

# Database Technologies

## Assignment – 3

### (Data Distribution and Distributed Query Processing)

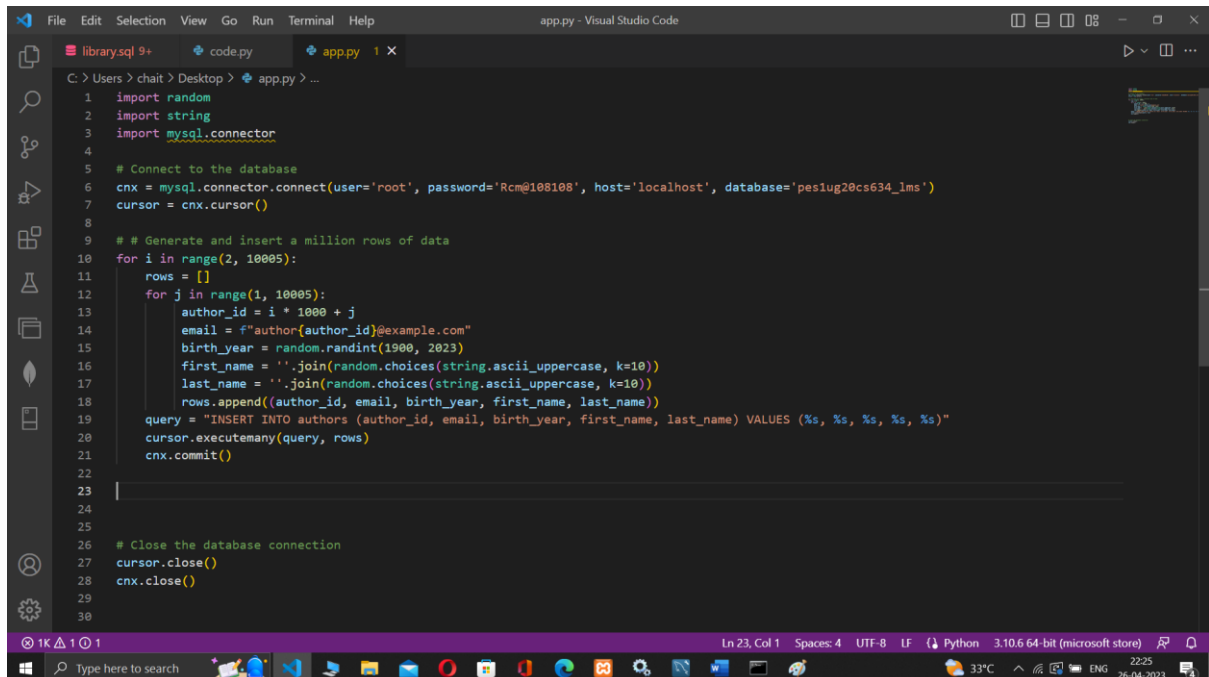
Name:	Chaitanya Madhav R
SRN:	PES1UG20CS634
Section:	K

#### Database Used : Library Management System

(Database Information attached in Assignment-2 pdf)

**Screenshots:** Database is named as “pes1ug20cs634\_lms”

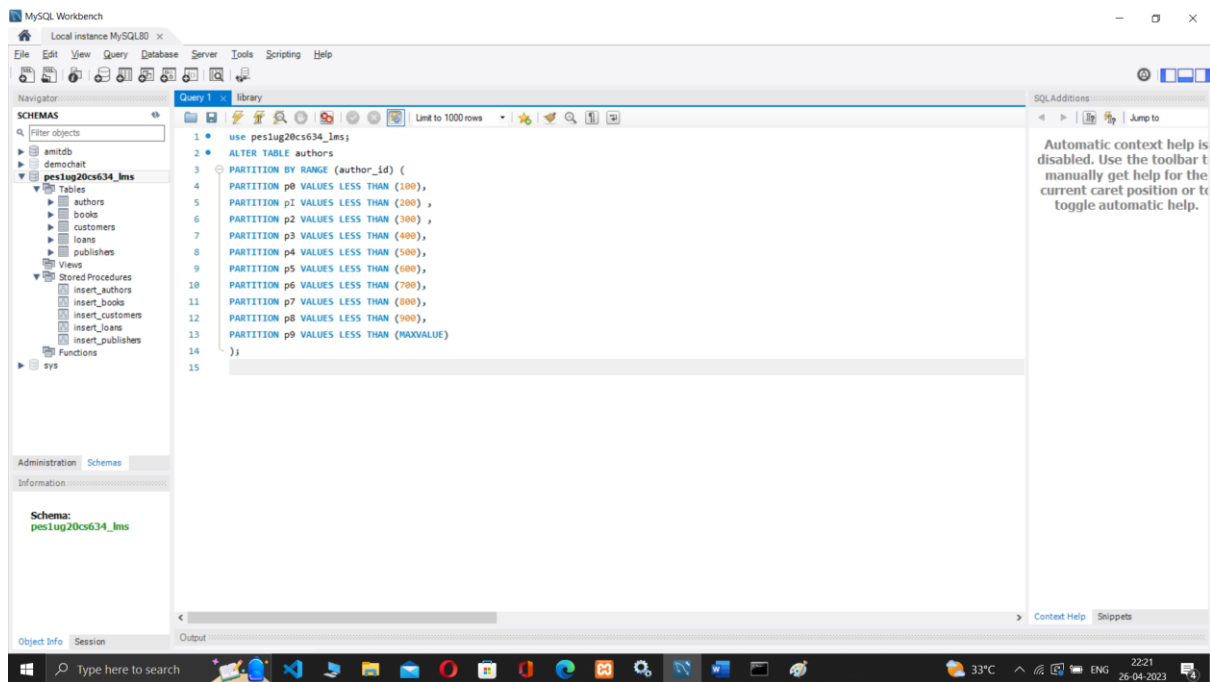
(a) Load a million rows of data to a (transaction) table that should have distributed storage in multiple drives of your PC. May use a program to create data - if used, submit the program code.



