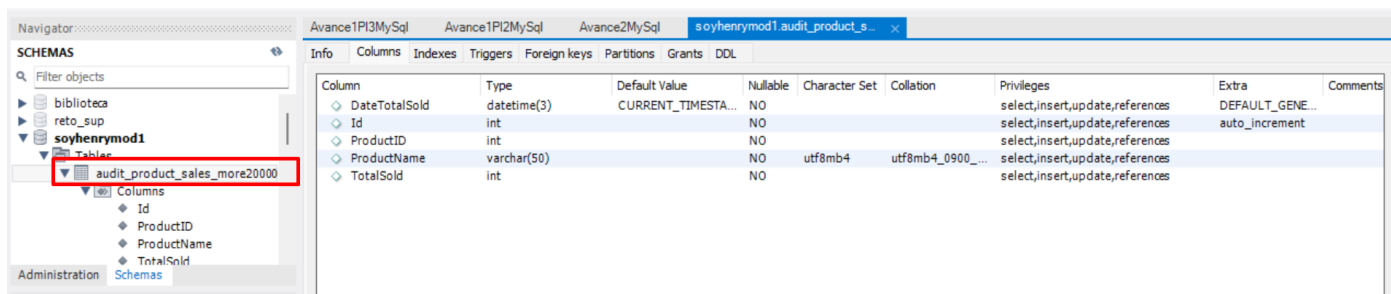


AVANCE 2

PUNTO 1

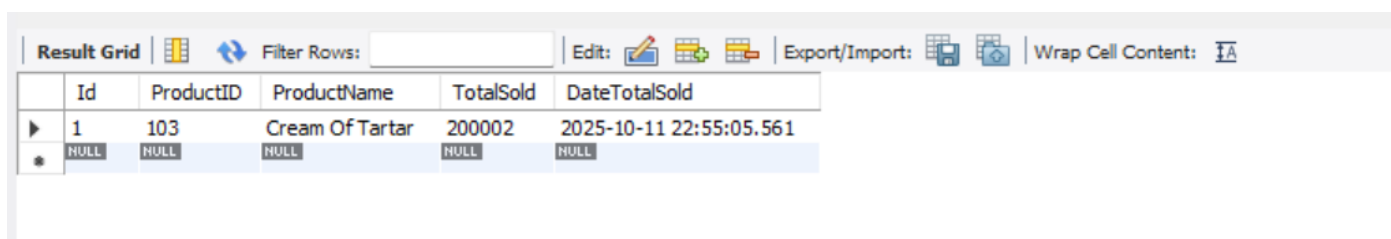
Se crea la tabla de auditoría:



Column	Type	Default Value	Nullable	Character Set	Collation	Privileges	Extra	Comments
DateTotalSold	datetime(3)	CURRENT_TIMESTA...	NO			select,insert,update,references	DEFAULT_GENE...	
Id	int		NO			select,insert,update,references	auto_increment	
ProductID	int		NO			select,insert,update,references		
ProductName	varchar(50)		NO	utf8mb4	utf8mb4_0900_...	select,insert,update,references		
TotalSold	int		NO			select,insert,update,references		

