SQL

1. Consider the following table **SHOP**. Write SQL commands for the questions (i) to (v).

Item_No	Item_Name	Price	Qty	Total
1021	Hamam	24	2	48
987	Colgate	10	2	10
3623	Surf	52	1	52
277	Shampoo	2	5	10
4855	Face wash	57	1	57

i. To display all the items whose Price is greater than 50.

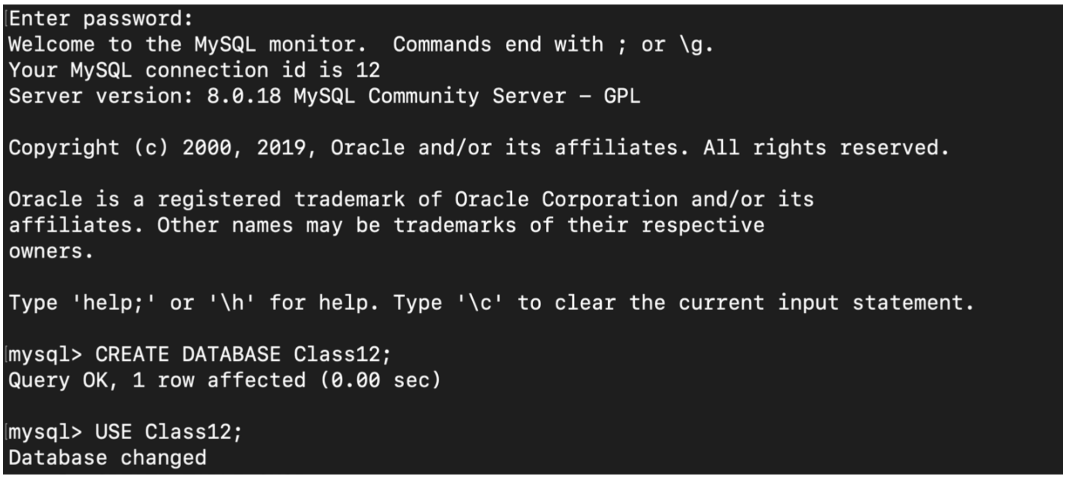
ii. To increase the Total of Item_No 987 as 20 (Price*Qty).

iii. To list all the Item_Name and Qty in ascending order of Item_No whose Qty is less than 3.

iv. To add an extra column Discount which accepts decimal numbers.

v. To delete the column(s) whose quantity is 1.

OUTPUT:



```
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 12
Server version: 8.0.18 MySQL Community Server - GPL

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owners.

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

mysql> CREATE DATABASE Class12;
Query OK, 1 row affected (0.00 sec)

mysql> USE Class12;
Database changed
```
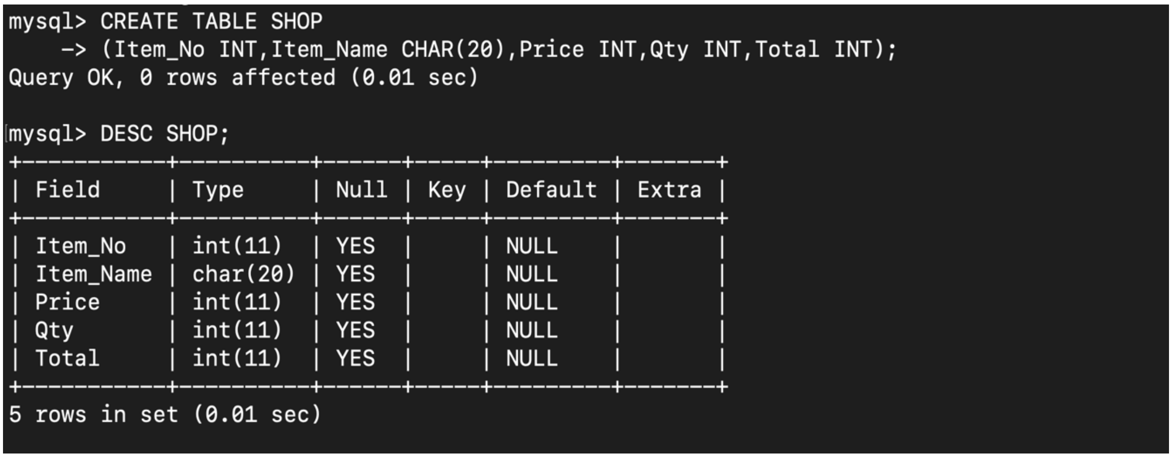
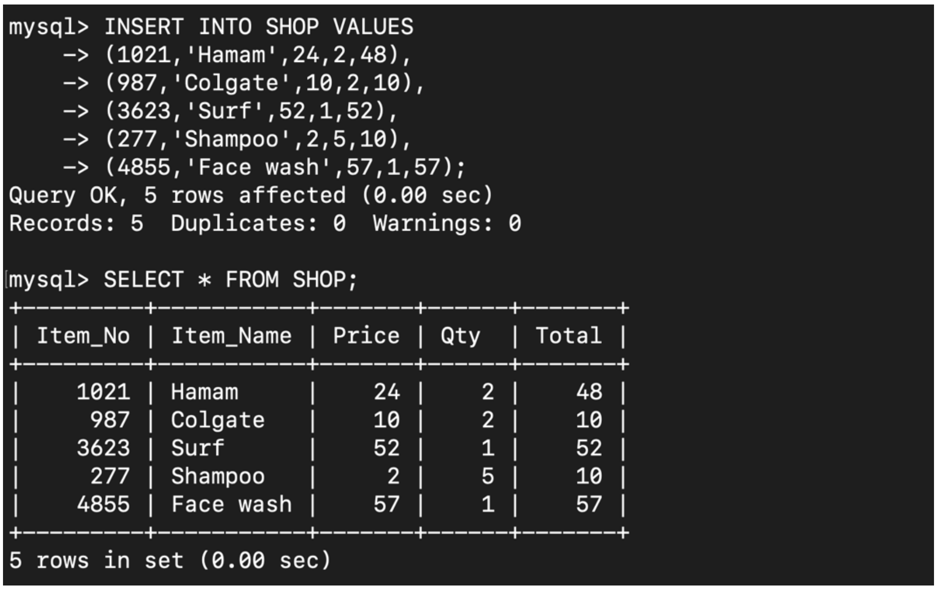
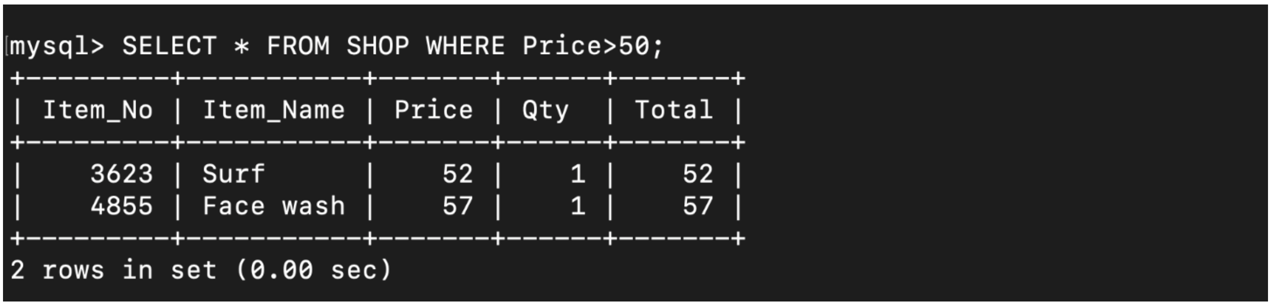



```
mysql> CREATE TABLE SHOP
    -> (Item_No INT,Item_Name CHAR(20),Price INT,Qty INT,Total INT);
Query OK, 0 rows affected (0.01 sec)

mysql> DESC SHOP;
+-----------+----------+------+-----+---------+-------+
| Field     | Type     | Null | Key | Default | Extra |
+-----------+----------+------+-----+---------+-------+
| Item_No   | int(11)  | YES  |     | NULL    |       |
| Item_Name | char(20) | YES  |     | NULL    |       |
| Price     | int(11)  | YES  |     | NULL    |       |
| Qty       | int(11)  | YES  |     | NULL    |       |
| Total     | int(11)  | YES  |     | NULL    |       |
+-----------+----------+------+-----+---------+-------+
5 rows in set (0.01 sec)
```



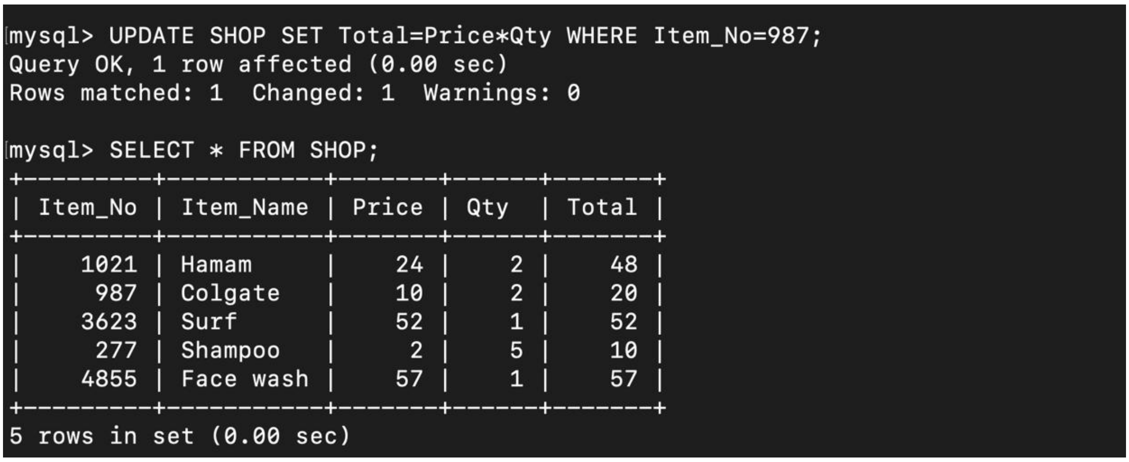
```
mysql> INSERT INTO SHOP VALUES
    -> (1021,'Hamam',24,2,48),
    -> (987,'Colgate',10,2,10),
    -> (3623,'Surf',52,1,52),
    -> (277,'Shampoo',2,5,10),
    -> (4855,'Face wash',57,1,57);
Query OK, 5 rows affected (0.00 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM SHOP;
+---------+-----------+-------+------+-------+
| Item_No | Item_Name | Price | Qty  | Total |
+---------+-----------+-------+------+-------+
|    1021 | Hamam     |    24 |    2 |    48 |
|     987 | Colgate   |    10 |    2 |    10 |
|    3623 | Surf      |    52 |    1 |    52 |
|     277 | Shampoo   |     2 |    5 |    10 |
|    4855 | Face wash |    57 |    1 |    57 |
+---------+-----------+-------+------+-------+
5 rows in set (0.00 sec)
```

i. To display all the items whose Price is greater than 50.



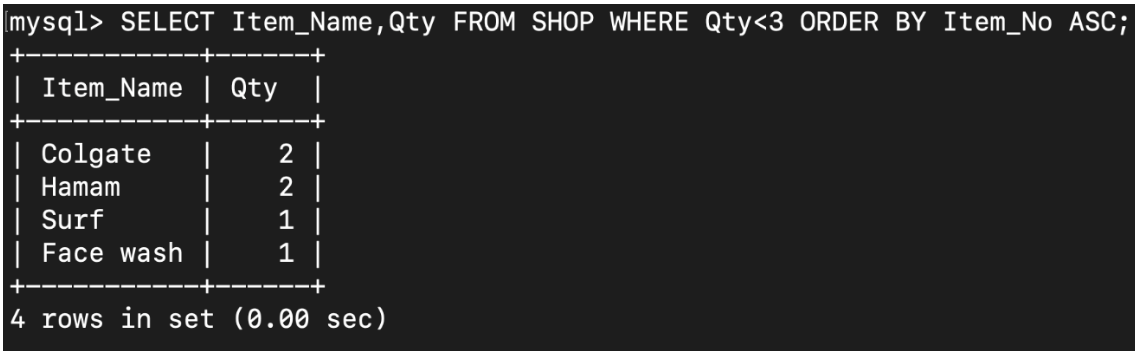
```
mysql> SELECT * FROM SHOP WHERE Price>50;
+---------+-----------+-------+------+-------+
| Item_No | Item_Name | Price | Qty  | Total |
+---------+-----------+-------+------+-------+
|    3623 | Surf      |    52 |    1 |    52 |
|    4855 | Face wash |    57 |    1 |    57 |
+---------+-----------+-------+------+-------+
2 rows in set (0.00 sec)
```

ii. To increase the Total of Item_No 987 as 20 (Price*Qty).



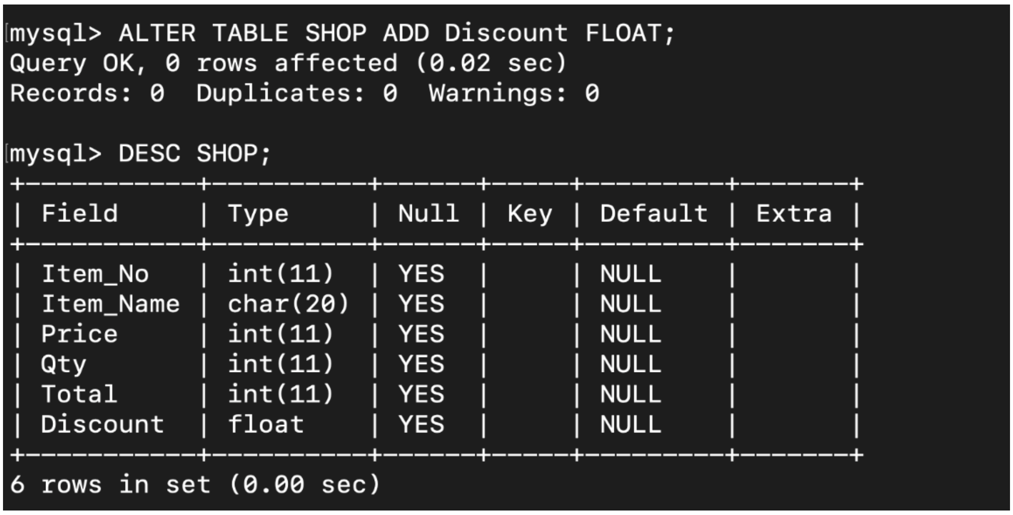
```
mysql> UPDATE SHOP SET Total=Price*Qty WHERE Item_No=987;
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM SHOP;
+---------+-----------+-------+------+-------+
| Item_No | Item_Name | Price | Qty  | Total |
+---------+-----------+-------+------+-------+
|    1021 | Hamam     |    24 |    2 |    48 |
|     987 | Colgate   |    10 |    2 |    20 |
|    3623 | Surf      |    52 |    1 |    52 |
|     277 | Shampoo   |     2 |    5 |    10 |
|    4855 | Face wash |    57 |    1 |    57 |
+---------+-----------+-------+------+-------+
5 rows in set (0.00 sec)
```

iii. To list all the Item_Name and Qty in ascending order of Item_No whose Qty is less than 3.



