

DBMS LAB RECORD

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PROGRAM 6 : ORDER PROCESSING DATABASE

Consider the following relations for an Order Processing database application in a company.

CUSTOMER (CUST #: int, cname: String, city: String)

ORDER (order #: int, odate: date, cust #: int, ord-Amt: int)

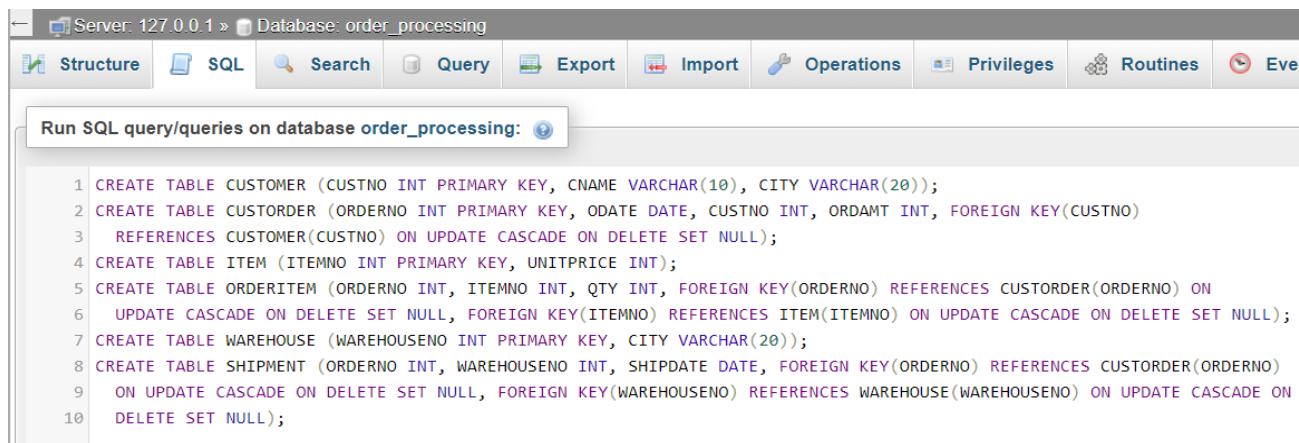
ITEM (item #: int, unit-price: int)

ORDER-ITEM (order #: int, item #: int, qty: int)

WAREHOUSE (warehouse #: int, city: String)

SHIPMENT (order #: int, warehouse #: int, ship-date: date)

i. Create the above tables by properly specifying the primary keys and the foreign keys and the foreign keys.



```
1 CREATE TABLE CUSTOMER (CUSTNO INT PRIMARY KEY, CNAME VARCHAR(10), CITY VARCHAR(20));
2 CREATE TABLE CUSTORDER (ORDERNO INT PRIMARY KEY, ODATE DATE, CUSTNO INT, ORDAKT INT, FOREIGN KEY(CUSTNO)
3   REFERENCES CUSTOMER(CUSTNO) ON UPDATE CASCADE ON DELETE SET NULL);
4 CREATE TABLE ITEM (ITEMNO INT PRIMARY KEY, UNITPRICE INT);
5 CREATE TABLE ORDERITEM (ORDERNO INT, ITEMNO INT, QTY INT, FOREIGN KEY(ORDERNO) REFERENCES CUSTORDER(ORDERNO) ON
6   UPDATE CASCADE ON DELETE SET NULL, FOREIGN KEY(ITEMNO) REFERENCES ITEM(ITEMNO) ON UPDATE CASCADE ON DELETE SET NULL);
7 CREATE TABLE WAREHOUSE (WAREHOUSENO INT PRIMARY KEY, CITY VARCHAR(20));
8 CREATE TABLE SHIPMENT (ORDERNO INT, WAREHOUSENO INT, SHIPDATE DATE, FOREIGN KEY(ORDERNO) REFERENCES CUSTORDER(ORDERNO)
9   ON UPDATE CASCADE ON DELETE SET NULL, FOREIGN KEY(WAREHOUSENO) REFERENCES WAREHOUSE(WAREHOUSENO) ON UPDATE CASCADE ON
10  DELETE SET NULL);
```

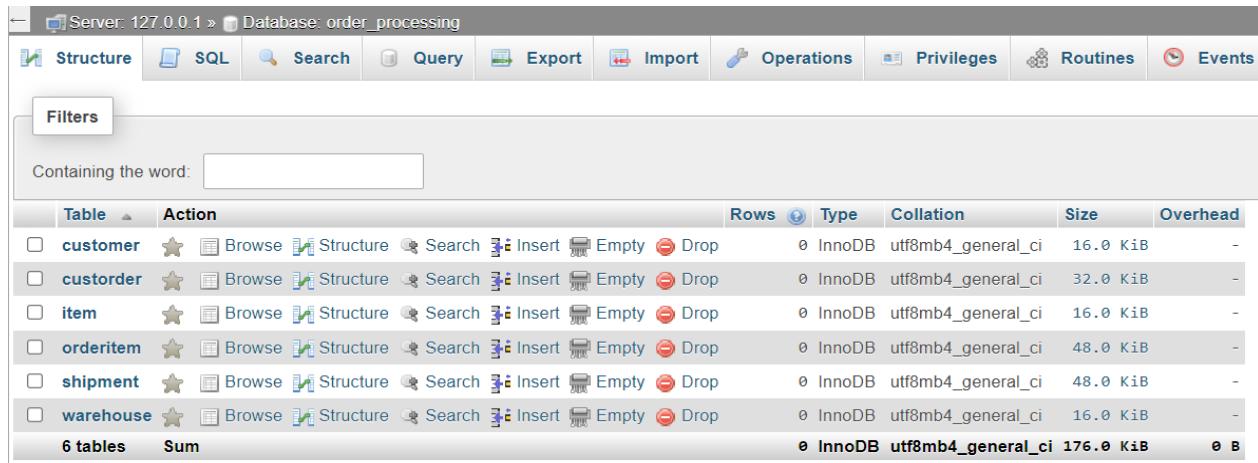


Table	Action	Rows	Type	Collation	Size	Overhead
customer		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
custorder		0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
item		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
orderitem		0	InnoDB	utf8mb4_general_ci	48.0 KiB	-
shipment		0	InnoDB	utf8mb4_general_ci	48.0 KiB	-
warehouse		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
6 tables	Sum	0	InnoDB	utf8mb4_general_ci	176.0 KiB	0 B

ii. Enter at least five tuples for each relation.

'CUSTOMER' table:

The screenshot shows the MySQL Workbench interface with the 'SQL' tab selected. A query window displays the following SQL code:

```
1 INSERT INTO CUSTOMER VALUES (1,'Connor','Bangalore');
2 INSERT INTO CUSTOMER VALUES (2,'Asher','Mumbai');
3 INSERT INTO CUSTOMER VALUES (3,'Frank','Jaipur');
4 INSERT INTO CUSTOMER VALUES (4,'Laurel','Guwahati');
5 INSERT INTO CUSTOMER VALUES (5,'Jack','Bangalore');
6 INSERT INTO CUSTOMER VALUES (6,'Nate','Mumbai');
```

The screenshot shows the MySQL Workbench interface with the 'Browse' tab selected. A message bar indicates: "Showing rows 0 - 5 (6 total, Query took 0.0005 seconds.)". Below it, a query window shows the result of the following SELECT statement:

```
SELECT * FROM `customer`
```

At the bottom, there are filtering options: "Show all" (unchecked), "Number of rows: 25", and "Filter rows: Search this table".

+ Options

	CUSTNO	CNAME	CITY
<input type="checkbox"/>	1	Connor	Bangalore
<input type="checkbox"/>	2	Asher	Mumbai
<input type="checkbox"/>	3	Frank	Jaipur
<input type="checkbox"/>	4	Laurel	Guwahati
<input type="checkbox"/>	5	Jack	Bangalore
<input type="checkbox"/>	6	Nate	Mumbai

'CUSTORDER' table:

Server: 127.0.0.1 » Database: order_processing » Table: custorder

Browse Structure SQL Search Insert

Run SQL query/queries on table order_processing.custorder: [?](#)

```
1 INSERT INTO CUSTORDER VALUES (1,'2021-06-01',1,1000);
2 INSERT INTO CUSTORDER VALUES (2,'2021-06-02',1,1500);
3 INSERT INTO CUSTORDER VALUES (3,'2021-06-03',3,1600);
4 INSERT INTO CUSTORDER VALUES (4,'2021-06-04',2,1700);
5 INSERT INTO CUSTORDER VALUES (5,'2021-06-05',4,1200);
6 INSERT INTO CUSTORDER VALUES (6,'2021-06-06',5,1100);
7 INSERT INTO CUSTORDER VALUES (7,'2021-06-07',2,1890);
8 INSERT INTO CUSTORDER VALUES (8,'2021-06-08',4,2000);
```

Server: 127.0.0.1 » Database: order_processing » Table: custorder

Browse Structure SQL Search Insert Export

Showing rows 0 - 7 (8 total, Query took 0.0005 seconds.)

```
SELECT * FROM `custorder`
```

Show all | Number of rows: 25 Filter rows:

+ Options

	← ↑ →	▼	ORDERNO	ODATE	CUSTNO	ORDAMT
<input type="checkbox"/>	Edit	Copy	Delete	1	2021-06-01	1 1000
<input type="checkbox"/>	Edit	Copy	Delete	2	2021-06-02	1 1500
<input type="checkbox"/>	Edit	Copy	Delete	3	2021-06-03	3 1600
<input type="checkbox"/>	Edit	Copy	Delete	4	2021-06-04	2 1700
<input type="checkbox"/>	Edit	Copy	Delete	5	2021-06-05	4 1200
<input type="checkbox"/>	Edit	Copy	Delete	6	2021-06-06	5 1100
<input type="checkbox"/>	Edit	Copy	Delete	7	2021-06-07	2 1890
<input type="checkbox"/>	Edit	Copy	Delete	8	2021-06-08	4 2000

'ITEM' table:

← Server: 127.0.0.1 » Database: order_processing » Table: item

Browse Structure SQL Search Insert

Run SQL query/queries on table order_processing.item: [?](#)

```
1 INSERT INTO ITEM VALUES (1,1000);
2 INSERT INTO ITEM VALUES (2,100);
3 INSERT INTO ITEM VALUES (3,900);
4 INSERT INTO ITEM VALUES (4,700);
5 INSERT INTO ITEM VALUES (5,800);
6 INSERT INTO ITEM VALUES (6,750);
7 INSERT INTO ITEM VALUES (7,850);
8 INSERT INTO ITEM VALUES (8,950);
9 INSERT INTO ITEM VALUES (9,990);
10 INSERT INTO ITEM VALUES (10,999);
```

← Server: 127.0.0.1 » Database: order_processing » Table: item

Browse Structure SQL Search Insert

Showing rows 0 - 9 (10 total, Query took 0.0005 seconds.)

```
SELECT * FROM `item`
```

Show all | Number of rows: 25 Filter rows:

+ Options

	ITEMNO	UNITPRICE
<input type="checkbox"/> Edit Copy Delete	1	1000
<input type="checkbox"/> Edit Copy Delete	2	100
<input type="checkbox"/> Edit Copy Delete	3	900
<input type="checkbox"/> Edit Copy Delete	4	700
<input type="checkbox"/> Edit Copy Delete	5	800
<input type="checkbox"/> Edit Copy Delete	6	750
<input type="checkbox"/> Edit Copy Delete	7	850
<input type="checkbox"/> Edit Copy Delete	8	950
<input type="checkbox"/> Edit Copy Delete	9	990
<input type="checkbox"/> Edit Copy Delete	10	999

'ORDERITEM' table:

Server: 127.0.0.1 » Database: order_processing » Table: orderitem

Browse Structure SQL Search Insert

Run SQL query/queries on table order_processing.orderitem: [?](#)

```
1 INSERT INTO ORDERITEM VALUES (1,9,1);
2 INSERT INTO ORDERITEM VALUES (2,8,1);
3 INSERT INTO ORDERITEM VALUES (3,7,1);
4 INSERT INTO ORDERITEM VALUES (4,6,1);
5 INSERT INTO ORDERITEM VALUES (5,5,1);
6 INSERT INTO ORDERITEM VALUES (6,4,1);
7 INSERT INTO ORDERITEM VALUES (7,3,1);
8 INSERT INTO ORDERITEM VALUES (8,10,1);
9 INSERT INTO ORDERITEM VALUES (8,1,1);
10 INSERT INTO ORDERITEM VALUES (7,2,8);
```

Server: 127.0.0.1 » Database: order_processing » Table: orderitem

Browse Structure SQL Search Insert

⚠ Current selection does not contain a unique column. Grid edit

Showing rows 0 - 9 (10 total, Query took 0.0004 seconds.)

```
SELECT * FROM `orderitem`
```

Show all | Number of rows: 25 Filter rows:

+ Options

ORDERNO	ITEMNO	QTY
1	9	1
2	8	1
3	7	1
4	6	1
5	5	1
6	4	1
7	3	1
8	10	1
8	1	1
7	2	8

'WAREHOUSE' table:

