

NAME : KUSUM M R

USN : 1BM19CS077

DATE : 22/06/21

SUPPLIERS DATABASE

QUESTION :

CONSIDER THE FOLLOWING SCHEMA:

SUPPLIERS (SID: INTEGER, SNAME: STRING, ADDRESS: STRING)

PARTS (PID: INTEGER, PNAME: STRING, COLOR: STRING)

CATALOG (SID: INTEGER, PID: INTEGER, COST: REAL)

THE CATALOG RELATION LISTS THE PRICES CHARGED FOR PARTS BY SUPPLIERS. WRITE THE FOLLOWING QUERIES IN SQL:

- I. FIND THE PNAMEs OF PARTS FOR WHICH THERE IS SOME SUPPLIER.
- II. FIND THE SNAMEs OF SUPPLIERS WHO SUPPLY EVERY PART.
- III. FIND THE SNAMEs OF SUPPLIERS WHO SUPPLY EVERY RED PART.
- IV. FIND THE PNAMEs OF PARTS SUPPLIED BY ACME WIDGET SUPPLIERS AND BY NO ONE ELSE.
- V. FIND THE SIDS OF SUPPLIERS WHO CHARGE MORE FOR SOME PART THAN THE AVERAGE COST OF THAT PART (AVERAGED OVER ALL THE SUPPLIERS WHO SUPPLY THAT PART).
- VI. FOR EACH PART, FIND THE SNAME OF THE SUPPLIER WHO CHARGES THE MOST FOR THAT PART.
- VII. FIND THE SIDS OF SUPPLIERS WHO SUPPLY ONLY RED PARTS.

PROGRAM CODE :

```
CREATE DATABASE SUPPLIER;
USE SUPPLIER;
CREATE TABLE SUPPLIERS(SID BIGINT(5) PRIMARY KEY, SNAME
VARCHAR(20), CITY VARCHAR(20));
INSERT INTO SUPPLIERS VALUES(10001, 'ACME WIDGET', 'BANGALORE');
INSERT INTO SUPPLIERS VALUES(10002, 'JOHNS ', 'KOLKATA');
INSERT INTO SUPPLIERS VALUES(10003, 'VIMAL', 'MUMBAI');
INSERT INTO SUPPLIERS VALUES(10004, 'RELIANCE ', 'DELHI');
SELECT * FROM SUPPLIERS;
CREATE TABLE PARTS(PID BIGINT(5) PRIMARY KEY, PNAME VARCHAR(20),
COLOR VARCHAR(10));
INSERT INTO PARTS VALUES(20001, 'BOOK', 'RED');
INSERT INTO PARTS VALUES(20002, 'PEN', 'RED');
```

```

INSERT INTO PARTS VALUES(20003,'PENCIL','GREEN');
INSERT INTO PARTS VALUES(20004,'MOBILE ','GREEN');
INSERT INTO PARTS VALUES(20005,'CHARGER','BLACK');
SELECT * FROM PARTS;
CREATE TABLE CATALOG(SID BIGINT(5), PID BIGINT(5), FOREIGN KEY(SID)
REFERENCES SUPPLIERS(SID), FOREIGN KEY(PID) REFERENCES PARTS(PID),
COST FLOAT(6), PRIMARY KEY(SID, PID));
INSERT INTO CATALOG VALUES(10001,20001,10);
INSERT INTO CATALOG VALUES(10001,20002,10);
INSERT INTO CATALOG VALUES(10001,20003,30);
INSERT INTO CATALOG VALUES(10001,20004,10);
INSERT INTO CATALOG VALUES(10001,20005,10);
INSERT INTO CATALOG VALUES(10002,20001,10);
INSERT INTO CATALOG VALUES(10002,20002,20);
INSERT INTO CATALOG VALUES(10003,20003,30);
INSERT INTO CATALOG VALUES(10004,20003,40);
SELECT * FROM CATALOG;
/* 1 - FIND THE PNAMEs OF PARTS FOR WHICH THERE IS SOME SUPPLIER. */
SELECT DISTINCT P.PNAME
  FROM PARTS P, CATALOG C
 WHERE P.PID = C.PID;

/* FIND THE SNAMEs OF SUPPLIERS WHO SUPPLY EVERY PART */
SELECT S.SNAME FROM SUPPLIERS S WHERE NOT EXISTS (SELECT P.PID FROM
PARTS P WHERE NOT EXISTS (SELECT C.SID FROM CATALOG C WHERE C.SID =
S.SID AND C.PID = P.PID));

/* FIND THE SNAMEs OF SUPPLIERS WHO SUPPLY EVERY RED PART. */
SELECT S.SNAME FROM SUPPLIERS S WHERE NOT EXISTS (SELECT P.PID FROM
PARTS P WHERE P.COLOR = 'RED' AND (NOT EXISTS (SELECT C.SID FROM
CATALOG C WHERE C.SID = S.SID AND C.PID = P.PID)));

/* FIND THE PNAMEs OF PARTS SUPPLIED BY ACME WIDGET SUPPLIERS AND BY NO ONE ELSE */
SELECT P.PNAME FROM PARTS P, CATALOG C, SUPPLIERS S WHERE P.PID
= C.PID AND C.SID = S.SID AND S.SNAME = 'ACME WIDGET' AND NOT EXISTS
(SELECT * FROM CATALOG C1, SUPPLIERS S1 WHERE P.PID = C1.PID AND
C1.SID = S1.SID AND S1.SNAME <> 'ACME WIDGET');

/* FIND THE SIDS OF SUPPLIERS WHO CHARGE MORE FOR SOME PART THAN THE AVERAGE COST OF THAT PART
(AVERAGED OVER
ALL THE SUPPLIERS WHO SUPPLY THAT PART).
*/
SELECT DISTINCT C.SID FROM CATALOG C

