4	5	6	7	8	9	10	11	12	13
✓	SELECT											✓
		t.TrackId,										
		t.Name AS TrackName,										
		SUM(il.UnitPrice * il.Quantity) AS TotalProfit										
	FROM											
		Track t										
		JOIN InvoiceLine il ON t.TrackId = il.TrackId										
	GROUP BY											
		t.TrackId,										
		t.Name										
	ORDER BY											
		TotalProfit DESC										
	LIMIT 10;											

TrackId	TrackName	TotalProfit
3177	Hot Girl	3.98
2868	Walkabout	3.98
3200	Gay Witch Hunt	3.98
3223	How to Stop an Exploding Man	3.98
3250	Pilot	3.98
3214	Phyllis's Wedding	3.98
2850	The Fix	3.98
2832	The Woman King	3.98
2874	I Do	1.99
2862	The Glass Ballerina	1.99

Question 2

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

1	2	3	4	5	6	7	8	9	10	11	12	13
✓	SELECT											✓
		g.GenreId,										
		g.Name,										
		COUNT(*) AS TracksSold,										
		SUM(il.Quantity * il.UnitPrice) AS TotalRevenue										
	FROM											
		InvoiceLine il										
		JOIN Track t ON t.TrackId = il.TrackId										
		JOIN Genre g ON g.GenreId = t.GenreId										
	GROUP BY	g.GenreId, g.Name										
	ORDER BY	TracksSold DESC, TotalRevenue DESC										
	LIMIT 1											

GenreId	Name	TracksSold	TotalRevenue
1	Rock	835	826.65

Question 3

کاربرانی که تا حالا خرید نداشتند

```
1 SELECT
2     *
3 FROM
4     customer c
5     LEFT JOIN invoice i ON i.CustomerId = c.CustomerId
6 WHERE
7     i.InvoiceId IS NULL;
8 -- There is no output, which means all the customers in the database have purchased at least one time
9 -- To check our result.
10 -- SELECT COUNT(c.customerid) FROM customer c;
11 -- SELECT COUNT(DISTINCT(i.customerid)) FROM invoice i;
12 -- This shows there are 59 customers which all appeared in Invoice Table
```

Columns
c.CustomerId
FirstName
LastName
Company

Question 4

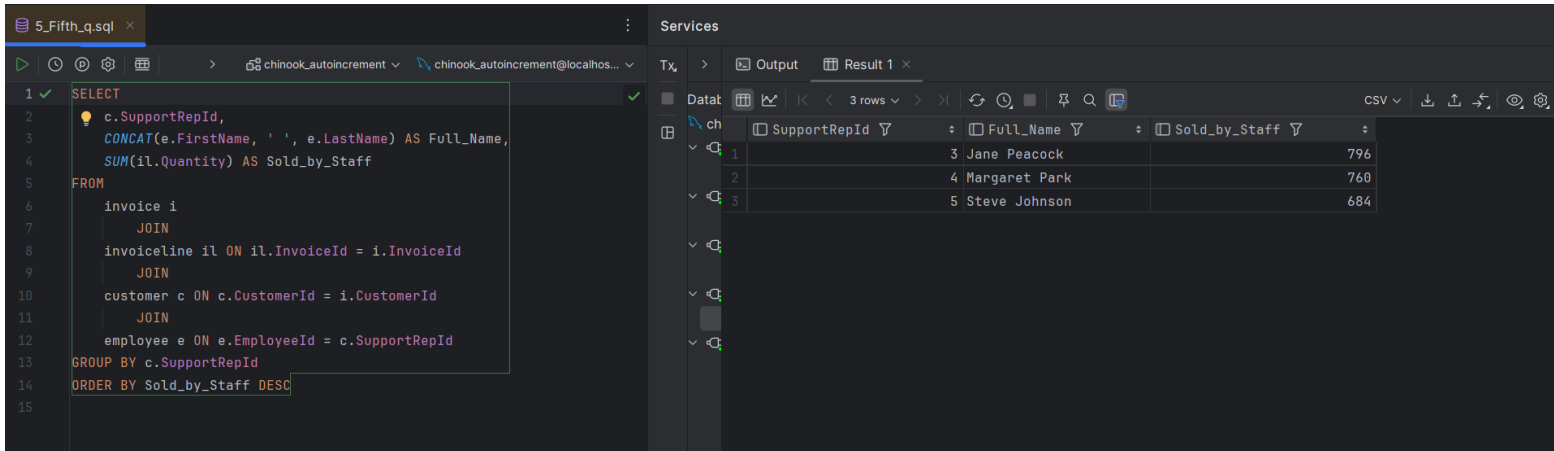
میانگین زمان آهنگ ها در هر آلبوم

```
1 SELECT
2     t.AlbumId,
3     a.Title,
4     AVG(t.Milliseconds) AS Average_Time
5 FROM
6     track t
7     JOIN album a ON a.AlbumId = t.AlbumId
8 GROUP BY
9     a.AlbumId
10 ORDER BY
11     Average_Time DESC
```