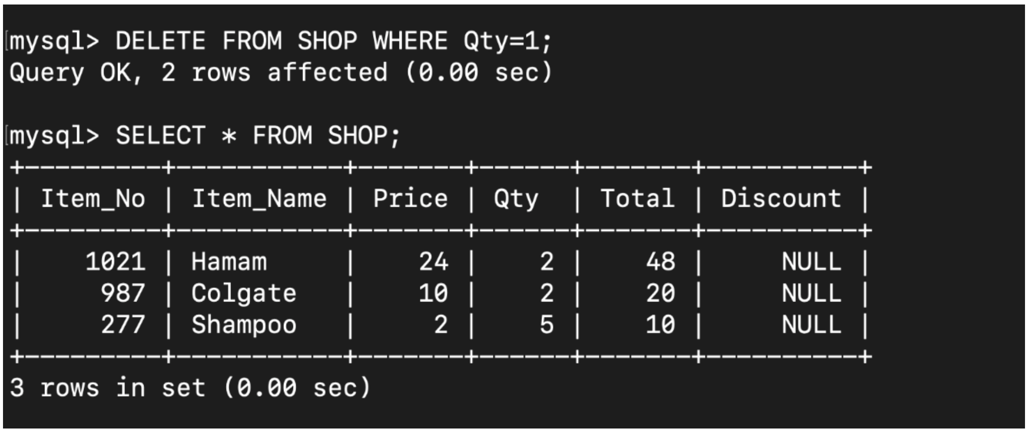
```
mysql> SELECT Item_Name,Qty FROM SHOP WHERE Qty<3 ORDER BY Item_No ASC;
+-----------+------+
| Item_Name | Qty  |
+-----------+------+
| Colgate   |    2 |
| Hamam     |    2 |
| Surf      |    1 |
| Face wash |    1 |
+-----------+------+
4 rows in set (0.00 sec)
```

iv. To add an extra column Discount which accepts decimal numbers.



```
mysql> ALTER TABLE SHOP ADD Discount FLOAT;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC SHOP;
+-----------+----------+------+-----+---------+-------+
| Field     | Type     | Null | Key | Default | Extra |
+-----------+----------+------+-----+---------+-------+
| Item_No   | int(11)  | YES  |     | NULL    |       |
| Item_Name | char(20) | YES  |     | NULL    |       |
| Price     | int(11)  | YES  |     | NULL    |       |
| Qty       | int(11)  | YES  |     | NULL    |       |
| Total     | int(11)  | YES  |     | NULL    |       |
| Discount  | float    | YES  |     | NULL    |       |
+-----------+----------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

v. To delete the column(s) whose quantity is 1.



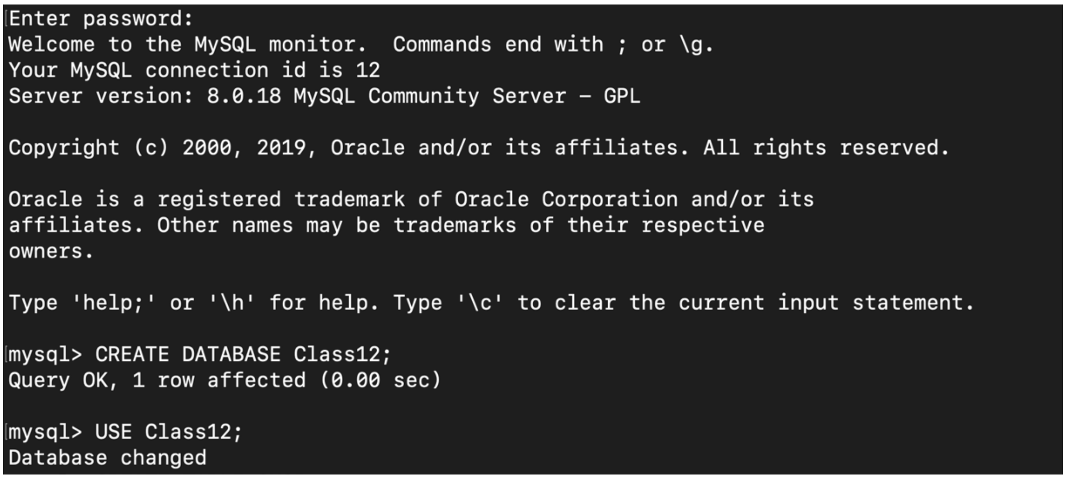
```
mysql> DELETE FROM SHOP WHERE Qty=1;
Query OK, 2 rows affected (0.00 sec)

mysql> SELECT * FROM SHOP;
+---------+-----------+-------+------+-------+----------+
| Item_No | Item_Name | Price | Qty  | Total | Discount |
+---------+-----------+-------+------+-------+----------+
|    1021 | Hamam     |    24 |    2 |    48 |     NULL |
|     987 | Colgate   |    10 |    2 |    20 |     NULL |
|     277 | Shampoo   |     2 |    5 |    10 |     NULL |
+---------+-----------+-------+------+-------+----------+
3 rows in set (0.00 sec)
```

2. Consider the following table **EMPLOYEE**. Write SQL commands for the questions (i) to (v).

Eid	Ename	Qual	Gender	Salary
901	Kumar	BE	M	12000
201	Louie	MCA	M	30500
110	Varshini	BTech	F	13025
718	Drishya	MCA	F	11600
120	Nissi Ann	MCA	F	19000

i. To display Eid and Ename whose Qual is MCA.
ii. To list the employees in descending order of their Salary.
iii. To display the count of the employees according to their Gender.
iv. To find out the minimum Salary and maximum Salary of the employees.
v. To delete the records whose Salary is above 15000.

OUTPUT:



```
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 12
Server version: 8.0.18 MySQL Community Server - GPL

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mysql> CREATE DATABASE Class12;
Query OK, 1 row affected (0.00 sec)

mysql> USE Class12;
Database changed
```
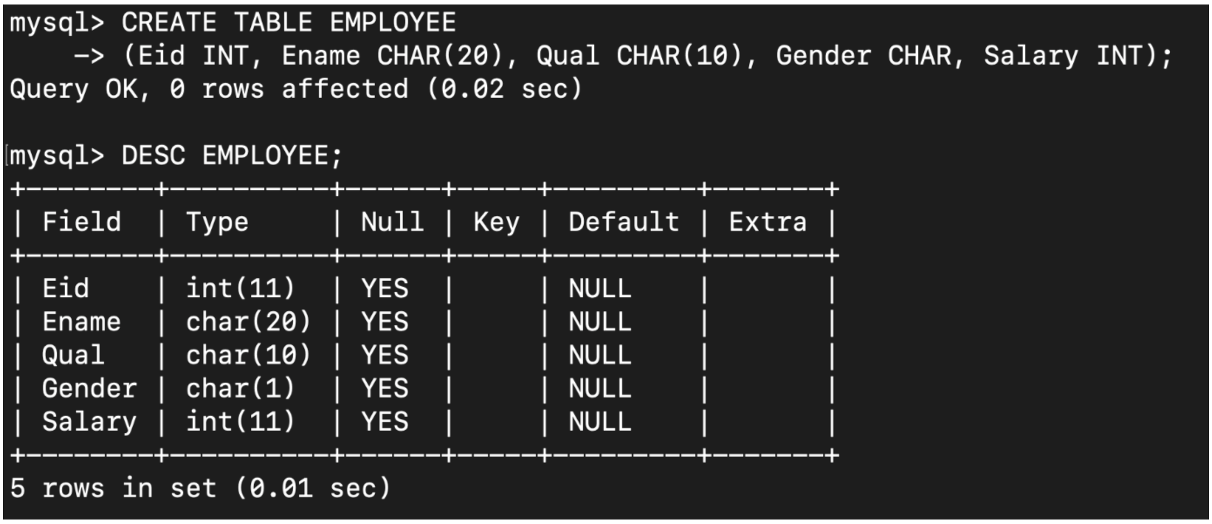
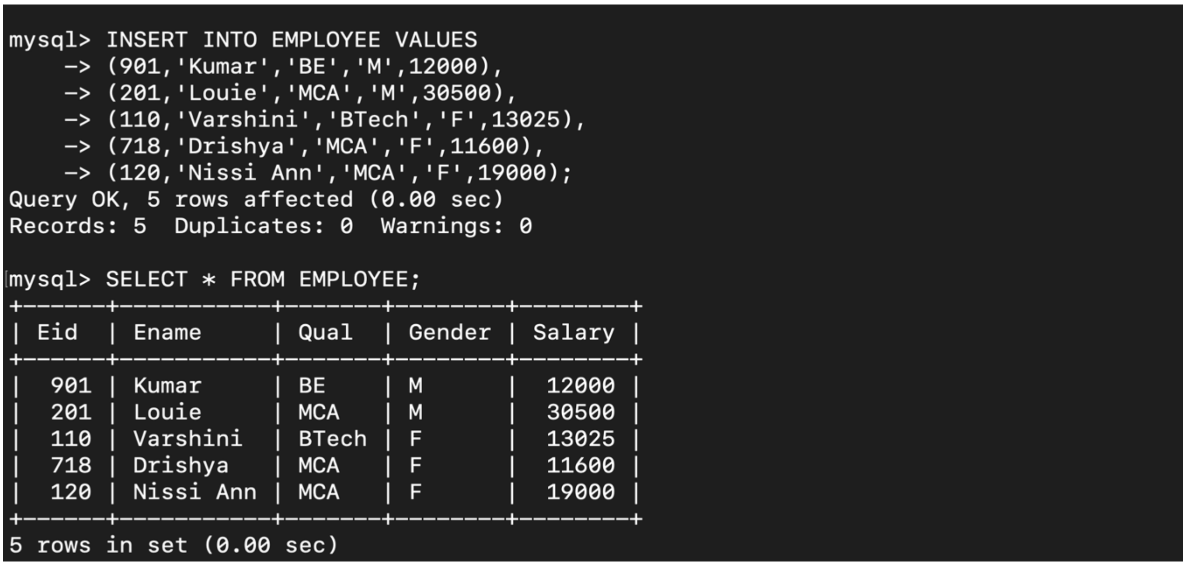
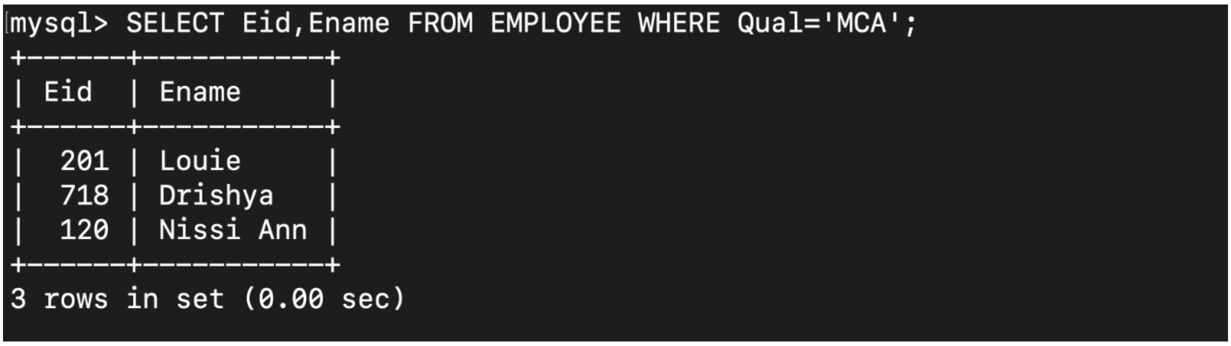



```
mysql> CREATE TABLE EMPLOYEE
    -> (Eid INT, Ename CHAR(20), Qual CHAR(10), Gender CHAR, Salary INT);
Query OK, 0 rows affected (0.02 sec)

mysql> DESC EMPLOYEE;
+--------+----------+------+-----+---------+-------+
| Field  | Type     | Null | Key | Default | Extra |
+--------+----------+------+-----+---------+-------+
| Eid    | int(11)  | YES  |     | NULL    |       |
| Ename  | char(20) | YES  |     | NULL    |       |
| Qual   | char(10) | YES  |     | NULL    |       |
| Gender | char(1)  | YES  |     | NULL    |       |
| Salary | int(11)  | YES  |     | NULL    |       |
+--------+----------+------+-----+---------+-------+
5 rows in set (0.01 sec)
```



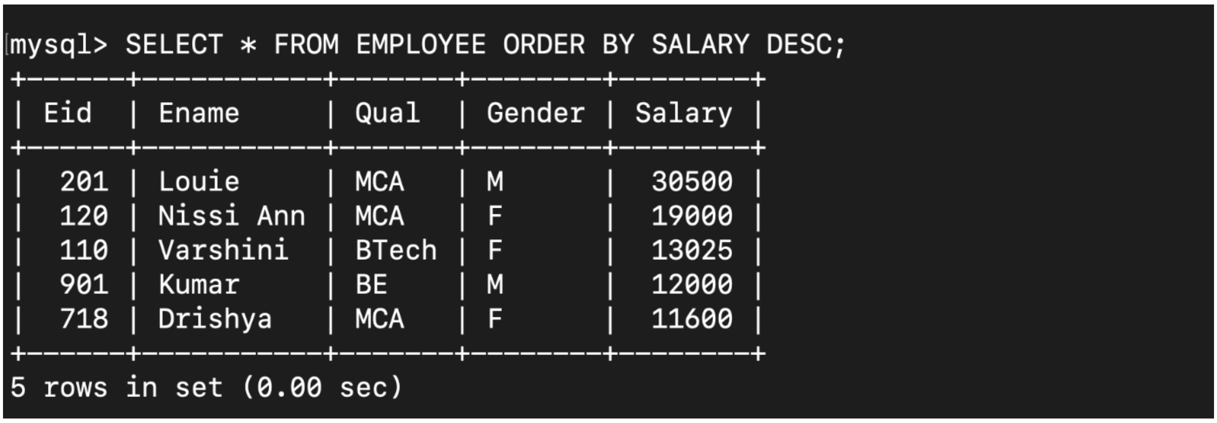
```
mysql> INSERT INTO EMPLOYEE VALUES
    -> (901,'Kumar','BE','M',12000),
    -> (201,'Louie','MCA','M',30500),
    -> (110,'Varshini','BTech','F',13025),
    -> (718,'Drishya','MCA','F',11600),
    -> (120,'Nissi Ann','MCA','F',19000);
Query OK, 5 rows affected (0.00 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM EMPLOYEE;
+------+-----------+-------+--------+--------+
| Eid  | Ename     | Qual  | Gender | Salary |
+------+-----------+-------+--------+--------+
|  901 | Kumar     | BE    | M      |  12000 |
|  201 | Louie     | MCA   | M      |  30500 |
|  110 | Varshini  | BTech | F      |  13025 |
|  718 | Drishya   | MCA   | F      |  11600 |
|  120 | Nissi Ann | MCA   | F      |  19000 |
+------+-----------+-------+--------+--------+
5 rows in set (0.00 sec)
```

i. To display Eid and Ename whose Qual is MCA.



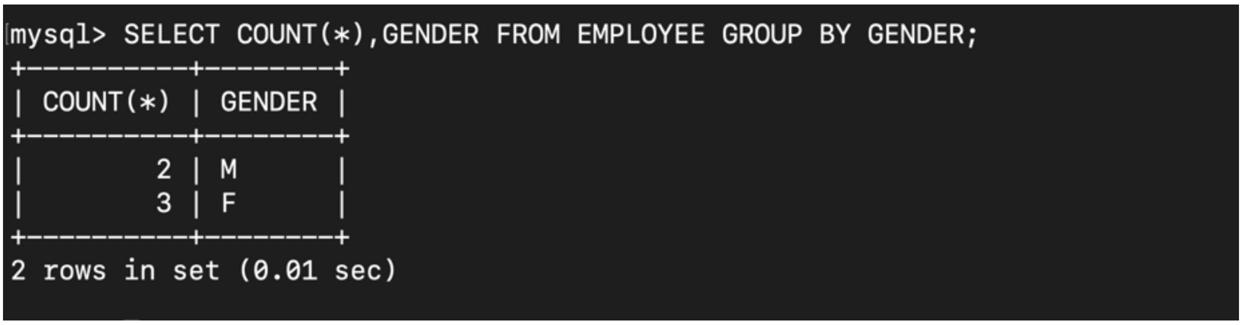
```
mysql> SELECT Eid,Ename FROM EMPLOYEE WHERE Qual='MCA';
+------+-----------+
| Eid  | Ename     |
+------+-----------+
|  201 | Louie     |
|  718 | Drishya   |
|  120 | Nissi Ann |
+------+-----------+
3 rows in set (0.00 sec)
```

ii. To list the employees in descending order of their Salary.



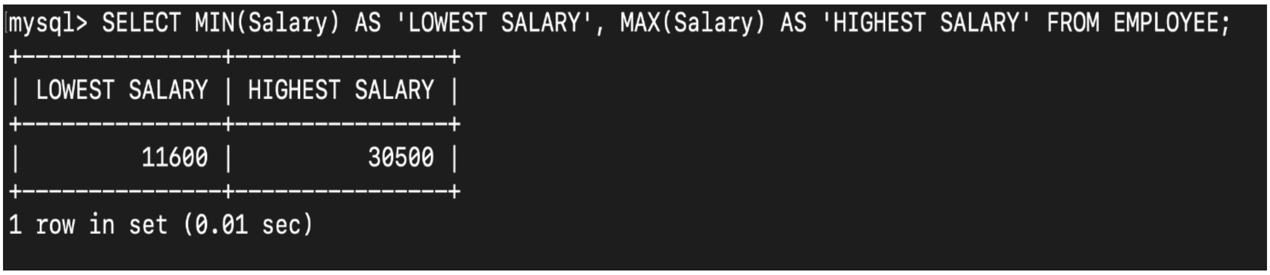
```
mysql> SELECT * FROM EMPLOYEE ORDER BY SALARY DESC;
+------+-----------+-------+--------+--------+
| Eid  | Ename     | Qual  | Gender | Salary |
+------+-----------+-------+--------+--------+
|  201 | Louie     | MCA   | M      |  30500 |
|  120 | Nissi Ann | MCA   | F      |  19000 |
|  110 | Varshini  | BTech | F      |  13025 |
|  901 | Kumar     | BE    | M      |  12000 |
|  718 | Drishya   | MCA   | F      |  11600 |
+------+-----------+-------+--------+--------+
5 rows in set (0.00 sec)
```

iii. To display the count of the employees according to their Gender.



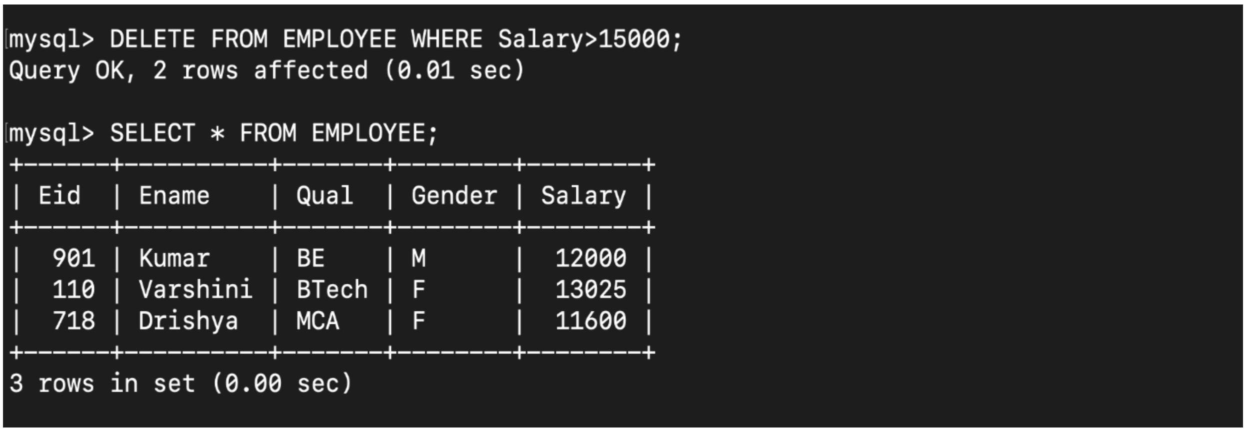
```
mysql> SELECT COUNT(*),GENDER FROM EMPLOYEE GROUP BY GENDER;
+----------+--------+
| COUNT(*) | GENDER |
+----------+--------+
|        2 | M      |
|        3 | F      |
+----------+--------+
2 rows in set (0.01 sec)
```

iv. To find out the minimum Salary and maximum Salary of the employees.



