]MIS 3306 Database Management Systems

Module 7-2 Exercise

Required for Grading (Type Your Name Below):

I am Riyan Rattan (type your full name) and I complete this assignment following the UHD academic integrity policy.

Read Before Starting this Exercise:

- **Prerequisite**: **Must complete** the Module 7-1 Exercise before working on this exercise.
- Use the **DB_M7** database from the Module 7-1 exercise. Using other databases will result in errors or wrong answers.
- **ALL** the SQL answers can be found in the textbook Chapter 7. Slight modifications on column names or values may be needed.
- Keep in mind that the database server will **not** keep a copy of your SQL codes. Therefore, please save your SQL codes as SQL script files (*.sql), for your own reference.
- Your answer is required when you see the red answer box like the box below.

Answer here:

<<This is an example. Answer whenever you see this.>>

- Answer all the SQL query questions like the examplary answer here.
  - **The answer contains both the codes and the result.**
  - **The answer meets the grading requirement.**
  - **The answer is clear (readable).**

Answer here:

Grading requirement: 1. Include both the code and the result data (1 point for each). 2. The result should include your name (0 point when the result is wrong).

```
2 • SELECT P_CODE, P_DESCRIPT, P_PRICE, P_QOH
3   FROM PRODUCT;
```

100% 14:3

Result Grid | Filter Rows: Search | Edit:

P_CODE	P_DESCRIPT	P_PRICE	P_QOH
111UHD	Shuaifu Lin Design	999.99	100
11QER/31	Power painter, 15 psi., 3-nozzle	109.99	8
13-Q2/P2	7.25-in. pwr. saw blade	14.99	32
14-Q1/L3	9.00-in. pwr. saw blade	17.49	18
1546-Q...	Hrd. cloth, 1/4-in., 2x50	39.95	15
1558-Q...	Hrd. cloth, 1/2-in., 3x50	43.99	23
WR3/TT3	Steel matting, 4'x8'x1/6", .5" mesh	119.95	18
NULL	NULL	NULL	NULL

You must use the DB_M7 database, which a vendor-product database from Module 7-1 Exercise. The ERD and the data dictionary are shown below.

Symbol	Meaning
	Primary key
	Foreign key
	Column (Not null)
	Column (Could be null)
CUS_CODE INT(11)	Attribute (CUS_CODE) and its data type (INT(11))

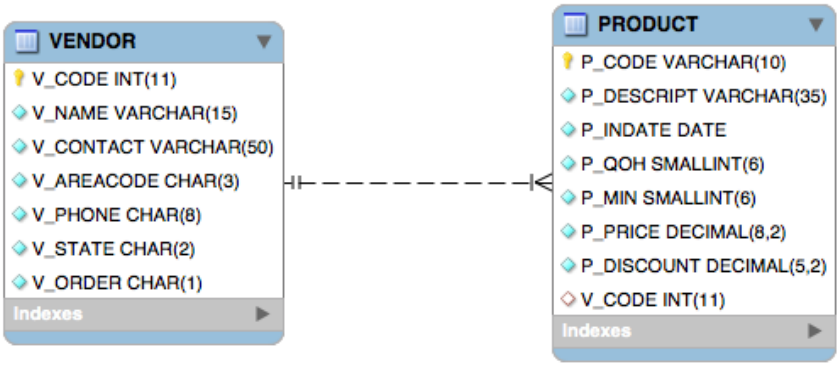


TABLE	COLUMN	Content	TYPE	PK or FK	FK REFERENCE
PRODUCT	P_CODE	Product code	VARCHAR(10)	PK	
	P_DESCRIPT	Product description	VARCHAR(35)		
	P_INDATE	Stocking date	DATETIME		
	P_QOH	Units available	SMALLINT(6)		
	P_MIN	Minimum units	SMALLINT(6)		
	P_PRICE	Product price	DECIMAL(8,2)		
	P_DICSOUNT	Discount rate	DECIMAL(5,2)		
	V_CODE	Vendor code	INT(11)	FK	VENDOR(V_CODE)
VENDOR	V_CODE	Vendor code	INT(11)	PK	
	V_NAME	Vendor name	VARCHAR(30)		
	V_CONTACT	Contact person	VARCHAR(50)		
	V_AREACODE	Phone area code	CHAR(3)		
	V_PHONE	Phone number	CHAR(8)		
	V_STATE	State	CHAR(2)		
	V_ORDER	Previous order	CHAR(1)		

PART I: Use and Check the Database

1. **If you have closed Workbench earlier** and just reopen to continue your work, you need to "use" the database before executing commands into the database. Execute the following code.

```
USE DB_M7;
```

2. Check the data of your PRODUCT table. The result should list your name design computer as the first row. If your PRODUCT table does not include your name design product, you should rebuild the DB_M7 database.