PUNTO 3

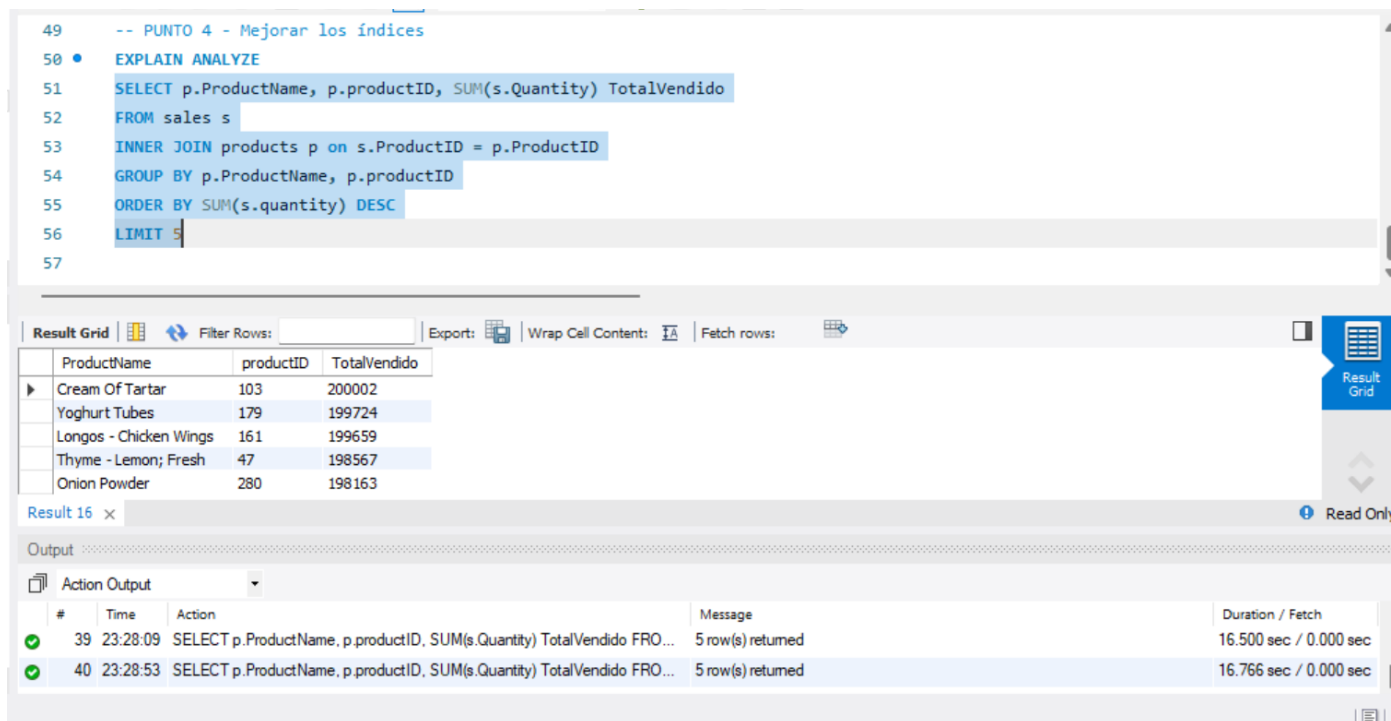
Luego de insertar la venta solicitada en el punto 3, se visualiza



	Id	ProductID	ProductName	TotalSold	DateTotalSold
▶	1	103	Cream Of Tartar	200002	2025-10-11 22:55:05.561
*	NULL	NULL	NULL	NULL	NULL

PUNTO 4

La primera consulta tarda 16 segundos sin índice.

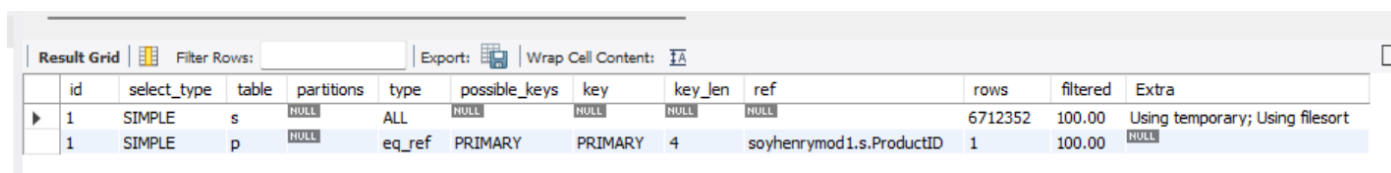


```
49 -- PUNTO 4 - Mejorar los índices
50 • EXPLAIN ANALYZE
51 SELECT p.ProductName, p.productID, SUM(s.Quantity) TotalVendido
52 FROM sales s
53 INNER JOIN products p on s.ProductID = p.ProductID
54 GROUP BY p.ProductName, p.productID
55 ORDER BY SUM(s.quantity) DESC
56 LIMIT 5
57
```