Server: 127.0.0.1 » Database: order_processing » Table: warehouse

Browse Structure SQL Search Insert

Run SQL query/queries on table order_processing.warehouse: [?](#)

```
1 INSERT INTO WAREHOUSE VALUES (1,'Bangalore');
2 INSERT INTO WAREHOUSE VALUES (2,'Mumbai');
3 INSERT INTO WAREHOUSE VALUES (3,'Delhi');
4 INSERT INTO WAREHOUSE VALUES (4,'Chennai');
5 INSERT INTO WAREHOUSE VALUES (5,'Delhi');
6 INSERT INTO WAREHOUSE VALUES (6,'Bangalore');
```

Server: 127.0.0.1 » Database: order_processing » Table: warehouse

Browse Structure SQL Search Insert

Showing rows 0 - 5 (6 total, Query took 0.0005 seconds.)

```
SELECT * FROM `warehouse`
```

Show all | Number of rows: 25 Filter rows:

+ Options

	WAREHOUSENO	CITY
<input type="checkbox"/>  Edit  Copy  Delete	1	Bangalore
<input type="checkbox"/>  Edit  Copy  Delete	2	Mumbai
<input type="checkbox"/>  Edit  Copy  Delete	3	Delhi
<input type="checkbox"/>  Edit  Copy  Delete	4	Chennai
<input type="checkbox"/>  Edit  Copy  Delete	5	Delhi
<input type="checkbox"/>  Edit  Copy  Delete	6	Bangalore

'SHIPMENT' table:

Server: 127.0.0.1 » Database: order_processing » Table: shipment

Browse Structure SQL Search Insert

Run SQL query/queries on table order_processing.shipment:

```
1 INSERT INTO SHIPMENT VALUES (1,5,'2021-06-08');
2 INSERT INTO SHIPMENT VALUES (2,2,'2021-06-08');
3 INSERT INTO SHIPMENT VALUES (3,6,'2021-06-08');
4 INSERT INTO SHIPMENT VALUES (4,1,'2021-06-08');
5 INSERT INTO SHIPMENT VALUES (5,6,'2021-06-08');
6 INSERT INTO SHIPMENT VALUES (6,5,'2021-06-08');
7 INSERT INTO SHIPMENT VALUES (7,4,'2021-06-08');
8 INSERT INTO SHIPMENT VALUES (8,3,'2021-06-08');
```

Server: 127.0.0.1 » Database: order_processing » Table: shipment

Browse Structure SQL Search Insert

⚠ Current selection does not contain a unique column. Grid edit, checkbox, Ed

✓ Showing rows 0 - 7 (8 total, Query took 0.0006 seconds.)

```
SELECT * FROM `shipment`
```

Show all | Number of rows: 25 Filter rows: Search this table

+ Options

ORDERNO	WAREHOUSENO	SHIPDATE
1	5	2021-06-08
2	2	2021-06-08
3	6	2021-06-08
4	1	2021-06-08
5	6	2021-06-08
6	5	2021-06-08
7	4	2021-06-08
8	3	2021-06-08

iii. Produce a listing: CUSTNAME, #oforders, AVG_ORDER_AMT, where the middle column is the total numbers of orders by the customer and the last column is the average order amount for that customer.

Query:

```
SELECT C.CNAME, COUNT(O.ORDERNO) AS NUMBER_OF_ORDERS, AVG(O.ORDAMT) AS  
AVG_ORDER_AMT FROM CUSTOMER C, CUSTORDER O WHERE C.CUSTNO=O.CUSTNO GROUP  
BY C.CNAME ORDER BY C.CNAME ASC;
```

The screenshot shows a SQL query editor window. At the top, it displays the connection information: "Server: 127.0.0.1 » Database: order_processing". Below the connection bar are several tabs: Structure, SQL (which is selected), Search, Query, Export, Import, and Operations. A sub-header below the tabs reads "Run SQL query/queries on database order_processing:". The main area contains the SQL code for the query, which is identical to the one provided in the text above. The code is numbered from 1 to 5.

The screenshot shows a table browser window for the "CUSTOMER" table within the "order_processing" database. The connection information at the top is "Server: 127.0.0.1 » Database: order_processing ». Table: CUSTOMER". Below the connection bar are tabs: Browse (selected), Structure, SQL, Search, Insert, and Export.

Show query box

The screenshot shows a query results window. It displays a green checkmark icon followed by the message "Showing rows 0 - 4 (5 total, Query took 0.0019 seconds.) [CNAME: ASHER... - I]". Below this, the original SQL query is shown again. The window has a "Show all" checkbox, a "Number of rows" dropdown set to 25, and a "Filter rows" input field with the placeholder "Search this table".

+ Options

CNAME	1	NUMBER_OF_ORDERS	AVG_ORDER_AMT
Asher		2	1795.0000
Connor		2	1250.0000
Frank		1	1600.0000
Jack		1	1100.0000
Laurel		2	1600.0000

iv. List the order# for orders that were shipped from all warehouses that the company has in a specific city.

Query:

```
SELECT DISTINCT ORDERNO FROM SHIPMENT WHERE WAREHOUSENO IN (SELECT  
WAREHOUSENO FROM WAREHOUSE WHERE CITY='Bangalore');
```

The screenshot shows the MySQL Workbench interface. The title bar indicates "Server: 127.0.0.1 » Database: order_processing". Below the title bar is a toolbar with tabs: Structure, SQL, Search, Query, Export, and a refresh icon. The "SQL" tab is selected. A large text area below the toolbar contains the SQL query:

```
1 SELECT DISTINCT ORDERNO FROM SHIPMENT  
2 WHERE WAREHOUSENO IN (SELECT WAREHOUSENO  
3 FROM WAREHOUSE  
4 WHERE CITY='Bangalore');
```

The screenshot shows the MySQL Workbench interface with the title bar "Server: 127.0.0.1 » Database: order_processing » Table: SHIPMENT". Below the title bar is a toolbar with tabs: Browse, Structure, SQL, Search, Insert, and a refresh icon. The "Table" tab is selected. The table structure for SHIPMENT is shown with columns: ORDERNO, CUSTID, QUANTITY, and UNITPRICE.

Show query box

The screenshot shows the MySQL Workbench interface with the title bar "Server: 127.0.0.1 » Database: order_processing » Table: SHIPMENT". Below the title bar is a toolbar with tabs: Browse, Structure, SQL, Search, Insert, and a refresh icon. The "Table" tab is selected. The results of the query execution are displayed in a grid:

ORDERNO	CUSTID	QUANTITY	UNITPRICE
3	10001	10	100.00
4	10002	10	100.00
5	10003	10	100.00

A message box at the top of the results window says: "⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit". A green success message at the bottom left says: "✓ Showing rows 0 - 2 (3 total, Query took 0.0376 seconds.)".

Show all | Number of rows: 25 ▾ Filter rows: Search this table

+ Options

ORDERNO

3

4

5

v. Demonstrate how you delete item# 10 from the ITEM table and make that field null in the ORDER_ITEM table.

Query:

```
DELETE FROM ITEM WHERE ITEMNO=10;
```

Server: 127.0.0.1 » Database: order_processing

Structure SQL Search Query Export

Run SQL query/queries on database order_processing: ?

```
1 DELETE FROM ITEM WHERE ITEMNO=10;
```

Server: 127.0.0.1 » Database: order_processing » Table: orderitem

Browse Structure SQL Search Insert E

⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit, ...

Showing rows 0 - 9 (10 total, Query took 0.0006 seconds.) [ITEMNO: ... - 9...]

```
SELECT * FROM `orderitem` ORDER BY `ITEMNO` ASC
```

Show all Number of rows: 25 Filter rows: Search this table

+ Options

ORDERNO	ITEMNO	QTY
8	NULL	1
8	1	1
7	2	8
7	3	1
6	4	1
5	5	1
4	6	1
3	7	1
2	8	1
1	9	1

PROGRAM 7 : BOOK DEALER DATABASE

The following tables are maintained by a Book Dealer:

AUTHOR(author-id: int, name: String, city: String, country: String)

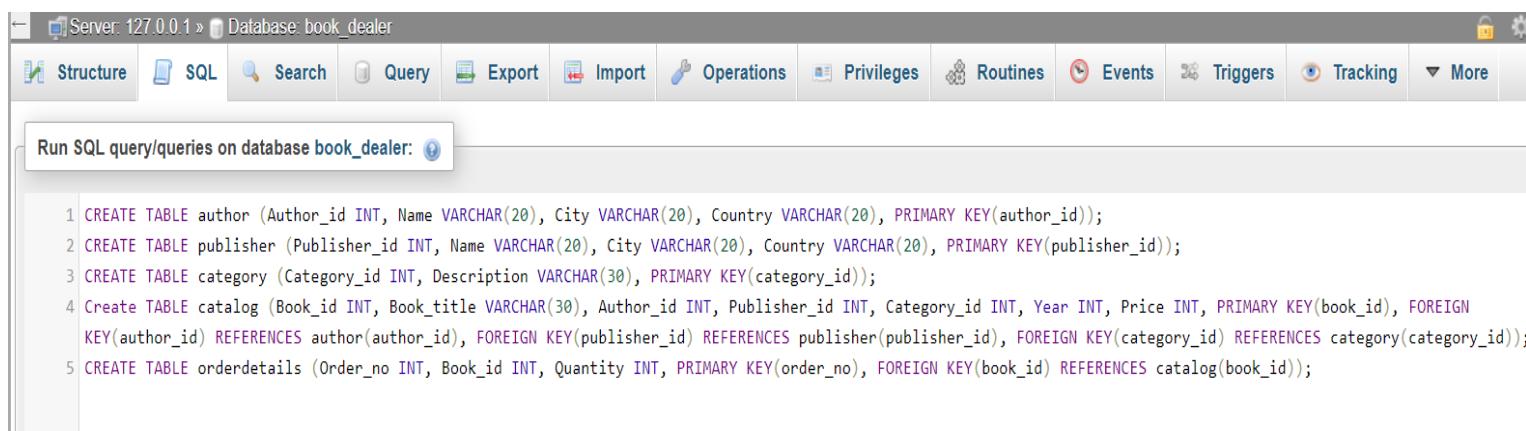
PUBLISHER(publisher-id: int, name: String, city: String, country: String)

CATALOG(book-id: int, title: String, author-id: int, publisher-id: int, category-id: int, year: int, price: int)

CATEGORY(category-id: int, description: String)

ORDER-DETAILS(order-no: int, book-id: int, quantity: int)

i. Create the above tables by properly specifying the primary keys and the foreign keys.



```
1 CREATE TABLE author (Author_id INT, Name VARCHAR(20), City VARCHAR(20), Country VARCHAR(20), PRIMARY KEY(author_id));
2 CREATE TABLE publisher (Publisher_id INT, Name VARCHAR(20), City VARCHAR(20), Country VARCHAR(20), PRIMARY KEY(publisher_id));
3 CREATE TABLE category (Category_id INT, Description VARCHAR(30), PRIMARY KEY(category_id));
4 Create TABLE catalog (Book_id INT, Book_title VARCHAR(30), Author_id INT, Publisher_id INT, Category_id INT, Year INT, Price INT, PRIMARY KEY(book_id), FOREIGN KEY(author_id) REFERENCES author(author_id), FOREIGN KEY(publisher_id) REFERENCES publisher(publisher_id), FOREIGN KEY(category_id) REFERENCES category(category_id));
5 CREATE TABLE orderdetails (Order_no INT, Book_id INT, Quantity INT, PRIMARY KEY(order_no), FOREIGN KEY(book_id) REFERENCES catalog(book_id));
```

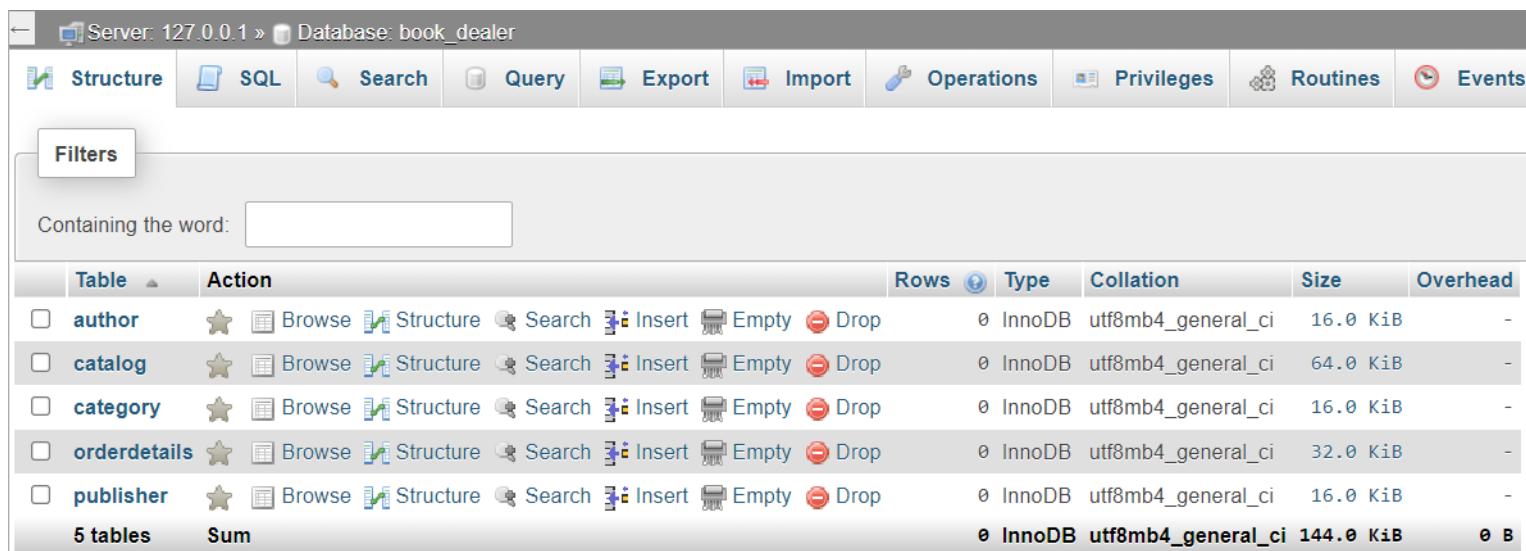


Table	Action	Rows	Type	Collation	Size	Overhead
author		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
catalog		0	InnoDB	utf8mb4_general_ci	64.0 KiB	-
category		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
orderdetails		0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
publisher		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
5 tables	Sum	0	InnoDB	utf8mb4_general_ci	144.0 KiB	0 B

ii. Enter at least five tuples for each relation.

