

ENTERING INTO MYSQL

```
mysql -u root -p
```

CREATING DATABASE

```
create database first_db;
```

Query OK, 1 row affected (0.15 sec)

```
use first_db
```

Database changed

CREATING USER

```
CREATE USER 'first_year' IDENTIFIED BY '[REDACTED]';  
ERROR 1819 (HY000): Your password does not satisfy the current policy requirements
```

```
CREATE USER 'first_year'@'localhost' IDENTIFIED BY '[REDACTED]';  
Query OK, 0 rows affected (0.87 sec)
```

```
GRANT ALL PRIVILEGES ON first_db.* TO 'first_year'@'localhost';  
Query OK, 0 rows affected (0.16 sec)
```

SWITCHING USER

```
system mysql -u first_year -p
```

Enter password:

Welcome to the MySQL monitor. Commands end with ; or \g.

Your MySQL connection id is 11

Server version: 8.0.23-0ubuntu0.20.04.1 (Ubuntu)

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

CREATING TABLES

TABLE1:

```
CREATE TABLE authors( id int primary key, name varchar(50) );  
Query OK, 0 rows affected (0.71 sec)
```

TABLE2:

```
CREATE TABLE book(id int primary key, title varchar(100), category varchar(100));  
Query OK, 0 rows affected (1.80 sec)
```

TABLE3:

```
CREATE TABLE student(id int primary key, sname varchar(100), dept varchar(100));  
Query OK, 0 rows affected (1.04 sec)
```

TABLE4:

```
CREATE TABLE writes( author_id int NOT NULL, book_id int NOT NULL, FOREIGN  
KEY(author_id) REFERENCES authors(id), FOREIGN KEY (book_id) REFERENCES  
book(id) );  
Query OK, 0 rows affected (3.86 sec)
```

CHANGED NAME OF TABLE TO write

```
mysql> RENAME TABLE writes TO `write`;  
Query OK, 0 rows affected (0.31 sec)
```

TABLE5:

```
CREATE TABLE borrow(student_id int NOT NULL, book_id int NOT NULL,  
checkout_time int, return_time int, FOREIGN KEY(student_id) REFERENCES  
student(id), FOREIGN KEY(book_id) REFERENCES book(id) );  
Query OK, 0 rows affected (0.81 sec)
```

TABLES CREATED

show tables;

```
+-----+
| Tables_in_first_db |
+-----+
| authors      |
| book         |
| borrow       |
| student      |
| writes       |
+-----+
5 rows in set (0.00 sec)
```

LOADING DATA FROM CSV FILES

```
mysql -u root -p
Enter password:
Welcome to the MySQL monitor.
```

```
mysql> SET GLOBAL local_infile=1;
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> SHOW GLOBAL VARIABLES LIKE 'local_infile';
+-----+-----+
| Variable_name | Value |
+-----+-----+
| local_infile  | ON    |
+-----+-----+
1 row in set (0.01 sec)
```

```
mysql> exit
Bye
```

```
mysql -u first_year -p --local-infile=1 first_db;
Enter password:
```

TABLE1:

LOAD DATA LOCAL INFILE '/home/ishu/IMG/SQL/authors.csv' INTO TABLE authors

-> FIELDS TERMINATED BY ','

-> LINES TERMINATED BY '\n'

-> IGNORE 1 LINES

-> (id, name);

Query OK, 11 rows affected (0.08 sec)

Records: 11 Deleted: 0 Skipped: 0 Warnings: 0

mysql> select * from authors;

id	name
1	Utkarsh Parkhi
2	Drumil Patel
3	Anshul Dutt Sharma
4	Rishi Ranjan
5	Suyash Salampur
6	Aditya Bhatnagar
7	Radhika Garg
8	Shanu Khandelwal
9	Kimaya Patil
10	Ritwik Jain
11	Nisarg Patel

11 rows in set (0.00 sec)

TABLE2:

```
mysql> LOAD DATA LOCAL INFILE '/home/ishu/IMG/SQL/books.csv'
-> INTO TABLE book
-> FIELDS TERMINATED BY ','
-> LINES TERMINATED BY '\n'
-> IGNORE 1 LINES
-> (id, title, category);
```

Query OK, 12 rows affected (0.08 sec)