```

```

WHERE C.COST > ( SELECT AVG (C1.COST)
FROM CATALOG C1
WHERE C1.PID = C.PID );

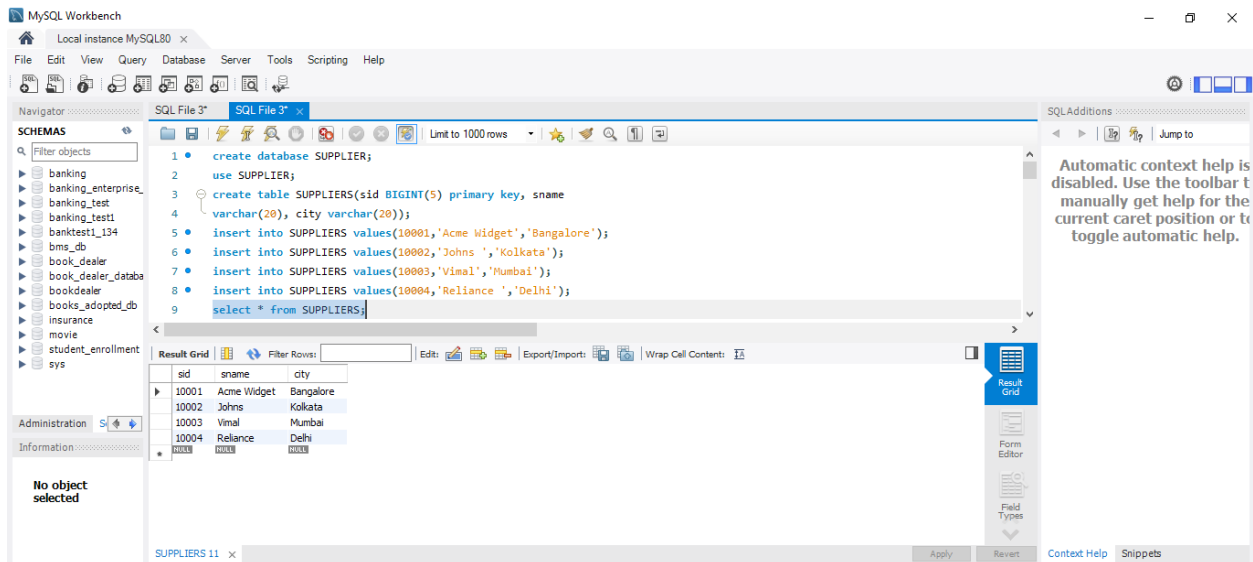
/* FOR EACH PART, FIND THE SNAME OF THE SUPPLIER WHO CHARGES THE MOST FOR THAT PART.*/
SELECT P.PID, S.SNAME
FROM PARTS P, SUPPLIERS S, CATALOG C
WHERE C.PID = P.PID
AND C.SID = S.SID
AND C.COST = (SELECT MAX(C1.COST)
FROM CATALOG C1
WHERE C1.PID = P.PID);

/* FIND THE SIDS OF SUPPLIERS WHO SUPPLY ONLY RED PARTS.*/
SELECT DISTINCT C.SID
FROM CATALOG C
WHERE NOT EXISTS ( SELECT *
FROM PARTS P
WHERE P.PID = C.PID AND P.COLOR <> 'RED' );