P_CODE	P_DESCRIPT	P_INDATE	P_QOH	P_MIN	P_PRICE	P_DISCOU...	V_CODE
111UHD	Shuaifu Lin Design	2026-11-11	100	10	999.99	0.00	11111
11QER/31	Power painter, 15 psi., 3-nozzle	2025-11-03	8	5	109.99	0.00	22567
13-Q2/P2	7.25-in. pwr. saw blade	2025-12-13	32	15	14.99	0.05	21344
14-Q1/L3	9.00-in. pwr. saw blade	2025-11-13	18	12	17.49	0.00	NULL
1546-Q...	Hrd. cloth, 1/4-in., 2x50	2026-01-15	15	8	39.95	0.00	21225
1558-Q...	Hrd. cloth, 1/2-in., 3x50	2026-01-15	23	5	43.99	0.00	21225
WR3/TT3	Steel matting, 4'x8'x1/6", .5" mesh	2026-01-17	18	5	119.95	0.10	21231
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

PART II: Aggregate Processing:
COUNT, MIN, MAX, SUM, AVG, GROUP BY, and HAVING
Textbook 7-7

3. COUNT

Calculate the total number of products.

Answer here:

Grading requirement: 1. Include both the code and the result data (1.5 point for each).

```
125     /*Q3 - COUNT */
126 •   SELECT COUNT(*) AS NumOfProducts
127     FROM PRODUCT;
128
129
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

NumOfProducts
7

4. COUNT

Determine the number of products having a price that is less than $40.

Answer here:
Grading requirement: 1. Include both the code and the result data (1.5 point for each).

```
47      /*EXERCISE 7-2*/
48      /*Q4*/
49  •   SELECT COUNT(*) AS NumOfProducts
50      FROM PRODUCT
51      WHERE P_Price > 40;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Co

NumOfProducts
4

5. COUNT

How many different vendors are in the PRODUCT table?

Answer here:
Grading requirement: 1. Include both the code and the result data (1.5 point for each).

```
53      /*Q5*/
54  •   SELECT  COUNT(DISTINCT V_Code) AS NumOfVendor
55      FROM    PRODUCT;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

NumOfVendor
5

6. MIN and MAX

Retrieve the highest and lowest prices In the PRODUCT table in a single query.

Answer here:
Grading requirement: 1. Include both the code and the result data (1.5 point for each).

```
147 •   SELECT MAX(P_PRICE) AS MAXPRICE, MIN(P_PRICE) AS MINPRICE
148     FROM PRODUCT;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

MAXPRICE	MINPRICE
999.99	14.99

7. SUM

Find the total value of all items carried in inventory.

Answer here:
Grading requirement: 1. Include both the code and the result data (1.5 point for each).

```
151     /*Q7 - SUM*/
152     /* find the total value of all items carried in inventory */
153 •   SELECT SUM(P_QOH * P_PRICE) AS TOTVALUE
154     FROM PRODUCT;
155
156
157
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

TOTVALUE
105443.54

8. AVG

Compute the average price of the products.

Answer here:

Grading requirement: 1. Include both the code and the result data (1.5 point for each).

```
57      /*Q8*/
58 •    SELECT  AVG(P_Price) AS AvgPrice
59      FROM    PRODUCT;
60
61
```

Result Grid | Filter Rows: | Export: | Wrap Cell C

AVG(P_Price)
192.335714

```
57      /*Q8*/
58 •    SELECT  AVG(P_Price)
59      FROM    PRODUCT;
60
```

Result Grid | Filter Rows: | Exp

AVG(P_Price)
192.335714

9. GROUP BY

Calculate the average price of the products provided by each vendor.

Answer here:
Grading requirement: 1. Include both the code and the result data (1.5 point for each).