Records: 12 Deleted: 0 Skipped: 0 Warnings: 0

```
mysql> select * from book;
```

id	title	category
1	Harry Patel: Order of Nothing	Fictional Comedy
2	Parkhi: Brave Bird	Inspirational
3	the monk who sold his ferrari	Inspirational
4	Nothing is more funny	Political Fiction
5	Modi: Should Resign?	Political Fiction
6	Rahul: Next Prime Minister?	Political Fiction
7	The Chemist	Crocin
8	AAP: Really for aam aadmi	Political Fiction
9	Ron Weasley: Real Hero	Fictional
10	Ben 10: Way Big	Fantasy
11	India in covid disaster	Political Fiction
12	Laughing: Cause of Death	Inspirational

12 rows in set (0.01 sec)

TABLE3:

```
mysql> LOAD DATA LOCAL INFILE '/home/ishu/IMG/SQL/students.csv'
```

```
-> INTO TABLE student
```

```
-> FIELDS TERMINATED BY ','
```

```
-> LINES TERMINATED BY '\n'
```

```
-> IGNORE 1 LINES
```

```
-> (id, sname, dept);
```

```
Query OK, 17 rows affected (0.25 sec)
```

```
Records: 17 Deleted: 0 Skipped: 0 Warnings: 0
```

```
mysql> select * from student;
```

```
+----+-----+-----+
| id | sname          | dept   |
+----+-----+-----+
| 1 | Yavnika Garg   | Electrical |
| 2 | Pritika Mishra | Physics  |
| 3 | Shreyas Dodamani | Computer |
| 4 | Shashank       | Physics  |
| 5 | Somil Jain     | Physics  |
| 6 | Sparsh Agrawal | Electrical |
| 7 | Prakhar Gupta  | Physics  |
| 8 | Mrinal Kumar   | Electrical |
| 9 | Gauransh Dingwani | Computer |
| 10 | Ayush Bansal   | Electrical |
| 11 | Prerna Kumar   | Physics  |
| 12 | Mihir Sachdeva | Computer |
| 13 | Gagan Sharma   | Computer |
| 14 | RUDRAKSH AGGARWAL | Electrical |
| 15 | Rochak Roopesh Jain | Physics  |
| 16 | Kunal Khandelwal | Computer |
| 17 | Soma Gorai     | Electrical |
+----+-----+-----+
```

```
17 rows in set (0.01 sec)
```

TABLE4:

```
mysql> LOAD DATA LOCAL INFILE '/home/ishu/IMG/SQL/borrow.csv'
```

```
-> INTO TABLE borrow
```

```
-> FIELDS TERMINATED BY ','
```

```
-> LINES TERMINATED BY '\n'
```

```
-> IGNORE 1 LINES
```

```
-> (student_id, book_id, checkout_time, return_time);
```

```
Query OK, 40 rows affected (0.34 sec)
```

```
Records: 40 Deleted: 0 Skipped: 0 Warnings: 0
```

```
mysql> SELECT * FROM borrow;
```

student_id	book_id	checkout_time	return_time
17	2	977	995
1	10	163	216
11	5	776	782
15	8	217	256
14	2	251	291
2	9	935	998
7	5	264	345
7	10	97	110
6	6	333	385
5	5	121	183
9	4	412	504
10	1	920	932
7	2	342	433
16	7	457	535
6	8	8	94
9	3	124	161
10	2	371	424
10	6	726	755
1	10	77	92
3	7	89	98
2	2	970	1040
11	8	256	264
7	3	121	164
13	2	381	389
2	5	638	646
4	2	309	327

	3		11		460		555	
	14		5		559		649	
	17		12		218		237	
	9		6		41		91	
	17		6		884		913	
	7		4		755		762	
	17		1		355		453	
	8		3		545		563	
	9		3		292		298	
	3		6		639		689	
	13		2		381		426	
	4		7		985		1033	
	12		7		394		427	
	9		3		830		886	
+-----+-----+-----+-----+								

40 rows in set (0.00 sec)

mysql> DESC borrow;

+-----+-----+-----+-----+					
Field	Type	Null	Key	Default	Extra
+-----+-----+-----+-----+					
student_id	int	NO	MUL	NULL	
book_id	int	NO	MUL	NULL	
checkout_time	int	YES		NULL	
return_time	int	YES		NULL	
+-----+-----+-----+-----+					

4 rows in set (0.00 sec)

mysql> SET FOREIGN_KEY_CHECKS = 1;