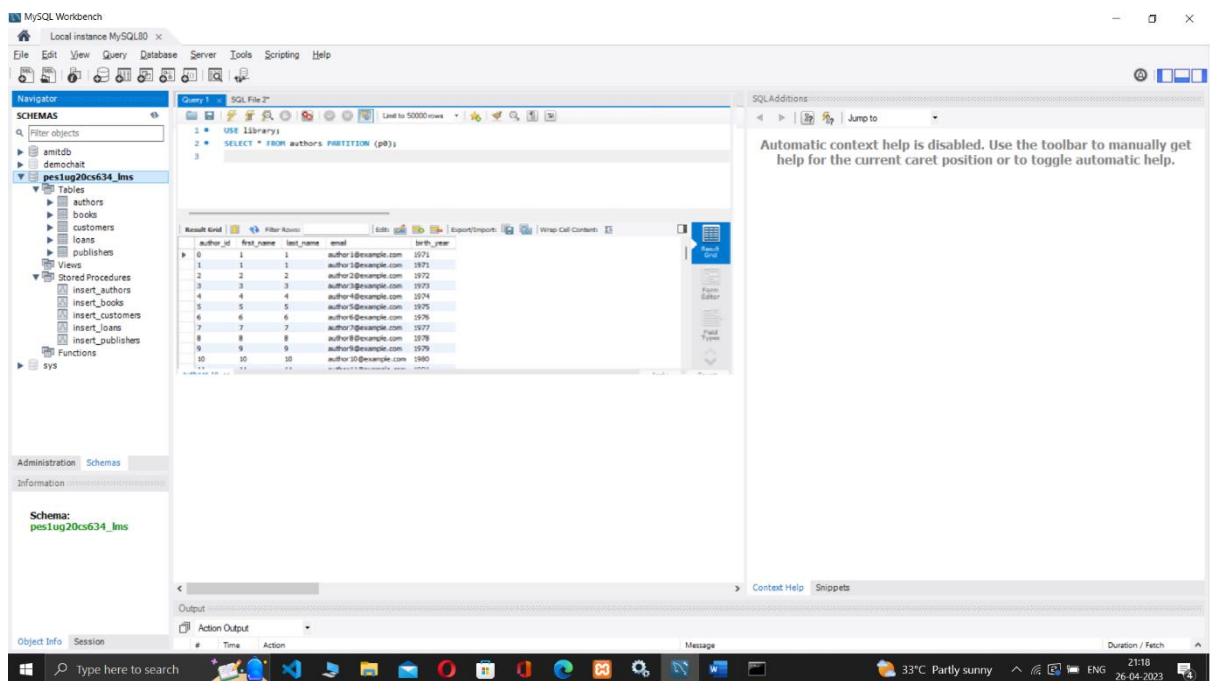
```
File Edit Selection View Go Run Terminal Help
app.py - Visual Studio Code

library.sql 9+ code.py app.py 1 x

C:\Users\chait\Desktop > app.py > ...
1 import random
2 import string
3 import mysql.connector
4
5 # Connect to the database
6 cnx = mysql.connector.connect(user='root', password='Rcm@108108', host='localhost', database='pes1ug20cs634_lms')
7 cursor = cnx.cursor()
8
9 ## Generate and insert a million rows of data
10 for i in range(2, 10005):
11     rows = []
12     for j in range(1, 10005):
13         author_id = i * 1000 + j
14         email = f"author{author_id}@example.com"
15         birth_year = random.randint(1900, 2023)
16         first_name = ''.join(random.choices(string.ascii_uppercase, k=10))
17         last_name = ''.join(random.choices(string.ascii_uppercase, k=10))
18         rows.append((author_id, email, birth_year, first_name, last_name))
19     query = "INSERT INTO authors (author_id, email, birth_year, first_name, last_name) VALUES (%s, %s, %s, %s, %s)"
20     cursor.executemany(query, rows)
21     cnx.commit()
22
23
24
25
26 # Close the database connection
27 cursor.close()
28 cnx.close()
29
30
```