```
[mysql> SELECT MIN(Salary) AS 'LOWEST SALARY', MAX(Salary) AS 'HIGHEST SALARY' FROM EMPLOYEE;
+---------------+----------------+
| LOWEST SALARY | HIGHEST SALARY |
+---------------+----------------+
|         11600 |          30500 |
+---------------+----------------+
1 row in set (0.01 sec)
```

v. To delete the records whose Salary is above 15000.



```
[mysql> DELETE FROM EMPLOYEE WHERE Salary>15000;
Query OK, 2 rows affected (0.01 sec)

[mysql> SELECT * FROM EMPLOYEE;
+------+----------+-------+--------+--------+
| Eid  | Ename    | Qual  | Gender | Salary |
+------+----------+-------+--------+--------+
|  901 | Kumar    | BE    | M      |  12000 |
|  110 | Varshini | BTech | F      |  13025 |
|  718 | Drishya  | MCA   | F      |  11600 |
+------+----------+-------+--------+--------+
3 rows in set (0.00 sec)
```

3. Consider the following table **STUDENT**. Write SQL commands for the questions (i) to (v).

Roll_no	Stud_name	Maths	Computer	Physics	Chemistry
1201	Hari	48	89	79	99
1202	Karthik	78	100	89	72
1203	Varun	52	90	93	88
1204	Gokul	69	81	75	96
1205	Vignesh	57	100	100	98

i. To increase the Maths mark of all the students by 5.

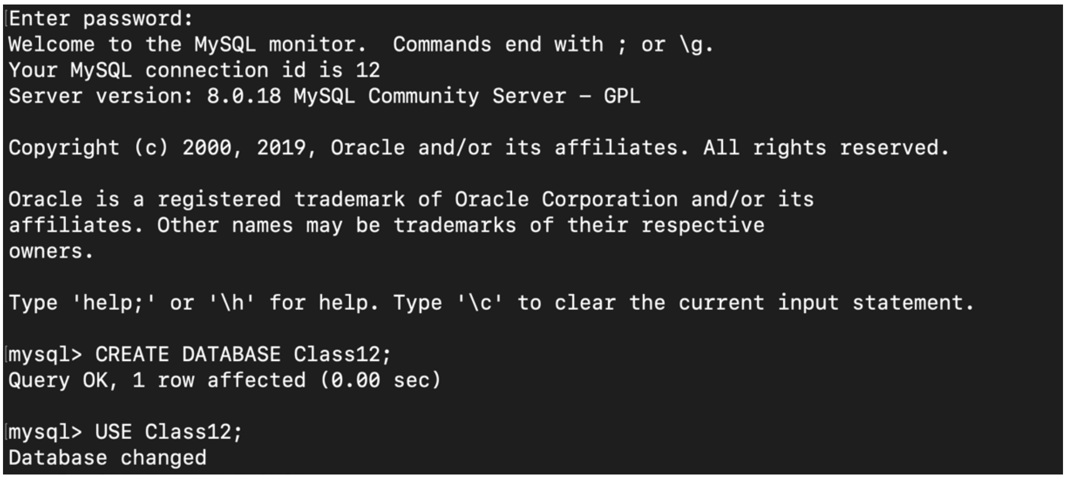
ii. To display the Students details whose mark is 100 in Computer.

iii. To display the Name and Roll Number of the Students whose name starts with letter ‘V’.

iv. To set Roll Number column as Primary Key.

v. To delete the records whose Physics marks are below 85.

OUTPUT:



```
Enter password:
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Your MySQL connection id is 12
Server version: 8.0.18 MySQL Community Server - GPL

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

mysql> CREATE DATABASE Class12;
Query OK, 1 row affected (0.00 sec)

mysql> USE Class12;
Database changed
```
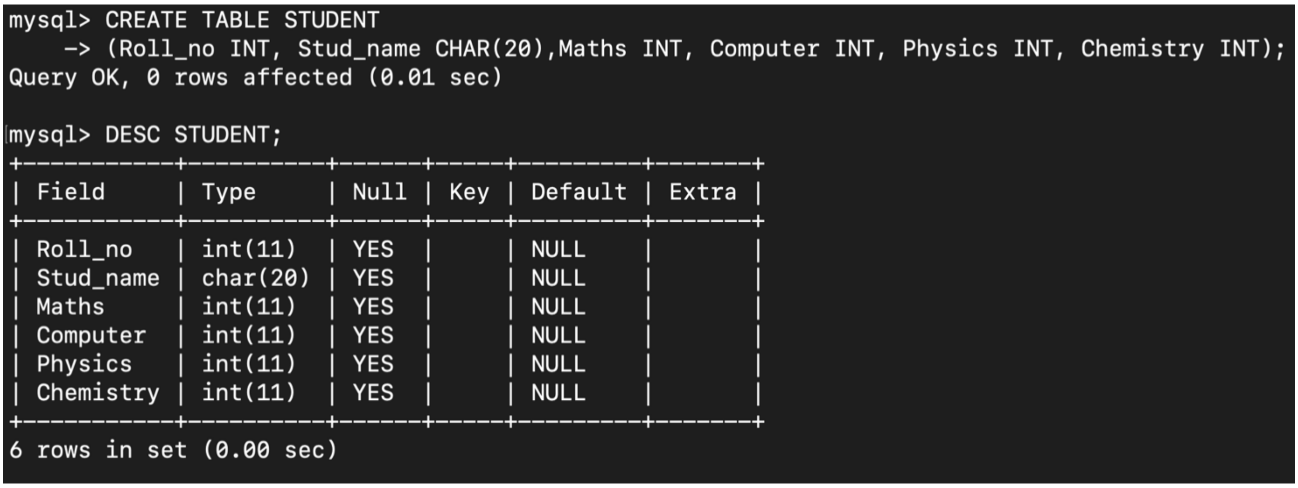
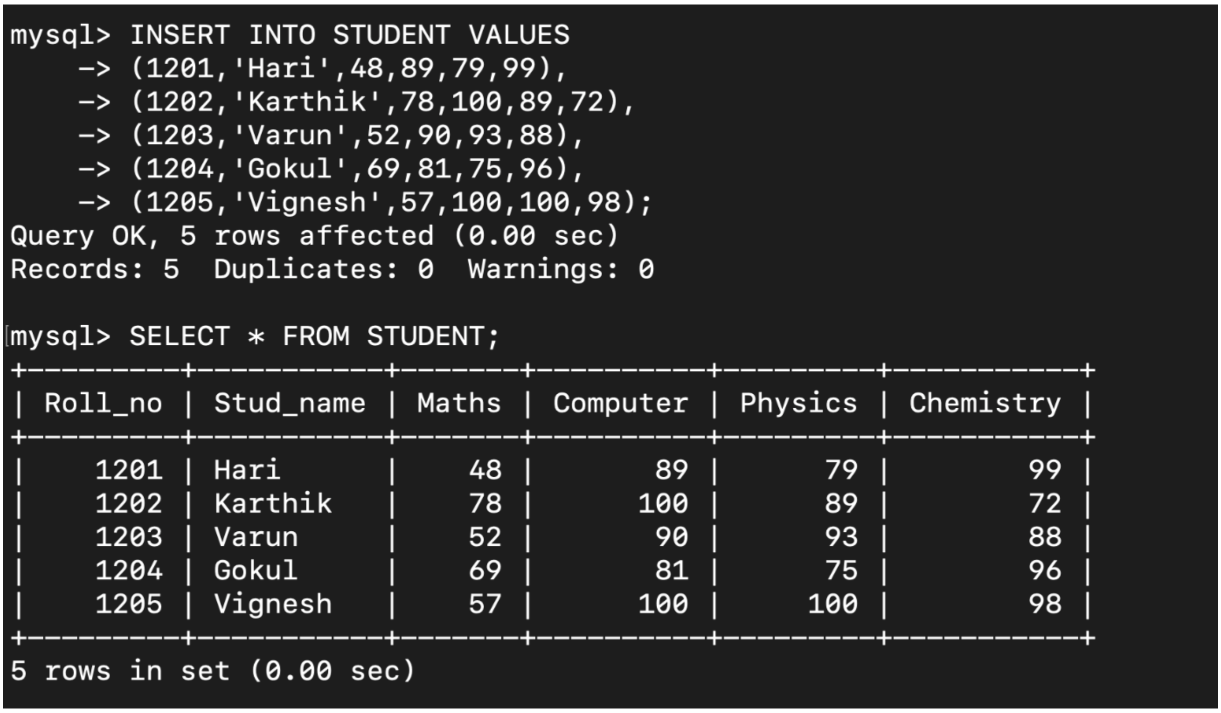
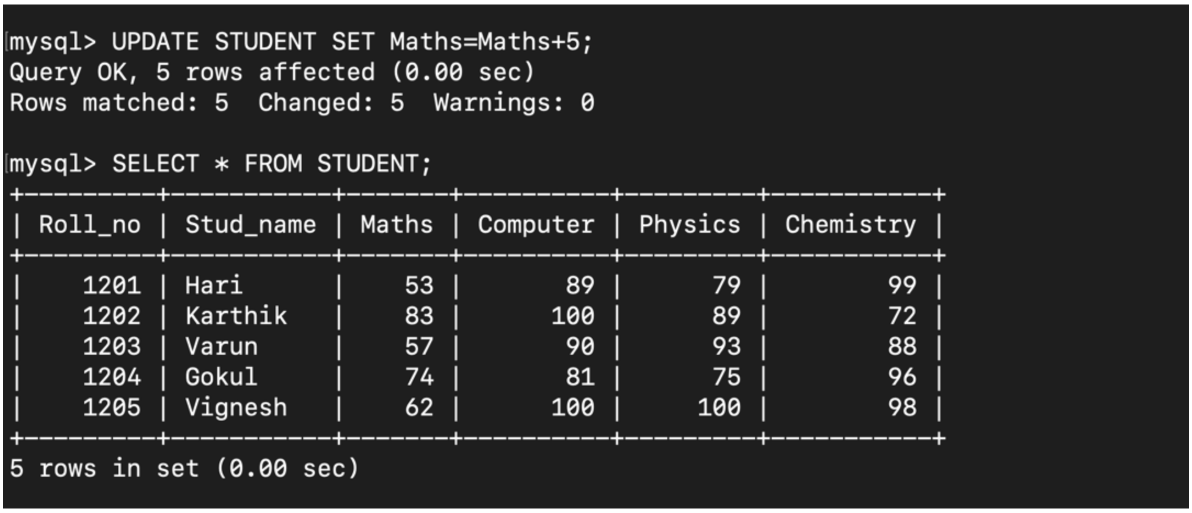



```
mysql> CREATE TABLE STUDENT
    -> (Roll_no INT, Stud_name CHAR(20),Maths INT, Computer INT, Physics INT, Chemistry INT);
Query OK, 0 rows affected (0.01 sec)

mysql> DESC STUDENT;
+-----------+----------+------+-----+---------+-------+
| Field     | Type     | Null | Key | Default | Extra |
+-----------+----------+------+-----+---------+-------+
| Roll_no   | int(11)  | YES  |     | NULL    |       |
| Stud_name | char(20) | YES  |     | NULL    |       |
| Maths     | int(11)  | YES  |     | NULL    |       |
| Computer  | int(11)  | YES  |     | NULL    |       |
| Physics   | int(11)  | YES  |     | NULL    |       |
| Chemistry | int(11)  | YES  |     | NULL    |       |
+-----------+----------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```



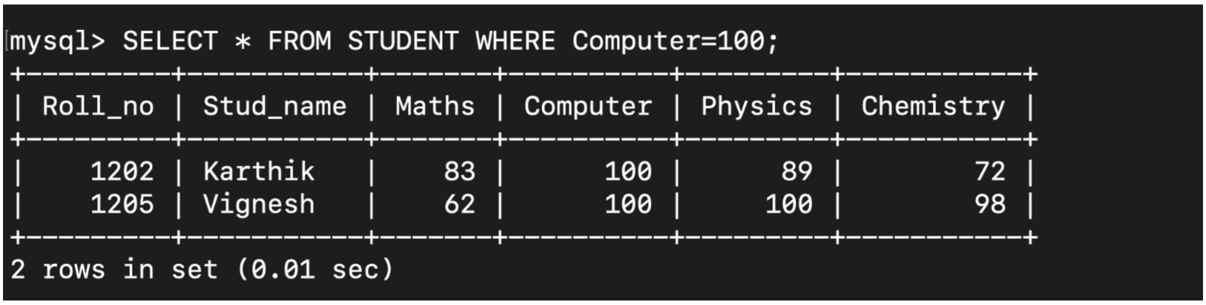
```
mysql> INSERT INTO STUDENT VALUES
    -> (1201,'Hari',48,89,79,99),
    -> (1202,'Karthik',78,100,89,72),
    -> (1203,'Varun',52,90,93,88),
    -> (1204,'Gokul',69,81,75,96),
    -> (1205,'Vignesh',57,100,100,98);
Query OK, 5 rows affected (0.00 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM STUDENT;
+---------+-----------+-------+----------+---------+-----------+
| Roll_no | Stud_name | Maths | Computer | Physics | Chemistry |
+---------+-----------+-------+----------+---------+-----------+
|    1201 | Hari      |    48 |       89 |      79 |        99 |
|    1202 | Karthik   |    78 |      100 |      89 |        72 |
|    1203 | Varun     |    52 |       90 |      93 |        88 |
|    1204 | Gokul     |    69 |       81 |      75 |        96 |
|    1205 | Vignesh   |    57 |      100 |     100 |        98 |
+---------+-----------+-------+----------+---------+-----------+
5 rows in set (0.00 sec)
```

i. To increase the Maths mark of all the students by 5.



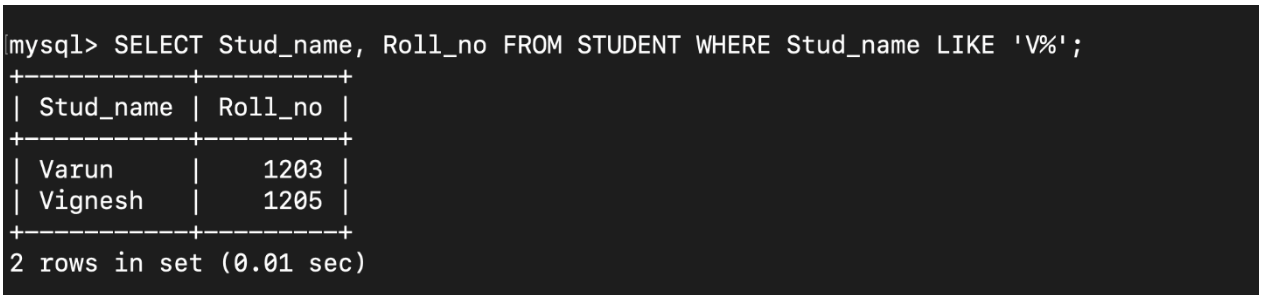
```
mysql> UPDATE STUDENT SET Maths=Maths+5;
Query OK, 5 rows affected (0.00 sec)
Rows matched: 5  Changed: 5  Warnings: 0

mysql> SELECT * FROM STUDENT;
+---------+-----------+-------+----------+---------+-----------+
| Roll_no | Stud_name | Maths | Computer | Physics | Chemistry |
+---------+-----------+-------+----------+---------+-----------+
|    1201 | Hari      |    53 |       89 |      79 |        99 |
|    1202 | Karthik   |    83 |      100 |      89 |        72 |
|    1203 | Varun     |    57 |       90 |      93 |        88 |
|    1204 | Gokul     |    74 |       81 |      75 |        96 |
|    1205 | Vignesh   |    62 |      100 |     100 |        98 |
+---------+-----------+-------+----------+---------+-----------+
5 rows in set (0.00 sec)
```

ii. To display the Students details whose mark is 100 in Computer.