```
164     /*Q9 - GROUP BY*/
165     /*average price of the products provided by each vendor*/
166 •   SELECT V_CODE, AVG(P_PRICE) AS AVGPRICE
167     FROM PRODUCT
168     GROUP BY V_CODE;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

V_CODE	AVGPRICE
NULL	17.490000
11111	999.990000
21225	41.970000
21231	119.950000
21344	14.990000
22567	109.990000

10. GROUP BY and JOIN

List the vendor code, vendor name, the number of products for each vendor, and the average product price for each vendor.

VENDOR.V_Code, V_Name

Answer here:
Grading requirement: 1. Include both the code and the result data (1.5 point for each). 2. The result should include your name.

```
65    /*Q10*/
66 •  SELECT  VENDOR.V_Code, V_Name, COUNT(P_Code) AS NumOfProduct, AVG(P_Price)
67    FROM    VENDOR  JOIN    PRODUCT
68        ON  VENDOR.V_Code=PRODUCT.V_Code
69    GROUP BY VENDOR.V_Code;
```

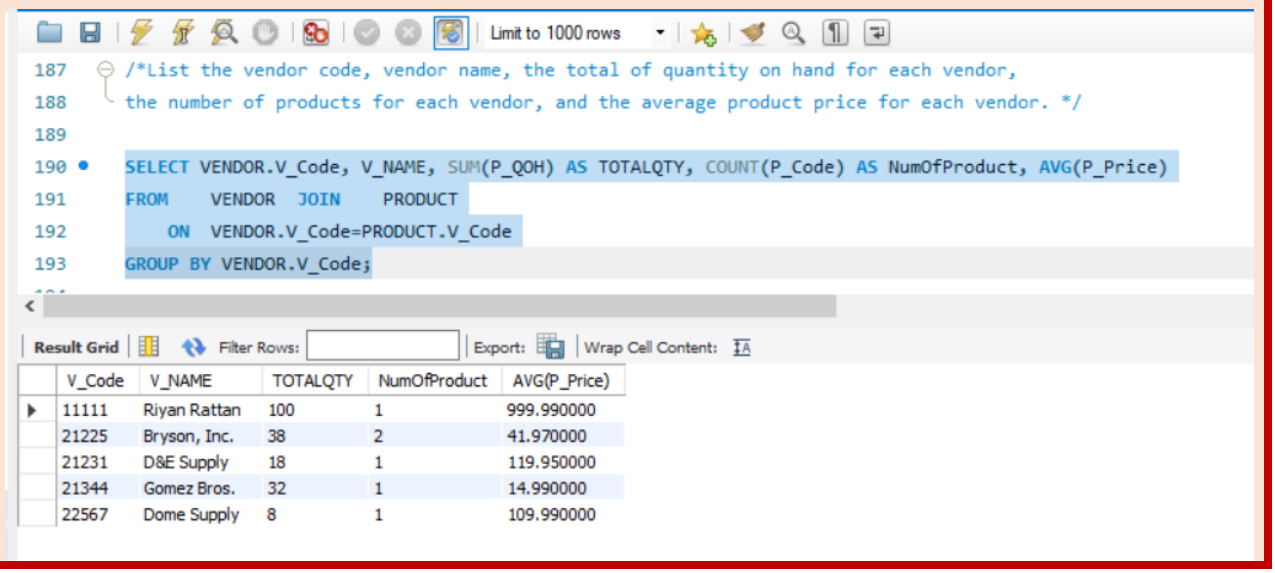
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

V_Code	V_Name	NumOfProduct	AVG(P_Price)
11111	Riyan Rattan	1	999.990000
21225	Bryson, Inc.	2	41.970000
21231	D&E Supply	1	119.950000
21344	Gomez Bros.	1	14.990000
22567	Dome Supply	1	109.990000

11. GROUP BY and JOIN

List the vendor code, vendor name, the total of quantity on hand for each vendor, the number of products for each vendor, and the average product price for each vendor.

Answer here:
Grading requirement: 1. Include both the code and the result data (1.5 point for each). 2. The result should include your name.



```
187  /*List the vendor code, vendor name, the total of quantity on hand for each vendor,
188  the number of products for each vendor, and the average product price for each vendor. */
189
190  SELECT VENDOR.V_Code, V_NAME, SUM(P_QOH) AS TOTALQTY, COUNT(P_Code) AS NumOfProduct, AVG(P_Price)
191  FROM    VENDOR  JOIN    PRODUCT
192      ON  VENDOR.V_Code=PRODUCT.V_Code
193  GROUP BY VENDOR.V_Code;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

V_Code	V_NAME	TOTALQTY	NumOfProduct	AVG(P_Price)
11111	Riyan Rattan	100	1	999.990000
21225	Bryson, Inc.	38	2	41.970000
21231	D&E Supply	18	1	119.950000
21344	Gomez Bros.	32	1	14.990000
22567	Dome Supply	8	1	109.990000

12. HAVING

Generate a listing of the number of products in the inventory supplied by each vendor. LIMIT THE LISTING TO PRODUCTS WHOSE PRICE AVERAGE GREATER THAN $40.

Answer here:
Grading requirement: 1. Include both the code and the result data (1.5 point for each).