'AUTHOR' table:

```
1 INSERT INTO author VALUES (1001,'JK Rowling','London','England');
2 INSERT INTO author VALUES (1002,'Chetan Bhagat','Mumbai','India');
3 INSERT INTO author VALUES (1003,'John McCarthy','Chicago','USA');
4 INSERT INTO author VALUES (1004,'Dan Brown','California','USA');
5 INSERT INTO author VALUES (1005,'John Green','Berlin','Germany');
```

Showing rows 0 - 4 (5 total, Query took 0.0005 seconds.)

```
SELECT * FROM `author`
```

Show all | Number of rows: 25 Filter rows: Search this table

+ Options

		Author_id	Name	City	Country
<input type="checkbox"/>	Edit Copy Delete	1001	JK Rowling	London	England
<input type="checkbox"/>	Edit Copy Delete	1002	Chetan Bhagat	Mumbai	India
<input type="checkbox"/>	Edit Copy Delete	1003	John McCarthy	Chicago	USA
<input type="checkbox"/>	Edit Copy Delete	1004	Dan Brown	California	USA
<input type="checkbox"/>	Edit Copy Delete	1005	John Green	Berlin	Germany

'PUBLISHER' table:

Server: 127.0.0.1 » Database: book_dealer » Table: publisher

Browse Structure SQL Search Insert Export

Run SQL query/queries on table book_dealer.publisher: [?](#)

```
1 INSERT INTO publisher VALUES (2001,'Bloomsbury','London','England');
2 INSERT INTO publisher VALUES (2002,'Scholastic','Washington','USA');
3 INSERT INTO publisher VALUES (2003,'Pearson','London','England');
4 INSERT INTO publisher VALUES (2004,'Rupa','Delhi','India');
5 INSERT INTO publisher VALUES (2005,'Stefan','Berlin','Germany');
```

Server: 127.0.0.1 » Database: book_dealer » Table: publisher

Browse Structure SQL Search Insert Export

Showing rows 0 - 4 (5 total, Query took 0.0005 seconds.)

```
SELECT * FROM `publisher`
```

Show all | Number of rows: 25 Filter rows:

+ Options

	Edit	Copy	Delete	Publisher_id	Name	City	Country
<input type="checkbox"/>	Edit	Copy	Delete	2001	Bloomsbury	London	England
<input type="checkbox"/>	Edit	Copy	Delete	2002	Scholastic	Washington	USA
<input type="checkbox"/>	Edit	Copy	Delete	2003	Pearson	London	England
<input type="checkbox"/>	Edit	Copy	Delete	2004	Rupa	Delhi	India
<input type="checkbox"/>	Edit	Copy	Delete	2005	Stefan	Berlin	Germany

'CATEGORY' table:

← Server: 127.0.0.1 » Database: book_dealer » Table: category

Browse Structure SQL Search Insert

Run SQL query/queries on table book_dealer.category: [?](#)

```
1 INSERT INTO category VALUES (3001, 'Fiction');
2 INSERT INTO category VALUES (3002, 'Non-Fiction');
3 INSERT INTO category VALUES (3003, 'Thriller');
4 INSERT INTO category VALUES (3004, 'Action');
5 INSERT INTO category VALUES (3005, 'Fiction');
```

← Server: 127.0.0.1 » Database: book_dealer » Table: category

Browse Structure SQL Search Insert

Showing rows 0 - 4 (5 total, Query took 0.0005 seconds.)

```
SELECT * FROM `category`
```

Show all | Number of rows: 25 Filter rows:

+ Options

	Edit	Copy	Delete	Category_id	Description
<input type="checkbox"/>	Edit	Copy	Delete	3001	Fiction
<input type="checkbox"/>	Edit	Copy	Delete	3002	Non-Fiction
<input type="checkbox"/>	Edit	Copy	Delete	3003	Thriller
<input type="checkbox"/>	Edit	Copy	Delete	3004	Action
<input type="checkbox"/>	Edit	Copy	Delete	3005	Fiction

'CATALOG' table:

Server: 127.0.0.1 » Database: book_dealer » Table: catalog

Browse Structure SQL Search Insert Export Import P

Run SQL query/queries on table book_dealer.catalog: [?](#)

```
1 INSERT INTO catalog VALUES (4001,'HP and Goblet Of Fire',1001,2001,3001,2002,600);
2 INSERT INTO catalog VALUES (4002,'HP and Order Of Phoenix',1001,2002,3001,2005,650);
3 INSERT INTO catalog VALUES (4003,'Two States',1002,2004,3001,2009,65);
4 INSERT INTO catalog VALUES (4004,'3 Mistakes of my life',1002,2004,3001,2007,55);
5 INSERT INTO catalog VALUES (4005,'Da Vinci Code',1004,2003,3001,2004,450);
6 INSERT INTO catalog VALUES (4006,'Angels and Demons',1004,2003,3001,2003,350);
7 INSERT INTO catalog VALUES (4007,'Artificial Intelligence',1003,2002,3002,1970,500);
```

Server: 127.0.0.1 » Database: book_dealer » Table: catalog

Browse Structure SQL Search Insert Export Import Privileges Opera

Showing rows 0 - 6 (7 total, Query took 0.0005 seconds.)

```
SELECT * FROM `catalog`
```

Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

+ Options

	Book_id	Book_title	Author_id	Publisher_id	Category_id	Year	Price
<input type="checkbox"/> Edit Copy Delete	4001	HP and Goblet Of Fire	1001	2001	3001	2002	600
<input type="checkbox"/> Edit Copy Delete	4002	HP and Order Of Phoenix	1001	2002	3001	2005	650
<input type="checkbox"/> Edit Copy Delete	4003	Two States	1002	2004	3001	2009	65
<input type="checkbox"/> Edit Copy Delete	4004	3 Mistakes of my life	1002	2004	3001	2007	55
<input type="checkbox"/> Edit Copy Delete	4005	Da Vinci Code	1004	2003	3001	2004	450
<input type="checkbox"/> Edit Copy Delete	4006	Angels and Demons	1004	2003	3001	2003	350
<input type="checkbox"/> Edit Copy Delete	4007	Artificial Intelligence	1003	2002	3002	1970	500

'ORDER-DETAILS' table:

Server: 127.0.0.1 » Database: book_dealer » Table: orderdetails

Browse Structure SQL Search Insert

Run SQL query/queries on table book_dealer.orderdetails: ?

```
1 INSERT INTO orderdetails VALUES (5001,4001,5);
2 INSERT INTO orderdetails VALUES (5002,4002,7);
3 INSERT INTO orderdetails VALUES (5003,4003,15);
4 INSERT INTO orderdetails VALUES (5004,4004,11);
5 INSERT INTO orderdetails VALUES (5005,4005,9);
6 INSERT INTO orderdetails VALUES (5006,4006,8);
7 INSERT INTO orderdetails VALUES (5007,4007,2);
8 INSERT INTO orderdetails VALUES (5008,4004,3);
```

Server: 127.0.0.1 » Database: book_dealer » Table: orderdetails

Browse Structure SQL Search Insert

Showing rows 0 - 7 (8 total, Query took 0.0005 seconds.)

```
SELECT * FROM `orderdetails`
```

Show all | Number of rows: 25 ▾ Filter rows: Search th

+ Options

	Order_no	Book_id	Quantity
<input type="checkbox"/>  Edit  Copy  Delete	5001	4001	5
<input type="checkbox"/>  Edit  Copy  Delete	5002	4002	7
<input type="checkbox"/>  Edit  Copy  Delete	5003	4003	15
<input type="checkbox"/>  Edit  Copy  Delete	5004	4004	11
<input type="checkbox"/>  Edit  Copy  Delete	5005	4005	9
<input type="checkbox"/>  Edit  Copy  Delete	5006	4006	8
<input type="checkbox"/>  Edit  Copy  Delete	5007	4007	2
<input type="checkbox"/>  Edit  Copy  Delete	5008	4004	3

iii. Give the details of the authors who have 2 or more books in the catalog and the price of the books is greater than the average price of the books in the catalog and the year of publication is after 2000.

Query:

```
SELECT * FROM author WHERE author_id IN (SELECT author_id FROM catalog WHERE year>2000 AND price > (SELECT AVG(price) FROM catalog) GROUP BY author_id HAVING COUNT(*)>1)
```

The screenshot shows the MySQL Workbench interface. The title bar indicates "Server: 127.0.0.1 » Database: book_dealer". The top menu bar includes "Structure", "SQL", "Search", "Query", "Export", "Import", and "Operations". Below the menu is a toolbar with icons for Run, Stop, Refresh, and Help. A text input field says "Run SQL query/queries on database book_dealer:". The main area contains the following SQL code:

```
1 SELECT * FROM author
2 WHERE author_id IN (SELECT author_id FROM catalog
3                     WHERE year>2000 AND price > (SELECT AVG(price) FROM catalog)
4                     GROUP BY author_id HAVING COUNT(*)>1);
```

The screenshot shows the MySQL Workbench interface with the title bar "Server: 127.0.0.1 » Database: book_dealer » Table: author". The top menu bar includes "Browse", "Structure", "SQL", "Search", "Insert", and "Export". Below the menu is a toolbar with icons for Show query box, Refresh, and Help. A message box at the top says "Showing rows 0 - 0 (1 total, Query took 0.0481 seconds.)". The main area displays the query: "SELECT * FROM author WHERE author_id IN (SELECT author_id FROM catalog |". At the bottom, there are options to "Show all" (unchecked), set "Number of rows: 25" (selected), and "Filter rows: Search this table". A "+ Options" button is also present. The results table has columns: Author_id, Name, City, Country. One row is shown: "1001 JK Rowling London England". Action buttons for Edit, Copy, and Delete are available for this row.

iv. Find the author of the book which has maximum sales.

Query:

```
SELECT name FROM author a, catalog c WHERE a.author_id=c.author_id AND book_id IN  
(SELECT book_id FROM orderdetails WHERE quantity = (SELECT MAX(quantity) FROM  
orderdetails));
```

The screenshot shows the MySQL Workbench interface. The title bar indicates "Server: 127.0.0.1 » Database: book_dealer". The toolbar includes "Structure", "SQL", "Search", "Query", "Export", "Import", "Operations", "Privileges", and "Rou". The main area is titled "Run SQL query/queries on database book_dealer:" and contains the following SQL code:

```
1 SELECT name FROM author a, catalog c  
2 WHERE a.author_id=c.author_id AND book_id IN (SELECT book_id FROM orderdetails  
3 WHERE quantity = (SELECT MAX(quantity) FROM orderdetails));
```

The screenshot shows the MySQL Workbench interface with the same title bar and toolbar as the previous screenshot. The main area displays the results of the executed query:

```
SELECT name FROM author a, catalog c WHERE a.author_id=c.author_id AND  
orderdetails))
```

Show query box

The screenshot shows the MySQL Workbench interface with the same title bar and toolbar as the previous screenshots. The main area displays the results of the executed query and includes a green success message:

Showing rows 0 - 0 (1 total, Query took 0.0034 seconds.)

```
SELECT name FROM author a, catalog c WHERE a.author_id=c.author_id AND  
orderdetails))
```

Show all | Number of rows: 25 ▾ Filter rows: Search this table

+ Options

name

Chetan Bhagat

v. Demonstrate how you increase the price of books published by a specific publisher by 10%.