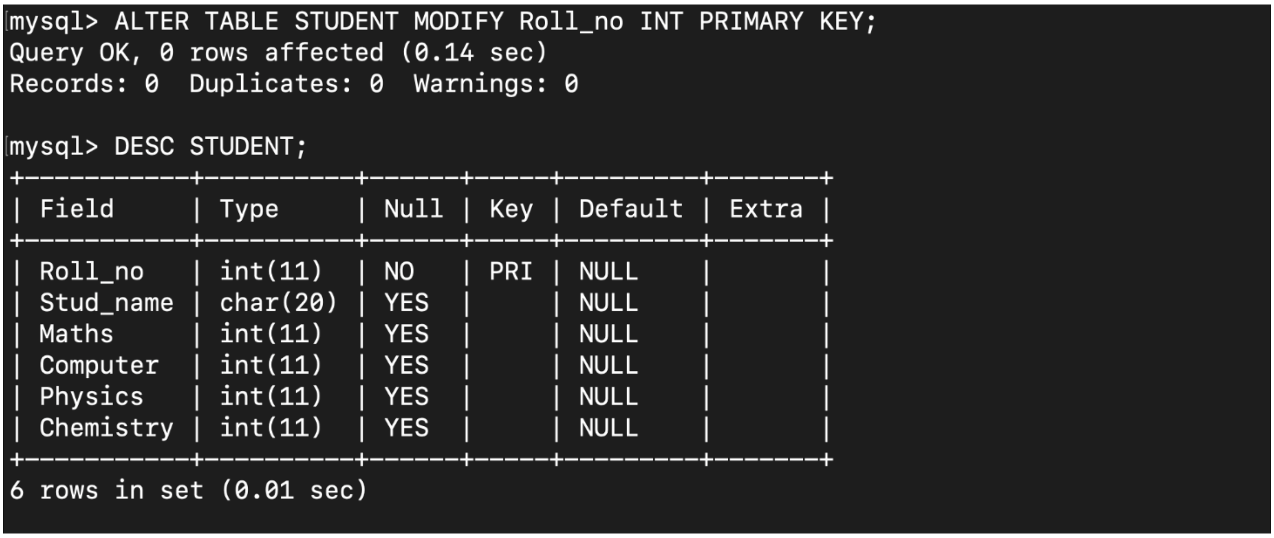
```
mysql> SELECT * FROM STUDENT WHERE Computer=100;
+---------+-----------+-------+----------+---------+-----------+
| Roll_no | Stud_name | Maths | Computer | Physics | Chemistry |
+---------+-----------+-------+----------+---------+-----------+
|    1202 | Karthik   |    83 |      100 |      89 |        72 |
|    1205 | Vignesh   |    62 |      100 |     100 |        98 |
+---------+-----------+-------+----------+---------+-----------+
2 rows in set (0.01 sec)
```

iii. To display the Name and Roll Number of the Students whose name starts with letter ‘V’.



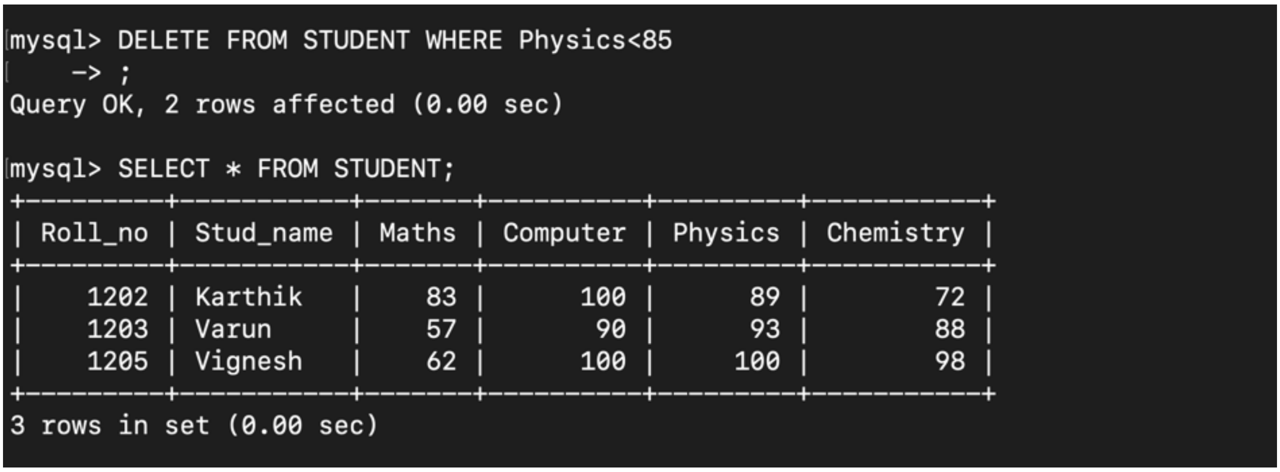
```
mysql> SELECT Stud_name, Roll_no FROM STUDENT WHERE Stud_name LIKE 'V%';
+-----------+---------+
| Stud_name | Roll_no |
+-----------+---------+
| Varun     |    1203 |
| Vignesh   |    1205 |
+-----------+---------+
2 rows in set (0.01 sec)
```

iv. To set Roll Number column as Primary Key.



```
mysql> ALTER TABLE STUDENT MODIFY Roll_no INT PRIMARY KEY;
Query OK, 0 rows affected (0.14 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC STUDENT;
+-----------+----------+------+-----+---------+-------+
| Field     | Type     | Null | Key | Default | Extra |
+-----------+----------+------+-----+---------+-------+
| Roll_no   | int(11)  | NO   | PRI | NULL    |       |
| Stud_name | char(20) | YES  |     | NULL    |       |
| Maths     | int(11)  | YES  |     | NULL    |       |
| Computer  | int(11)  | YES  |     | NULL    |       |
| Physics   | int(11)  | YES  |     | NULL    |       |
| Chemistry | int(11)  | YES  |     | NULL    |       |
+-----------+----------+------+-----+---------+-------+
6 rows in set (0.01 sec)
```

v. To delete the records whose Physics marks are below 85.



```
mysql> DELETE FROM STUDENT WHERE Physics<85
    -> ;
Query OK, 2 rows affected (0.00 sec)

mysql> SELECT * FROM STUDENT;
+---------+-----------+-------+----------+---------+-----------+
| Roll_no | Stud_name | Maths | Computer | Physics | Chemistry |
+---------+-----------+-------+----------+---------+-----------+
|    1202 | Karthik   |    83 |      100 |      89 |        72 |
|    1203 | Varun     |    57 |       90 |      93 |        88 |
|    1205 | Vignesh   |    62 |      100 |     100 |        98 |
+---------+-----------+-------+----------+---------+-----------+
3 rows in set (0.00 sec)
```

4. Consider the following table **COLLEGE**. Write SQL commands for the questions (i) to (v).

ID_No	**Name**	**College**	**Branch**	**Roll_No**	**Age**
91	Ramesh	NIT	MECH	8642046	20
72	Jagan	MANIPAL	LAW	8642079	24
64	Kunal	IIT	AEROSPACE	8642011	18
18	Haneefa	IIT	CIVIL	8642054	22
78	Michael	IIT	CSE	8642002	20

i. To display all the students studying at IIT under the age of 20.

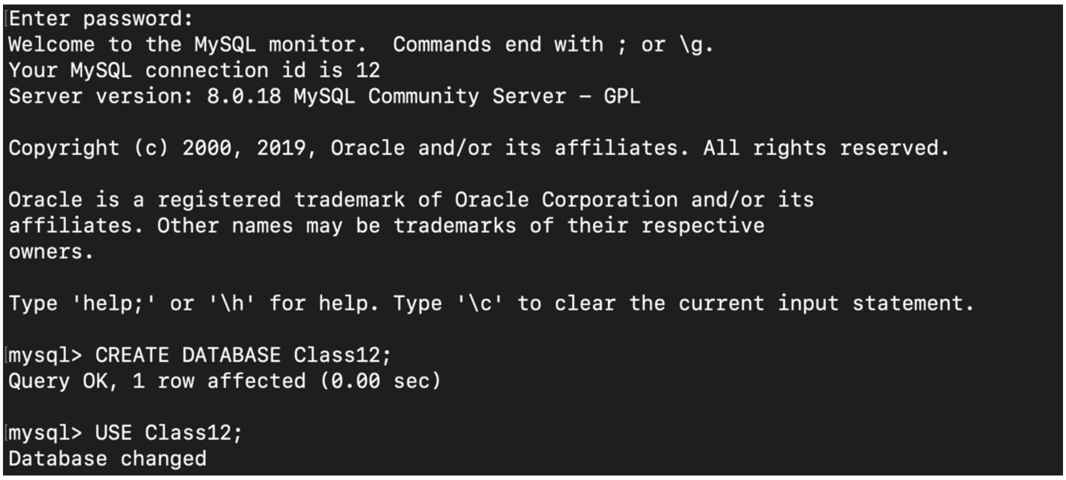
ii. To change the Branch of Name ‘Kunal’ to CSE.

iii. To display the number of students in IIT, NIT & MANIPAL.

iv. To display the details in ascending order of Roll Number.

v. To delete the records which have Age greater than 20.

OUTPUT:



```
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 12
Server version: 8.0.18 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> CREATE DATABASE Class12;
Query OK, 1 row affected (0.00 sec)

mysql> USE Class12;
Database changed
```
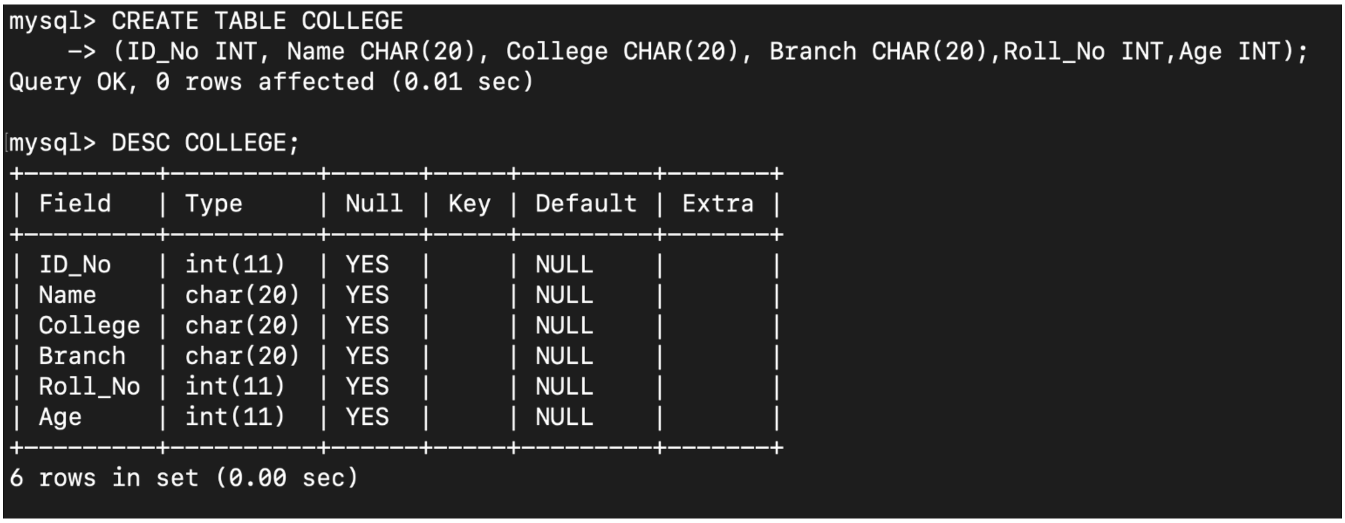
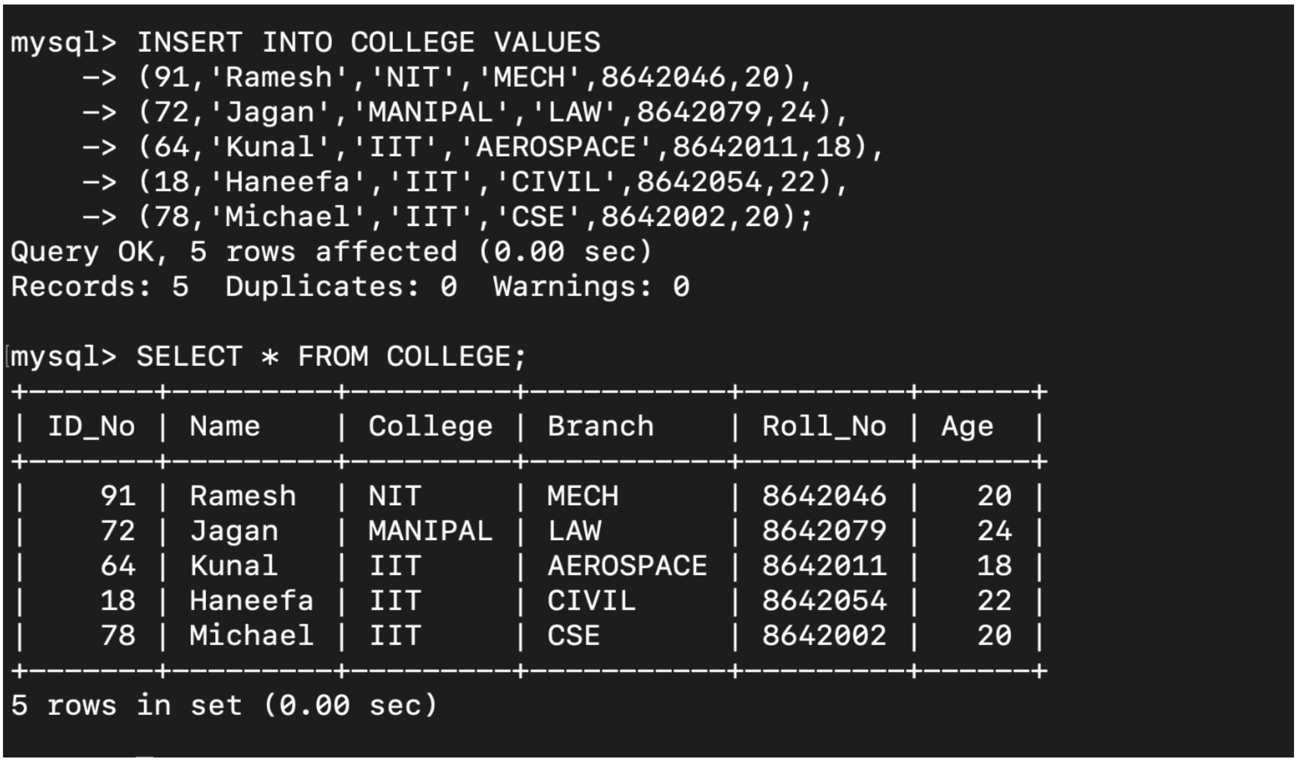
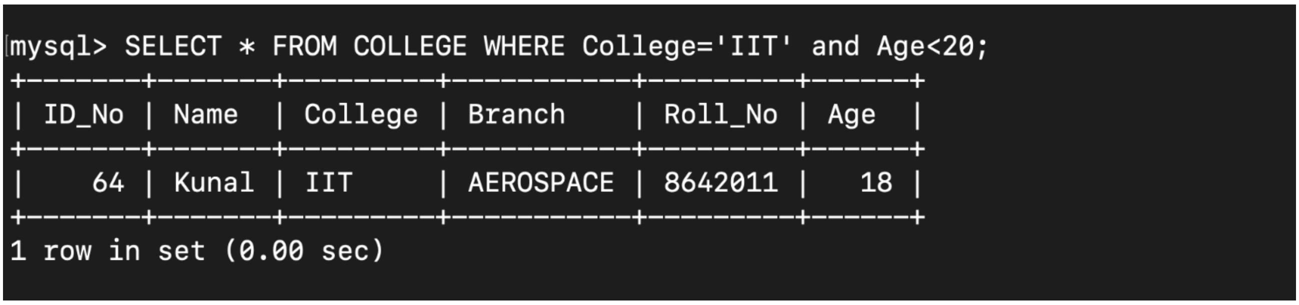



```
mysql> CREATE TABLE COLLEGE
    -> (ID_No INT, Name CHAR(20), College CHAR(20), Branch CHAR(20),Roll_No INT,Age INT);
Query OK, 0 rows affected (0.01 sec)

mysql> DESC COLLEGE;
+---------+----------+------+-----+---------+-------+
| Field   | Type     | Null | Key | Default | Extra |
+---------+----------+------+-----+---------+-------+
| ID_No   | int(11)  | YES  |     | NULL    |       |
| Name    | char(20) | YES  |     | NULL    |       |
| College | char(20) | YES  |     | NULL    |       |
| Branch  | char(20) | YES  |     | NULL    |       |
| Roll_No | int(11)  | YES  |     | NULL    |       |
| Age     | int(11)  | YES  |     | NULL    |       |
+---------+----------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```



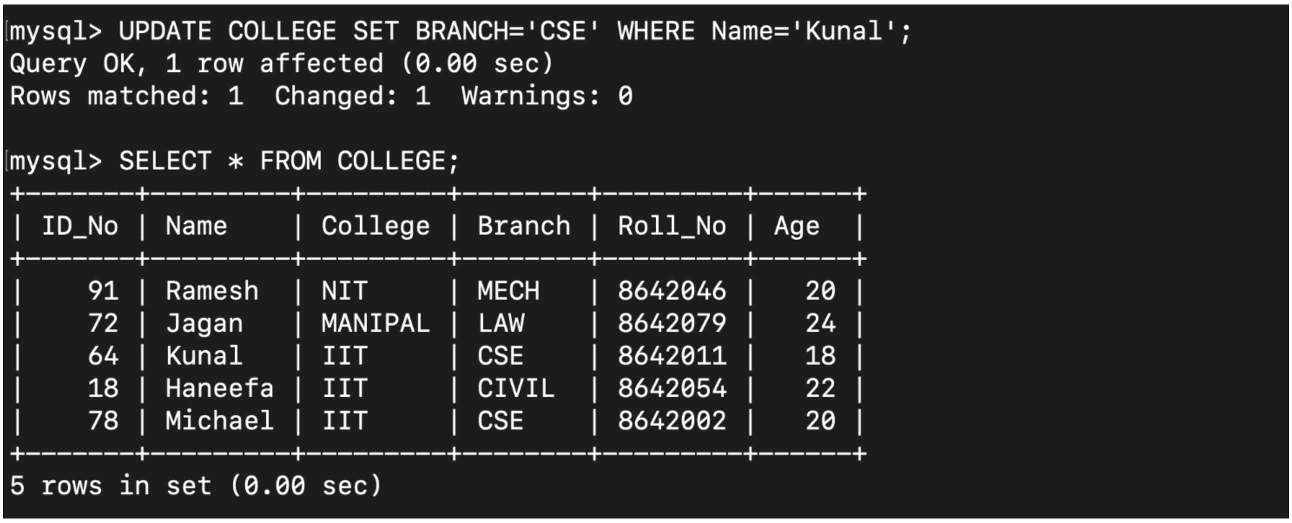
```
mysql> INSERT INTO COLLEGE VALUES
    -> (91,'Ramesh','NIT','MECH',8642046,20),
    -> (72,'Jagan','MANIPAL','LAW',8642079,24),
    -> (64,'Kunal','IIT','AEROSPACE',8642011,18),
    -> (18,'Haneefa','IIT','CIVIL',8642054,22),
    -> (78,'Michael','IIT','CSE',8642002,20);
Query OK, 5 rows affected (0.00 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM COLLEGE;
+-------+---------+---------+-----------+---------+------+
| ID_No | Name    | College | Branch    | Roll_No | Age  |
+-------+---------+---------+-----------+---------+------+
|    91 | Ramesh  | NIT     | MECH      | 8642046 |   20 |
|    72 | Jagan   | MANIPAL | LAW       | 8642079 |   24 |
|    64 | Kunal   | IIT     | AEROSPACE | 8642011 |   18 |
|    18 | Haneefa | IIT     | CIVIL     | 8642054 |   22 |
|    78 | Michael | IIT     | CSE       | 8642002 |   20 |
+-------+---------+---------+-----------+---------+------+
5 rows in set (0.00 sec)
```

i. To display all the students studying at IIT under the age of 20.



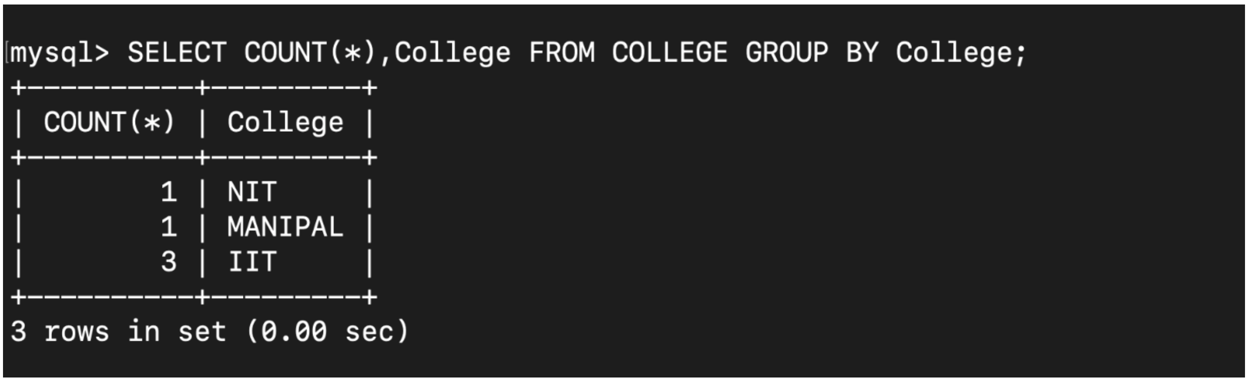
```
mysql> SELECT * FROM COLLEGE WHERE College='IIT' and Age<20;
+-------+-------+---------+-----------+---------+------+
| ID_No | Name  | College | Branch    | Roll_No | Age  |
+-------+-------+---------+-----------+---------+------+
|    64 | Kunal | IIT     | AEROSPACE | 8642011 |   18 |
+-------+-------+---------+-----------+---------+------+
1 row in set (0.00 sec)
```

ii. To change the Branch of Name ‘Kunal’ to CSE.



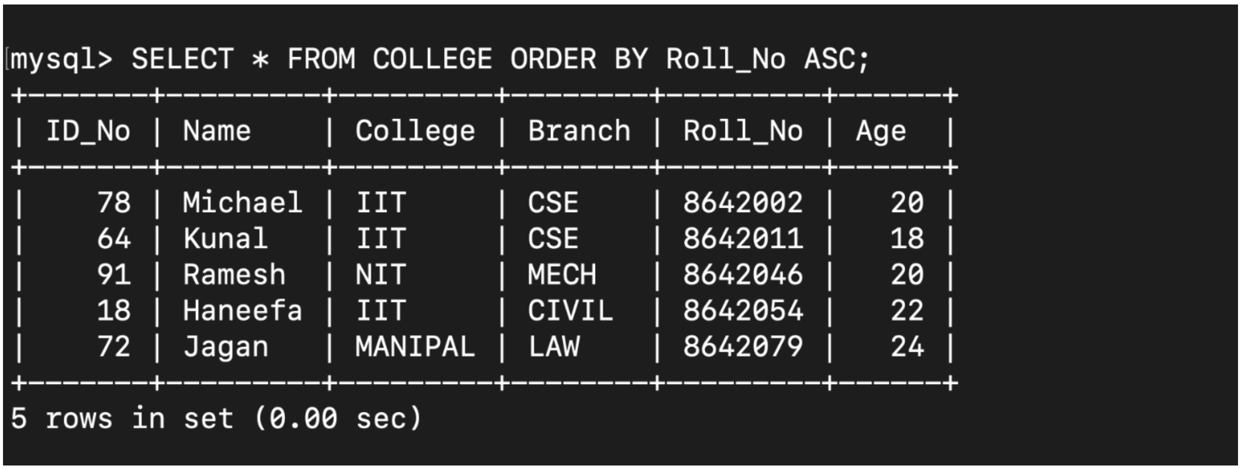
```
mysql> UPDATE COLLEGE SET BRANCH='CSE' WHERE Name='Kunal';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM COLLEGE;
+-------+---------+---------+--------+---------+------+
| ID_No | Name    | College | Branch | Roll_No | Age  |
+-------+---------+---------+--------+---------+------+
|    91 | Ramesh  | NIT     | MECH   | 8642046 |   20 |
|    72 | Jagan   | MANIPAL | LAW    | 8642079 |   24 |
|    64 | Kunal   | IIT     | CSE    | 8642011 |   18 |
|    18 | Haneefa | IIT     | CIVIL  | 8642054 |   22 |
|    78 | Michael | IIT     | CSE    | 8642002 |   20 |
+-------+---------+---------+--------+---------+------+
5 rows in set (0.00 sec)
```

iii. To display the number of students in IIT, NIT & MANIPAL.



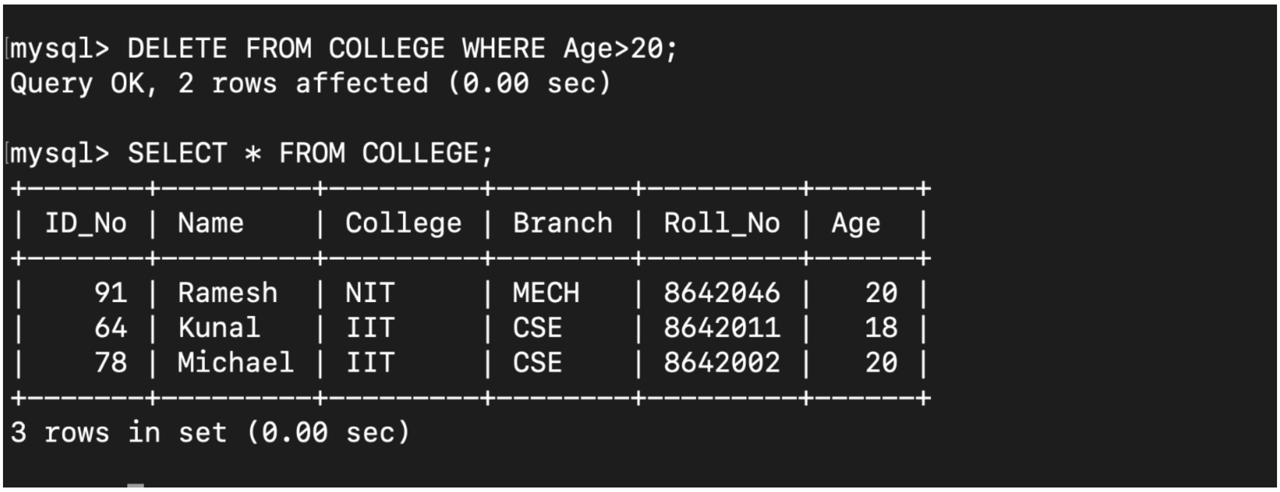
```
mysql> SELECT COUNT(*),College FROM COLLEGE GROUP BY College;
+----------+---------+
| COUNT(*) | College |
+----------+---------+
|        1 | NIT     |
|        1 | MANIPAL |
|        3 | IIT     |
+----------+---------+
3 rows in set (0.00 sec)
```

iv. To display the details in ascending order of Roll Number.