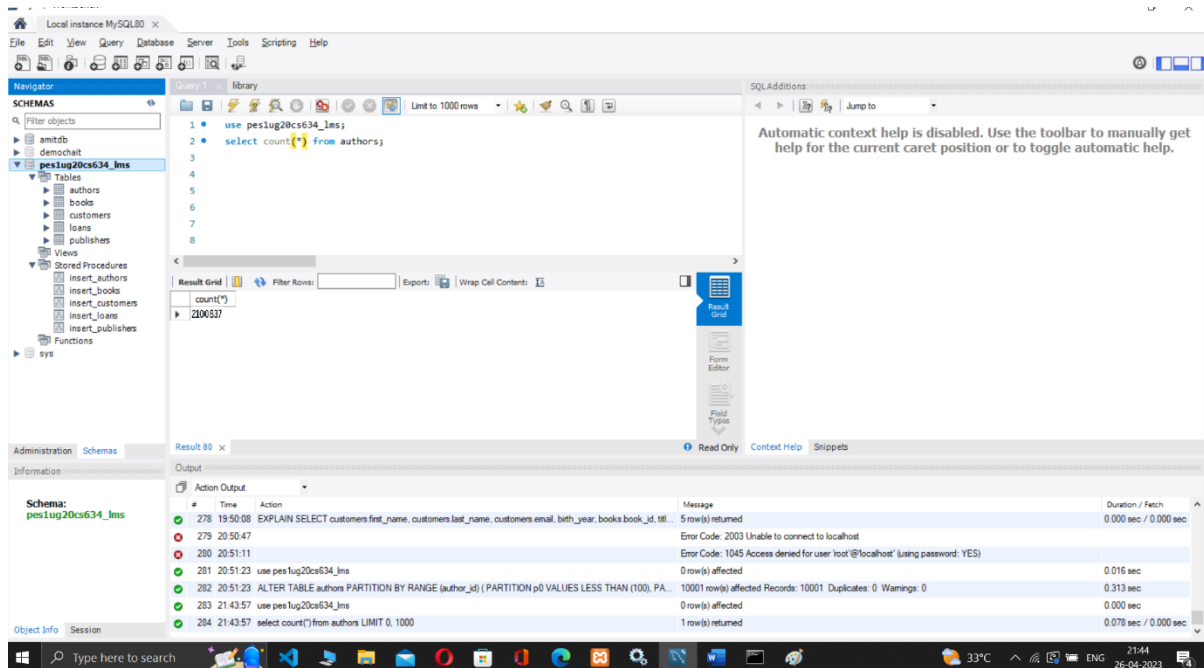


**Note:** making partition of the table into 10 different partitions to make the data shared across distributed data.

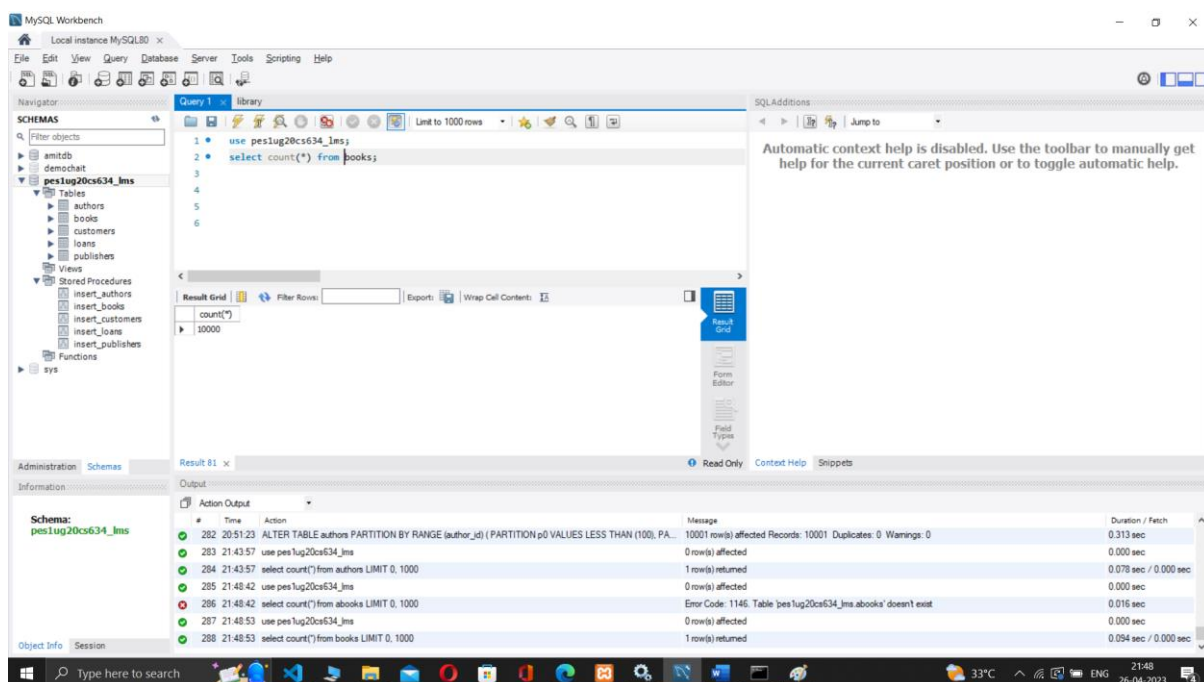


Count of number of rows in the each table.(authors table with 2 million data).

- Count for authors table that has more than 2 millions or rows



But all other tables have less number of rows like 10k.



MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

amitdb  
demochat  
peslug20cs634\_lms

Tables

authors  
books  
customers  
loans  
publishes

Views

Stored Procedures

insert\_authors  
insert\_books  
insert\_customers  
insert\_loans  
insert\_publishes

Functions

sys

Query 1: library

Limit to 1000 rows

```
1 use peslug20cs634_lms;  
2 select count(*) from customers;  
3  
4  
5  
6
```

Result Grid

count(\*)  
10000

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Administration Schemas

Information

Schema: peslug20cs634\_lms

Action Output

#	Time	Action	Message	Duration / Fetch
284	21:43:57	select count(*) from authors LIMIT 0, 1000	1 row(s) returned	0.078 sec / 0.000 sec
285	21:48:42	use peslug20cs634_lms	0 row(s) affected	0.000 sec
286	21:48:42	select count(*) from books LIMIT 0, 1000	Error Code: 1146: Table 'peslug20cs634_lms.books' doesn't exist	0.016 sec
287	21:48:53	use peslug20cs634_lms	0 row(s) affected	0.000 sec
288	21:48:53	select count(*) from books LIMIT 0, 1000	1 row(s) returned	0.094 sec / 0.000 sec
289	21:49:22	use peslug20cs634_lms	0 row(s) affected	0.000 sec
290	21:49:22	select count(*) from customers LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec

Object Info Session

Type here to search

33°C

21:49

26-04-2023

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

amitdb  
demochat  
peslug20cs634\_lms

Tables

authors  
books  
customers  
loans  
publishes

Views

Stored Procedures

insert\_authors  
insert\_books  
insert\_customers  
insert\_loans  
insert\_publishes

Functions

sys

Query 1: library

Limit to 1000 rows

```
1 use peslug20cs634_lms;  
2 select count(*) from loans;  
3  
4  
5  
6
```

Result Grid

count(\*)  
10000

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Administration Schemas

Information

Schema: peslug20cs634\_lms

Action Output

#	Time	Action	Message	Duration / Fetch
286	21:48:42	select count(*) from books LIMIT 0, 1000	Error Code: 1146: Table 'peslug20cs634_lms.books' doesn't exist	0.016 sec
287	21:48:53	use peslug20cs634_lms	0 row(s) affected	0.000 sec
288	21:48:53	select count(*) from books LIMIT 0, 1000	1 row(s) returned	0.094 sec / 0.000 sec
289	21:49:22	use peslug20cs634_lms	0 row(s) affected	0.000 sec
290	21:49:22	select count(*) from customers LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec
291	21:49:35	use peslug20cs634_lms	0 row(s) affected	0.000 sec
292	21:49:35	select count(*) from loans LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec

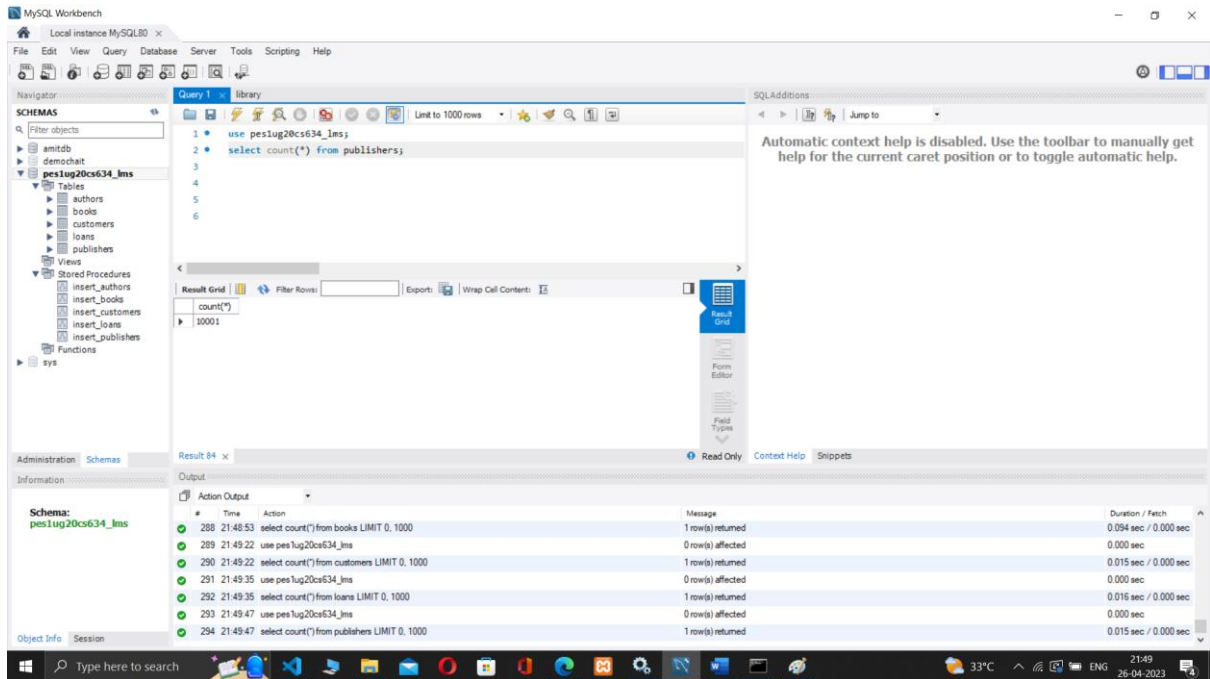
Object Info Session

Type here to search

33°C

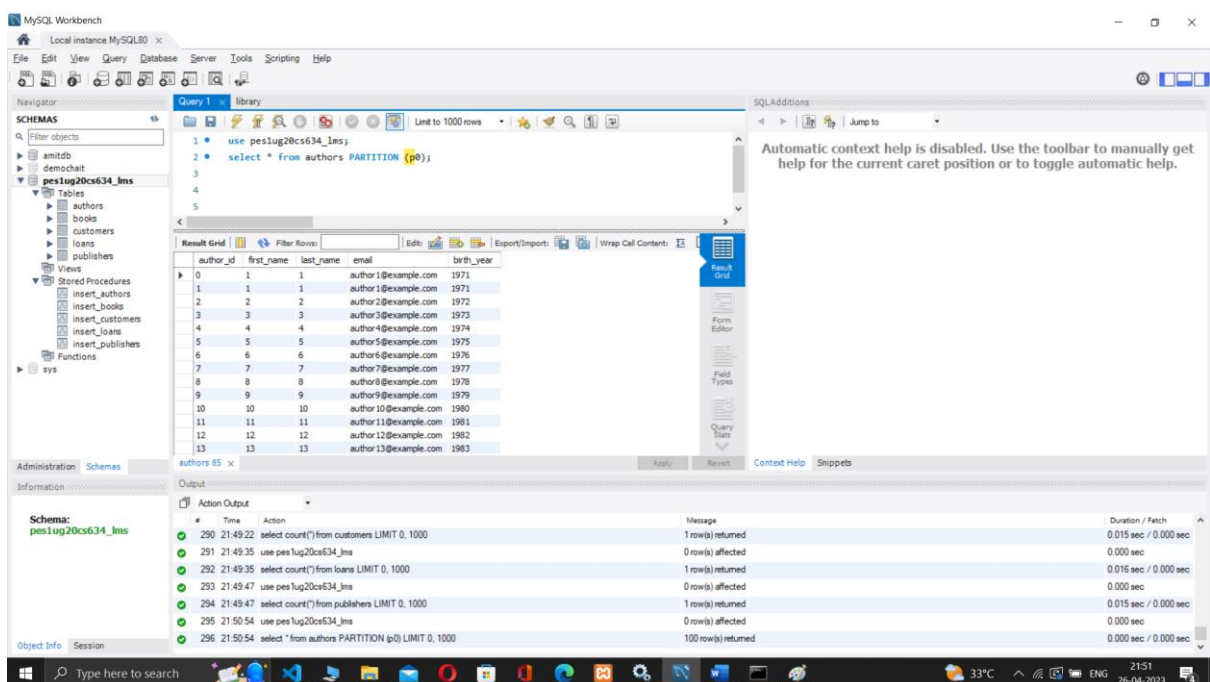
21:49

26-04-2023



(b) Measure performance of this humongous table using multiple (min 6) varieties of queries using different tables combinations and record the same and compare them.

1) First Query: Query to retrieve data from the partition p0.





MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

Filter objects

SCHEMAS

amitdb

demochat

peslug20cs634\_lms

Tables

authors

books

customers

loans

publishes

Views

Stored Procedures

insert\_authors

insert\_books

insert\_customers

insert\_loans

insert\_publishes

Functions

sys

Query 1: library

Limit to 1000 rows

1 use peslug20cs634\_lms;

2 select \* from authors PARTITION (p0);

3

4

5

Result Grid

author_id	first_name	last_name	email	birth_year
87	87	87	author87@example.com	2057
88	88	88	author88@example.com	2058
89	89	89	author89@example.com	2059
90	90	90	author90@example.com	2060
91	91	91	author91@example.com	2061
92	92	92	author92@example.com	2062
93	93	93	author93@example.com	2063
94	94	94	author94@example.com	2064
95	95	95	author95@example.com	2065
96	96	96	author96@example.com	2066
97	97	97	author97@example.com	2067
98	98	98	author98@example.com	2068
99	99	99	author99@example.com	2069

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Output

Schema: peslug20cs634\_lms

Action Output

#	Time	Action	Message	Duration / Fetch
290	21:49:22	select count(*) from customers LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec
291	21:49:35	use peslug20cs634_lms	0 row(s) affected	0.000 sec
292	21:49:35	select count(*) from loans LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec
293	21:49:47	use peslug20cs634_lms	0 row(s) affected	0.000 sec
294	21:49:47	select count(*) from publishes LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec
295	21:50:54	use peslug20cs634_lms	0 row(s) affected	0.000 sec
296	21:50:54	select * from authors PARTITION (p0) LIMIT 0, 1000	100 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

## 2) Second Query: Query with the combination of books with the authors table with partition p1.

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

Filter objects

SCHEMAS

amitdb

demochat

peslug20cs634\_lms

Tables

authors

books

customers

loans

publishes

Views

Stored Procedures

insert\_authors

insert\_books

insert\_customers

insert\_loans

insert\_publishes

Functions

sys

Query 1: library

Limit to 1000 rows

1 use peslug20cs634\_lms;

2 select a.\*, b.\*

3 FROM authors PARTITION (p1) a

4 JOIN books b ON a.author\_id = b.book\_id

5 WHERE a.first\_name = a.last\_name;

Result Grid

author_id	first_name	last_name	email	birth_year	book_id	title	isbn	edition
100	100	100	author100@example.com	2070	100	978-3-16-100	100	
101	101	101	author101@example.com	2071	101	978-3-16-101	101	
102	102	102	author102@example.com	2072	102	978-3-16-102	102	
103	103	103	author103@example.com	2073	103	978-3-16-103	103	
104	104	104	author104@example.com	2074	104	978-3-16-104	104	
105	105	105	author105@example.com	2075	105	978-3-16-105	105	
106	106	106	author106@example.com	2076	106	978-3-16-106	106	
107	107	107	author107@example.com	2077	107	978-3-16-107	107	
108	108	108	author108@example.com	2078	108	978-3-16-108	108	
109	109	109	author109@example.com	2079	109	978-3-16-109	109	
110	110	110	author110@example.com	2080	110	978-3-16-110	110	
111	111	111	author111@example.com	2081	111	978-3-16-111	111	
112	112	112	author112@example.com	2082	112	978-3-16-112	112	
113	113	113	author113@example.com	2083	113	978-3-16-113	113	

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Output

Schema: peslug20cs634\_lms

Action Output

#	Time	Action	Message	Duration / Fetch
293	21:49:47	use peslug20cs634_lms	0 row(s) affected	0.000 sec
294	21:49:47	select count(*) from publishes LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec
295	21:50:54	use peslug20cs634_lms	0 row(s) affected	0.000 sec
296	21:50:54	select * from authors PARTITION (p0) LIMIT 0, 1000	100 row(s) returned	0.000 sec / 0.000 sec
297	21:54:57	use peslug20cs634_lms	0 row(s) affected	0.000 sec
298	21:54:57	select a.*, b.* FROM authors PARTITION (p1) a JOIN books b ON a.author_id = b.book_id WHERE a.first_na...	100 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