```

SCREENSHOTS OF THE PROGRAM OUTPUT :

➔ CREATION AND INSERTION OF VALUES



The screenshot displays the MySQL Workbench interface. The SQL editor contains the following code:

```

1 create database SUPPLIER;
2 use SUPPLIER;
3 create table SUPPLIERS(sid BIGINT(5) primary key, sname
4   varchar(20), city varchar(20));
5 insert into SUPPLIERS values(10001,'Acme Widget','Bangalore');
6 insert into SUPPLIERS values(10002,'Johns ','Kolkata');
7 insert into SUPPLIERS values(10003,'Vimal','Mumbai');
8 insert into SUPPLIERS values(10004,'Reliance ','Delhi');
9 select * from SUPPLIERS;

```

The Result Grid shows the output of the SELECT statement, displaying four rows of supplier data:

sid	sname	city
10001	Acme Widget	Bangalore
10002	Johns	Kolkata
10003	Vimal	Mumbai
10004	Reliance	Delhi

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator: SQL File 3* SQL File 3*

Limit to 1000 rows

SQL Editor:

```

9 select * from SUPPLIERS;
10 create table PARTS(pid BIGINT(5) primary key, pname varchar(20),
11 color varchar(10));
12 insert into PARTS values(20001,'Book','RED');
13 insert into PARTS values(20002,'Pen','RED');
14 insert into PARTS values(20003,'Pencil','Green');
15 insert into PARTS values(20004,'Mobile','Green');
16 insert into PARTS values(20005,'Charger','Black');
17 select * from PARTS;

```

Result Grid:

pid	pname	color
20001	Book	RED
20002	Pen	RED
20003	Pencil	Green
20004	Mobile	Green
20005	Charger	Black

Administration: No object selected

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

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator: SQL File 3* SQL File 3*

Limit to 1000 rows

SQL Editor:

```

24 insert into CATALOG values(10001,20004,10);
25 insert into CATALOG values(10001,20005,10);
26 insert into CATALOG values(10002,20001,10);
27 insert into CATALOG values(10002,20002,20);
28 insert into CATALOG values(10003,20003,30);
29 insert into CATALOG values(10004,20003,40);
30 select * from CATALOG;
31 /* 1 - Find the pnames of parts for which there is some supplier. */
32 SELECT DISTINCT P.pname

```

Result Grid:

sid	pid	cost
10001	20001	10
10001	20002	10
10001	20003	30
10001	20004	10
10001	20005	10
10002	20001	10
10002	20002	20
10003	20003	30
10004	20003	40

Administration: No object selected

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

1. FIND THE PNAMES OF PARTS FOR WHICH THERE IS SOME SUPPLIER.

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator: SQL File 3* SQL File 3*

Limit to 1000 rows

SQL Editor:

```

29 insert into CATALOG values(10004,20003,40);
30 select * from CATALOG;
31 /* 1 - Find the pnames of parts for which there is some supplier. */
32 SELECT DISTINCT P.pname
33 FROM Parts P, Catalog C
34 WHERE P.pid = C.pid;
35
36 /* Find the snames of suppliers who supply every part */
37 select S.sname from SUPPLIERS S where not exists (select P.pid from

```

Result Grid:

pname
Book
Pen
Pencil
Mobile
Charger

Administration: No object selected

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

2 - FIND THE SNAME OF SUPPLIERS WHO SUPPLY EVERY PART.