```
mysql> SELECT * FROM COLLEGE ORDER BY Roll_No ASC;
+-------+---------+---------+--------+---------+------+
| ID_No | Name    | College | Branch | Roll_No | Age  |
+-------+---------+---------+--------+---------+------+
|    78 | Michael | IIT     | CSE    | 8642002 |   20 |
|    64 | Kunal   | IIT     | CSE    | 8642011 |   18 |
|    91 | Ramesh  | NIT     | MECH   | 8642046 |   20 |
|    18 | Haneefa | IIT     | CIVIL  | 8642054 |   22 |
|    72 | Jagan   | MANIPAL | LAW    | 8642079 |   24 |
+-------+---------+---------+--------+---------+------+
5 rows in set (0.00 sec)
```

v. To delete the records which have Age greater than 20.



```
mysql> DELETE FROM COLLEGE WHERE Age>20;
Query OK, 2 rows affected (0.00 sec)

mysql> SELECT * FROM COLLEGE;
+-------+---------+---------+--------+---------+------+
| ID_No | Name    | College | Branch | Roll_No | Age  |
+-------+---------+---------+--------+---------+------+
|    91 | Ramesh  | NIT     | MECH   | 8642046 |   20 |
|    64 | Kunal   | IIT     | CSE    | 8642011 |   18 |
|    78 | Michael | IIT     | CSE    | 8642002 |   20 |
+-------+---------+---------+--------+---------+------+
3 rows in set (0.00 sec)
```

5. Consider the following tables and write SQL commands for the questions (i) to (v).

AUTHORS

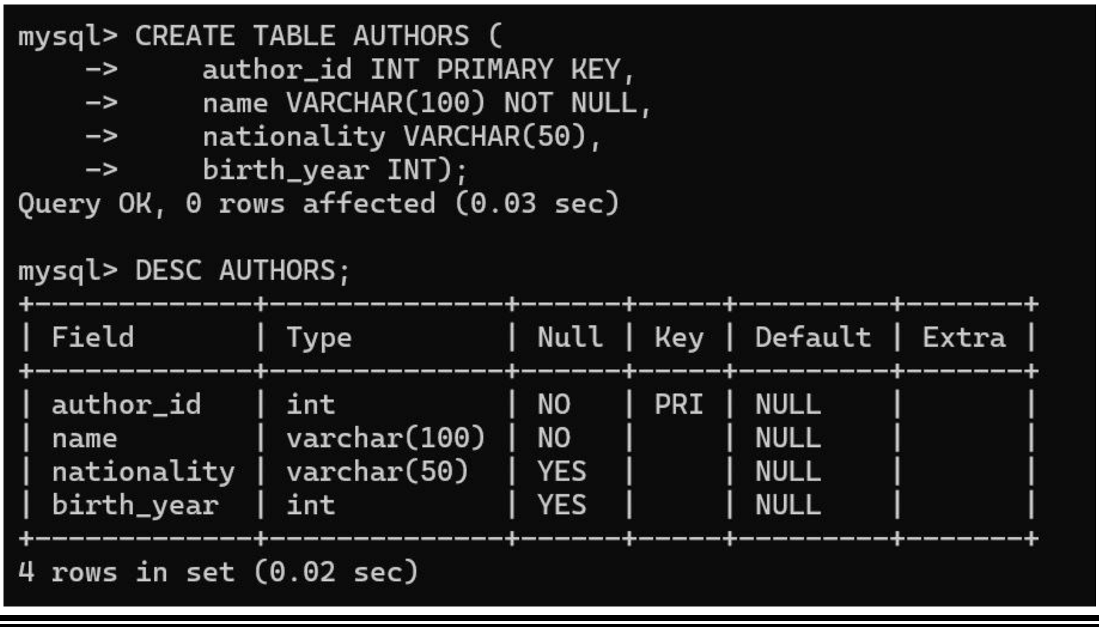
author_id	name	nationality	birth_year
1	'George Orwell'	'British'	1903
2	'J.K. Rowling'	'British'	1965
3	'Mark Twain'	'American'	1835
4	'Jane Austen'	'British'	1775
5	'Agatha Christie'	'British'	1890

BOOKS

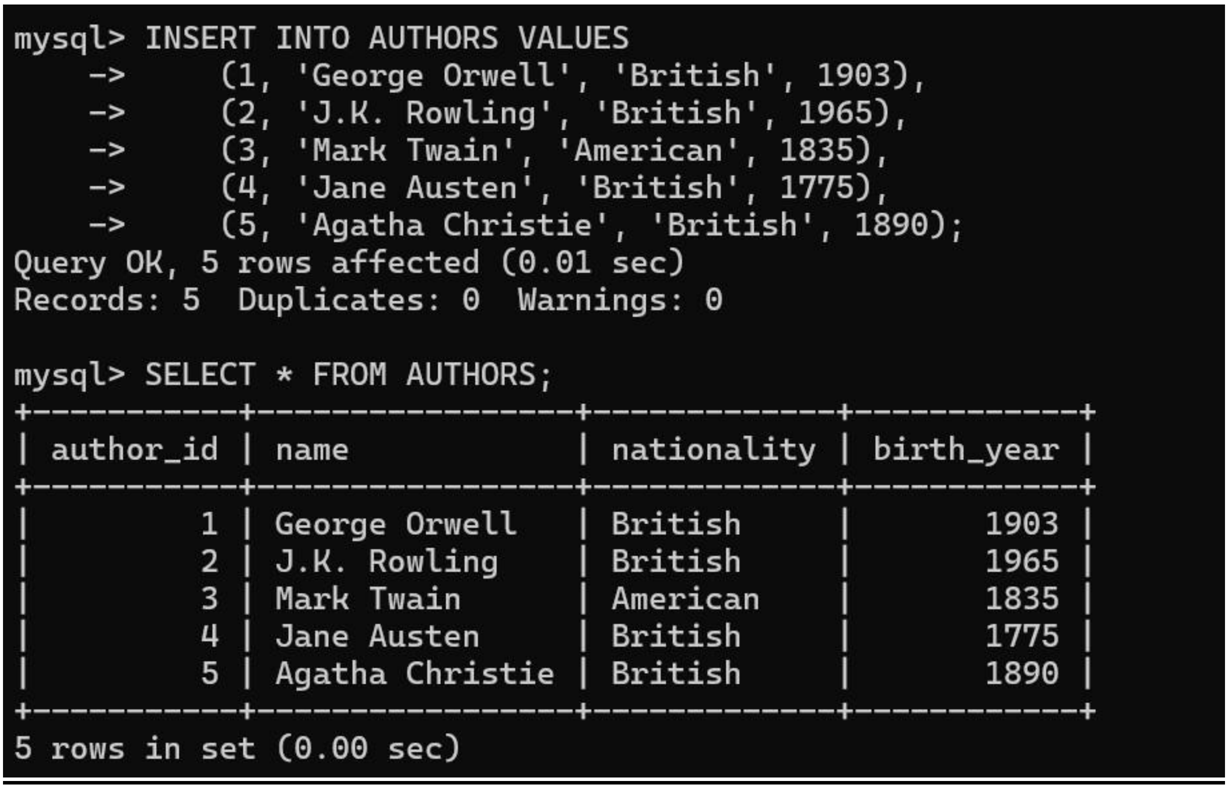
book_id	title	genre	publish_year	author_id
1	'1984'	'Dystopian'	1949	1
2	'Animal Farm'	'Political Satire'	1945	1
3	'Harry Potter and the Philosophers Stone'	'Fantasy'	1997	2
4	'Harry Potter and the Chamber of Secrets'	'Fantasy'	1998	2
5	'The Adventures of Tom Sawyer'	'Fiction'	1876	3
6	'Pride and Prejudice'	'Romance'	1813	4
7	'Murder on the Orient Express'	'Mystery'	1934	5

i. Display the titles of books along with the names of their authors. Only show books published after 1900.
ii. Display the name and nationality of each author along with the titles of the books they have written.
iii. Count the number of books for each genre.
iv. Find authors who have written more than one book. Show the author’s name and the number of books they have written.
v. Retrieve the name of the author and the title of their most recently published book.

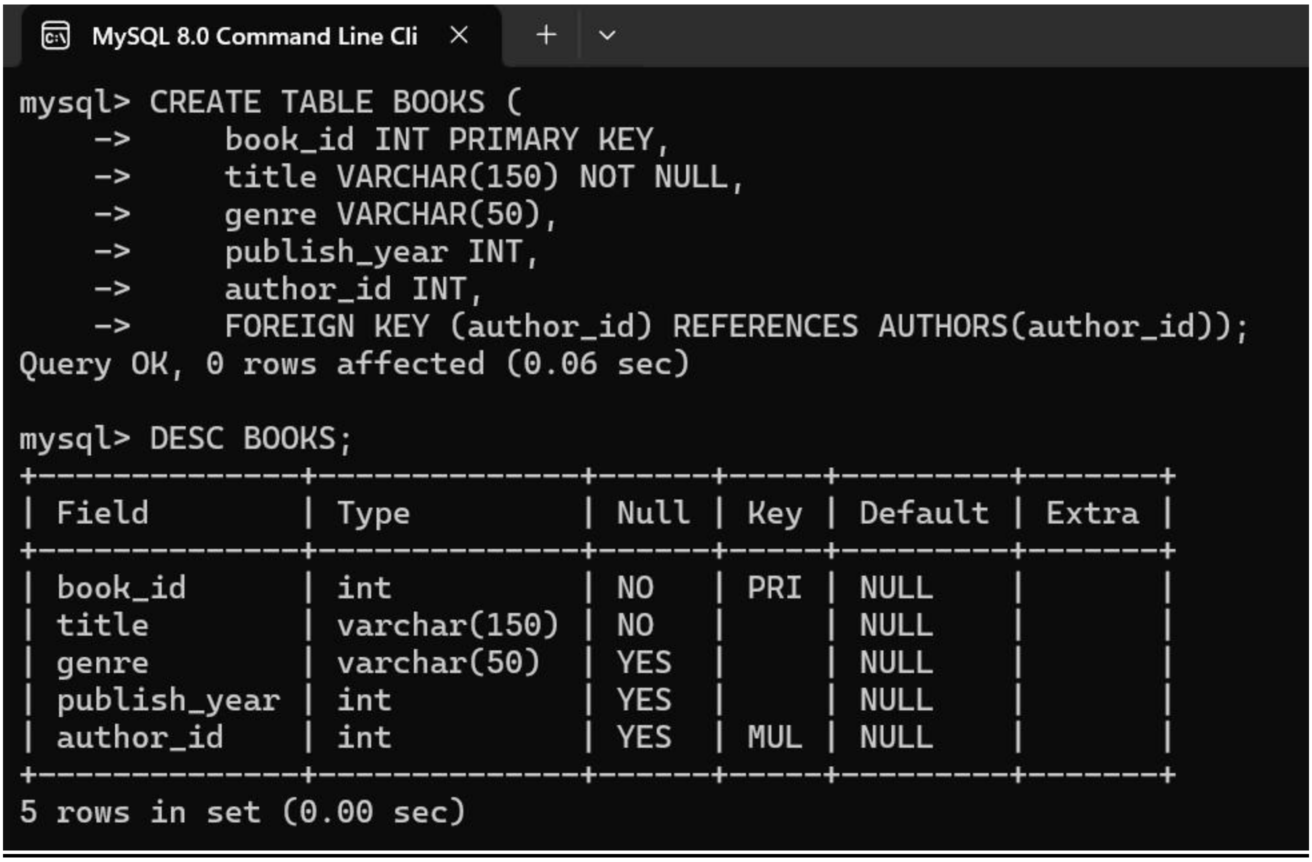
OUTPUT:



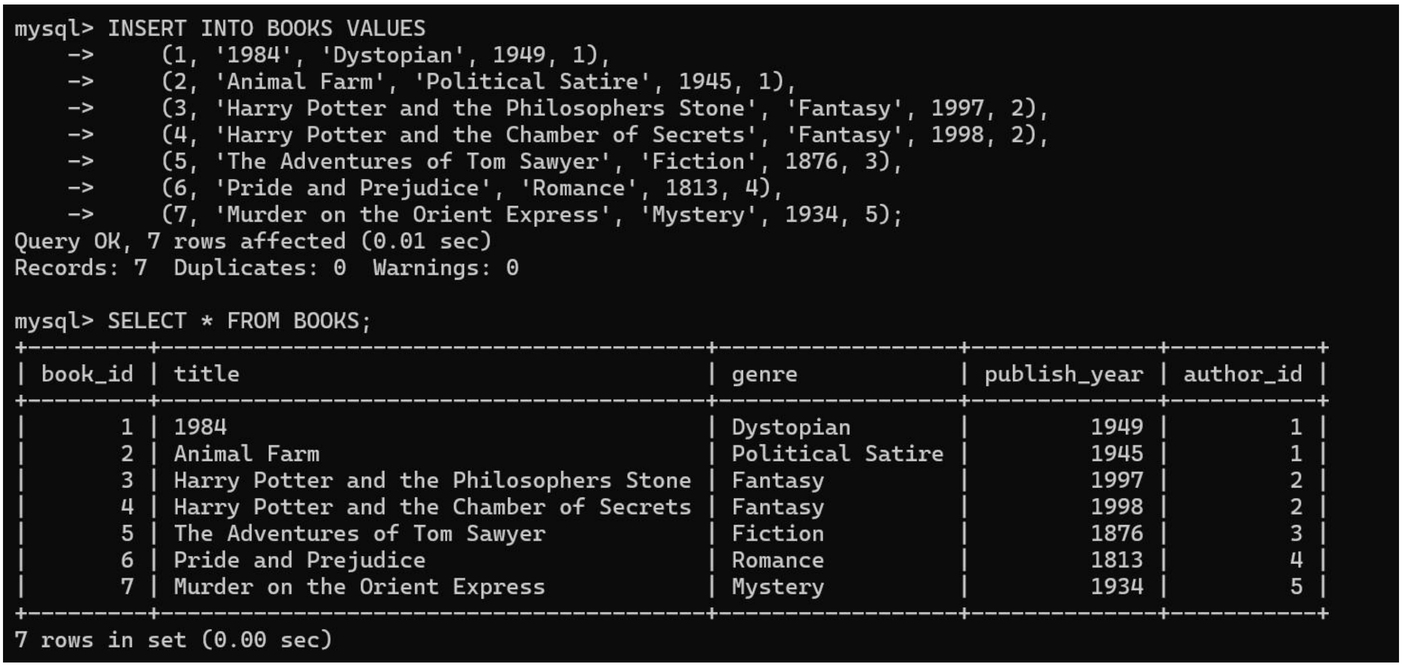
```
mysql> CREATE TABLE AUTHORS (
    ->     author_id INT PRIMARY KEY,
    ->     name VARCHAR(100) NOT NULL,
    ->     nationality VARCHAR(50),
    ->     birth_year INT);
Query OK, 0 rows affected (0.03 sec)