```
77    /*Q12*/
78    SELECT  VENDOR.V_Code, V_Name, COUNT(P_Code) AS NumOfProduct, AVG(P_Price)
79    FROM    VENDOR  JOIN    PRODUCT
80        ON  VENDOR.V_Code=PRODUCT.V_Code
81    GROUP BY VENDOR.V_Code
82    HAVING AVG(P_Code)>40;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

V_Code	V_Name	NumOfProduct	AVG(P_Price)
11111	Riyan Rattan	1	999.990000
21225	Bryson, Inc.	2	41.970000

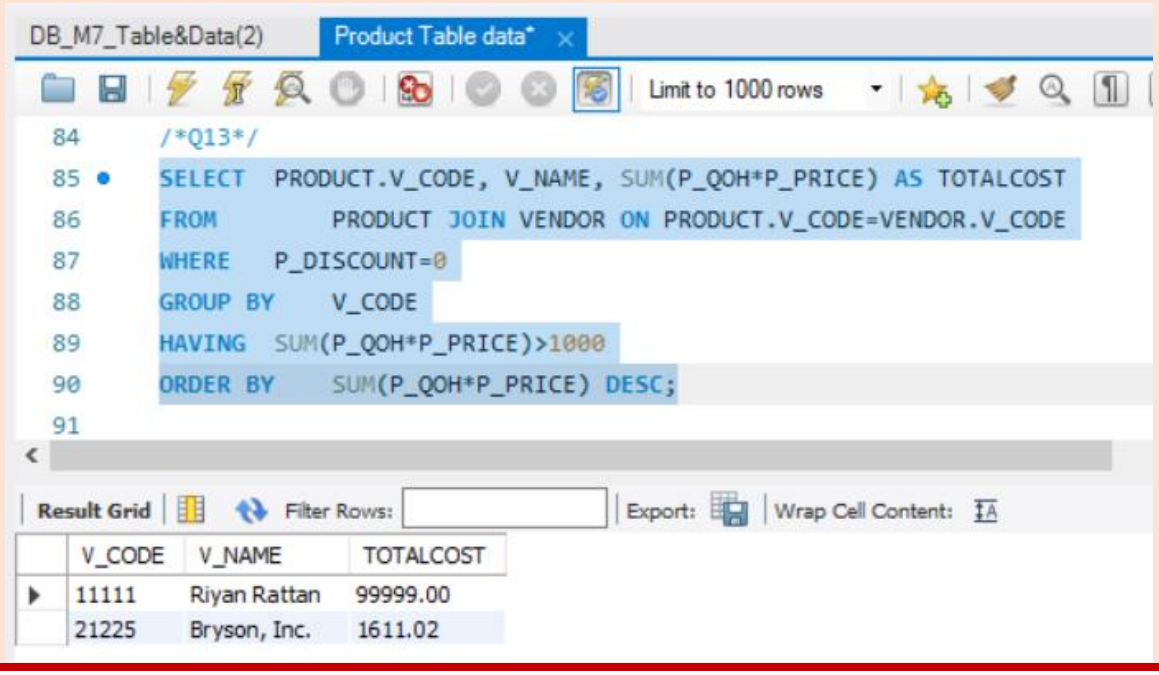
13. HAVING

Reorder and execute the following SQL statement.

- FROM PRODUCT JOIN VENDOR ON PRODUCT.V_CODE=VENDOR.V_CODE
- GROUP BY V_CODE
- HAVING SUM(P_QOH*P_PRICE)>1000
- ORDER BY SUM(P_QOH*P_PRICE) DESC;
- SELECT PRODUCT.V_CODE, V_NAME, SUM(P_QOH*P_PRICE) AS TOTALCOST
- WHERE P_DISCOUNT=0

Answer here:

Grading requirement: 1. Include both the code and the result data (1.5 point for each). 2. The result should include your name.