AlbumId	Title	Average_Time
1	253 Battlestar Galactica (...)	2925574.3333
2	227 Battlestar Galactica, ...	2778265.3158
3	229 Lost, Season 3	2717987.0800
4	231 Lost, Season 2	2637067.9583
5	226 Battlestar Galactica: ...	2622250.0800
6	228 Heroes, Season 1	2599142.0878
7	230 Lost, Season 1	2594197.4400
8	254 Aquaman	2484567.0000
9	261 LOST, Season 4	2321672.5294
10	251 The Office, Season 3	1532683.8000
11	249 The Office, Season 1	1329194.0000
12	250 The Office, Season 2	1301645.7273
13	50 The Final Concerts (DI...	932894.0800
14	138 The Song Remains The S...	759359.7500
15	198 Santana Live	673923.8333
16	294 Great Performances - B...	596519.0800
17	137 The Song Remains The S...	588794.2000
18	279 Handel: The Messiah (H...	582029.0000
19	208 [1997] Black Light Syn...	575790.5714
20	330 Gdrecki: Symphony No. 3	567494.0800
21	312 Berlioz: Symphonie Fan...	561967.0000
22	301 Chopin: Piano Concerto...	560342.0800
23	299 Scheherazade	545283.0800
24	197 Santana - As Years Go ...	537984.8750
25	311 Strauss: Waltzes	526496.0000
26	292 Holst: The Planets, Op...	522899.0800

Question 5

کارمندی که بیشترین تعداد فروش را داشته است



```

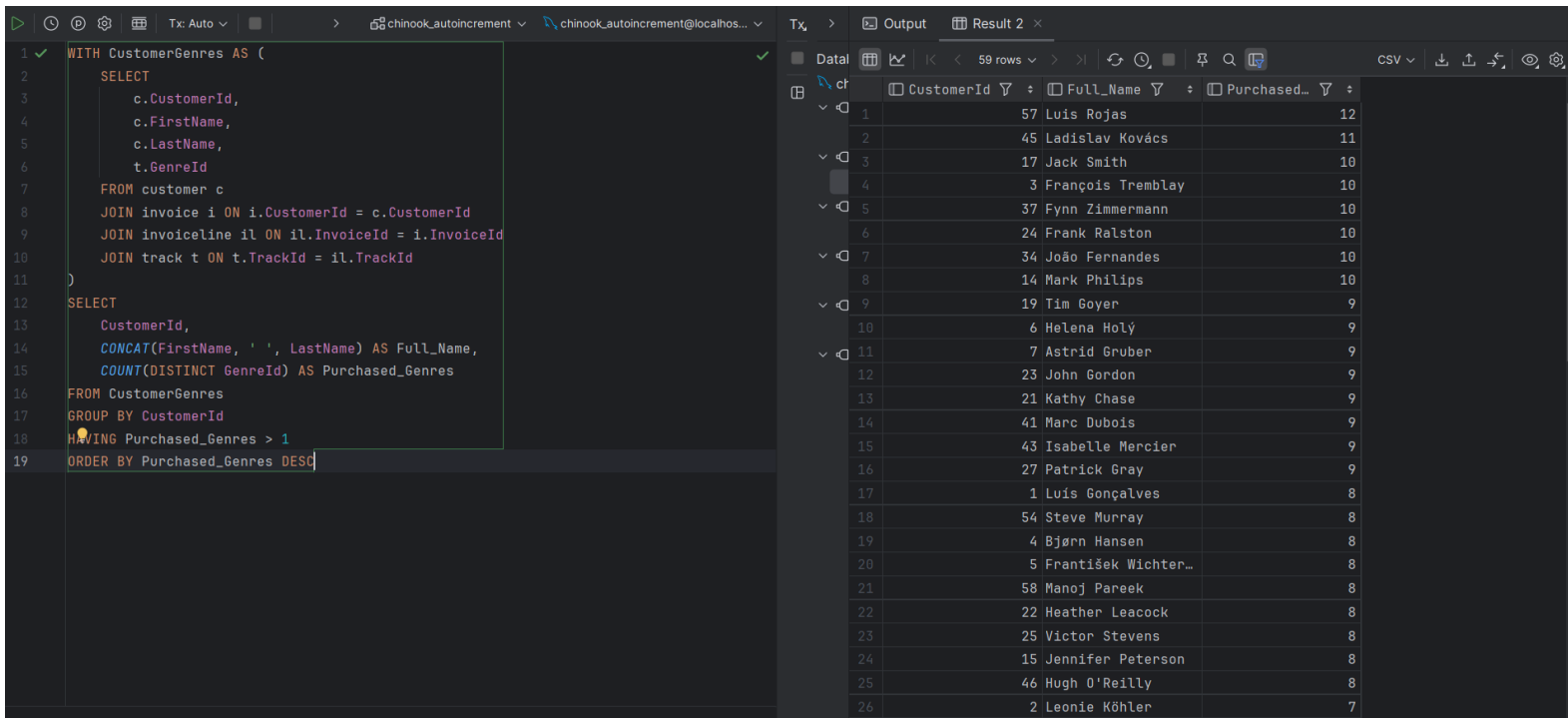
1 SELECT
2   c.SupportRepId,
3   CONCAT(e.FirstName, ' ', e.LastName) AS Full_Name,
4   SUM(il.Quantity) AS Sold_by_Staff
5 FROM
6   invoice i
7   JOIN
8   invoiceLine il ON il.InvoiceId = i.InvoiceId
9   JOIN
10  customer c ON c.CustomerId = i.CustomerId
11  JOIN
12  employee e ON e.EmployeeId = c.SupportRepId
13 GROUP BY c.SupportRepId
14 ORDER BY Sold_by_Staff DESC
15