Filter objects

SCHEMAS

amitdb

demochat

peslug20cs634\_lms

Tables

authors

books

customers

loans

publishes

Views

Stored Procedures

insert\_authors

insert\_books

insert\_customers

insert\_loans

insert\_publishes

Functions

sys

Query 1: library

```

1 use peslug20cs634_lms;
2 select a.*, b.*
3 FROM authors PARTITION (p1) a
4 JOIN books b ON a.author_id = b.book_id
5 WHERE a.first_name = a.last_name;

```

Result Grid

author_id	first_name	last_name	email	birth_year	book_id	title	isbn	edition
187	187	187	author187@example.com	2157	187	187	978-3-16-187	187
188	188	188	author188@example.com	2158	188	188	978-3-16-188	188
189	189	189	author189@example.com	2159	189	189	978-3-16-189	189
190	190	190	author190@example.com	2160	190	190	978-3-16-190	190
191	191	191	author191@example.com	2161	191	191	978-3-16-191	191
192	192	192	author192@example.com	2162	192	192	978-3-16-192	192
193	193	193	author193@example.com	2163	193	193	978-3-16-193	193
194	194	194	author194@example.com	2164	194	194	978-3-16-194	194
195	195	195	author195@example.com	2165	195	195	978-3-16-195	195
196	196	196	author196@example.com	2166	196	196	978-3-16-196	196
197	197	197	author197@example.com	2167	197	197	978-3-16-197	197
198	198	198	author198@example.com	2168	198	198	978-3-16-198	198
199	199	199	author199@example.com	2169	199	199	978-3-16-199	199

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Administration Schemas

Information

Schema: peslug20cs634\_lms

Output

Action Output

#	Time	Action	Message	Duration / Fetch
293	21:49:47	use peslug20cs634_lms	0 row(s) affected	0.000 sec
294	21:49:47	select count(*) from publishers LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec
295	21:50:54	use peslug20cs634_lms	0 row(s) affected	0.000 sec
296	21:50:54	select * from authors PARTITION (p1) LIMIT 0, 1000	100 row(s) returned	0.000 sec / 0.000 sec
297	21:54:57	use peslug20cs634_lms	0 row(s) affected	0.000 sec
298	21:54:57	select a.*, b.* FROM authors PARTITION (p1) a JOIN books b ON a.author_id = b.book_id WHERE a.first_na...	100 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Type here to search

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21:55

26-04-2023

### 3) Third Query: Query that combines the rows from two partitions(p2, p3).

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

Filter objects

SCHEMAS

amitdb

demochat

peslug20cs634\_lms

Tables

authors

books

customers

loans

publishes

Views

Stored Procedures

insert\_authors

insert\_books

insert\_customers

insert\_loans

insert\_publishes

Functions

sys

Query 1: library

```

1 use peslug20cs634_lms;
2 select a.first_name, a.last_name, COUNT(b.book_id) AS num_books
3 FROM authors PARTITION (p2,p3) a
4 JOIN books b ON a.author_id = b.book_id
5 GROUP BY a.first_name, a.last_name;

```

Result Grid

first_name	last_name	num_books
200	200	1
201	201	1
202	202	1
203	203	1
204	204	1
205	205	1
206	206	1
207	207	1
208	208	1
209	209	1
210	210	1
211	211	1
212	212	1
213	213	1

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Administration Schemas

Information

Schema: peslug20cs634\_lms

Output

Action Output

#	Time	Action	Message	Duration / Fetch
294	21:49:47	select count(*) from publishers LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec
295	21:50:54	use peslug20cs634_lms	0 row(s) affected	0.000 sec
296	21:50:54	select * from authors PARTITION (p0) LIMIT 0, 1000	100 row(s) returned	0.000 sec / 0.000 sec
297	21:54:57	use peslug20cs634_lms	0 row(s) affected	0.000 sec
298	21:54:57	select a.*, b.* FROM authors PARTITION (p1) a JOIN books b ON a.author_id = b.book_id WHERE a.first_na...	100 row(s) returned	0.000 sec / 0.000 sec
299	21:57:57	use peslug20cs634_lms	0 row(s) affected	0.000 sec
300	21:57:57	select a.first_name, a.last_name, COUNT(b.book_id) AS num_books FROM authors PARTITION (p2,p3) a JOI...	200 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Type here to search

33°C

21:58

26-04-2023

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

Filter objects

SCHEMAS

amitdb

demochat

peslug20cs634\_lms

Tables

authors

books

customers

loans

publishes

Views

Stored Procedures

insert\_authors

insert\_books

insert\_customers

insert\_loans

insert\_publishes

Functions

sys

Query 1

```

1 use peslug20cs634_lms;
2 select a.first_name, a.last_name, COUNT(b.book_id) AS num_books
3 FROM authors PARTITION (p2,p3) a
4 JOIN books b ON a.author_id = b.book_id
5 GROUP BY a.first_name, a.last_name;

```

Result Grid

first_name	last_name	num_books
387	387	1
388	388	1
389	389	1
390	390	1
391	391	1
392	392	1
393	393	1
394	394	1
395	395	1
396	396	1
397	397	1
398	398	1
399	399	1

Administration Schemas

Schema: peslug20cs634\_lms

Output

Action Output

#	Time	Action	Message	Duration / Fetch
254	21:49:47	select count(*) from publishers LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec
255	21:50:54	use peslug20cs634_lms	0 row(s) affected	0.000 sec
256	21:50:54	select * from authors PARTITION (p2) LIMIT 0, 1000	100 row(s) returned	0.000 sec / 0.000 sec
257	21:54:57	use peslug20cs634_lms	0 row(s) affected	0.000 sec
258	21:54:57	select a, b * FROM authors PARTITION (p1) a JOIN books b ON a.author_id = b.book_id WHERE a.first_na...	100 row(s) returned	0.000 sec / 0.000 sec
259	21:57:57	use peslug20cs634_lms	0 row(s) affected	0.000 sec
300	21:57:57	select a.first_name, a.last_name, COUNT(b.book_id) AS num_books FROM authors PARTITION (p2,p3) a JOI...	200 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Type here to search

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21:58

26-04-2023

#### 4) Fourth Query: Combination of authors and books where birth\_year > 1990

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

Filter objects

SCHEMAS

amitdb

demochat

peslug20cs634\_lms

Tables

authors

books

customers

loans

publishes

Views

Stored Procedures

insert\_authors

insert\_books

insert\_customers

insert\_loans

insert\_publishes

Functions

sys

Query 1

```

1 use peslug20cs634_lms;
2 select a.first_name, a.last_name, b.title
3 FROM authors PARTITION (p4) a
4 JOIN books b ON a.author_id = b.book_id
5 WHERE a.birth_year > 1990;

```

Result Grid

first_name	last_name	title
400	400	400
401	401	401
402	402	402
403	403	403
404	404	404
405	405	405
406	406	406
407	407	407
408	408	408
409	409	409
410	410	410
411	411	411
412	412	412
413	413	413