Query OK, 0 rows affected (0.00 sec)

TABLE5:

```
mysql> SET FOREIGN_KEY_CHECKS = 0;
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> desc writes;
```

Field	Type	Null	Key	Default	Extra
author_id	int	NO	MUL	NULL	
book_id	int	NO	MUL	NULL	

```
2 rows in set (0.01 sec)
```

```
mysql> LOAD DATA LOCAL INFILE '/home/ishu/IMG/SQL/write.csv'
-> INTO TABLE writes
-> FIELDS TERMINATED BY ','
-> LINES TERMINATED BY '\n'
-> IGNORE 1 LINES
-> (author_id, book_id);
```

```
Query OK, 12 rows affected (0.07 sec)
```

```
Records: 12 Deleted: 0 Skipped: 0 Warnings: 0
```

```
mysql> select * from writes;
```

author_id	book_id
1	1
1	2
2	3
2	4
1	5
2	6
2	7
3	8
5	9
6	10
6	11
4	12

12 rows in set (0.01 sec)

```
mysql> SET FOREIGN_KEY_CHECKS = 1;  
Query OK, 0 rows affected (0.00 sec)
```

QUERIES

QUERY 1:

```
mysql> SELECT DISTINCT student.sname, book.title
-> FROM borrow
-> INNER JOIN student
-> ON borrow.student_id=student.id
-> INNER JOIN book
-> ON borrow.book_id=book.id
-> WHERE student.sname='Yavnika Garg'
-> ;
```

```
+-----+-----+
| sname   | title     |
+-----+-----+
| Yavnika Garg | Ben 10: Way Big |
+-----+-----+
1 row in set (0.00 sec)
```


QUERY 2:

```
mysql> SELECT authors.name, COUNT(*)  
      -> FROM authors INNER JOIN writes  
      -> ON authors.id= writes.author_id  
      -> WHERE authors.name='Suyash Salampuria';
```

```
+-----+-----+  
| name      | COUNT(*) |  
+-----+-----+  
| Suyash Salampuria |      1 |  
+-----+-----+  
1 row in set (0.00 sec)
```

QUERY 3:

```
mysql> SELECT * FROM book ORDER BY category asc, title desc LIMIT 5;
```

id	title	category
7	The Chemist	Crocin
10	Ben 10: Way Big	Fantasy
9	Ron Weasley: Real Hero	Fictional
1	Harry Patel: Order of Nothing	Fictional Comedy
3	the monk who sold his ferrari	Inspirational

5 rows in set (0.00 sec)

QUERY 4:

```
mysql> SELECT DISTINCT student.sname FROM
-> borrow INNER JOIN student
-> ON student_id= student.id
-> INNER JOIN book
-> ON book_id = book.id
-> where book.category='Political Fiction';
```

```
+-----+
| sname          |
+-----+
| Gauransh Dingwani |
| Prakhar Gupta     |
| Prerna Kumar      |
| Somil Jain        |
| Pritika Mishra    |
| RUDRAKSH AGGARWAL |
| Sparsh Agrawal    |
| Ayush Bansal      |
| Soma Gorai        |
| Shreyas Dodamani  |
| Rochak Roopesh Jain |
+-----+
11 rows in set (0.00 sec)
```

QUERY 5:

```
mysql> SELECT DISTINCT sname from student where sname NOT IN
```

```
-> (  
-> SELECT sname from borrow  
-> INNER JOIN student  
-> ON student_id= student.id  
-> INNER JOIN `write`  
-> ON borrow.book_id=`write`.book_id  
-> INNER JOIN authors  
-> ON authors.id=`write`.author_id  
-> where  
-> authors.name='Anshul Dutt Sharma'  
-> )  
-> ;
```

```
+-----+  
| sname      |  
+-----+  
| Yavnika Garg    |  
| Pritika Mishra  |  
| Shreyas Dodamani |  
| Shashank        |  
| Somil Jain      |  
| Prakhar Gupta   |  
| Mrinal Kumar    |  
| Gauransh Dingwani |  
| Ayush Bansal    |  
| Mihir Sachdeva  |  
| Gagan Sharma    |  
| RUDRAKSH AGGARWAL |  
| Kunal Khandelwal |  
| Soma Gorai      |  
+-----+
```

```
14 rows in set (0.00 sec)
```