The screenshot shows the MySQL Workbench interface. The SQL editor contains the following query:

```
34 WHERE P.pid = C.pid;
35
36 /* Find the snames of suppliers who supply every part */
37 select S.sname from SUPPLIERS S where not exists (select P.pid from
38 PARTS P where not exists (select C.sid from CATALOG C where C.sid =
39 S.sid and C.pid = P.pid));
40
41 /* Find the snames of suppliers who supply every red part. */
42 select S.sname from SUPPLIERS S where not exists (select P.pid from
```

The result grid is empty. The SCHEMAS pane on the left shows a list of databases, including 'banking', 'banking_enterprise', 'banking_test', 'banking_test1', 'banktest1_134', 'bms_db', 'book_dealer', 'book_dealer_data', 'bookdealer', 'books_adopted_db', 'insurance', 'movie', 'student_enrollment', and 'sys'. The 'Administration' pane shows 'No object selected'.

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

3 - FIND THE SNAME OF SUPPLIERS WHO SUPPLY EVERY RED PART.

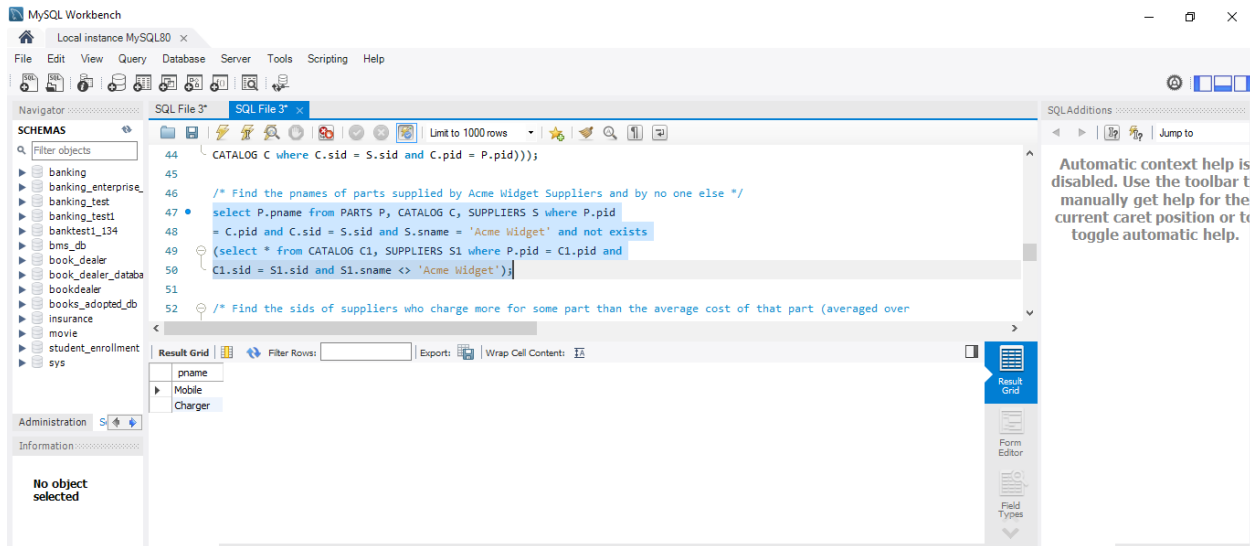
The screenshot shows the MySQL Workbench interface. The SQL editor contains the following query:

```
39 S.sid and C.pid = P.pid));
40
41 /* Find the snames of suppliers who supply every red part. */
42 select S.sname from SUPPLIERS S where not exists (select P.pid from
43 PARTS P where P.color = 'Red' and (not exists (select C.sid from
44 CATALOG C where C.sid = S.sid and C.pid = P.pid)));
45
46 /* Find the pnames of parts supplied by Acme Widget Suppliers and by no one else */
47 select P.pname from PARTS P, CATALOG C, SUPPLIERS S where P.pid
```