```

SupportRepId	Full_Name	Sold_by_Staff
3	Jane Peacock	796
4	Margaret Park	760
5	Steve Johnson	684

Question 6

کاربرانی که بیش از یک ژانر خرید کردند



```

1 WITH CustomerGenres AS (
2   SELECT
3     c.CustomerId,
4     c.FirstName,
5     c.LastName,
6     t.GenreId
7   FROM customer c
8   JOIN invoice i ON i.CustomerId = c.CustomerId
9   JOIN invoiceLine il ON il.InvoiceId = i.InvoiceId
10  JOIN track t ON t.TrackId = il.TrackId
11 )
12 SELECT
13   CustomerId,
14   CONCAT(FirstName, ' ', LastName) AS Full_Name,
15   COUNT(DISTINCT GenreId) AS Purchased_Genres
16 FROM CustomerGenres
17 GROUP BY CustomerId
18 HAVING Purchased_Genres > 1
19 ORDER BY Purchased_Genres DESC

```

CustomerId	Full_Name	Purchased_Genres
57	Luis Rojas	12
45	Ladislav Kovács	11
17	Jack Smith	10
3	François Tremblay	10
37	Fynn Zimmermann	10
24	Frank Ralston	10
34	João Fernandes	10
14	Mark Philips	10
19	Tim Goyer	9
6	Helena Holy	9
7	Astrid Gruber	9
23	John Gordon	9
21	Kathy Chase	9
41	Marc Dubois	9
43	Isabelle Mercier	9
27	Patrick Gray	9
1	Luis Gonçalves	8
54	Steve Murray	8
4	Bjørn Hansen	8
5	František Wichter...	8
58	Manoj Pareek	8
22	Heather Leacock	8
25	Victor Stevens	8
15	Jennifer Peterson	8
46	Hugh O'Reilly	8
2	Leonie Köhler	7