Query:

```
UPDATE catalog SET price=1.1*price WHERE publisher_id IN (SELECT publisher_id FROM publisher WHERE Name='Pearson');
```

The screenshot shows the phpMyAdmin interface for the 'book_dealer' database. The top navigation bar includes tabs for Structure, SQL, Search, Query, Export, and Import. Below the navigation is a search bar labeled 'Run SQL query/queries on database book_dealer:' followed by a magnifying glass icon. The main area contains the following SQL code:

```
1 UPDATE catalog
2 SET price=1.1*price
3 WHERE publisher_id IN (SELECT publisher_id FROM publisher
4 WHERE Name='Pearson');
```

The screenshot shows the phpMyAdmin interface for the 'book_dealer' database, specifically the 'catalog' table. The top navigation bar includes tabs for Browse, Structure, SQL, Search, Insert, Export, Import, Privileges, and Opera. A message bar at the top indicates 'Showing rows 0 - 6 (7 total, Query took 0.0005 seconds.)'. Below the message bar is a SQL query: 'SELECT * FROM `catalog`'. The main area displays the table data with the following columns: Book_id, Book_title, Author_id, Publisher_id, Category_id, Year, and Price. The data is as follows:

	Book_id	Book_title	Author_id	Publisher_id	Category_id	Year	Price
<input type="checkbox"/>	4001	HP and Goblet Of Fire	1001	2001	3001	2002	600
<input type="checkbox"/>	4002	HP and Order Of Phoenix	1001	2002	3001	2005	650
<input type="checkbox"/>	4003	Two States	1002	2004	3001	2009	65
<input type="checkbox"/>	4004	3 Mistakes of my life	1002	2004	3001	2007	55
<input type="checkbox"/>	4005	Da Vinci Code	1004	2003	3001	2004	495
<input type="checkbox"/>	4006	Angels and Demons	1004	2003	3001	2003	385
<input type="checkbox"/>	4007	Artificial Intelligence	1003	2002	3002	1970	500

PROGRAM 8 : STUDENT ENROLLMENT DATABASE

Consider the following database of Student Enrollment in courses and books adopted for each course:

STUDENT (regno: String, name: String, major: String, bdate: date)

COURSE (course #: int, cname: String, dept: String)

ENROLL (regno: String, cname: String, sem: int, marks: int)

BOOK_ADOPTION (course #: int, sem: int, book-ISBN: int)

TEXT(book-ISBN:int, book-title:String, publisher:String, author:String)

i. Create the above tables by properly specifying the primary keys and the foreign keys.

The screenshot shows the MySQL Workbench interface with the database 'enrollment_student' selected. The 'SQL' tab is active, displaying the following SQL code:

```
1 CREATE TABLE student(regno VARCHAR(15), name VARCHAR(20), major VARCHAR(20), bdate DATE, PRIMARY KEY (regno) );
2 CREATE TABLE course(courseno INT, cname VARCHAR(20),dept VARCHAR(20),PRIMARY KEY (courseno) );
3 CREATE TABLE enroll(regno VARCHAR(15),courseno INT,sem INT(3),marks INT(4),PRIMARY KEY (regno,courseno),
4     FOREIGN KEY (regno) REFERENCES student (regno), FOREIGN KEY (courseno) REFERENCES course (courseno) );
5 CREATE TABLE text(book_isbn INT(5),book_title VARCHAR(20),publisher VARCHAR(20),author VARCHAR(20),PRIMARY KEY (book_isbn) );
6 CREATE TABLE book_adoption(courseno INT,sem INT(3),book_isbn INT(5),PRIMARY KEY (courseno,book_isbn),
7     FOREIGN KEY (courseno) REFERENCES course (courseno),FOREIGN KEY (book_isbn) REFERENCES text(book_isbn) );
```

The screenshot shows the MySQL Workbench interface with the database 'enrollment_student' selected. The 'Structure' tab is active, displaying the table structure information:

Table	Action	Rows	Type	Collation	Size	Overhead
book_adoption	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
course	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
enroll	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
student	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
text	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
5 tables	Sum	0	InnoDB	utf8mb4_general_ci	112.0 KiB	0 B

ii. Enter at least five tuples for each relation.

'STUDENT' table:

Server: 127.0.0.1 » Database: enrollment_student » Table: student

Browse Structure SQL Search Insert Export Import

Run SQL query/queries on table enrollment_student.student:

```
1 INSERT INTO student VALUES ('1PE11CS001','Astra','sr','1993-12-30');
2 INSERT INTO student VALUES ('1PE11CS002','Pheonix','sr','1993-09-24');
3 INSERT INTO student VALUES ('1PE11CS003','Breach','sr','1993-11-27');
4 INSERT INTO student VALUES ('1PE11CS004','Reyna','sr','1993-04-13');
5 INSERT INTO student VALUES ('1PE11CS005','Sova','jr','1994-08-24');
```

Server: 127.0.0.1 » Database: enrollment_student » Table: student

Browse Structure SQL Search Insert Export Import

Showing rows 0 - 4 (5 total, Query took 0.0006 seconds.)

```
SELECT * FROM `student`
```

Show all Number of rows: 25 Filter rows: Search this table Sort by ↗

+ Options

← → ▾ regno name major bdate

	<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	1PE11CS001	Astra	sr	1993-12-30
<input type="checkbox"/>	<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	1PE11CS002	Pheonix	sr	1993-09-24
<input type="checkbox"/>	<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	1PE11CS003	Breach	sr	1993-11-27
<input type="checkbox"/>	<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	1PE11CS004	Reyna	sr	1993-04-13
<input type="checkbox"/>	<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	1PE11CS005	Sova	jr	1994-08-24

'COURSE' table:

← Server: 127.0.0.1 » Database: enrollment_student » Table: course

Browse Structure SQL Search Insert

Run SQL query/queries on table enrollment_student.course:

```
1 INSERT INTO course VALUES (111,'OS','CSE');
2 INSERT INTO course VALUES (112,'EC','CSE');
3 INSERT INTO course VALUES (113,'SS','ISE');
4 INSERT INTO course VALUES (114,'DBMS','CSE');
5 INSERT INTO course VALUES (115,'SIGNALS','ECE');
```

← Server: 127.0.0.1 » Database: enrollment_student » Table: course

Browse Structure SQL Search Insert

Showing rows 0 - 4 (5 total, Query took 0.0005 seconds.)

```
SELECT * FROM `course`
```

Show all | Number of rows: 25 ▾ Filter rows: Search this table

+ Options

	courseno	cname	dept
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	111	OS	CSE
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	112	EC	CSE
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	113	SS	ISE
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	114	DBMS	CSE
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	115	SIGNALS	ECE

'ENROLL' table:

The screenshot shows the MySQL Workbench interface with the following details:

- Server: 127.0.0.1
- Database: enrollment_student
- Table: enroll
- Toolbar buttons: Browse, Structure, SQL, Search, Insert, Export.
- Text area: Run SQL query/queries on table enrollment_student.enroll:
1 INSERT INTO `enroll` VALUES ('1PE11CS001',115,3,100);
2 INSERT INTO `enroll` VALUES ('1PE11CS002',114,5,100);
3 INSERT INTO `enroll` VALUES ('1PE11CS003',113,5,100);
4 INSERT INTO `enroll` VALUES ('1PE11CS004',111,5,100);
5 INSERT INTO `enroll` VALUES ('1PE11CS005',112,3,100);

The screenshot shows the MySQL Workbench interface with the following details:

- Server: 127.0.0.1
- Database: enrollment_student
- Table: enroll
- Toolbar buttons: Browse, Structure, SQL, Search, Insert, Export.
- Text area: SELECT * FROM `enroll`
- Message bar: ✓ Showing rows 0 - 4 (5 total, Query took 0.0005 seconds.)

+ Options

	regno	courseno	sem	marks
<input type="checkbox"/> Edit Copy Delete	1PE11CS001	115	3	100
<input type="checkbox"/> Edit Copy Delete	1PE11CS002	114	5	100
<input type="checkbox"/> Edit Copy Delete	1PE11CS003	113	5	100
<input type="checkbox"/> Edit Copy Delete	1PE11CS004	111	5	100
<input type="checkbox"/> Edit Copy Delete	1PE11CS005	112	3	100

'TEXT' table:

← Server: 127.0.0.1 » Database: enrollment_student » Table: text

Browse Structure SQL Search Insert Export Import

Run SQL query/queries on table enrollment_student.text: ?

```
1 INSERT INTO text VALUES (10,'DATABASE SYSTEMS','PEARSON','SCHIELD');
2 INSERT INTO text VALUES (900,'OPERATING SYSTEMS','PEARSON','LELAND');
3 INSERT INTO text VALUES (901,'CIRCUITS','HALL INDIA','BOB');
4 INSERT INTO text VALUES (902,'SYSTEM SOFTWARE','PETERSON','JACOB');
5 INSERT INTO text VALUES (903,'SCHEDULING','PEARSON','PATIL');
6 INSERT INTO text VALUES (904,'DATABASE SYSTEMS','PEARSON','JACOB');
7 INSERT INTO text VALUES (905,'DATABASE MANAGER','PEARSON','BOB');
8 INSERT INTO text VALUES (906,'SIGNALS','HALL INDIA','SUMIT');
```

← Server: 127.0.0.1 » Database: enrollment_student » Table: text

Browse Structure SQL Search Insert Export Import

Showing rows 0 - 7 (8 total, Query took 0.0007 seconds.)

```
SELECT * FROM `text`
```

Show all Number of rows: 25 Filter rows: Search this table Sort by key:

+ Options

	book_isbn	book_title	publisher	author
<input type="checkbox"/> Edit Copy Delete	10	DATABASE SYSTEMS	PEARSON	SCHIELD
<input type="checkbox"/> Edit Copy Delete	900	OPERATING SYSTEMS	PEARSON	LELAND
<input type="checkbox"/> Edit Copy Delete	901	CIRCUITS	HALL INDIA	BOB
<input type="checkbox"/> Edit Copy Delete	902	SYSTEM SOFTWARE	PETERSON	JACOB
<input type="checkbox"/> Edit Copy Delete	903	SCHEDULING	PEARSON	PATIL
<input type="checkbox"/> Edit Copy Delete	904	DATABASE SYSTEMS	PEARSON	JACOB
<input type="checkbox"/> Edit Copy Delete	905	DATABASE MANAGER	PEARSON	BOB
<input type="checkbox"/> Edit Copy Delete	906	SIGNALS	HALL INDIA	SUMIT

'BOOK ADOPTION' table:

Server: 127.0.0.1 » Database: enrollment_student » Table: book_adoption

Browse Structure SQL Search Insert Export

Run SQL query/queries on table enrollment_student.book_adoption: ?

```
1 INSERT INTO book_adoption VALUES (111,5,10);
2 INSERT INTO book_adoption VALUES (111,5,900);
3 INSERT INTO book_adoption VALUES (111,5,903);
4 INSERT INTO book_adoption VALUES (112,3,904);
5 INSERT INTO book_adoption VALUES (113,3,902);
6 INSERT INTO book_adoption VALUES (113,5,901);
7 INSERT INTO book_adoption VALUES (114,5,905);
8 INSERT INTO book_adoption VALUES (115,3,906);
```

Server: 127.0.0.1 » Database: enrollment_student » Table: book_adoption

Browse Structure SQL Search Insert Export

Showing rows 0 - 7 (8 total, Query took 0.0006 seconds.)

```
SELECT * FROM `book_adoption`
```

Show all | Number of rows: 25 ▾ Filter rows: Search this table

+ Options

	courseno	sem	book_isbn
<input type="checkbox"/>  Edit  Copy  Delete	111	5	10
<input type="checkbox"/>  Edit  Copy  Delete	111	5	900
<input type="checkbox"/>  Edit  Copy  Delete	111	5	903
<input type="checkbox"/>  Edit  Copy  Delete	112	3	904
<input type="checkbox"/>  Edit  Copy  Delete	113	5	901
<input type="checkbox"/>  Edit  Copy  Delete	113	3	902
<input type="checkbox"/>  Edit  Copy  Delete	114	5	905
<input type="checkbox"/>  Edit  Copy  Delete	115	3	906

iii. Demonstrate how you add a new text book to the database and make this book be adopted by some department.

Query:

```
INSERT INTO text VALUES (907,'SCHEMA DIAGRAMS','HALL INDIA','RICHARD');  
INSERT INTO book_adoption VALUES (113,4,907);
```

The screenshot shows the MySQL Workbench interface. The title bar indicates the connection is to 'Server: 127.0.0.1' and the database is 'enrollment_student'. The current table is 'text'. The SQL tab is selected. The SQL query window contains the following code:

```
1 INSERT INTO text VALUES (907,'SCHEMA DIAGRAMS','HALL INDIA','RICHARD');  
2 INSERT INTO book_adoption VALUES (113,4,907);
```

The screenshot shows the MySQL Workbench interface after the queries have been run. The title bar and tabs are identical to the previous screenshot. The SQL tab now displays the result of the SELECT query:

```
SELECT * FROM `text`
```

Below the SQL tab, there is a message bar with a green checkmark indicating 'Showing rows 0 - 8 (9 total, Query took 0.0005 seconds.)'. The results of the SELECT query are shown in a table below the message bar. The table has columns: book_isbn, book_title, publisher, and author. The data is as follows:

book_isbn	book_title	publisher	author
10	DATABASE SYSTEMS	PEARSON	SCHIELD
900	OPERATING SYSTEMS	PEARSON	LELAND
901	CIRCUITS	HALL INDIA	BOB
902	SYSTEM SOFTWARE	PETERSON	JACOB
903	SCHEDULING	PEARSON	PATIL
904	DATABASE SYSTEMS	PEARSON	JACOB
905	DATABASE MANAGER	PEARSON	BOB
906	SIGNALS	HALL INDIA	SUMIT
907	SCHEMA DIAGRAMS	HALL INDIA	RICHARD

Server: 127.0.0.1 » Database: enrollment_student » Table: book_adoption

Browse Structure SQL Search Insert Export

Showing rows 0 - 8 (9 total, Query took 0.0006 seconds.)

```
SELECT * FROM `book_adoption`
```

Show all Number of rows: 25 Filter rows: Search this table

+ Options

	courseno	sem	book_isbn
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	111	5	10
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	111	5	900
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	111	5	903
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	112	3	904
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	113	5	901
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	113	3	902
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	113	4	907
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	114	5	905
<input type="checkbox"/> Edit <input type="button" value="Copy"/> <input type="button" value="Delete"/>	115	3	906

iv. Produce a list of text books (include Course #, Book-ISBN, Book-title) in the alphabetical order for courses offered by the 'CS' department that use more than two books.