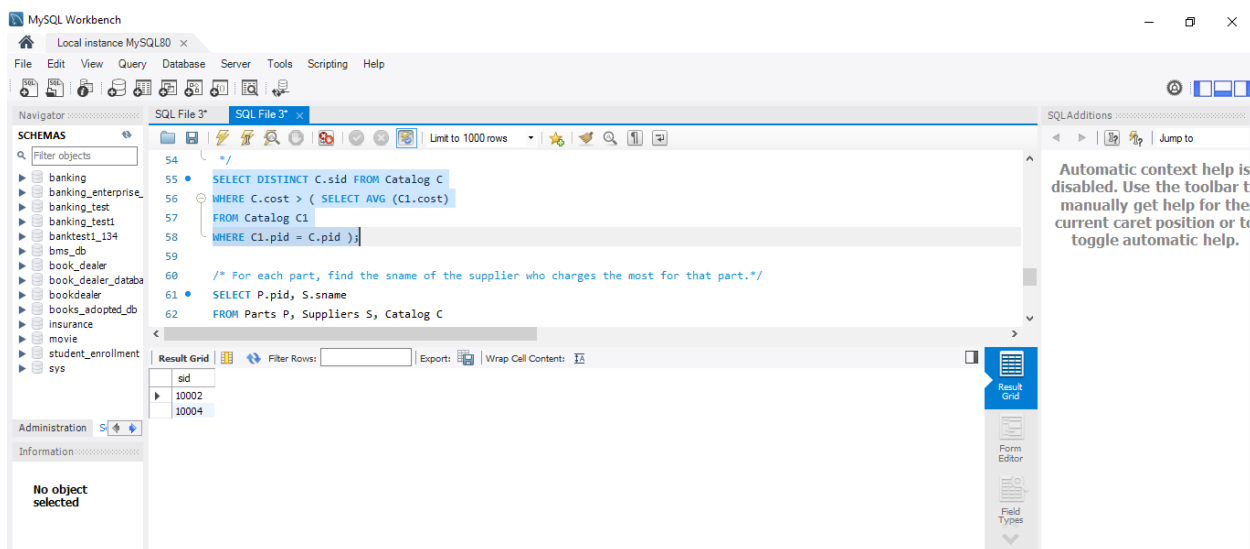
The result grid is empty. The SCHEMAS pane on the left shows a list of databases, including 'banking', 'banking_enterprise', 'banking_test', 'banking_test1', 'banktest1_134', 'bms_db', 'book_dealer', 'book_dealer_data', 'bookdealer', 'books_adopted_db', 'insurance', 'movie', 'student_enrollment', and 'sys'. The 'Administration' pane shows 'No object selected'.

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

4 - FIND THE PNAME OF PARTS SUPPLIED BY ACME WIDGET SUPPLIERS AND BY NO ONE ELSE



5 - FIND THE SIDS OF SUPPLIERS WHO CHARGE MORE FOR SOME PART THAN THE AVERAGE COST OF THAT PART (AVERAGED OVER ALL THE SUPPLIERS WHO SUPPLY THAT PART).



6 - FOR EACH PART, FIND THE SNAME OF THE SUPPLIER WHO CHARGES THE MOST FOR THAT PART

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- banking
- banking_enterprise
- banking_test
- banking_test1
- banktest1_134
- bms_db
- book_dealer
- book_dealer_data
- bookdealer
- books_adopted_db
- insurance
- movie
- student_enrollment
- sys

Administration

Information

No object selected

SQL File 3*

```

67 WHERE C1.pid = P.pid);
68
69 /* Find the sids of suppliers who supply only red parts.*/
70 • SELECT DISTINCT C.sid
71 FROM Catalog C
72 WHERE NOT EXISTS ( SELECT *
73 FROM Parts P
74 WHERE P.pid = C.pid AND P.color <> 'red' );
75

```

Result Grid

pid	sname
20001	Acme Widget
20004	Acme Widget
20005	Acme Widget
20001	Johns
20002	Johns
20003	Relance

SQLAdditions

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

7 - FIND THE SIDS OF SUPPLIERS WHO SUPPLY ONLY RED PARTS

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- banking
- banking_enterprise
- banking_test
- banking_test1
- banktest1_134
- bms_db
- book_dealer
- book_dealer_data
- bookdealer
- books_adopted_db
- insurance
- movie
- student_enrollment
- sys

Administration

Information

No object selected

SQL File 3*

```

62 FROM Parts P, Suppliers S, Catalog C
63 WHERE C.pid = P.pid
64 AND C.sid = S.sid
65 AND C.cost = (SELECT MAX(C1.cost)
66 FROM Catalog C1
67 WHERE C1.pid = P.pid);
68
69 /* Find the sids of suppliers who supply only red parts.*/
70 • SELECT DISTINCT C.sid

```

Result Grid

sid
10001
10002

SQLAdditions

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