Administration Schemas

Schema: peslug20cs634\_lms

Output

Action Output

#	Time	Action	Message	Duration / Fetch
256	21:50:54	select * from authors PARTITION (p2) LIMIT 0, 1000	100 row(s) returned	0.000 sec / 0.000 sec
257	21:54:57	use peslug20cs634_lms	0 row(s) affected	0.000 sec
258	21:54:57	select a, b * FROM authors PARTITION (p1) a JOIN books b ON a.author_id = b.book_id WHERE a.first_na...	100 row(s) returned	0.000 sec / 0.000 sec
259	21:57:57	use peslug20cs634_lms	0 row(s) affected	0.000 sec
300	21:57:57	select a.first_name, a.last_name, COUNT(b.book_id) AS num_books FROM authors PARTITION (p2,p3) a JOI...	200 row(s) returned	0.000 sec / 0.000 sec
301	21:59:32	use peslug20cs634_lms	0 row(s) affected	0.000 sec
302	21:59:32	select a.first_name, a.last_name, b.title FROM authors PARTITION (p4) a JOIN books b ON a.author_id = b bo...	100 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Type here to search

33°C

21:59

26-04-2023



MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHMAS

Filter objects

amitdb  
demochat  
peslug20cs634\_lms

Tables

authors  
books  
customers  
loans  
publishes

Views

Stored Procedures

insert\_authors  
insert\_books  
insert\_customers  
insert\_loans  
insert\_publishes

Functions

sys

Query 1 - library

```

1 use peslug20cs634_lms;
2 select a.first_name, a.last_name, b.title
3 FROM authors PARTITION (p4) a
4 JOIN books b ON a.author_id = b.book_id
5 WHERE a.birth_year > 1990;

```

Result Grid

first_name	last_name	title
487	487	487
488	488	488
489	489	489
490	490	490
491	491	491
492	492	492
493	493	493
494	494	494
495	495	495
496	496	496
497	497	497
498	498	498
499	499	499

Result 88 x

Output

Schema: peslug20cs634\_lms

Object Info Session

Action Output

#	Time	Action	Message	Duration / Fetch
296	21:50:54	select * from authors PARTITION (p0) LIMIT 0, 1000	100 row(s) returned	0.000 sec / 0.000 sec
297	21:54:57	use peslug20cs634_lms	0 row(s) affected	0.000 sec
298	21:54:57	select a.* FROM authors PARTITION (p1) a JOIN books b ON a.author_id = b.book_id WHERE a.first_na...	100 row(s) returned	0.000 sec / 0.000 sec
299	21:57:57	use peslug20cs634_lms	0 row(s) affected	0.000 sec
300	21:57:57	select a.first_name, a.last_name, COUNT(b.book_id) AS num_books FROM authors PARTITION (p2,p3) a JOI...	200 row(s) returned	0.000 sec / 0.000 sec
301	21:59:32	use peslug20cs634_lms	0 row(s) affected	0.000 sec
302	21:59:32	select a.first_name, a.last_name, b.title FROM authors PARTITION (p4) a JOIN books b ON a.author_id = b bo...	100 row(s) returned	0.000 sec / 0.000 sec

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Read Only Context Help Snippets

Type here to search

33°C

21:59

26-04-2023

## 5) Fifth Query: Combination of authors and loans.

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHMAS

Filter objects

amitdb  
demochat  
peslug20cs634\_lms

Tables

authors  
books  
customers  
loans  
publishes

Views

Stored Procedures

insert\_authors  
insert\_books  
insert\_customers  
insert\_loans  
insert\_publishes

Functions

sys

Query 1 - library

```

1 use peslug20cs634_lms;
2 select a.* FROM authors a
3 JOIN loans l ON a.author_id = l.book_id
4 WHERE a.birth_year < 1990;

```

Result Grid

author_id	first_name	last_name	email	birth_year
1	1	1	author1@example.com	1971
2	2	2	author2@example.com	1972
3	3	3	author3@example.com	1973
4	4	4	author4@example.com	1974
5	5	5	author5@example.com	1975
6	6	6	author6@example.com	1976
7	7	7	author7@example.com	1977
8	8	8	author8@example.com	1978
9	9	9	author9@example.com	1979
10	10	10	author10@example.com	1980
11	11	11	author11@example.com	1981
12	12	12	author12@example.com	1982
13	13	13	author13@example.com	1983
14	14	14	author14@example.com	1984

Result 89 x

Output

Schema: peslug20cs634\_lms

Object Info Session

Action Output

#	Time	Action	Message	Duration / Fetch
298	21:54:57	select a.* FROM authors PARTITION (p1) a JOIN books b ON a.author_id = b.book_id WHERE a.first_na...	100 row(s) returned	0.000 sec / 0.000 sec
299	21:57:57	use peslug20cs634_lms	0 row(s) affected	0.000 sec
300	21:57:57	select a.first_name, a.last_name, COUNT(b.book_id) AS num_books FROM authors PARTITION (p2,p3) a JOI...	200 row(s) returned	0.000 sec / 0.000 sec
301	21:59:32	use peslug20cs634_lms	0 row(s) affected	0.000 sec
302	21:59:32	select a.first_name, a.last_name, b.title FROM authors PARTITION (p4) a JOIN books b ON a.author_id = b bo...	100 row(s) returned	0.000 sec / 0.000 sec
303	22:01:01	use peslug20cs634_lms	0 row(s) affected	0.000 sec
304	22:01:01	select a.* FROM authors a JOIN loans l ON a.author_id = l.book_id WHERE a.birth_year < 1990 LIMIT 0, 1000	19 row(s) returned	0.000 sec / 0.000 sec

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Read Only Context Help Snippets