Query:

```
SELECT c.courseno, t.book_isbn, t.book_title FROM course c, book_adoption ba, text t
WHERE c.courseno=ba.courseno AND ba.book_isbn=t.book_isbn AND c.dept='CSE' AND 2 <
(SELECT COUNT(book_isbn) FROM book_adoption b WHERE c.courseno=b.courseno) ORDER BY t.book_title;
```

Server: 127.0.0.1 » Database: enrollment_student

Structure SQL Search Query Export Import

Run SQL query/queries on database enrollment_student: ?

```
1 SELECT c.courseno, t.book_isbn, t.book_title
2 FROM course c, book_adoption ba, text t
3 WHERE c.courseno=ba.courseno
4 AND ba.book_isbn=t.book_isbn
5 AND c.dept='CSE'
6 AND 2 < (SELECT COUNT(book_isbn)
7           FROM book_adoption b
8           WHERE c.courseno=b.courseno)
9 ORDER BY t.book_title;
```

Server: 127.0.0.1 » Database: enrollment_student

Structure SQL Search Query Export Import Operations Print

Show query box

Showing rows 0 - 2 (3 total, Query took 0.0025 seconds.) [book_title: DATABASE SYSTEMS... - SCHEDULING...]

```
SELECT c.courseno, t.book_isbn, t.book_title FROM course c, book_adoption ba, text t WHERE c.courseno=(SELECT COUNT(book_isbn) FROM book_adoption b WHERE c.courseno=b.courseno) ORDER BY t.book_title
```

Show all | Number of rows: 25 ▾ Filter rows: Search this table

+ Options

courseno	book_isbn	book_title
111	10	DATABASE SYSTEMS
111	900	OPERATING SYSTEMS
111	903	SCHEDULING

v. List any department that has all its adopted books published by a specific publisher.

Query:

```
SELECT DISTINCT c.dept FROM course c WHERE c.dept IN (SELECT c.dept FROM course c,book_adoption b,text t WHERE c.courseno=b.courseno AND t.book_isbn=b.book_isbn AND t.publisher='PEARSON') AND c.dept NOT IN (SELECT c.dept FROM course c,book_adoption b,text t WHERE c.courseno=b.courseno AND t.book_isbn=b.book_isbn AND t.publisher != 'PEARSON');
```

The screenshot shows the phpMyAdmin interface for the 'enrollment_student' database. The top navigation bar includes tabs for Structure, SQL, Search, Query, Export, Import, and Operations. Below the tabs, a search bar says 'Run SQL query/queries on database enrollment_student:'. The main area contains the SQL query code with line numbers 1 through 12. The code is identical to the one provided above.

```
1 SELECT DISTINCT c.dept
2 FROM course c
3 WHERE c.dept IN (SELECT c.dept
4                   FROM course c,book_adoption b,text t
5                   WHERE c.courseno=b.courseno
6                   AND t.book_isbn=b.book_isbn
7                   AND t.publisher='PEARSON')
8                   AND c.dept NOT IN (SELECT c.dept
9                           FROM course c,book_adoption b,text t
10                          WHERE c.courseno=b.courseno
11                          AND t.book_isbn=b.book_isbn
12                          AND t.publisher != 'PEARSON');
```

The screenshot shows the 'course' table structure within the 'enrollment_student' database. The top navigation bar includes tabs for Browse, Structure, SQL, Search, Insert, Export, and Import. The table structure is displayed below the tabs.

Show query box

The screenshot shows the results of the executed SQL query. A green success message at the top says 'Showing rows 0 - 0 (1 total, Query took 0.0032 seconds.)'. Below the message is the query code again. The results section is empty, indicating no rows were found.

```
SELECT DISTINCT c.dept FROM course c WHERE c.dept IN (SELECT c.dept FROM course c,book_adoption b,text t WHERE c.courseno=b.courseno AND t.book_isbn=b.book_isbn AND t.publisher='PEARSON') AND c.dept NOT IN (SELECT c.dept FROM course c,book_adoption b,text t WHERE c.courseno=b.courseno AND t.book_isbn=b.book_isbn AND t.publisher != 'PEARSON')
```

Show all | Number of rows: 25 Filter rows:

+ Options

CSE

PROGRAM 9 : MOVIE DATABASE

Consider the schema for Movie Database:

ACTOR (Act_id, Act_Name, Act_Gender)

DIRECTOR (Dir_id, Dir_Name, Dir_Phone)

MOVIES (Mov_id, Mov_Title, Mov_Year, Mov_Lang, Dir_id)

MOVIE_CAST (Act_id, Mov_id, Role)

RATING (Mov_id, Rev_Stars)

Write SQL queries to

Creation of tables:

The screenshot shows the MySQL Workbench interface with the 'Structure' tab selected. A query window displays the following SQL code for creating five tables:

```
1 create table Actor(act_id integer primary key,act_name varchar(100),act_gender varchar(10));
2 create table Director(dir_id integer primary key,dir_name varchar(200),dir_phone varchar(100));
3 create table Movies(mov_id integer primary key,mov_title varchar(255),mov_year year,mov_lang varchar(100),
4     dir_id int, foreign key (dir_id) references Director(dir_id));
5 create table Movie_cast (act_id int,foreign key (act_id) references Actor(act_id), mov_id int,
6     foreign key(mov_id) references Movies(mov_id),role varchar(100), primary key(act_id,mov_id) );
7 create table Rating(mov_id integer primary key , foreign key(mov_id) references Movies(mov_id),rev_stars integer);
```

The screenshot shows the MySQL Workbench interface with the 'Structure' tab selected. A filters section is visible at the top left. Below it, a table lists the five created tables:

Table	Action	Rows	Type	Collation	Size	Overhead
actor	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
director	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
movies	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
movie_cast	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
rating	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
5 tables	Sum	0	InnoDB	utf8mb4_general_ci	112.0 KiB	0 B

Insertion into tables:

'ACTOR' table:

Server: 127.0.0.1 » Database: movie » Table: actor

Browse Structure SQL Search Insert Export

Run SQL query/queries on table movie.actor: [?](#)

```
1 insert into Actor values (1001, 'Tom Crusie','M');
2 insert into Actor values (1002, 'Chris Hemsworth','M');
3 insert into Actor values (1003, 'Angelina Jolie','F');
4 insert into Actor values (1004, 'Margot Robbie','F');
5 insert into Actor values (1005, 'Kate Winslet','F');
6 insert into Actor values (1006, 'Robert Downey','M');
```

Server: 127.0.0.1 » Database: movie » Table: actor

Browse Structure SQL Search Insert Export

Showing rows 0 - 5 (6 total, Query took 0.0004 seconds.)

```
SELECT * FROM `actor`
```

Show all | Number of rows: 25 Filter rows:

+ Options

	Edit	Copy	Delete	act_id	act_name	act_gender
<input type="checkbox"/>	Edit	Copy	Delete	1001	Tom Crusie	M
<input type="checkbox"/>	Edit	Copy	Delete	1002	Chris Hemsworth	M
<input type="checkbox"/>	Edit	Copy	Delete	1003	Angelina Jolie	F
<input type="checkbox"/>	Edit	Copy	Delete	1004	Margot Robbie	F
<input type="checkbox"/>	Edit	Copy	Delete	1005	Kate Winslet	F
<input type="checkbox"/>	Edit	Copy	Delete	1006	Robert Downey	M

'DIRECTOR' table:

Server: 127.0.0.1 » Database: movie » Table: director

Browse Structure SQL Search Insert Export

Run SQL query/queries on table movie.director: [?](#)

```
1 insert into Director values (9001, 'Hitchcock',9874562154);
2 insert into Director values (9002, 'Steven Spielberg',9874560054);
3 insert into Director values (9003, 'Joseph Levitan',9874562178);
4 insert into Director values (9004, 'Christopher Loyd',9874564454);
5 insert into Director values (9005, 'Yash Chopra',9874562994);
6 insert into Director values (9006, 'Tom Jones',9874503154);
```

Server: 127.0.0.1 » Database: movie » Table: director

Browse Structure SQL Search Insert Export Import

Showing rows 0 - 5 (6 total, Query took 0.0005 seconds.)

```
SELECT * FROM `director`
```

Show all | Number of rows: 25 Filter rows: Sort by

+ Options

	dir_id	dir_name	dir_phone
<input type="checkbox"/>	9001	Hitchcock	9874562154
<input type="checkbox"/>	9002	Steven Spielberg	9874560054
<input type="checkbox"/>	9003	Joseph Levitan	9874562178
<input type="checkbox"/>	9004	Christopher Loyd	9874564454
<input type="checkbox"/>	9005	Yash Chopra	9874562994
<input type="checkbox"/>	9006	Tom Jones	9874503154

'MOVIES' table:

Server: 127.0.0.1 » Database: movie » Table: movies

Browse Structure SQL Search Insert Export Import

Run SQL query/queries on table movie.movies: [?](#)

```
1 insert into Movies values (101,'Iron Man',2014,'English',9001);
2 insert into Movies values (102,'Prosperity',2001,'Spanish',9001);
3 insert into Movies values (103,'Spiderman',1998,'English',9002);
4 insert into Movies values (104,'Star Wars',1999,'English',9003);
5 insert into Movies values (105,'Thor',2017,'English',9002);
6 insert into Movies values (106,'Captain America',1994,'English',9004);
```

Server: 127.0.0.1 » Database: movie » Table: movies

Browse Structure SQL Search Insert Export Import Priv

Showing rows 0 - 5 (6 total, Query took 0.0005 seconds.)

```
SELECT * FROM `movies`
```

Show all | Number of rows: 25 Filter rows: Search this table Sort by key:

+ Options

	Edit	Copy	Delete	mov_id	mov_title	mov_year	mov_lang	dir_id
<input type="checkbox"/>	Edit	Copy	Delete	101	Iron Man	2014	English	9001
<input type="checkbox"/>	Edit	Copy	Delete	102	Prosperity	2001	Spanish	9001
<input type="checkbox"/>	Edit	Copy	Delete	103	Spiderman	1998	English	9002
<input type="checkbox"/>	Edit	Copy	Delete	104	Star Wars	1999	English	9003
<input type="checkbox"/>	Edit	Copy	Delete	105	Thor	2017	English	9002
<input type="checkbox"/>	Edit	Copy	Delete	106	Captain America	1994	English	9004

'MOVIE CAST' table:

Server: 127.0.0.1 » Database: movie » Table: movie_cast

Browse Structure SQL Search Insert

Run SQL query/queries on table movie.movie_cast:

```
1 insert into Movie_cast values (1001,101,'Joey');
2 insert into Movie_cast values (1001,102,'Conor');
3 insert into Movie_cast values (1002,102,'Tim');
4 insert into Movie_cast values (1003,103,'Kate');
5 insert into Movie_cast values (1004,104,'Claire');
6 insert into Movie_cast values (1006,105,'Sally');
7 insert into Movie_cast values (1005,106,'Jo');
8 insert into Movie_cast values (1002,106,'Craft');
9 insert into Movie_cast values (1002,104,'Josh');
10 insert into Movie_cast values (1005,105,'Roy');
```

Server: 127.0.0.1 » Database: movie » Table: movie_cast

Browse Structure SQL Search Insert

Showing rows 0 - 9 (10 total, Query took 0.0005 seconds.)

```
SELECT * FROM `movie_cast`
```

Show all Number of rows: 25 Filter rows: Search this table

+ Options

	act_id	mov_id	role
<input type="checkbox"/>	1001	101	Joey
<input type="checkbox"/>	1001	102	Conor
<input type="checkbox"/>	1002	102	Tim
<input type="checkbox"/>	1002	104	Josh
<input type="checkbox"/>	1002	106	Craft
<input type="checkbox"/>	1003	103	Kate
<input type="checkbox"/>	1004	104	Claire
<input type="checkbox"/>	1005	105	Roy
<input type="checkbox"/>	1005	106	Jo
<input type="checkbox"/>	1006	105	Sally

'RATING' table:

Server: 127.0.0.1 » Database: movie » Table: rating

Browse Structure SQL Search

Run SQL query/queries on table movie.rating: [?](#)

```
1 insert into Rating values (101,4);
2 insert into Rating values (102,3);
3 insert into Rating values (103,5);
4 insert into Rating values (104,2);
5 insert into Rating values (105,4);
6 insert into Rating values (106,3);
```

Server: 127.0.0.1 » Database: movie » Table: rating

Browse Structure SQL Search Insert Export

Showing rows 0 - 5 (6 total, Query took 0.0005 seconds.)

```
SELECT * FROM `rating`
```

Show all | Number of rows: 25 Filter rows:

+ Options

	Edit	Copy	Delete	mov_id	rev_stars
<input type="checkbox"/>	Edit	Copy	Delete	101	4
<input type="checkbox"/>	Edit	Copy	Delete	102	3
<input type="checkbox"/>	Edit	Copy	Delete	103	5
<input type="checkbox"/>	Edit	Copy	Delete	104	2
<input type="checkbox"/>	Edit	Copy	Delete	105	4
<input type="checkbox"/>	Edit	Copy	Delete	106	3

i. List the titles of all movies directed by 'Hitchcock'.