PART II: Subqueries
Textbook 7-7

SELECT P_Code, P_Descript, P_Price

FROM PRODUCT

WHERE V_Code IN(……this will be inserted from below…….)

SELECT V_Code

FROM VENDOR

WHERE V_Areacode IN

(“615”,”713”)

14. WHERE Subqueries

List the product codes, product names, and prices with a price greater than or equal to the average product price.

Answer here:

Grading requirement: 1. Include both the code and the result data (1.5 point for each). 2. The result should include your name.

```
213    /*Q14 - WHERE Subqueries*/
214    /* List the product codes, product names, and prices with a price greater than or equal to the average product price. */
215 •  SELECT P_CODE, P_Descript, P_PRICE
216    FROM PRODUCT
217    WHERE P_PRICE >= (SELECT AVG(P_PRICE) FROM PRODUCT);
218
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

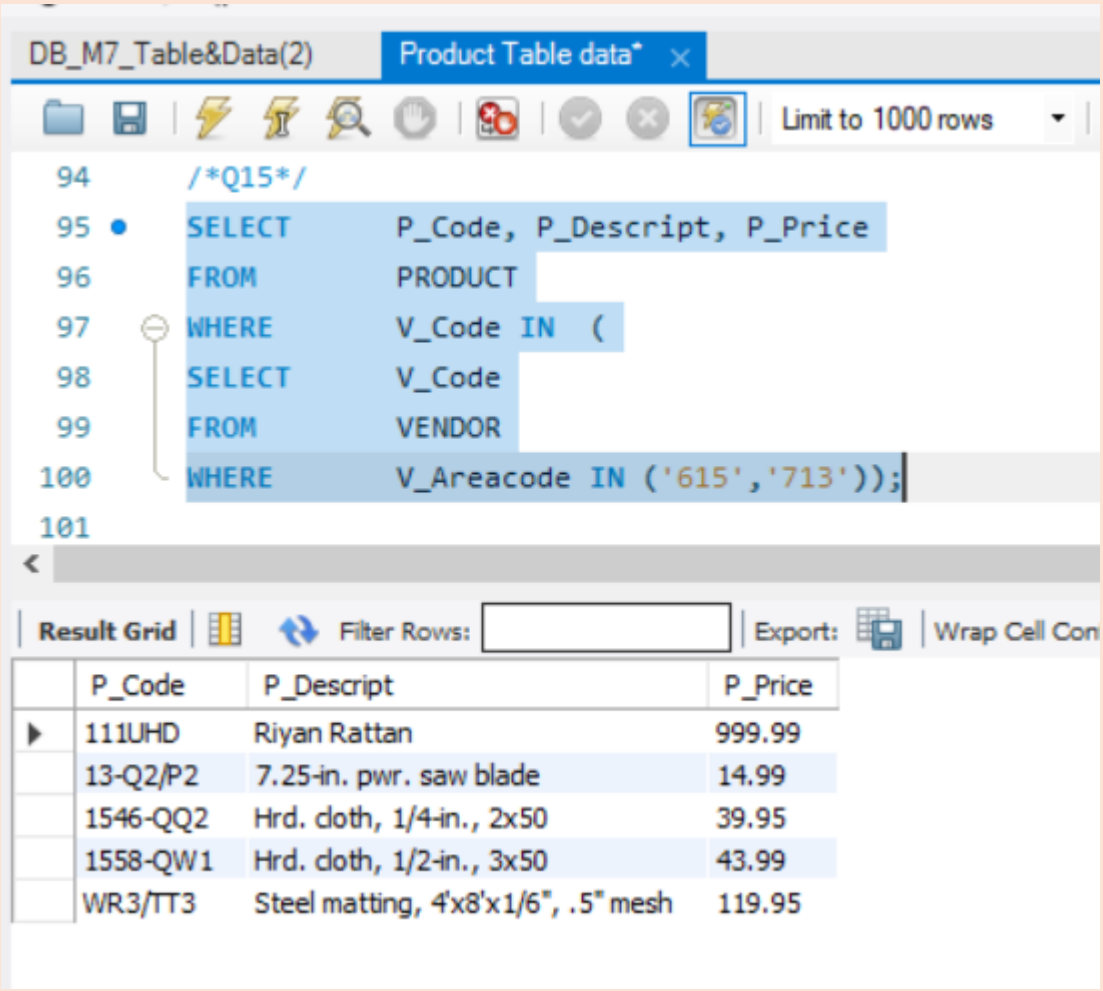
P_CODE	P_Descript	P_PRICE
111UHD	Riyan Rattan	999.99
NULL	NULL	NULL

15. IN Subqueries

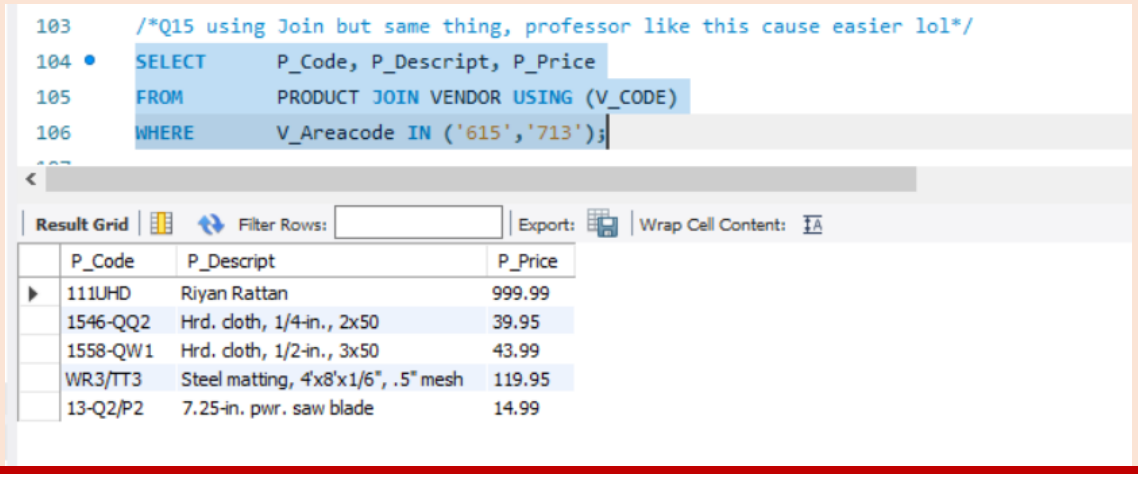
List the product codes, product names, and prices for the products whose vendor's area codes are in 615 or 713.

Answer here:

Grading requirement: 1. Include both the code and the result data (1.5 point for each). 2. The result should include your name.



P_Code	P_Descript	P_Price
111UHD	Riyan Rattan	999.99
13-Q2/P2	7.25-in. pwr. saw blade	14.99
1546-QQ2	Hrd. cloth, 1/4-in., 2x50	39.95
1558-QW1	Hrd. cloth, 1/2-in., 3x50	43.99