mysql> DESC AUTHORS;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| author_id   | int          | NO   | PRI | NULL    |       |
| name        | varchar(100) | NO   |     | NULL    |       |
| nationality | varchar(50)  | YES  |     | NULL    |       |
| birth_year  | int          | YES  |     | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
4 rows in set (0.02 sec)
```



```
mysql> INSERT INTO AUTHORS VALUES
    ->     (1, 'George Orwell', 'British', 1903),
    ->     (2, 'J.K. Rowling', 'British', 1965),
    ->     (3, 'Mark Twain', 'American', 1835),
    ->     (4, 'Jane Austen', 'British', 1775),
    ->     (5, 'Agatha Christie', 'British', 1890);
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM AUTHORS;
+-----------+-----------------+-------------+------------+
| author_id | name            | nationality | birth_year |
+-----------+-----------------+-------------+------------+
|         1 | George Orwell   | British     |       1903 |
|         2 | J.K. Rowling    | British     |       1965 |
|         3 | Mark Twain      | American    |       1835 |
|         4 | Jane Austen     | British     |       1775 |
|         5 | Agatha Christie | British     |       1890 |
+-----------+-----------------+-------------+------------+
5 rows in set (0.00 sec)
```

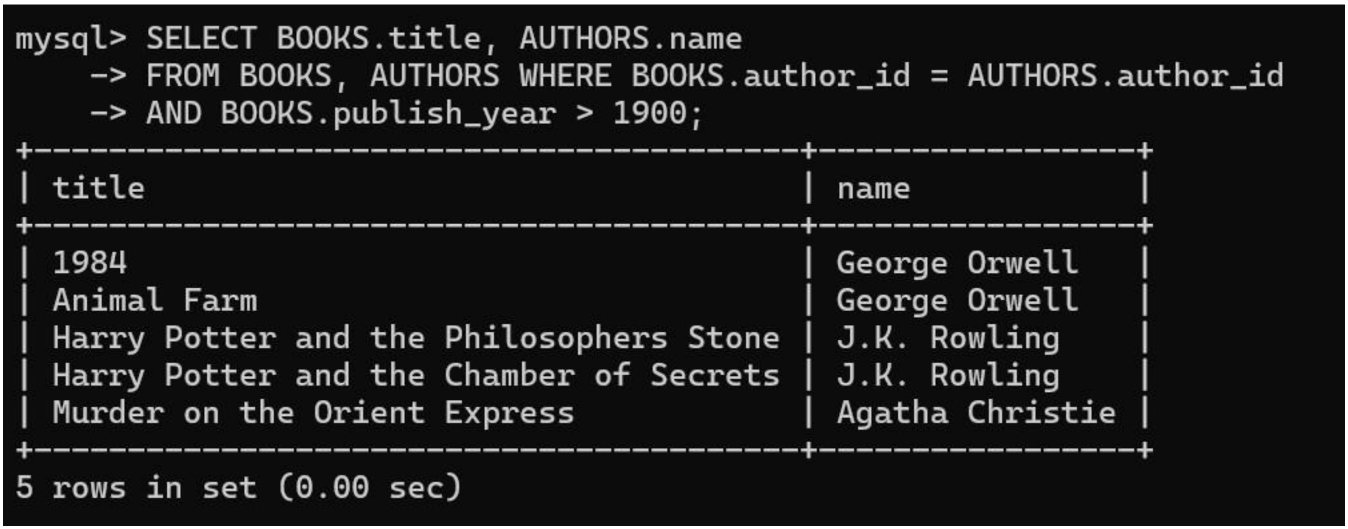


```
mysql> CREATE TABLE BOOKS (
    ->     book_id INT PRIMARY KEY,
    ->     title VARCHAR(150) NOT NULL,
    ->     genre VARCHAR(50),
    ->     publish_year INT,
    ->     author_id INT,
    ->     FOREIGN KEY (author_id) REFERENCES AUTHORS(author_id));
Query OK, 0 rows affected (0.06 sec)

mysql> DESC BOOKS;
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| book_id      | int          | NO   | PRI | NULL    |       |
| title        | varchar(150) | NO   |     | NULL    |       |
| genre        | varchar(50)  | YES  |     | NULL    |       |
| publish_year | int          | YES  |     | NULL    |       |
| author_id    | int          | YES  | MUL | NULL    |       |
+--------------+--------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```



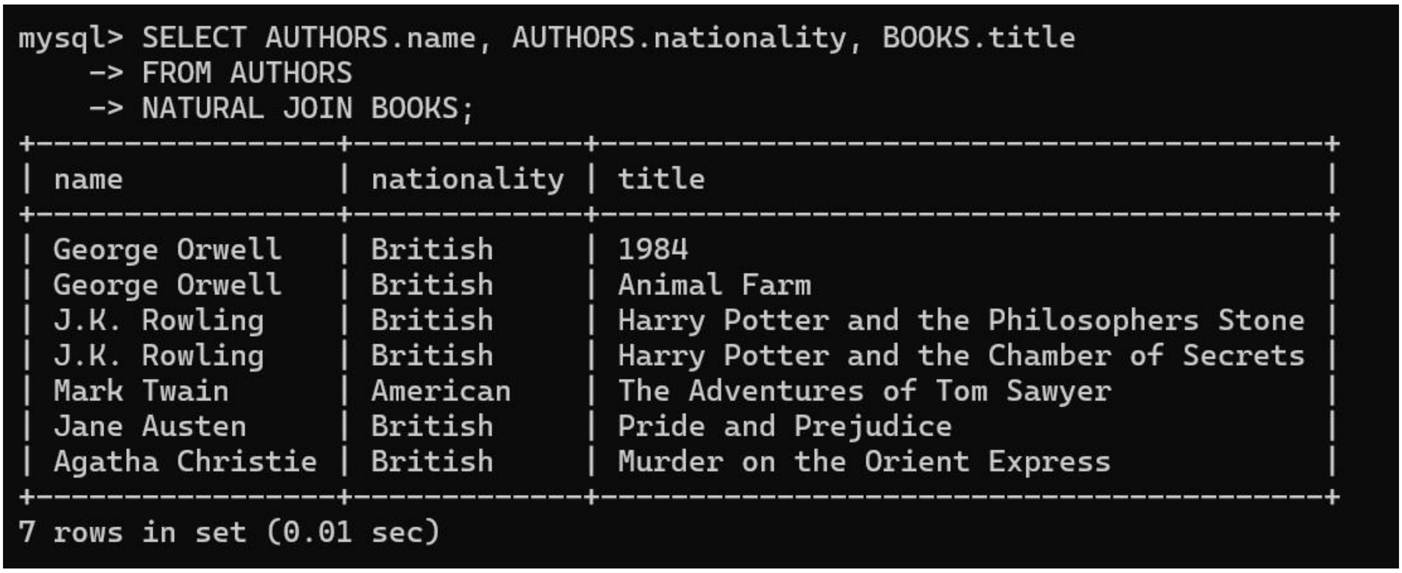
```
mysql> INSERT INTO BOOKS VALUES
    ->     (1, '1984', 'Dystopian', 1949, 1),
    ->     (2, 'Animal Farm', 'Political Satire', 1945, 1),
    ->     (3, 'Harry Potter and the Philosophers Stone', 'Fantasy', 1997, 2),
    ->     (4, 'Harry Potter and the Chamber of Secrets', 'Fantasy', 1998, 2),
    ->     (5, 'The Adventures of Tom Sawyer', 'Fiction', 1876, 3),
    ->     (6, 'Pride and Prejudice', 'Romance', 1813, 4),
    ->     (7, 'Murder on the Orient Express', 'Mystery', 1934, 5);
Query OK, 7 rows affected (0.01 sec)
Records: 7  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM BOOKS;
+---------+-----------------------------------------+------------------+--------------+-----------+
| book_id | title                                   | genre            | publish_year | author_id |
+---------+-----------------------------------------+------------------+--------------+-----------+
|       1 | 1984                                    | Dystopian        |         1949 |         1 |
|       2 | Animal Farm                             | Political Satire |         1945 |         1 |
|       3 | Harry Potter and the Philosophers Stone | Fantasy          |         1997 |         2 |
|       4 | Harry Potter and the Chamber of Secrets | Fantasy          |         1998 |         2 |
|       5 | The Adventures of Tom Sawyer            | Fiction          |         1876 |         3 |
|       6 | Pride and Prejudice                     | Romance          |         1813 |         4 |
|       7 | Murder on the Orient Express            | Mystery          |         1934 |         5 |
+---------+-----------------------------------------+------------------+--------------+-----------+
7 rows in set (0.00 sec)
```

i. Display the titles of books along with the names of their authors. Only show books published after 1900.



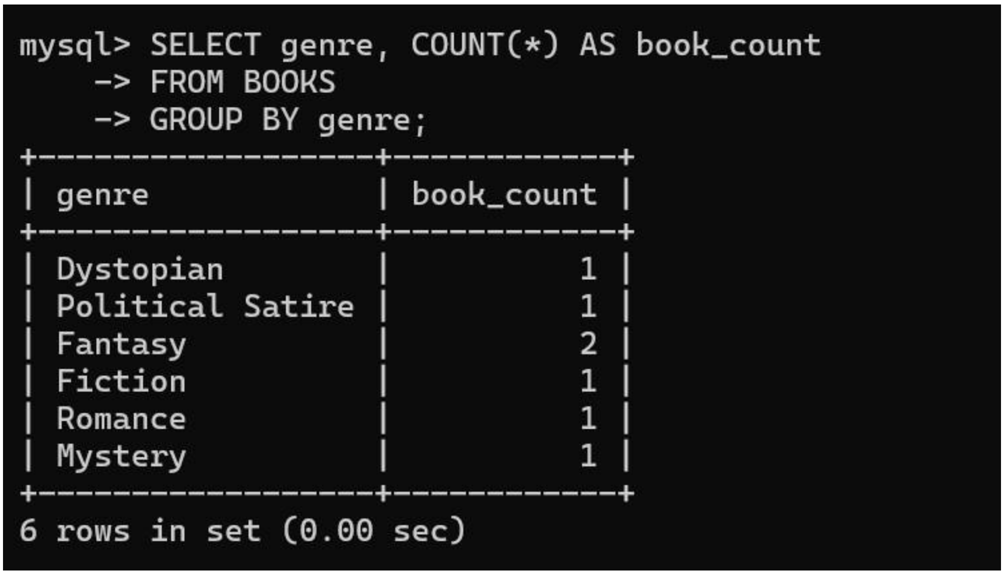
```
mysql> SELECT BOOKS.title, AUTHORS.name
    -> FROM BOOKS, AUTHORS WHERE BOOKS.author_id = AUTHORS.author_id
    -> AND BOOKS.publish_year > 1900;
+-----------------------------------------+-----------------+
| title                                   | name            |
+-----------------------------------------+-----------------+
| 1984                                    | George Orwell   |
| Animal Farm                             | George Orwell   |
| Harry Potter and the Philosophers Stone | J.K. Rowling    |
| Harry Potter and the Chamber of Secrets | J.K. Rowling    |
| Murder on the Orient Express            | Agatha Christie |
+-----------------------------------------+-----------------+
5 rows in set (0.00 sec)
```

ii. Display the name and nationality of each author along with the titles of the books they have written.