Query:

```
select mov_title from Movies where dir_id in (select dir_id from Director where dir_name='Hitchcock');
```

The screenshot shows the MySQL Workbench interface. The title bar indicates "Server: 127.0.0.1 » Database: movie". Below the title bar, there are tabs for "Structure", "SQL", "Search", "Query", and "Export". The "SQL" tab is selected. A sub-header says "Run SQL query/queries on database movie:" followed by a question mark icon. The main area contains the following SQL code:

```
1 select mov_title
2 from Movies
3 where dir_id in (select dir_id
4                   from Director
5                   where dir_name='Hitchcock');
```

The screenshot shows the MySQL Workbench interface with the title bar "Server: 127.0.0.1 » Database: movie » Table: Movies". Below the title bar, there are tabs for "Browse", "Structure", "SQL", "Search", "Insert", "Export", and "Import". The "SQL" tab is selected. A message box at the top says "Showing rows 0 - 1 (2 total, Query took 0.0013 seconds.)". The main area displays the query results:

```
select mov_title from Movies where dir_id in (select dir_id from Director where dir_name='Hitchcock')
```

Below the results, there are filters and sorting options: "Show all" (unchecked), "Number of rows: 25", "Filter rows: Search this table", and "Sort by".

A table row is shown with the following details:

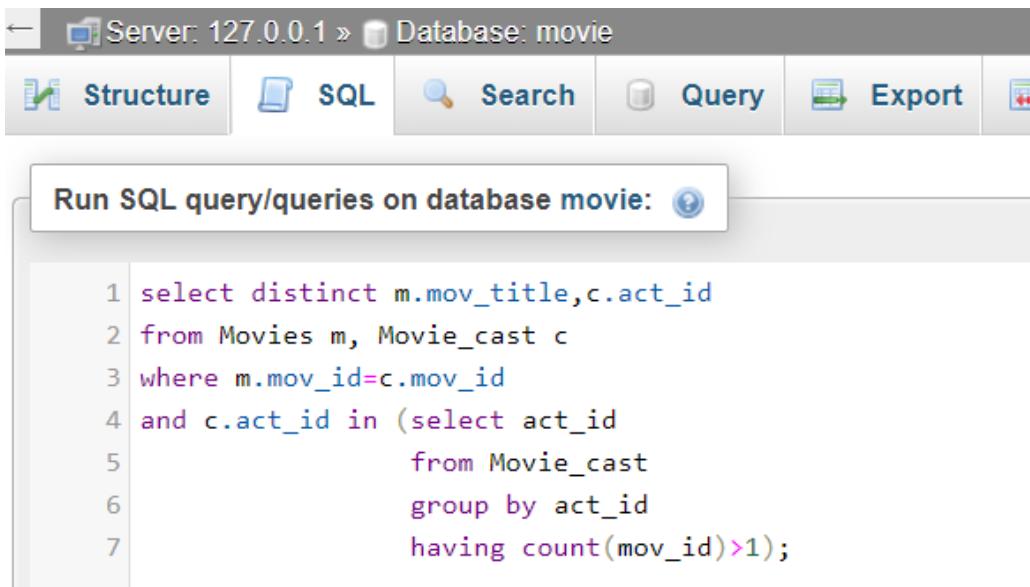
mov_title
Iron Man
Prosperity

For each row, there are edit, copy, and delete icons.

ii. Find the movie names where one or more actors acted in two or more movies.

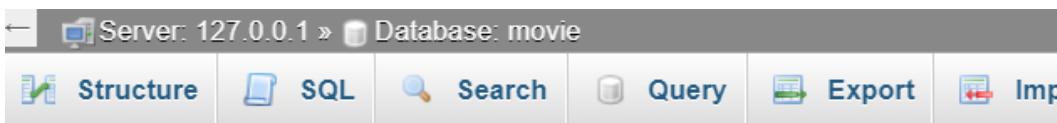
Query:

```
select distinct m.mov_title,c.act_id from Movies m, Movie_cast c where m.mov_id=c.mov_id  
and c.act_id in (select act_id from Movie_cast group by act_id having count(mov_id)>1);
```



The screenshot shows the MySQL Workbench interface. The title bar says "Server: 127.0.0.1 » Database: movie". Below the title bar is a toolbar with tabs: Structure, SQL, Search, Query, Export, and Import. The "SQL" tab is selected. A large text area below the toolbar contains the SQL query:

```
1 select distinct m.mov_title,c.act_id  
2 from Movies m, Movie_cast c  
3 where m.mov_id=c.mov_id  
4 and c.act_id in (select act_id  
5                 from Movie_cast  
6                 group by act_id  
7                 having count(mov_id)>1);
```



The screenshot shows the MySQL Workbench interface after the query has been run. The title bar and toolbar are identical to the previous screenshot. The main window now displays the results of the query. At the top, there is a green status bar with a checkmark icon and the text "Showing rows 0 - 6 (7 total, Query took 0.0025 seconds.)". Below this is a text area containing the query again, followed by the results:

```
select distinct m.mov_title,c.act_id from Movies m, Movie_cast c where  
count(mov_id)>1
```

Show all | Number of rows: 25 ▾ Filter rows: Search this table

+ Options

mov_title	act_id
Iron Man	1001
Prosperity	1001
Prosperity	1002
Star Wars	1002
Thor	1005
Captain America	1002
Captain America	1005

iii. List all actors who acted in a movie before 2000 and also in a movie after 2015 (use JOIN operation).

Query:

```
select act_name from Actor where act_id in(select a.act_id from (select act_id from Movie_cast natural join Movies where mov_year<2000)a inner join (select act_id from Movie_cast natural join Movies where mov_year>2015)b on a.act_id=b.act_id);
```

The screenshot shows the MySQL Workbench interface. The title bar says "Server: 127.0.0.1 » Database: movie". The toolbar has tabs for Structure, SQL, Search, Query, Export, Import, and Operations. Below the toolbar is a search bar with the placeholder "Run SQL query/queries on database movie:". The main area contains the SQL query code.

```
1 select act_name
2 from Actor
3 where act_id in (select a.act_id
4                   from (select act_id
5                         from Movie_cast
6                         natural join Movies
7                         where mov_year<2000)a inner join (select act_id
8                               from Movie_cast
9                               natural join Movies
10                             where mov_year>2015)b
11                     on a.act_id=b.act_id);
```

The screenshot shows the MySQL Workbench interface with the title bar "Server: 127.0.0.1 » Database: movie » Table: Actor". The toolbar has tabs for Browse, Structure, SQL, Search, Insert, Export, and Import. The main area shows the table structure.

Show query box

The screenshot shows the results of the executed query. A green message bar at the top says "Showing rows 0 - 0 (1 total, Query took 0.1107 seconds.)". Below the message bar is the query text again. At the bottom, there are options to show all rows, filter rows, and search the table.

```
select act_name from Actor where act_id in (select a.act_id from (select act_id f
Movie_cast natural join Movies where mov_year>2015)b on a.act_id=b.act_id)
```

Show all | Number of rows: 25 ▾

Filter rows:

+ Options

← →

Edit Copy Delete Kate Winslet

iv. Find the title of movies and number of stars for each movie that has at least one rating and find the highest number of stars that movie received. Sort the result by movie title.

Query:

```
select mov_title,max(rev_stars) from Movies m,Rating r where m.mov_id=r.mov_id group by m.mov_title having count(r.rev_stars)>0;
```

The screenshot shows the MySQL Workbench interface. The top bar displays 'Server: 127.0.0.1 » Database: movie'. Below the bar, there are tabs: Structure, SQL, Search, Query, Export, and Import. The SQL tab is selected. A text input field contains the SQL query:

```
1 select mov_title, max(rev_stars)
2 from Movies m,Rating r
3 where m.mov_id=r.mov_id
4 group by m.mov_title
5 having count(r.rev_stars)>0;
```

The screenshot shows the MySQL Workbench interface with the Query tab selected. The top bar displays 'Server: 127.0.0.1 » Database: movie'. Below the bar, there are tabs: Structure, SQL, Search, Query, Export, and Import. The main area shows the results of the executed query:

```
Showing rows 0 - 5 (6 total, Query took 0.1087 seconds.)
```

```
select mov_title, max(rev_stars) from Movies m,Rating r where m.mov_id=
```

The screenshot shows the MySQL Workbench interface with the results table displayed. The table has two columns: 'mov_title' and 'max(rev_stars)'. The data is as follows:

mov_title	max(rev_stars)
Captain America	3
Iron Man	4
Prosperity	3
Spiderman	5
Star Wars	2
Thor	4

Below the table, there are options to 'Show all', set the 'Number of rows' (25), and 'Filter rows'.

v. Update rating of all movies directed by 'Steven Spielberg' to 5.

Query:

```
update Rating set rev_stars=5 where mov_id in (select mov_id from Movies inner join Director on Movies.dir_id=Director.dir_id and Director.dir_name='Steven Spielberg');
```

The screenshot shows the MySQL Workbench interface with the SQL tab selected. The query window contains the following SQL code:

```
1 update Rating
2 set rev_stars=5
3 where mov_id in (select mov_id
4                   from Movies
5                   inner join Director
6                   on Movies.dir_id=Director.dir_id
7                   and Director.dir_name='Steven Spielberg');
```

The screenshot shows the MySQL Workbench interface with the Table tab selected, displaying the 'rating' table. A green message bar at the top indicates: "Showing rows 0 - 5 (6 total, Query took 0.0005 seconds.)". The table data is as follows:

	mov_id	rev_stars
<input type="checkbox"/>	101	4
<input type="checkbox"/>	102	3
<input type="checkbox"/>	103	5
<input type="checkbox"/>	104	2
<input type="checkbox"/>	105	5
<input type="checkbox"/>	106	3

PROGRAM 10 : COLLEGE DATABASE

Consider the schema for College Database:

STUDENT (USN, SName, Address, Phone, Gender)

SEMSEC (SSID, Sem, Sec)

CLASS (USN, SSID)

SUBJECT (Subcode, Title, Sem, Credits)

IAMARKS (USN, Subcode, SSID, Test1, Test2, Test3, FinalIA)

Write SQL queries to

Creation of Tables:

```
1 CREATE TABLE STUDENT (USN VARCHAR (10), SNAME VARCHAR (25), ADDRESS VARCHAR (25), PHONE INT,
2 GENDER CHAR (1), PRIMARY KEY(USN));
3 CREATE TABLE SEMSEC (SSID VARCHAR (5), SEM INT, SEC CHAR (1), PRIMARY KEY(SSID));
4 CREATE TABLE CLASS (USN VARCHAR (10), SSID VARCHAR (5), PRIMARY KEY (USN, SSID),
5 FOREIGN KEY (USN) REFERENCES STUDENT (USN), FOREIGN KEY (SSID) REFERENCES SEMSEC (SSID));
6 CREATE TABLE SUBJECT (SUBCODE VARCHAR(8),TITLE VARCHAR(20),SEM INT,CREDITS INT, PRIMARY KEY(SUBCODE));
7 CREATE TABLE IAMARKS (USN VARCHAR (10),SUBCODE VARCHAR (8),SSID VARCHAR(5),TEST1 INT,TEST2 INT,
8 TEST3 INT,FINALIA INT,PRIMARY KEY (USN, SUBCODE, SSID),FOREIGN KEY (USN) REFERENCES STUDENT (USN),
9 FOREIGN KEY (SUBCODE) REFERENCES SUBJECT (SUBCODE),FOREIGN KEY (SSID) REFERENCES SEMSEC (SSID));
```

Table	Action	Rows	Type	Collation	Size	Overhead
class	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
iamarks	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	48.0 KiB	-
semsec	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
student	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
subject	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
5 tables	Sum	0	InnoDB	utf8mb4_general_ci	128.0 KiB	0 B

Insertion into tables:

'STUDENT' table:

Server: 127.0.0.1 » Database: college » Table: student

Browse Structure SQL Search Insert Export Import Privileges

Run SQL query/queries on table college.student:

```
1 INSERT INTO STUDENT VALUES ('1RN13CS020', 'AKSHAY', 'BELAGAVI', '8877881122', 'M');
2 INSERT INTO STUDENT VALUES ('1RN13CS062', 'SANDHYA', 'BENGALURU', '7722829912', 'F');
3 INSERT INTO STUDENT VALUES ('1RN13CS091', 'TEESHA', 'BENGALURU', '7712312312', 'F');
4 INSERT INTO STUDENT VALUES ('1RN13CS066', 'SUPRIYA', 'MANGALURU', '8877881122', 'F');
5 INSERT INTO STUDENT VALUES ('1RN14CS010', 'ABHAY', 'BENGALURU', '9900211201', 'M');
6 INSERT INTO STUDENT VALUES ('1RN14CS032', 'BHASKAR', 'BENGALURU', '9923211099', 'M');
7 INSERT INTO STUDENT VALUES ('1RN14CS025', 'ASMI', 'BENGALURU', '7894737377', 'F');
8 INSERT INTO STUDENT VALUES ('1RN15CS011', 'AJAY', 'TUMKUR', '9845091341', 'M');
9 INSERT INTO STUDENT VALUES ('1RN15CS029', 'CHITRA', 'DAVANGERE', '7696772121', 'F');
10 INSERT INTO STUDENT VALUES ('1RN15CS045', 'JEEVA', 'BELLARY', '9944850121', 'M');
11 INSERT INTO STUDENT VALUES ('1RN15CS091', 'SANTOSH', 'MANGALURU', '8812332201', 'M');
12 INSERT INTO STUDENT VALUES ('1RN16CS045', 'ISMAIL', 'KALBURGI', '9900232201', 'M');
13 INSERT INTO STUDENT VALUES ('1RN16CS088', 'SAMEERA', 'SHIMOGA', '9905542212', 'F');
14 INSERT INTO STUDENT VALUES ('1RN16CS122', 'VINAYAKA', 'CHIKAMAGALUR', '8800880011', 'M');
```

Server: 127.0.0.1 » Database: college » Table: student

Browse Structure SQL Search Insert Export Import

Show all Number of rows: 25 Filter rows: Search this table Sort by key: []

+ Options

	USN	SNAME	ADDRESS	PHONE	GENDER
<input type="checkbox"/>	1RN13CS020	AKSHAY	BELAGAVI	8877881122	M
<input type="checkbox"/>	1RN13CS062	SANDHYA	BENGALURU	7722829912	F
<input type="checkbox"/>	1RN13CS066	SUPRIYA	MANGALURU	8877881122	F
<input type="checkbox"/>	1RN13CS091	TEESHA	BENGALURU	7712312312	F
<input type="checkbox"/>	1RN14CS010	ABHAY	BENGALURU	9900211201	M
<input type="checkbox"/>	1RN14CS025	ASMI	BENGALURU	7894737377	F
<input type="checkbox"/>	1RN14CS032	BHASKAR	BENGALURU	9923211099	M
<input type="checkbox"/>	1RN15CS011	AJAY	TUMKUR	9845091341	M
<input type="checkbox"/>	1RN15CS029	CHITRA	DAVANGERE	7696772121	F
<input type="checkbox"/>	1RN15CS045	JEEVA	BELLARY	9944850121	M
<input type="checkbox"/>	1RN15CS091	SANTOSH	MANGALURU	8812332201	M
<input type="checkbox"/>	1RN16CS045	ISMAIL	KALBURGI	9900232201	M
<input type="checkbox"/>	1RN16CS088	SAMEERA	SHIMOGA	9905542212	F
<input type="checkbox"/>	1RN16CS122	VINAYAKA	CHIKAMAGALUR	8800880011	M

'SEMSEC' table:

Server: 127.0.0.1 » Database: college » Table: semsec

Browse Structure SQL Search Insert

Run SQL query/queries on table college.semsec: [?](#)

```
1 INSERT INTO SEMSEC VALUES ('CSE8A',8,'A');
2 INSERT INTO SEMSEC VALUES ('CSE8B',8,'B');
3 INSERT INTO SEMSEC VALUES ('CSE8C',8,'C');
4 INSERT INTO SEMSEC VALUES ('CSE7A',7,'A');
5 INSERT INTO SEMSEC VALUES ('CSE7B',7,'B');
6 INSERT INTO SEMSEC VALUES ('CSE7C',7,'C');
7 INSERT INTO SEMSEC VALUES ('CSE6A',6,'A');
8 INSERT INTO SEMSEC VALUES ('CSE6B',6,'B');
9 INSERT INTO SEMSEC VALUES ('CSE6C',6,'C');
10 INSERT INTO SEMSEC VALUES ('CSE5A',5,'A');
11 INSERT INTO SEMSEC VALUES ('CSE5B',5,'B');
12 INSERT INTO SEMSEC VALUES ('CSE5C',5,'C');
13 INSERT INTO SEMSEC VALUES ('CSE4A',4,'A');
14 INSERT INTO SEMSEC VALUES ('CSE4B',4,'B');
15 INSERT INTO SEMSEC VALUES ('CSE4C',4,'C');
16 INSERT INTO SEMSEC VALUES ('CSE3A',3,'A');
17 INSERT INTO SEMSEC VALUES ('CSE3B',3,'B');
18 INSERT INTO SEMSEC VALUES ('CSE3C',3,'C');
19 INSERT INTO SEMSEC VALUES ('CSE2A',2,'A');
20 INSERT INTO SEMSEC VALUES ('CSE2B',2,'B');
21 INSERT INTO SEMSEC VALUES ('CSE2C',2,'C');
22 INSERT INTO SEMSEC VALUES ('CSE1A',1,'A');
23 INSERT INTO SEMSEC VALUES ('CSE1B',1,'B');
24 INSERT INTO SEMSEC VALUES ('CSE1C',1,'C');
```

Server: 127.0.0.1 » Database: college » Table: semsec

Browse Structure SQL Search Insert

+ Options

	SSID	SEM	SEC
<input type="checkbox"/>	CSE1A	1	A
<input type="checkbox"/>	CSE1B	1	B
<input type="checkbox"/>	CSE1C	1	C
<input type="checkbox"/>	CSE2A	2	A
<input type="checkbox"/>	CSE2B	2	B
<input type="checkbox"/>	CSE2C	2	C
<input type="checkbox"/>	CSE3A	3	A
<input type="checkbox"/>	CSE3B	3	B
<input type="checkbox"/>	CSE3C	3	C
<input type="checkbox"/>	CSE4A	4	A
<input type="checkbox"/>	CSE4B	4	B
<input type="checkbox"/>	CSE4C	4	C
<input type="checkbox"/>	CSE5A	5	A
<input type="checkbox"/>	CSE5B	5	B
<input type="checkbox"/>	CSE5C	5	C
<input type="checkbox"/>	CSE6A	6	A
<input type="checkbox"/>	CSE6B	6	B
<input type="checkbox"/>	CSE6C	6	C
<input type="checkbox"/>	CSE7A	7	A
<input type="checkbox"/>	CSE7B	7	B
<input type="checkbox"/>	CSE7C	7	C
<input type="checkbox"/>	CSE8A	8	A
<input type="checkbox"/>	CSE8B	8	B
<input type="checkbox"/>	CSE8C	8	C

'CLASS' table:

Server: 127.0.0.1 » Database: college » Table: class

Browse Structure SQL Search Insert Export Import Privileges

Run SQL query/queries on table college.class:

```
1 INSERT INTO CLASS VALUES ('1RN13CS020','CSE8A');
2 INSERT INTO CLASS VALUES ('1RN13CS062','CSE8A');
3 INSERT INTO CLASS VALUES ('1RN13CS066','CSE8B');
4 INSERT INTO CLASS VALUES ('1RN13CS091','CSE8C');
5 INSERT INTO CLASS VALUES ('1RN14CS010','CSE7A');
6 INSERT INTO CLASS VALUES ('1RN14CS025','CSE7A');
7 INSERT INTO CLASS VALUES ('1RN14CS032','CSE7A');
8 INSERT INTO CLASS VALUES ('1RN15CS011','CSE4A');
9 INSERT INTO CLASS VALUES ('1RN15CS029','CSE4A');
10 INSERT INTO CLASS VALUES ('1RN15CS045','CSE4B');
11 INSERT INTO CLASS VALUES ('1RN15CS091','CSE4C');
12 INSERT INTO CLASS VALUES ('1RN16CS045','CSE3A');
13 INSERT INTO CLASS VALUES ('1RN16CS088','CSE3B');
14 INSERT INTO CLASS VALUES ('1RN16CS122','CSE3C');
```

Server: 127.0.0.1 » Database: college » Table: class

Browse Structure SQL Search Insert Export Import

Showing rows 0 - 13 (14 total, Query took 0.0005 seconds.)

```
SELECT * FROM `class`
```

Show all | Number of rows: 25 Filter rows:

+ Options

← → ▾ USN SSID

<input type="checkbox"/>				USN	SSID
<input type="checkbox"/>				1RN13CS020	CSE8A
<input type="checkbox"/>				1RN13CS062	CSE8A
<input type="checkbox"/>				1RN13CS066	CSE8B
<input type="checkbox"/>				1RN13CS091	CSE8C
<input type="checkbox"/>				1RN14CS010	CSE7A
<input type="checkbox"/>				1RN14CS025	CSE7A
<input type="checkbox"/>				1RN14CS032	CSE7A
<input type="checkbox"/>				1RN15CS011	CSE4A
<input type="checkbox"/>				1RN15CS029	CSE4A
<input type="checkbox"/>				1RN15CS045	CSE4B
<input type="checkbox"/>				1RN15CS091	CSE4C
<input type="checkbox"/>				1RN16CS045	CSE3A
<input type="checkbox"/>				1RN16CS088	CSE3B
<input type="checkbox"/>				1RN16CS122	CSE3C

'IAMARKS' table:

Server: 127.0.0.1 » Database: college » Table: iamarks

Browse Structure SQL Search Insert Export Import Privileges

Run SQL query/queries on table college.iamarks: [?](#)

```
1 INSERT INTO IAMARKS VALUES ('1RN13CS091','10CS81','CSE8C', 15, 16,18,NULL);
2 INSERT INTO IAMARKS VALUES ('1RN13CS091','10CS82','CSE8C', 12, 19,14,NULL);
3 INSERT INTO IAMARKS VALUES ('1RN13CS091','10CS83','CSE8C', 19, 15,20,NULL);
4 INSERT INTO IAMARKS VALUES ('1RN13CS091','10CS84','CSE8C', 20, 16,19,NULL);
5 INSERT INTO IAMARKS VALUES ('1RN13CS091','10CS85','CSE8C', 15, 15,12,NULL);
```

Server: 127.0.0.1 » Database: college » Table: iamarks

Browse Structure SQL Search Insert Export Import Privileges

Showing rows 0 - 4 (5 total, Query took 0.0005 seconds.)

```
SELECT * FROM `iamarks`
```

Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

+ Options

	USN	SUBCODE	SSID	TEST1	TEST2	TEST3	FINALIA
<input type="checkbox"/>	1RN13CS091	10CS81	CSE8C	15	16	18	NULL
<input type="checkbox"/>	1RN13CS091	10CS82	CSE8C	12	19	14	NULL
<input type="checkbox"/>	1RN13CS091	10CS83	CSE8C	19	15	20	NULL
<input type="checkbox"/>	1RN13CS091	10CS84	CSE8C	20	16	19	NULL
<input type="checkbox"/>	1RN13CS091	10CS85	CSE8C	15	15	12	NULL

'SUBJECT' table:

Server: 127.0.0.1 » Database: college » Table: subject

Browse Structure SQL Search Insert Export Import

Run SQL query/queries on table college.subject: [?](#)

```
1 INSERT INTO SUBJECT VALUES ('10CS81','ACA', 8, 4);
2 INSERT INTO SUBJECT VALUES ('10CS82','SSM', 8, 4);
3 INSERT INTO SUBJECT VALUES ('10CS83','NM', 8, 4);
4 INSERT INTO SUBJECT VALUES ('10CS84','CC', 8, 4);
5 INSERT INTO SUBJECT VALUES ('10CS85','PW', 8, 4);
6 INSERT INTO SUBJECT VALUES ('10CS71','OOAD', 7, 4);
7 INSERT INTO SUBJECT VALUES ('10CS72','ECS', 7, 4);
8 INSERT INTO SUBJECT VALUES ('10CS73','PTW', 7, 4);
9 INSERT INTO SUBJECT VALUES ('10CS74','DWDM', 7, 4);
10 INSERT INTO SUBJECT VALUES ('10CS75','JAVA', 7, 4);
11 INSERT INTO SUBJECT VALUES ('10CS76','SAN', 7, 4);
12 INSERT INTO SUBJECT VALUES ('15CS51','ME', 5, 4);
13 INSERT INTO SUBJECT VALUES ('15CS52','CN', 5, 4);
14 INSERT INTO SUBJECT VALUES ('15CS53','DBMS', 5, 4);
15 INSERT INTO SUBJECT VALUES ('15CS54','ATC', 5, 4);
16 INSERT INTO SUBJECT VALUES ('15CS55','JAVA', 5, 3);
17 INSERT INTO SUBJECT VALUES ('15CS56','AI', 5, 3);
18 INSERT INTO SUBJECT VALUES ('15CS41','M4', 4, 4);
19 INSERT INTO SUBJECT VALUES ('15CS42','SE', 4, 4);
20 INSERT INTO SUBJECT VALUES ('15CS43','DAA', 4, 4);
21 INSERT INTO SUBJECT VALUES ('15CS44','MPMC', 4, 4);
22 INSERT INTO SUBJECT VALUES ('15CS45','OOC', 4, 3);
23 INSERT INTO SUBJECT VALUES ('15CS46','DC', 4, 3);
24 INSERT INTO SUBJECT VALUES ('15CS31','M3', 3, 4);
25 INSERT INTO SUBJECT VALUES ('15CS32','ADE', 3, 4);
26 INSERT INTO SUBJECT VALUES ('15CS33','DSA', 3, 4);
27 INSERT INTO SUBJECT VALUES ('15CS34','CO', 3, 4);
28 INSERT INTO SUBJECT VALUES ('15CS35','USP', 3, 3);
29 INSERT INTO SUBJECT VALUES ('15CS36','DMS', 3, 3);
```