WR3/TT3	Steel matting, 4'x8'x1/6", .5" mesh	119.95



P_Code	P_Descript	P_Price
111UHD	Riyan Rattan	999.99
1546-QQ2	Hrd. cloth, 1/4-in., 2x50	39.95
1558-QW1	Hrd. cloth, 1/2-in., 3x50	43.99
WR3/TT3	Steel matting, 4'x8'x1/6", .5" mesh	119.95
13-Q2/P2	7.25-in. pwr. saw blade	14.99

16. IN Subqueries

List the vendor codes and names for the vendors whose product prices are greater than $40.

Answer here:

Grading requirement: 1. Include both the code and the result data (1.5 point for each). 2. The result should include your name.

```
238     /*Q16 - IN Subqueries*/
239     /* List the vendor codes and names for the vendors whose product prices are greater than $40. */
240 •   SELECT V_CODE, V_NAME
241     FROM VENDOR
242     WHERE V_CODE IN ( SELECT V_CODE FROM PRODUCT WHERE P_PRICE > 40);
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

V_CODE	V_NAME
11111	Riyan Rattan
21225	Bryson, Inc.
21231	D&E Supply
22567	Dome Supply
NULL	NULL

```
238     /*Q16 - IN Subqueries*/
239     /* List the vendor codes and names for the vendors whose product prices are greater than $40. */
240 •   SELECT VENDOR.V_Code, V_Name, P_Price
241     FROM PRODUCT JOIN VENDOR USING (V_CODE)
242     WHERE P_PRICE > 40;
243
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

V_Code	V_Name	P_Price
11111	Riyan Rattan	999.99
22567	Dome Supply	109.99
21225	Bryson, Inc.	43.99
21231	D&E Supply	119.95