QUERY 6:

```
mysql> SELECT yyy.student_id FROM(  
  -> SELECT xxx.student_id, count(*) AS mycount FROM(  
  -> SELECT borrow.student_id, book.category  
  -> FROM borrow INNER JOIN book  
  -> ON book_id=book.id  
  -> GROUP BY borrow.student_id, book.category  
  -> ORDER BY student_id)xxx  
  -> GROUP BY student_id  
  -> )yyy  
  -> WHERE mycount=1;
```

AFTER CHANGING QUERY6: (yyy was alias for the derived table, I have changed it to T1, T2 and removed extra usage of yyy, xxx from the query)

```
SELECT student_id FROM(  
  SELECT student_id, count(*) AS mycount FROM(  
    SELECT borrow.student_id, book.category  
    FROM borrow INNER JOIN book  
    ON book_id=book.id  
    GROUP BY borrow.student_id, book.category  
    ORDER BY student_id) AS T2  
  GROUP BY student_id  
) AS T1  
WHERE mycount=1;
```

```
mysql> SELECT student_id FROM(
-> SELECT student_id, count(*) AS mycount FROM(
-> SELECT borrow.student_id, book.category
-> FROM borrow INNER JOIN book
-> ON book_id=book.id
-> GROUP BY borrow.student_id, book.category
-> ORDER BY student_id) AS T2
-> GROUP BY student_id
-> ) AS T1
-> WHERE mycount=1;
```

student_id
1
5
6
8
11
12
13
15
16

9 rows in set (0.00 sec)

QUERY 7:

```
mysql> SELECT xxx.category FROM(
-> SELECT count(*) AS mycount, category
-> FROM book GROUP BY category
-> )xxx
-> WHERE mycount>=2
-> ;
```

```
+-----+
| category |
+-----+
| Inspirational |
| Political Fiction |
+-----+
```

2 rows in set (0.00 sec)

AFTER SIMPLIFYING:

```
mysql> SELECT count(*) AS mycount, category
-> FROM book GROUP BY category
-> HAVING count(*)>=2;
```

```
+-----+-----+
| mycount | category |
+-----+-----+
| 3 | Inspirational |
| 5 | Political Fiction |
+-----+-----+
```

2 rows in set (0.01 sec)

QUERY 8:

```
mysql> SELECT sname from student
-> WHERE id NOT IN(
-> SELECT student_id FROM borrow
-> );
Empty set (0.00 sec)
```

WITHOUT NESTED QUERIES:

```
mysql> SELECT sname
-> FROM student
-> LEFT JOIN borrow ON borrow.student_id = student.id
-> WHERE book_id IS NULL;
Empty set (0.11 sec)
```


QUERY 9:

```
mysql> SELECT book.title, student.id, student.sname
-> FROM
-> (
-> SELECT b.student_id, b.book_id, b.checkout_time FROM borrow b INNER JOIN (
-> SELECT student_id, min(checkout_time) AS checkout from borrow group by
student_id
-> )xxx
-> ON
-> b.student_id=xxx.student_id AND b.checkout_time=xxx.checkout
->
-> )yyy
-> INNER JOIN book
-> ON yyy.book_id=book.id
-> INNER JOIN student
-> ON yyy.student_id= student.id;
```

title	id	sname
Ben 10: Way Big	1	Yavnika Garg
Modi: Should Resign?	2	Pritika Mishra
The Chemist	3	Shreyas Dodamani
Parkhi: Brave Bird	4	Shashank
Modi: Should Resign?	5	Somil Jain
AAP: Really for aam aadmi	6	Sparsh Agrawal
Ben 10: Way Big	7	Prakhar Gupta
the monk who sold his ferrari	8	Mrinal Kumar
Rahul: Next Prime Minister?	9	Gauransh Dingwani
Parkhi: Brave Bird	10	Ayush Bansal
AAP: Really for aam aadmi	11	Prerna Kumar
The Chemist	12	Mihir Sachdeva
Parkhi: Brave Bird	13	Gagan Sharma
Parkhi: Brave Bird	13	Gagan Sharma
Parkhi: Brave Bird	14	RUDRAKSH AGGARWAL
AAP: Really for aam aadmi	15	Rochak Roopesh Jain
The Chemist	16	Kunal Khandelwal
Laughing: Cause of Death	17	Soma Gorai

+-----+-----+

18 rows in set (0.01 sec)