Server: 127.0.0.1 » Database: college » Table: subject

[Browse](#) [Structure](#) [SQL](#) [Search](#) [Insert](#) [Export](#) [Import](#)

	SUBCODE	TITLE	SEM	CREDITS	
<input type="checkbox"/>	Edit Copy Delete	10CS71	OODA	7	4
<input type="checkbox"/>	Edit Copy Delete	10CS72	ECS	7	4
<input type="checkbox"/>	Edit Copy Delete	10CS73	PTW	7	4
<input type="checkbox"/>	Edit Copy Delete	10CS74	DWDM	7	4
<input type="checkbox"/>	Edit Copy Delete	10CS75	JAVA	7	4
<input type="checkbox"/>	Edit Copy Delete	10CS76	SAN	7	4
<input type="checkbox"/>	Edit Copy Delete	10CS81	ACA	8	4
<input type="checkbox"/>	Edit Copy Delete	10CS82	SSM	8	4
<input type="checkbox"/>	Edit Copy Delete	10CS83	NM	8	4
<input type="checkbox"/>	Edit Copy Delete	10CS84	CC	8	4
<input type="checkbox"/>	Edit Copy Delete	10CS85	PW	8	4
<input type="checkbox"/>	Edit Copy Delete	15CS31	M3	3	4
<input type="checkbox"/>	Edit Copy Delete	15CS32	ADE	3	4
<input type="checkbox"/>	Edit Copy Delete	15CS33	DSA	3	4
<input type="checkbox"/>	Edit Copy Delete	15CS34	CO	3	4
<input type="checkbox"/>	Edit Copy Delete	15CS35	USP	3	3
<input type="checkbox"/>	Edit Copy Delete	15CS36	DMS	3	3
<input type="checkbox"/>	Edit Copy Delete	15CS41	M4	4	4
<input type="checkbox"/>	Edit Copy Delete	15CS42	SE	4	4
<input type="checkbox"/>	Edit Copy Delete	15CS43	DAA	4	4
<input type="checkbox"/>	Edit Copy Delete	15CS44	MPMC	4	4
<input type="checkbox"/>	Edit Copy Delete	15CS45	OOC	4	3
<input type="checkbox"/>	Edit Copy Delete	15CS46	DC	4	3
<input type="checkbox"/>	Edit Copy Delete	15CS51	ME	5	4
<input type="checkbox"/>	Edit Copy Delete	15CS52	CN	5	4
<input type="checkbox"/>	Edit Copy Delete	15CS53	DBMS	5	4
<input type="checkbox"/>	Edit Copy Delete	15CS54	ATC	5	4
<input type="checkbox"/>	Edit Copy Delete	15CS55	JAVA	5	3
<input type="checkbox"/>	Edit Copy Delete	15CS56	AI	5	3

i. List all the student details studying in fourth semester ‘C’ section.

Query:

```
SELECT S.* , SS.SEM, SS.SEC FROM STUDENT S, SEMSEC SS, CLASS C WHERE S.USN = C.USN AND SS.SSID = C.SSID AND SS.SEM = 4 AND SS.SEC='C';
```

The screenshot shows the MySQL Workbench interface. The title bar indicates "Server: 127.0.0.1 » Database: college". The toolbar includes "Structure", "SQL", "Search", "Query", "Export", and "Import". A sub-toolbar below the main toolbar says "Run SQL query/queries on database college: ?". The main area contains the following SQL code:

```
1 SELECT S.* , SS.SEM, SS.SEC
2 FROM STUDENT S, SEMSEC SS, CLASS C
3 WHERE S.USN = C.USN
4 AND SS.SSID = C.SSID
5 AND SS.SEM = 4
6 AND SS.SEC='C';
```

The screenshot shows the MySQL Workbench interface with the "Query" tab selected. The title bar and toolbar are identical to the previous screenshot. The main area displays the results of the executed query:

```
Showing rows 0 - 0 (1 total, Query took 0.0023 seconds.)
```

```
SELECT S.* , SS.SEM, SS.SEC FROM STUDENT S, SEMSEC SS, CLASS C WHERE S.USN = C.USN AND SS.SSID = C.SSID AND SS.SEM = 4 AND SS.SEC='C'
```

Show query box

The screenshot shows the MySQL Workbench interface with the results table displayed. The table has columns: USN, SNAME, ADDRESS, PHONE, GENDER, SEM, and SEC. The data for the single row is:

USN	SNAME	ADDRESS	PHONE	GENDER	SEM	SEC
1RN15CS091	SANTOSH	MANGALURU	8812332201	M	4	C

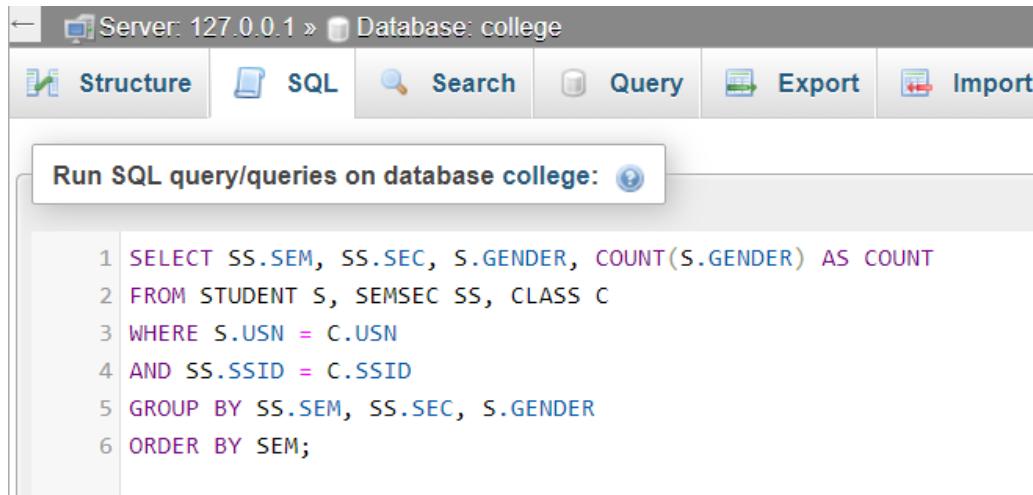
+ Options

USN	SNAME	ADDRESS	PHONE	GENDER	SEM	SEC
1RN15CS091	SANTOSH	MANGALURU	8812332201	M	4	C

ii. Compute the total number of male and female students in each semester and in each section.

Query:

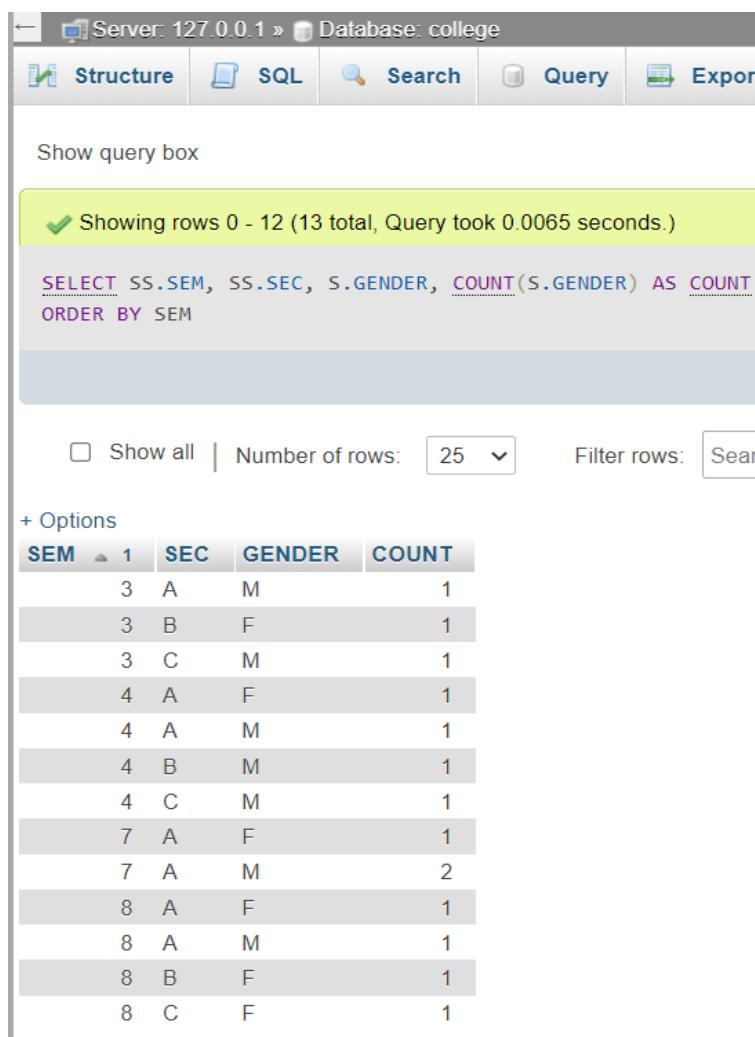
```
SELECT SS.SEM, SS.SEC, S.GENDER, COUNT(S.GENDER) AS COUNT FROM STUDENT S, SEMSEC  
SS, CLASS C WHERE S.USN = C.USN AND SS.SSID = C.SSID GROUP BY SS.SEM, SS.SEC, S.GENDER  
ORDER BY SEM;
```



The screenshot shows the MySQL Workbench interface with the following details:

- Server: 127.0.0.1
- Database: college
- Tab bar: Structure, SQL, Search, Query, Export, Import
- Query editor: Run SQL query/queries on database college
- SQL code:

```
1 SELECT SS.SEM, SS.SEC, S.GENDER, COUNT(S.GENDER) AS COUNT
2 FROM STUDENT S, SEMSEC SS, CLASS C
3 WHERE S.USN = C.USN
4 AND SS.SSID = C.SSID
5 GROUP BY SS.SEM, SS.SEC, S.GENDER
6 ORDER BY SEM;
```



The screenshot shows the MySQL Workbench interface with the following details:

- Server: 127.0.0.1
- Database: college
- Tab bar: Structure, SQL, Search, Query, Export
- Message bar: Show query box
- Message bar: Showing rows 0 - 12 (13 total, Query took 0.0065 seconds.)
- SQL code:

```
SELECT SS.SEM, SS.SEC, S.GENDER, COUNT(S.GENDER) AS COUNT
ORDER BY SEM
```
- Result table:

SEM	1	SEC	GENDER	COUNT
3	A	M		1
3	B	F		1
3	C	M		1
4	A	F		1
4	A	M		1
4	B	M		1
4	C	M		1
7	A	F		1
7	A	M		2
8	A	F		1
8	A	M		1
8	B	F		1
8	C	F		1

iii. Create a view of Test1 marks of student USN '1RN13CS091' in all subjects.

Query:

```
CREATE VIEW STU_TEST1_MARKS_VIEW AS SELECT TEST1, SUBCODE FROM IAMARKS WHERE USN = '1RN13CS091';
```

The screenshot shows the MySQL Workbench interface. The title bar indicates "Server: 127.0.0.1 » Database: college". The toolbar includes "Structure", "SQL", "Search", "Query", "Export", and "Import". A sub-toolbar below the main toolbar has "Structure" selected. A text input field contains the SQL code for creating a view:

```
1 CREATE VIEW STU_TEST1_MARKS_VIEW AS
2 SELECT TEST1, SUBCODE
3 FROM IAMARKS
4 WHERE USN = '1RN13CS091';
```

The screenshot shows the MySQL Workbench interface after the view has been created. The title bar now includes "View: stu_test1_marks_view". The toolbar has "Browse" selected. A warning message in a yellow box says: "⚠ Current selection does not contain a unique column. Grid edit, Edit, Copy and Delete are disabled". A green success message in a yellow box says: "✓ Showing rows 0 - 4 (5 total, Query took 0.0006 seconds.)". Below the message is the SQL query: "SELECT * FROM `stu_test1_marks_view`".

>Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

	TEST1	SUBCODE
<input type="checkbox"/>	15	10CS81
<input type="checkbox"/>	12	10CS82
<input type="checkbox"/>	19	10CS83
<input type="checkbox"/>	20	10CS84
<input type="checkbox"/>	15	10CS85