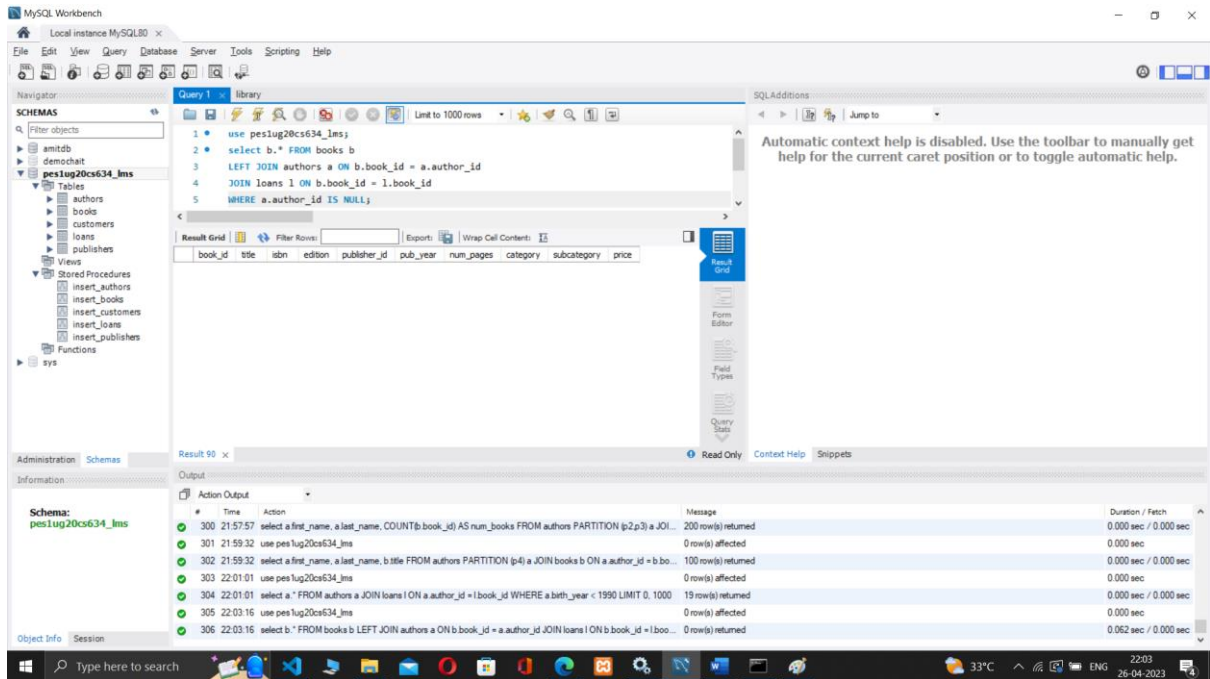
Type here to search

33°C

22:01

26-04-2023

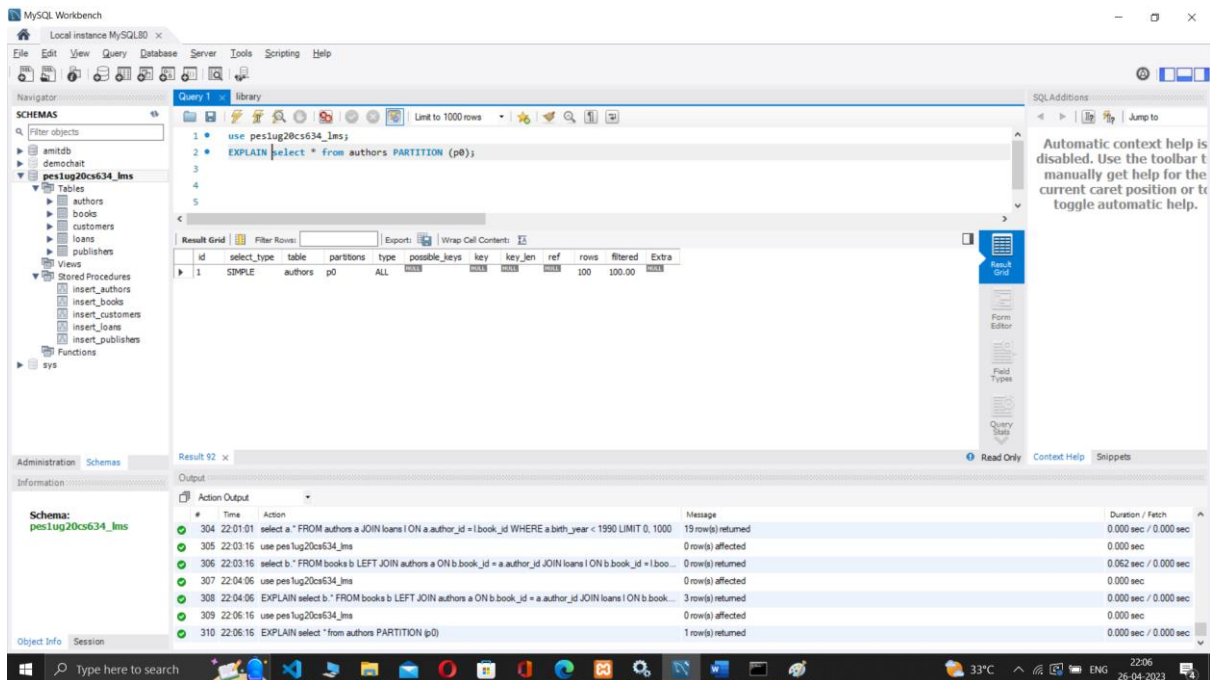
## 6) Sixth Query : - Combination of books, authors and loans.



(c) The Explain/Analyze plan outputs must be part of the submission in addition to query results.

Executing Analyze/Explain plans on all the previous queries.

1)



2)

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

amitdb

demochat

peslug20cs634\_lms

Tables

authors

books

customers

loans

publishes

Views

Stored Procedures

insert\_authors

insert\_books

insert\_customers

insert\_loans

insert\_publishes

Functions

sys

Query 1 x library

Limit to 1000 rows

```

1 use peslug20cs634_lms;
2 EXPLAIN select a.*,b.*
3 FROM authors partition (p1) a
4 JOIN books b ON a.author_id = b.book_id
5 WHERE a.first_name=a.last_name;

```

Result Grid

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	a	p1	ALL	PRIMARY				100	100.00	Using where
1	SIMPLE	b		eq_ref	PRIMARY	PRIMARY	4	peslug20cs634_lms.a.author_id	1	100.00	

Result 93 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
306	22:03:16	use peslug20cs634_lms	0 row(s) returned	0.062 sec / 0.000 sec
307	22:04:06	use peslug20cs634_lms	0 row(s) affected	0.000 sec
308	22:04:06	EXPLAIN select b.* FROM books b LEFT JOIN authors a ON b.book_id = a.author_id JOIN loans l ON b.book_id = l.book_id	3 row(s) returned	0.000 sec / 0.000 sec
309	22:06:16	use peslug20cs634_lms	0 row(s) affected	0.000 sec
310	22:06:16	EXPLAIN select * from authors PARTITION (p0)	1 row(s) returned	0.000 sec / 0.000 sec
311	22:08:15	use peslug20cs634_lms	0 row(s) affected	0.000 sec
312	22:08:15	EXPLAIN select a.* FROM authors partition (p1) a JOIN books b ON a.author_id = b.book_id WHERE a.first_name=a.last_name	2 row(s) returned	0.016 sec / 0.000 sec

Object Info Session

Schema: peslug20cs634\_lms

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

3)

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

amitdb

demochat

peslug20cs634\_lms

Tables

authors

books

customers

loans

publishes

Views

Stored Procedures

insert\_authors

insert\_books

insert\_customers

insert\_loans

insert\_publishes

Functions

sys

Query 1 x library

Limit to 1000 rows

```

1 use peslug20cs634_lms;
2 EXPLAIN select a.first_name,a.last_name, COUNT(b.book_id) AS num_books
3 FROM authors partition (p2,p3) a
4 JOIN books b ON a.author_id = b.book_id
5 GROUP BY a.first_name, a.last_name;

```

Result Grid

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	a	p2,p3	ALL	PRIMARY				200	100.00	Using temporary
1	SIMPLE	b		eq_ref	PRIMARY	PRIMARY	4	peslug20cs634_lms.a.author_id	1	100.00	Using index