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	s	NULL	ALL	NULL	NULL	NULL	NULL	6712352	100.00	Using temporary; Using filesort
1	SIMPLE	p	NULL	eq_ref	PRIMARY	PRIMARY	4	soyhenrymod1.s.ProductID	1	100.00	NULL

#	Time	Action	Message	Duration / Fetch
39	23:28:09	SELECT p.ProductName, p.productID, SUM(s.Quantity) TotalVendido FRO...	5 row(s) returned	16.500 sec / 0.000 sec
40	23:28:53	SELECT p.ProductName, p.productID, SUM(s.Quantity) TotalVendido FRO...	5 row(s) returned	16.766 sec / 0.000 sec

Se hace un EXPLAIN



id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	s	NULL	ALL	NULL	NULL	NULL	NULL	6712352	100.00	Using temporary; Using filesort
1	SIMPLE	p	NULL	eq_ref	PRIMARY	PRIMARY	4	soyhenrymod1.s.ProductID	1	100.00	NULL

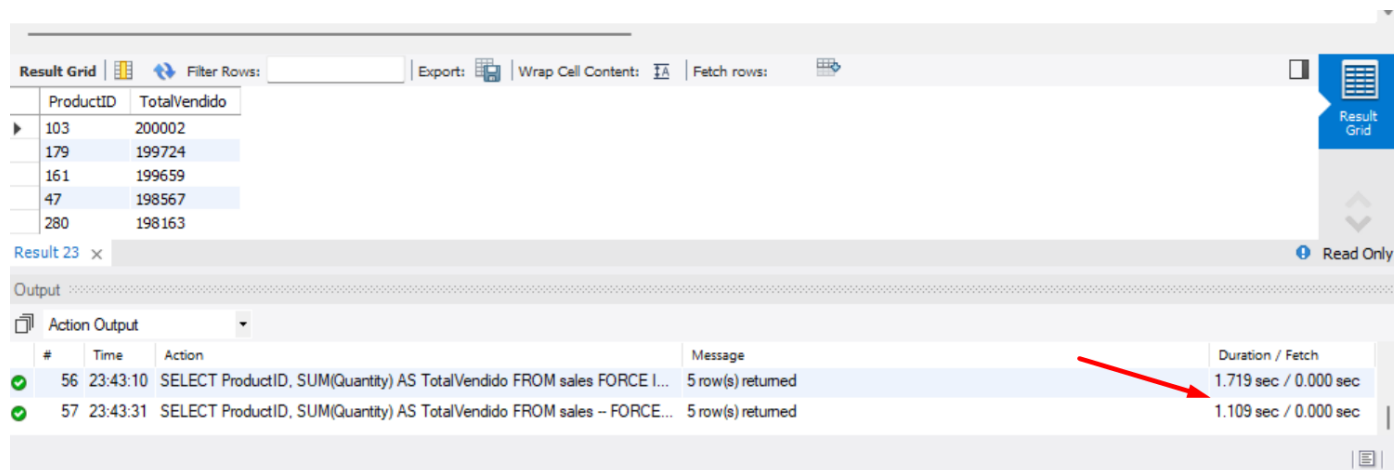
Se verifica que recorre los 6 millones de registros.

Se agrega un índice:

ALTER TABLE sales

ADD INDEX idx_sales_prod_qty (ProductID, Quantity);