QUERY 9:

```
mysql> SELECT book.title, student.id, student.sname
-> FROM
-> (
-> SELECT b.student_id, b.book_id, b.checkout_time FROM borrow b INNER JOIN (
-> SELECT student_id, min(checkout_time) AS checkout from borrow group by student_id
-> )xxx
-> ON
-> b.student_id=xxx.student_id AND b.checkout_time=xxx.checkout
-> )yyy
-> INNER JOIN book
-> ON yyy.book_id=book.id
-> INNER JOIN student
-> ON yyy.student_id= student.id;
```

title	id	sname
Ben 10: Way Big	1	Yavnika Garg
Modi: Should Resign?	2	Pritika Mishra
The Chemist	3	Shreyas Dodamani
Parkhi: Brave Bird	4	Shashank
Modi: Should Resign?	5	Somil Jain
AAP: Really for aam aadmi	6	Sparsh Agrawal
Ben 10: Way Big	7	Prakhar Gupta
the monk who sold his ferrari	8	Mrinal Kumar
Rahul: Next Prime Minister?	9	Gauransh Dingwani
Parkhi: Brave Bird	10	Ayush Bansal
AAP: Really for aam aadmi	11	Prerna Kumar
The Chemist	12	Mihir Sachdeva
Parkhi: Brave Bird	13	Gagan Sharma
Parkhi: Brave Bird	13	Gagan Sharma
Parkhi: Brave Bird	14	RUDRAKSH AGGARWAL
AAP: Really for aam aadmi	15	Rochak Roopesh Jain
The Chemist	16	Kunal Khandelwal
Laughing: Cause of Death	17	Soma Gorai

QUERY 10:

```
SELECT category FROM(
  -> SELECT category, count(*) AS mycount
  -> FROM book
  -> INNER JOIN
  -> (
  -> SELECT book_id
  -> FROM borrow
  -> WHERE student_id IN (SELECT id from student WHERE sname="Mrinal Kumar")
  -> )T1
  -> ON T1.book_id=book.id
  -> GROUP BY category
  -> )T2
  -> WHERE mycount=(
  -> SELECT MAX(mycount) FROM(
  -> SELECT category, count(*) AS mycount
  -> FROM book
  -> INNER JOIN
  -> (
  -> SELECT book_id
  -> FROM borrow
  -> WHERE student_id IN (SELECT id from student WHERE sname="Mrinal Kumar")
  -> )T3
  -> ON T3.book_id=book.id
  -> GROUP BY category
  -> )T4
  -> );
```

```
+-----+
| category |
+-----+
| Inspirational |
+-----+
```

1 row in set (0.00 sec)

QUERY 10:

```
mysql> SELECT category FROM(
->
-> SELECT category, count(*) AS mycount
-> FROM book
-> INNER JOIN
-> (
-> SELECT book_id
-> FROM borrow
-> WHERE student_id IN (SELECT id from student WHERE sname="Mrinal Kumar")
-> )T1
-> ON T1.book_id=book.id
-> GROUP BY category
->
-> )T2
->
-> WHERE mycount=(
-> SELECT MAX(mycount) FROM(
-> SELECT category, count(*) AS mycount
-> FROM book
-> INNER JOIN
-> (
-> SELECT book_id
-> FROM borrow
-> WHERE student_id IN (SELECT id from student WHERE sname="Mrinal Kumar")
-> )T3
-> ON T3.book_id=book.id
-> GROUP BY category
->
-> )T4
-> );
+-----+
| category      |
+-----+
| Inspirational |
+-----+
```

QUERY 11:

```
mysql> SELECT DISTINCT book.title, book.id
-> FROM borrow
-> INNER JOIN student
-> ON borrow.student_id=student.id
-> INNER JOIN book
-> ON borrow.book_id=book.id
-> WHERE
-> student.dept='physics';
```

```
+-----+-----+
| title                | id |
+-----+-----+
| Ron Weasley: Real Hero      | 9 |
| Parkhi: Brave Bird         | 2 |
| Modi: Should Resign?       | 5 |
| The Chemist                 | 7 |
| Ben 10: Way Big             | 10 |
| the monk who sold his ferrari | 3 |
| Nothing is more funny       | 4 |
| AAP: Really for aam aadmi   | 8 |
+-----+-----+
```

8 rows in set (0.00 sec)