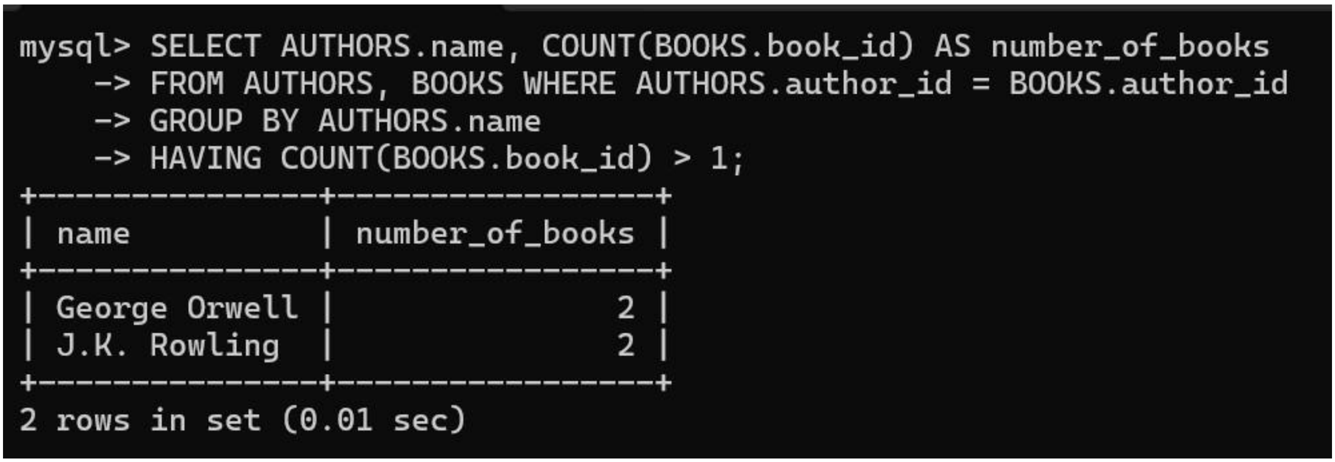
```
mysql> SELECT AUTHORS.name, AUTHORS.nationality, BOOKS.title
    -> FROM AUTHORS
    -> NATURAL JOIN BOOKS;
+-----------------+-------------+------------------------------------------+
| name            | nationality | title                                    |
+-----------------+-------------+------------------------------------------+
| George Orwell   | British     | 1984                                     |
| George Orwell   | British     | Animal Farm                              |
| J.K. Rowling    | British     | Harry Potter and the Philosophers Stone |
| J.K. Rowling    | British     | Harry Potter and the Chamber of Secrets |
| Mark Twain      | American    | The Adventures of Tom Sawyer             |
| Jane Austen     | British     | Pride and Prejudice                      |
| Agatha Christie | British     | Murder on the Orient Express             |
+-----------------+-------------+------------------------------------------+
7 rows in set (0.01 sec)
```

iii. Count the number of books for each genre.



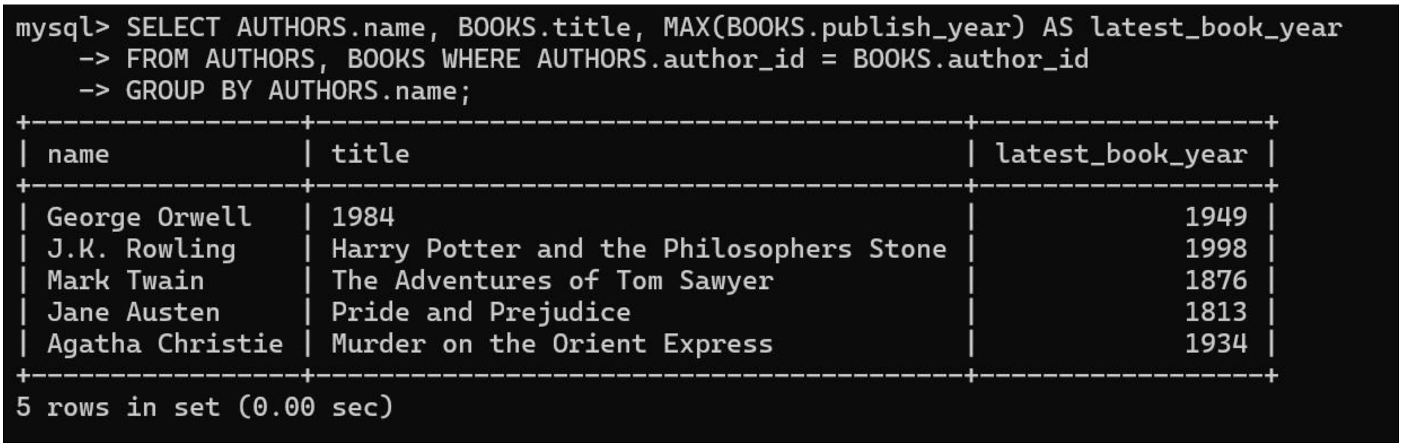
```
mysql> SELECT genre, COUNT(*) AS book_count
    -> FROM BOOKS
    -> GROUP BY genre;
+------------------+------------+
| genre            | book_count |
+------------------+------------+
| Dystopian        |          1 |
| Political Satire |          1 |
| Fantasy          |          2 |
| Fiction          |          1 |
| Romance          |          1 |
| Mystery          |          1 |
+------------------+------------+
6 rows in set (0.00 sec)
```

iv. Find authors who have written more than one book. Show the author’s name and the number of books they have written.



```
mysql> SELECT AUTHORS.name, COUNT(BOOKS.book_id) AS number_of_books
    -> FROM AUTHORS, BOOKS WHERE AUTHORS.author_id = BOOKS.author_id
    -> GROUP BY AUTHORS.name
    -> HAVING COUNT(BOOKS.book_id) > 1;
+---------------+-----------------+
| name          | number_of_books |
+---------------+-----------------+
| George Orwell |               2 |
| J.K. Rowling  |               2 |
+---------------+-----------------+
2 rows in set (0.01 sec)
```

v. Retrieve the name of the author and the title of their most recently published book.



```
mysql> SELECT AUTHORS.name, BOOKS.title, MAX(BOOKS.publish_year) AS latest_book_year
    -> FROM AUTHORS, BOOKS WHERE AUTHORS.author_id = BOOKS.author_id
    -> GROUP BY AUTHORS.name;
+-----------------+------------------------------------------+------------------+
| name            | title                                    | latest_book_year |
+-----------------+------------------------------------------+------------------+
| George Orwell   | 1984                                     |             1949 |
| J.K. Rowling    | Harry Potter and the Philosophers Stone  |             1998 |
| Mark Twain      | The Adventures of Tom Sawyer             |             1876 |
| Jane Austen     | Pride and Prejudice                      |             1813 |
| Agatha Christie | Murder on the Orient Express             |             1934 |
+-----------------+------------------------------------------+------------------+
5 rows in set (0.00 sec)
```

6. Consider the following tables and write SQL commands for the questions (i) to (v).

CUSTOMERS

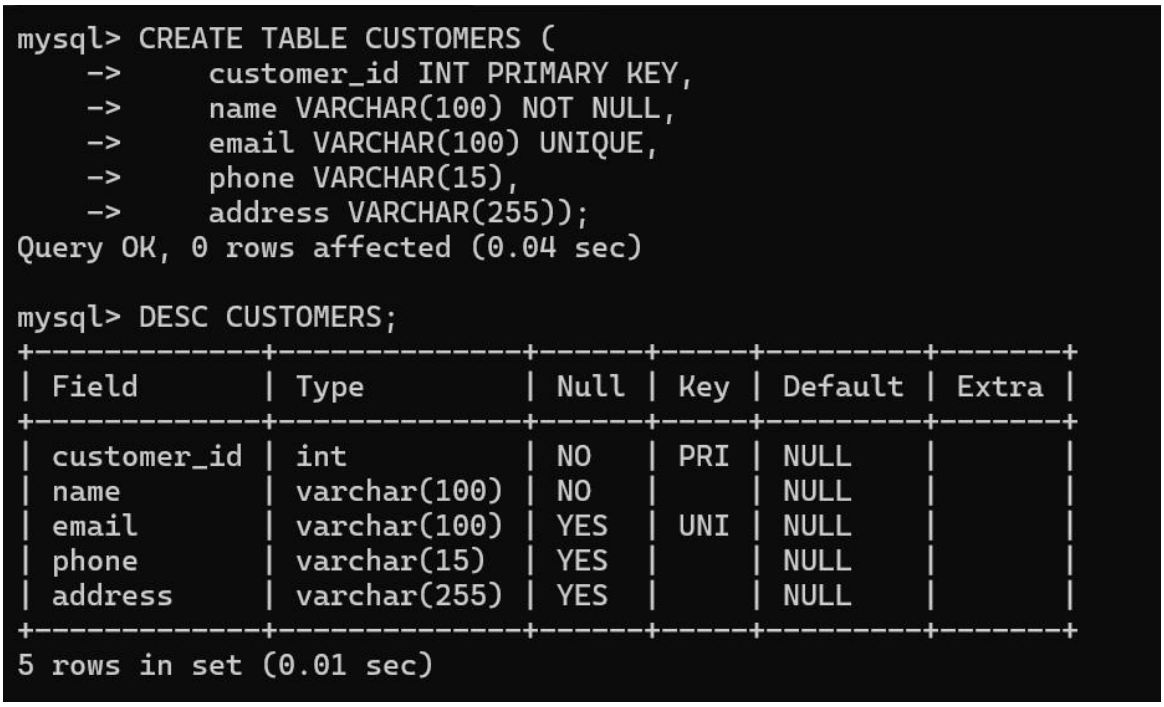
customer_id	name	email	phone	address
1	'Alice Smith'	'alice@example.com'	'1234567890'	'123 Maple St'
2	'Bob Johnson'	'bob@example.com'	'2345678901'	'456 Oak St'
3	'Carol White'	'carol@example.com'	'3456789012'	'789 Pine St'
4	'David Brown'	'david@example.com'	'4567890123'	'101 Birch St'
5	'Emma Green'	'emma@example.com'	'5678901234'	'202 Cedar St'

ORDERS

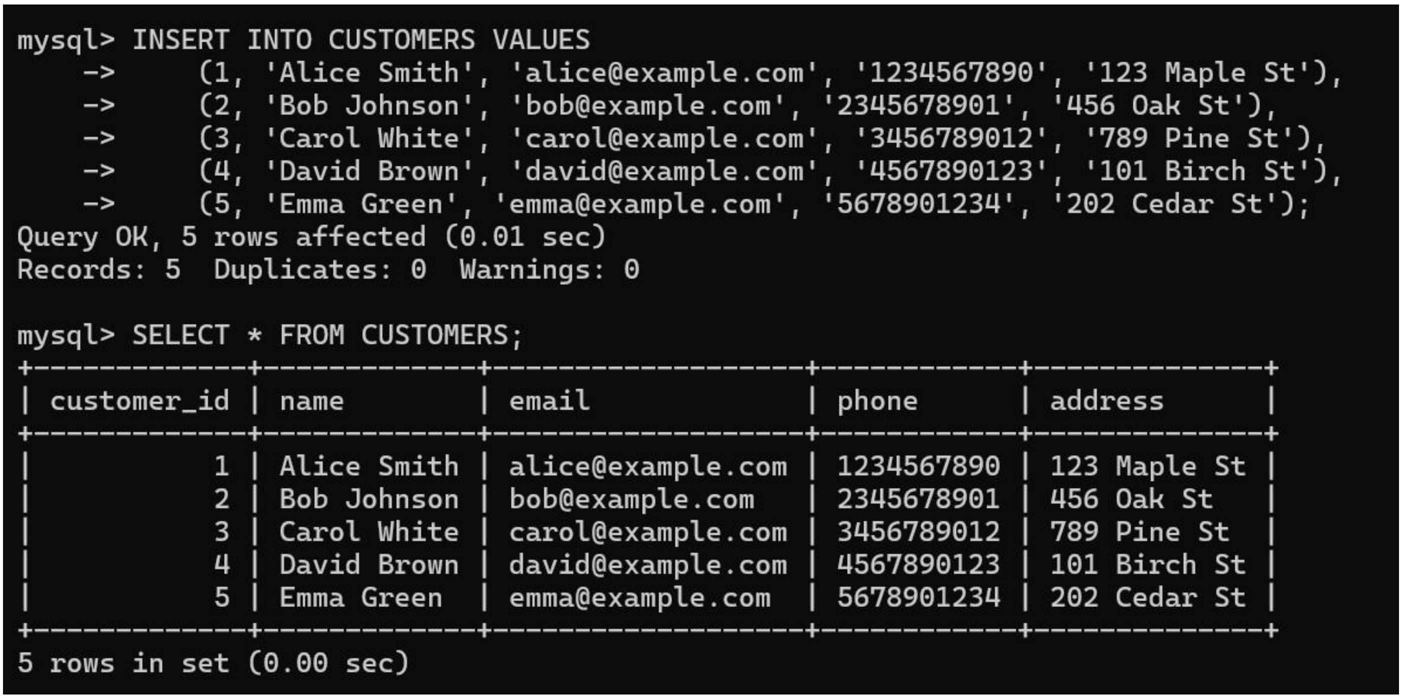
order_id	order_date		
101	'2023-11-01'	250.00	1
102	'2023-11-05'	150.00	1
103	'2023-11-10'	300.00	2
104	'2023-11-15'	400.00	3
105	'2023-11-20'	120.00	2

i. List all customers who placed orders on or after November 10, 2023. Display their name, email, order date, and amount.
ii. Show the total amount spent by each customer. Display the customer's name along with the total amount.
iii. Retrieve all orders, sorted by order amount in descending order. Display the order ID, order date, customer name, and amount.
iv. Find the names of customers who have placed orders with an amount greater than 200. Display the customer’s name and order amount.
v. List customers who have placed more than one order. Show the customer’s name and the number of orders they have placed.

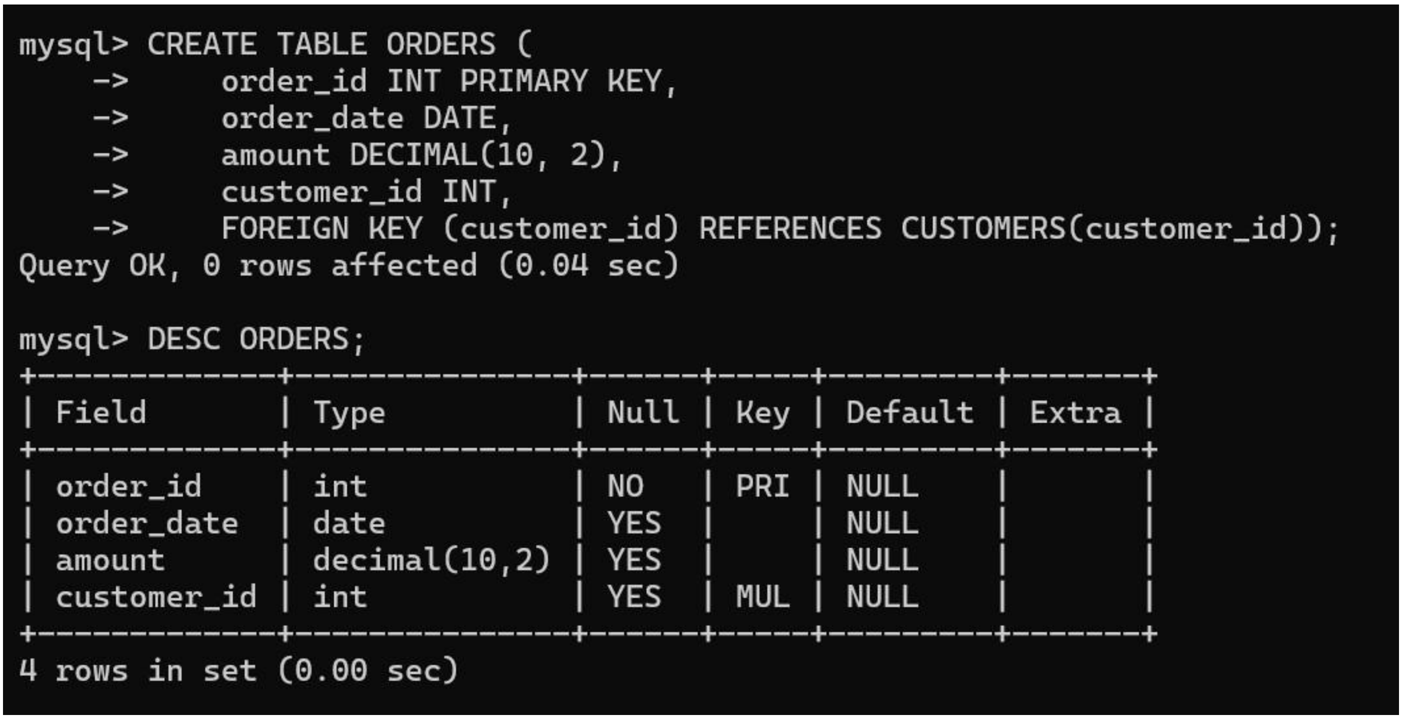
OUTPUT:



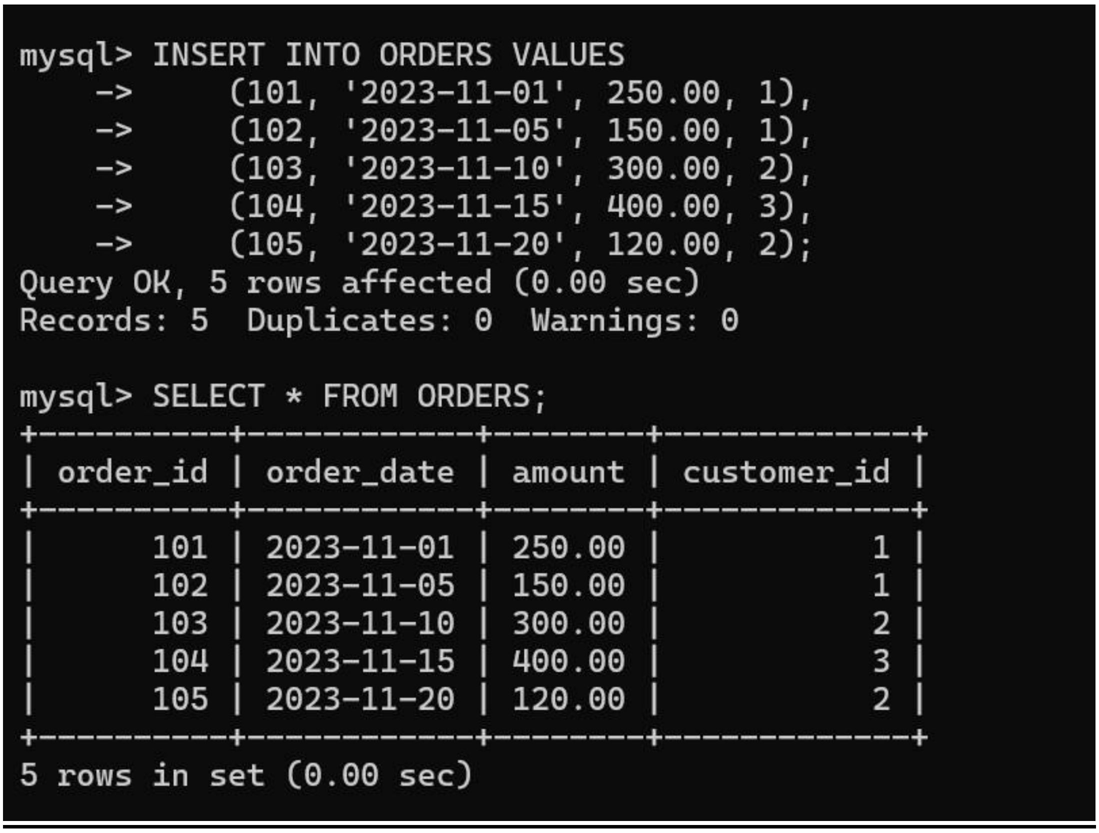
```
mysql> CREATE TABLE CUSTOMERS (
    ->     customer_id INT PRIMARY KEY,
    ->     name VARCHAR(100) NOT NULL,
    ->     email VARCHAR(100) UNIQUE,
    ->     phone VARCHAR(15),
    ->     address VARCHAR(255));
Query OK, 0 rows affected (0.04 sec)

mysql> DESC CUSTOMERS;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| customer_id | int          | NO   | PRI | NULL    |       |
| name        | varchar(100) | NO   |     | NULL    |       |
| email       | varchar(100) | YES  | UNI | NULL    |       |
| phone       | varchar(15)  | YES  |     | NULL    |       |
| address     | varchar(255) | YES  |     | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
5 rows in set (0.01 sec)
```



```
mysql> INSERT INTO CUSTOMERS VALUES
    ->     (1, 'Alice Smith', 'alice@example.com', '1234567890', '123 Maple St'),
    ->     (2, 'Bob Johnson', 'bob@example.com', '2345678901', '456 Oak St'),
    ->     (3, 'Carol White', 'carol@example.com', '3456789012', '789 Pine St'),
    ->     (4, 'David Brown', 'david@example.com', '4567890123', '101 Birch St'),
    ->     (5, 'Emma Green', 'emma@example.com', '5678901234', '202 Cedar St');
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM CUSTOMERS;
+-------------+-------------+-------------------+------------+--------------+
| customer_id | name        | email             | phone      | address      |
+-------------+-------------+-------------------+------------+--------------+
|           1 | Alice Smith | alice@example.com | 1234567890 | 123 Maple St |
|           2 | Bob Johnson | bob@example.com   | 2345678901 | 456 Oak St   |
|           3 | Carol White | carol@example.com | 3456789012 | 789 Pine St  |
|           4 | David Brown | david@example.com | 4567890123 | 101 Birch St |
|           5 | Emma Green  | emma@example.com  | 5678901234 | 202 Cedar St |
+-------------+-------------+-------------------+------------+--------------+
5 rows in set (0.00 sec)
```

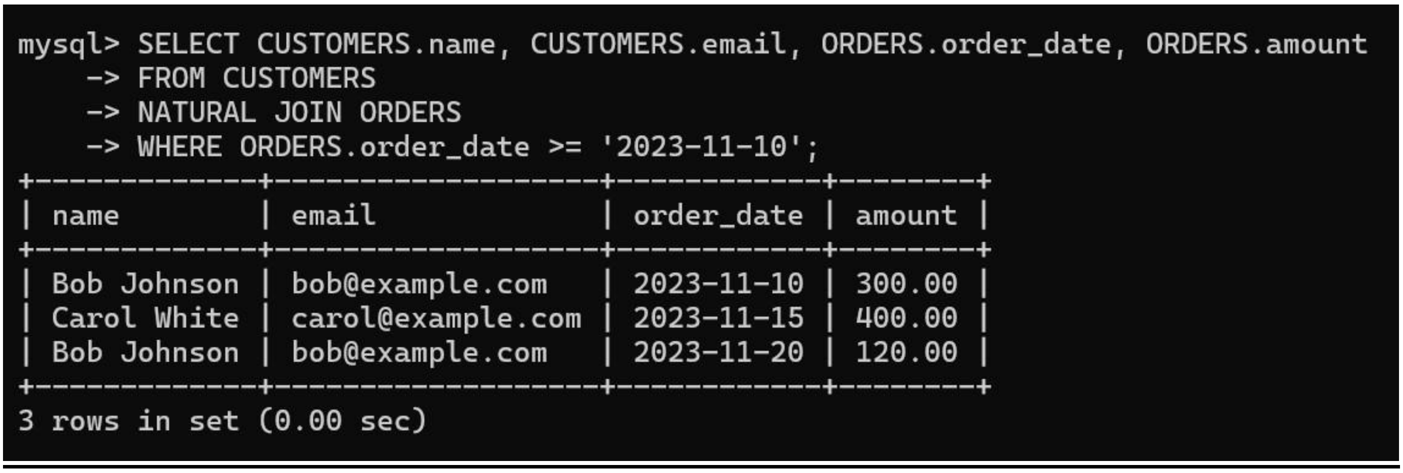


```
mysql> CREATE TABLE ORDERS (
    ->     order_id INT PRIMARY KEY,
    ->     order_date DATE,
    ->     amount DECIMAL(10, 2),
    ->     customer_id INT,
    ->     FOREIGN KEY (customer_id) REFERENCES CUSTOMERS(customer_id));
Query OK, 0 rows affected (0.04 sec)

mysql> DESC ORDERS;
+-------------+---------------+------+-----+---------+-------+
| Field       | Type          | Null | Key | Default | Extra |
+-------------+---------------+------+-----+---------+-------+
| order_id    | int           | NO   | PRI | NULL    |       |
| order_date  | date          | YES  |     | NULL    |       |
| amount      | decimal(10,2) | YES  |     | NULL    |       |
| customer_id | int           | YES  | MUL | NULL    |       |
+-------------+---------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```



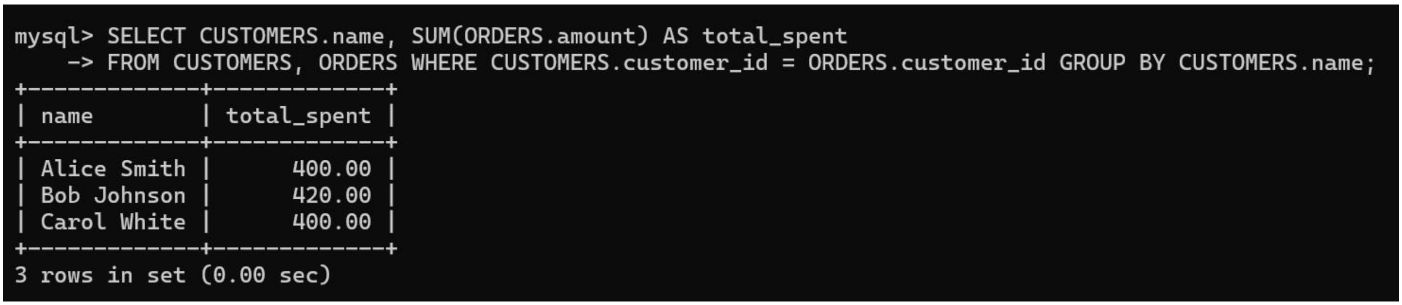
```
mysql> INSERT INTO ORDERS VALUES
    ->     (101, '2023-11-01', 250.00, 1),
    ->     (102, '2023-11-05', 150.00, 1),
    ->     (103, '2023-11-10', 300.00, 2),
    ->     (104, '2023-11-15', 400.00, 3),
    ->     (105, '2023-11-20', 120.00, 2);
Query OK, 5 rows affected (0.00 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM ORDERS;
+----------+------------+--------+-------------+
| order_id | order_date | amount | customer_id |
+----------+------------+--------+-------------+
|      101 | 2023-11-01 | 250.00 |           1 |
|      102 | 2023-11-05 | 150.00 |           1 |
|      103 | 2023-11-10 | 300.00 |           2 |
|      104 | 2023-11-15 | 400.00 |           3 |
|      105 | 2023-11-20 | 120.00 |           2 |
+----------+------------+--------+-------------+
5 rows in set (0.00 sec)
```

i. List all customers who placed orders on or after November 10, 2023. Display their name, email, order date, and amount.



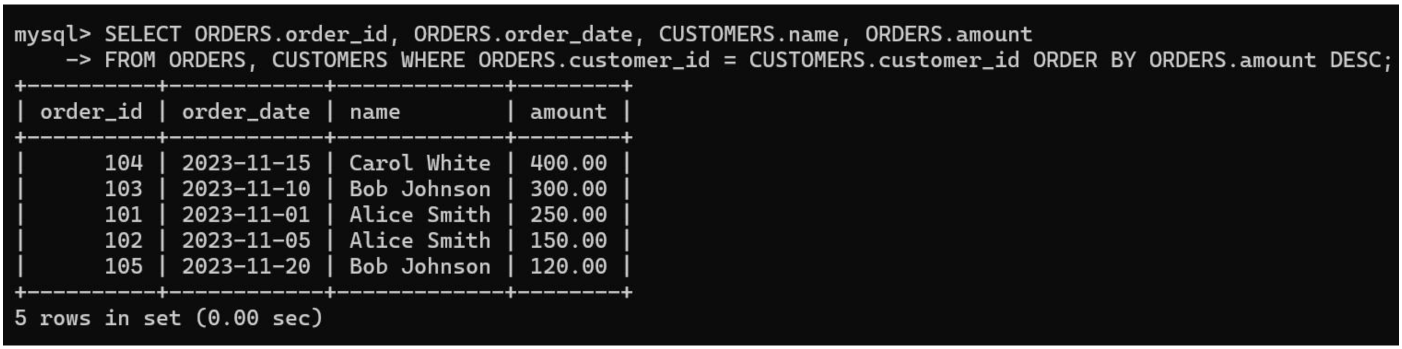
```
mysql> SELECT CUSTOMERS.name, CUSTOMERS.email, ORDERS.order_date, ORDERS.amount
    -> FROM CUSTOMERS
    -> NATURAL JOIN ORDERS
    -> WHERE ORDERS.order_date >= '2023-11-10';
+-------------+-------------------+------------+--------+
| name        | email             | order_date | amount |
+-------------+-------------------+------------+--------+
| Bob Johnson | bob@example.com   | 2023-11-10 | 300.00 |
| Carol White | carol@example.com | 2023-11-15 | 400.00 |
| Bob Johnson | bob@example.com   | 2023-11-20 | 120.00 |
+-------------+-------------------+------------+--------+
3 rows in set (0.00 sec)
```

ii. Show the total amount spent by each customer. Display the customer's name along with the total amount.



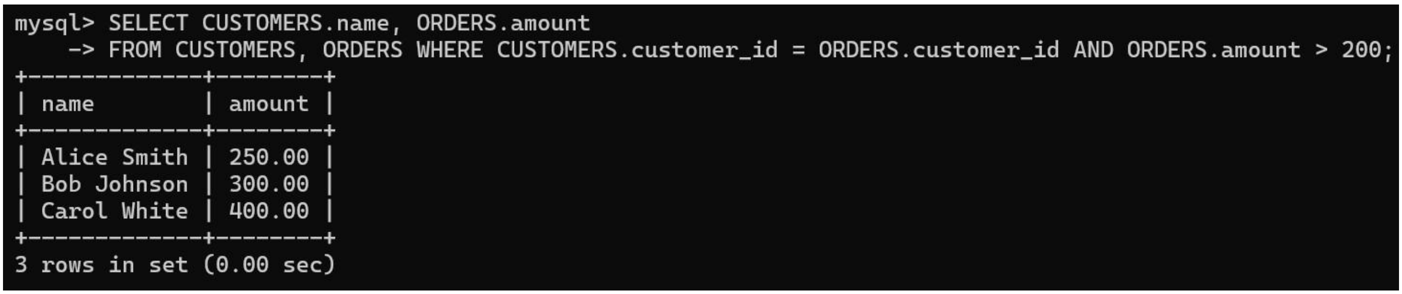
```
mysql> SELECT CUSTOMERS.name, SUM(ORDERS.amount) AS total_spent
    -> FROM CUSTOMERS, ORDERS WHERE CUSTOMERS.customer_id = ORDERS.customer_id GROUP BY CUSTOMERS.name;
+-------------+-------------+
| name        | total_spent |
+-------------+-------------+
| Alice Smith |      400.00 |
| Bob Johnson |      420.00 |
| Carol White |      400.00 |
+-------------+-------------+
3 rows in set (0.00 sec)
```

iii. Retrieve all orders, sorted by order amount in descending order. Display the order ID, order date, customer name, and amount.



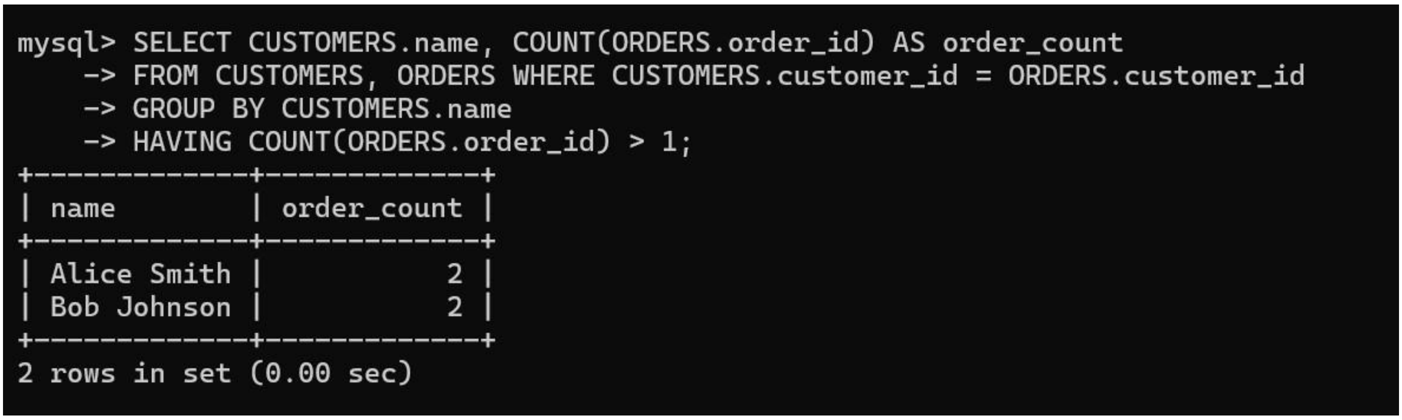
```
mysql> SELECT ORDERS.order_id, ORDERS.order_date, CUSTOMERS.name, ORDERS.amount
    -> FROM ORDERS, CUSTOMERS WHERE ORDERS.customer_id = CUSTOMERS.customer_id ORDER BY ORDERS.amount DESC;
+----------+------------+-------------+--------+
| order_id | order_date | name        | amount |
+----------+------------+-------------+--------+
|      104 | 2023-11-15 | Carol White | 400.00 |
|      103 | 2023-11-10 | Bob Johnson | 300.00 |
|      101 | 2023-11-01 | Alice Smith | 250.00 |
|      102 | 2023-11-05 | Alice Smith | 150.00 |
|      105 | 2023-11-20 | Bob Johnson | 120.00 |
+----------+------------+-------------+--------+
5 rows in set (0.00 sec)
```

iv. Find the names of customers who have placed orders with an amount greater than 200. Display the customer’s name and order amount.



```
mysql> SELECT CUSTOMERS.name, ORDERS.amount
    -> FROM CUSTOMERS, ORDERS WHERE CUSTOMERS.customer_id = ORDERS.customer_id AND ORDERS.amount > 200;
+-------------+--------+
| name        | amount |
+-------------+--------+
| Alice Smith | 250.00 |
| Bob Johnson | 300.00 |
| Carol White | 400.00 |
+-------------+--------+
3 rows in set (0.00 sec)
```

v. List customers who have placed more than one order. Show the customer’s name and the number of orders they have placed.



```
mysql> SELECT CUSTOMERS.name, COUNT(ORDERS.order_id) AS order_count
    -> FROM CUSTOMERS, ORDERS WHERE CUSTOMERS.customer_id = ORDERS.customer_id
    -> GROUP BY CUSTOMERS.name
    -> HAVING COUNT(ORDERS.order_id) > 1;
+-------------+-------------+
| name        | order_count |
+-------------+-------------+
| Alice Smith |           2 |
| Bob Johnson |           2 |
+-------------+-------------+
2 rows in set (0.00 sec)
```