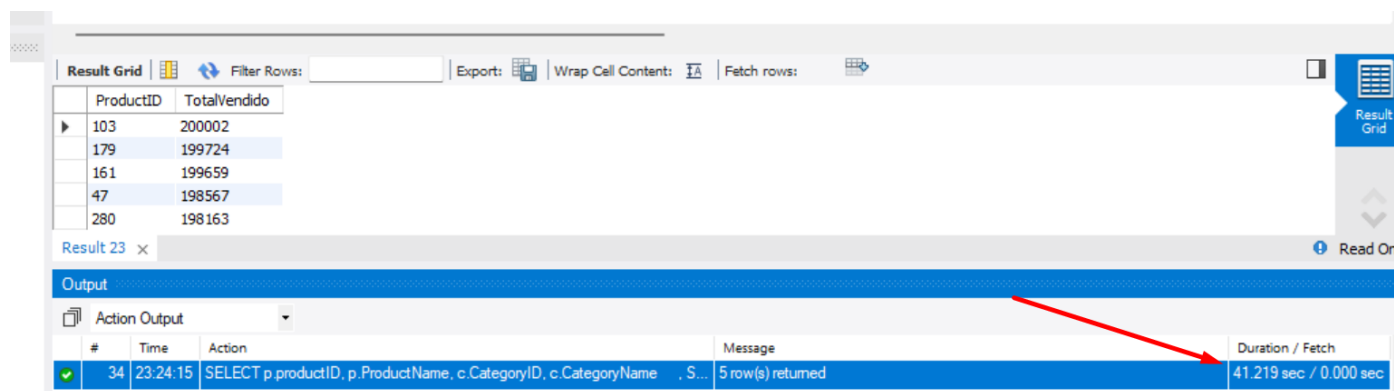
Y se reduce a 1 o 2 segundos.



ProductID	TotalVendido
103	200002
179	199724
161	199659
47	198567
280	198163

#	Time	Action	Message	Duration / Fetch
56	23:43:10	SELECT ProductID, SUM(Quantity) AS TotalVendido FROM sales FORCE INDEX (idx_sales_prod_qty)	5 row(s) returned	1.719 sec / 0.000 sec
57	23:43:31	SELECT ProductID, SUM(Quantity) AS TotalVendido FROM sales -- FORCE INDEX (idx_sales_prod_qty)	5 row(s) returned	1.109 sec / 0.000 sec

Si se hace por separado no funciona, tarda más de 40 segundos



ProductID	TotalVendido
103	200002
179	199724
161	199659
47	198567
280	198163

#	Time	Action	Message	Duration / Fetch
34	23:24:15	SELECT p.productID, p.ProductName, c.CategoryID, c.CategoryName, S...	5 row(s) returned	41.219 sec / 0.000 sec

Segunda consulta

```

70 -- Segunda consulta
71 • ALTER TABLE sales ALTER INDEX idx_sales_prod_qty INVISIBLE;
72 • EXPLAIN
73 SELECT p.CategoryID, s.ProductID, SUM(s.Quantity) Cantidad
74 FROM sales s
75 INNER JOIN products p ON s.ProductID = p.ProductID
76 GROUP BY p.CategoryID, s.ProductID
77

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

CategoryID	ProductID	Cantidad
1	381	194095
8	61	195761
11	23	194438
6	176	194142
9	310	194311

result 26 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
62	23:49:46	ALTER TABLE sales ALTER INDEX idx_sales_prod_qty INVISIBLE	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.016 sec
63	23:49:52	SELECT p.CategoryID, s.ProductID, SUM(s.Quantity) Cantidad FROM sales ...	452 row(s) returned	16.875 sec / 0.000 sec

Tarda 16 segundos

Al agregar el índice por producto y cantidad tarda 3 segundos

```

71 • SELECT p.CategoryID, s.ProductID, SUM(s.Quantity) Cantidad
72 FROM sales s
73 INNER JOIN products p ON s.ProductID = p.ProductID
74 GROUP BY p.CategoryID, s.ProductID
75

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

CategoryID	ProductID	Cantidad
1	15	193053
1	27	194447
1	42	194415
1	52	193670
1	62	196588

Result 24 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
59	23:47:19	SELECT p.CategoryID, s.ProductID, SUM(s.Quantity) Cantidad FROM sales ...	452 row(s) returned	3.062 sec / 0.000 sec
60	23:47:49	SELECT p.CategoryID, s.ProductID, SUM(s.Quantity) Cantidad FROM sales ...	452 row(s) returned	3.109 sec / 0.000 sec