Result 94 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
308	22:04:06	EXPLAIN select b.* FROM books b LEFT JOIN authors a ON b.book_id = a.author_id JOIN loans l ON b.book_id = l.book_id	3 row(s) returned	0.000 sec / 0.000 sec
309	22:06:16	use peslug20cs634_lms	0 row(s) affected	0.000 sec
310	22:06:16	EXPLAIN select * from authors PARTITION (p0)	1 row(s) returned	0.000 sec / 0.000 sec
312	22:08:15	use peslug20cs634_lms	0 row(s) affected	0.000 sec
313	22:09:46	use peslug20cs634_lms	0 row(s) affected	0.000 sec
314	22:09:46	EXPLAIN select a.first_name,a.last_name, COUNT(b.book_id) AS num_books FROM authors partition (p2,p3) a JOIN books b ON a.author_id = b.book_id GROUP BY a.first_name, a.last_name	2 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Schema: peslug20cs634\_lms

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

4)

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

amitdb

demochat

peslug20cs634\_lms

Tables

authors

books

customers

loans

publishes

Views

Stored Procedures

insert\_authors

insert\_books

insert\_customers

insert\_loans

insert\_publishes

Functions

sys

Query 1 library

Limit to 1000 rows

```

1 use peslug20cs634_lms;
2 EXPLAIN select a.first_name, a.last_name, b.title
3 FROM authors partition (p4) a
4 JOIN books b ON a.author_id = b.book_id
5 WHERE a.birth_year > 1990;
6

```

Result Grid

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	a	p4	ALL	PRIMARY				100	33.33	Using where
1	SIMPLE	b		eq_ref	PRIMARY	PRIMARY	4	peslug20cs634_lms.a.author_id	1	100.00	

Output

Action Output

#	Time	Action	Message	Duration / Fetch
310	22:06:16	EXPLAIN select * from authors PARTITION (p0)	1 row(s) returned	0.000 sec / 0.000 sec
311	22:08:15	use peslug20cs634_lms	0 row(s) affected	0.000 sec
312	22:08:15	EXPLAIN select a.* FROM authors partition (p1) a JOIN books b ON a.author_id = b.book_id WHERE a.firs...	2 row(s) returned	0.016 sec / 0.000 sec
313	22:09:46	use peslug20cs634_lms	0 row(s) affected	0.000 sec
314	22:09:46	EXPLAIN select a.first_name, a.last_name, COUNT(b.book_id) AS num_books FROM authors partition (p2,p3) ...	2 row(s) returned	0.000 sec / 0.000 sec
315	22:10:54	use peslug20cs634_lms	0 row(s) affected	0.000 sec
316	22:10:54	EXPLAIN select a.first_name, a.last_name, b title FROM authors partition (p4) a JOIN books b ON a.author_id = ...	2 row(s) returned	0.000 sec / 0.000 sec

Schema: peslug20cs634\_lms

Object Info Session

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

5)

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

amitdb

demochat

peslug20cs634\_lms

Tables

authors

books

customers

loans

publishes

Views

Stored Procedures

insert\_authors

insert\_books

insert\_customers

insert\_loans

insert\_publishes

Functions

sys

Query 1 library

Limit to 1000 rows

```

1 use peslug20cs634_lms;
2 EXPLAIN select a.* FROM authors a
3 JOIN loans l ON a.author_id = l.book_id
4 WHERE a.birth_year < 1990;
5
6

```

Result Grid

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	a	p0,p1,p2,p3,p4,p5,p6,p7,p8,p9	ALL	PRIMARY				9805	33.33	Using where
1	SIMPLE	l		ref	book_id	book_id	5	peslug20cs634_lms.a.author_id	1	100.00	Using index

Output

Action Output

#	Time	Action	Message	Duration / Fetch
312	22:08:15	EXPLAIN select a.* FROM authors partition (p1) a JOIN books b ON a.author_id = b.book_id WHERE a.firs...	2 row(s) returned	0.016 sec / 0.000 sec
313	22:09:46	use peslug20cs634_lms	0 row(s) affected	0.000 sec
314	22:09:46	EXPLAIN select a.first_name, a.last_name, COUNT(b.book_id) AS num_books FROM authors partition (p2,p3) ...	2 row(s) returned	0.000 sec / 0.000 sec
315	22:10:54	use peslug20cs634_lms	0 row(s) affected	0.000 sec
316	22:10:54	EXPLAIN select a.first_name, a.last_name, b title FROM authors partition (p4) a JOIN books b ON a.author_id = ...	2 row(s) returned	0.000 sec / 0.000 sec
317	22:12:39	use peslug20cs634_lms	0 row(s) affected	0.000 sec
318	22:12:39	EXPLAIN select a.* FROM authors a JOIN loans l ON a.author_id = l.book_id WHERE a birth_year < 1990	2 row(s) returned	0.000 sec / 0.000 sec

Schema: peslug20cs634\_lms

Object Info Session

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.



6)

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

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peslug20cs634\_lms

Tables

authors

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publishers

Views

Stored Procedures

insert\_authors

insert\_books

insert\_customers

insert\_loans

insert\_publishers

Functions

sys

Query 1: library

```
1 use peslug20cs634_lms;
2 EXPLAIN select b.* FROM books b
3 LEFT JOIN authors a ON b.book_id = a.author_id
4 JOIN loans l ON b.book_id = l.book_id
5 WHERE a.author_id IS NULL;
```

Result Grid

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	l		index	book_id	book_id	5		9807	100.00	Using where; Using index
1	SIMPLE	b		eq_ref	PRIMARY	PRIMARY	4	peslug20cs634_lms.l.book_id	1	100.00	
1	SIMPLE	a	p0,p1,p2,p3,p4,p5,p6,p7,p8,p9	eq_ref	PRIMARY	PRIMARY	4	peslug20cs634_lms.l.book_id	1	100.00	Using where; Not exists; Using index

Administration Schemas

Information

Schema: peslug20cs634\_lms

Output

Action Output

#	Time	Action	Message	Duration / Fetch
302	21:59:32	select a.first_name, a.last_name, b.title FROM authors PARTITION (p-4) a JOIN books b ON a.author_id = b.bo...	100 row(s) returned	0.000 sec / 0.000 sec
303	22:01:01	use peslug20cs634_lms	0 row(s) affected	0.000 sec
304	22:01:01	select a.* FROM authors a JOIN loans l ON a.author_id = l.book_id WHERE a.birth_year < 1990 LIMIT 0, 1000	19 row(s) returned	0.000 sec / 0.000 sec
305	22:03:16	use peslug20cs634_lms	0 row(s) affected	0.000 sec
306	22:03:16	select b.* FROM books b LEFT JOIN authors a ON b.book_id = a.author_id JOIN loans l ON b.book_id = l.bo...	0 row(s) returned	0.062 sec / 0.000 sec
307	22:04:06	use peslug20cs634_lms	0 row(s) affected	0.000 sec
308	22:04:06	EXPLAIN select b.* FROM books b LEFT JOIN authors a ON b.book_id = a.author_id JOIN loans l ON b.bo...	3 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

SQLAdditions

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Read Only Context Help Snippets

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26-04-2023