Question 7

سه آهنگ برتر از نظر درآمد فروش برای هر ژانر

7_Seventh_q.sql

```

1 WITH Ranked_Tracks AS (
2     SELECT
3         t.GenreId,
4         g.Name AS Genre_Name,
5         il.TrackId,
6         t.Name AS Track_Name,
7         ROW_NUMBER() OVER (
8             PARTITION BY t.GenreId
9             ORDER BY SUM(il.Quantity * il.UnitPrice) DESC
10        ) AS Track_Ranks,
11        SUM(il.Quantity * il.UnitPrice) AS Total_Sale
12    FROM
13        invoice il
14        JOIN track t ON t.TrackId = il.TrackId
15        JOIN genre g ON g.GenreId = t.GenreId
16    GROUP BY
17        t.GenreId,
18        g.Name,
19        il.TrackId,
20        t.Name
21 )
22 SELECT
23     *
24 FROM
25     Ranked_Tracks
26 WHERE
27     Track_Ranks <= 3

```

Ranked_Tracks

GenreId	Genre_Name	TrackId	Track_Name	Track_Ranks	Total_Sale
1	Rock	2	Balls to the Wall	1	1.98
1	Rock	8	Inject The Venom	2	1.98
1	Rock	9	Snowballed	3	1.98
2	Jazz	66	Por Causa De Você	1	1.98
2	Jazz	461	Surrender	2	1.98
2	Jazz	466	J Squared	3	1.98
3	Metal	84	Welcome Home (Sa...	1	1.98
3	Metal	161	Snowblind	2	1.98
3	Metal	162	Cornucopia	3	1.98
4	Alternative & Punk	171	Bowels Of The De...	1	1.98
4	Alternative & Punk	175	Voodoo	2	1.98
4	Alternative & Punk	472	Basket Case	3	1.98
5	Rock And Roll	111	Money	1	0.99
5	Rock And Roll	112	Long Tall Sally	2	0.99
5	Rock And Roll	116	C'Mon Everybody	3	0.99
6	Blues	198	When My Left Eye...	1	1.98
6	Blues	894	Sunshine Of Your...	2	1.98
6	Blues	903	Lay Down Sally	3	1.98
7	Latin	207	Meditação	1	1.98
7	Latin	211	Bem Devagar	2	1.98
7	Latin	217	Mel	3	1.98
8	Reggae	298	A Cor Do Sol	1	1.98
8	Reggae	3048	C'est La Vie	2	1.98
8	Reggae	285	Soldado Da Paz	3	0.99
9	Pop	3256	Give Peace a Cha...	1	1.98
9	Pop	3268	Beautiful Boy	2	1.98

Question 8

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

```

1 SELECT
2     YEAR,
3     Total_Sold_Number,
4     SUM(Total_Sold_Number) OVER (ORDER BY YEAR) AS Cumulative_Total
5 FROM (
6     SELECT
7         DISTINCT(YEAR(i.invoicedate)) AS YEAR,
8         SUM(il.Quantity) AS Total_Sold_Number
9     FROM
10        invoice i
11        JOIN invoice il ON il.InvoiceId = i.InvoiceId
12    GROUP BY
13        YEAR(i.invoicedate)
14 ) AS yearly_totals
15 ORDER BY
16     YEAR

```

YEAR	Total_Sold_Number	Cumulative_Total
2021	454	454
2022	455	909
2023	442	1351
2024	447	1798
2025	442	2240

Question 9

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

CustomerId	Full_Name	Total_Customer_Purch...	Higher_Than_AVG
1	6 Helena Holý	49.62	10.152203
2	26 Richard Cunningh...	47.62	8.152203
3	57 Luis Rojas	46.62	7.152203
4	45 Ladislav Kovács	45.62	6.152203
5	46 Hugh O'Reilly	45.62	6.152203
6	24 Frank Ralston	43.62	4.152203
7	28 Julia Barnett	43.62	4.152203
8	37 Fynn Zimmermann	43.62	4.152203
9	7 Astrid Gruber	42.62	3.152203
10	25 Victor Stevens	42.62	3.152203
11	44 Terhi Hämäläinen	41.62	2.152203
12	5 František Wichte...	40.62	1.152203
13	43 Isabelle Mercier	40.62	1.152203
14	48 Johannes Van der...	40.62	1.152203
15	1 Luís Gonçalves	39.62	0.152203
16	3 François Tremblay	39.62	0.152203
17	4 Bjørn Hansen	39.62	0.152203
18	17 Jack Smith	39.62	0.152203
19	20 Dan Miller	39.62	0.152203
20	22 Heather Leacock	39.62	0.152203
21	34 João Fernandes	39.62	0.152203
22	42 Wyatt Girard	39.62	0.152203