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LAB:4

Create table:

1. Vendor:

```
CREATE TABLE vendor
(
      VendorID VARCHAR(255) PRIMARY KEY ,
      VendorName VARCHAR(255) NOT NULL
);
```

2. Category:

```
CREATE TABLE category
(
      CategoryID VARCHAR(255) PRIMARY KEY,
      CategoryName VARCHAR(255) NOT NULL

);
```

3. Product:

```
CREATE TABLE product
(
ProductId VARCHAR(255) PRIMARY KEY,

ProductName VARCHAR(255) NOT NULL,

ProductPrice NUMERIC NOT NULL,

VendorID VARCHAR(255) REFERENCES vendor(VendorID),

CategoryID VARCHAR(255) REFERENCES category(CategoryID)
);
```

4. Region:

CREATE TABLE region

(

  RegionID VARCHAR(255) PRIMARY KEY,

  RegionName VARCHAR(255) NOT NULL

);

5. Store:

CREATE TABLE store

(

      StoreID VARCHAR(255) PRIMARY KEY,

      StoreZip NUMERIC NOT NULL,

      RegionID VARCHAR(255) REFERENCES region(RegionID)

);

6. Customer:

CREATE TABLE customer

(

      CustomerID VARCHAR(255) PRIMARY KEY,

      CustomerName VARCHAR(255) NOT NULL,

      CustomerZip NUMERIC NOT NULL

);

7. Salestransaction:

CREATE TABLE salestransaction

(

      TID VARCHAR(255) PRIMARY KEY,

      CustomerID VARCHAR(255) REFERENCES customer(CustomerID),

      StoreID VARCHAR(255) REFERENCES store(StoreID),

      TDate date NOT NULL

);

8. Soldvia:

CREATE TABLE soldvia
(

       ProductID VARCHAR(255) REFERENCES product(ProductID),
       TID VARCHAR(255) REFERENCES salestransaction(TID),
       NoOfItems numeric NOT NULL

)

QUERIES:

Query 1. Retrieve the entire contents of the Product table (all columns and all rows of the table).

Ans: SELECT *

       FROM product

Data output   Messages   Notifications

	ProductID [PK] character varying (255)	ProductName character varying (255)	ProductPrice numeric	VendorID character varying (255)	CategoryID character varying (255)
1	1X1	Zzz Bag	100	PG	CP
2	2X2	Easy Boot	70	MK	FW
3	3X3	Cosy Sock	15	MK	FW
4	4X4	Dura Boot	90	PG	FW
5	5X5	Tiny Tent	150	MK	CP
6	6X6	Biggy Tent	250	MK	CP
7	7X7	Hi-Tec GPS	300	OA	EL
8	8X8	Power Pedals	20	MK	CY
9	9X9	Trusty Rope	30	WL	CL
10	1X2	Comfy Harness	150	MK	CL
11	1X3	Sunny Charger	125	OA	EL
12	1X4	Safe-T Helmet	40	PG	CY
13	2X1	Mmm Stove	80	WL	CP
14	2X3	Reflect-o Jacket	35	PG	CY
15	2X4	Strongster Carribeaner	20	MK	CL

Total rows: 24 of 24   Query complete 00:00:00.600   Ln

Query 2. Display the VendorID and VendorName for all vendors.

Ans: SELECT VendorID, VendorName

       FROM vendor;

	VendorID [PK] character varying (255)	VendorName character varying (255)
1	PG	Pacifica Gear
2	MK	Mountain King
3	OA	Outdoor Adventures
4	WL	Wilderness Limited

Query 3. Display the CustomerName and CustomerZip for all customer

Ans: **SELECT** CustomerName,CustomerZip

     FROM customer;

	CustomerName character varying (255) 🔒	CustomerZip numeric 🔒
1	Tina	60137
2	Tony	60611
3	Pam	35401
4	Elly	47374
5	Nora	60640
6	Miles	60602
7	Neil	55403
8	Maggie	47401
9	Ryan	46202
10	Dan	55499

Query 4. Retrieve the entire contents of the table PRODUCT. The columns must be displayed in the following order: ProductName, ProductID, VendorID, CategoryID, ProductPrice.

Ans:

SELECT ProductName,ProductID,VendorID,CategoryID,ProductPrice

FROM product;

	ProductName character varying (255)	ProductID [PK] character varying (255)	VendorID character varying (255)	CategoryID character varying (255)	ProductPrice numeric
1	Zzz Bag	1X1	PG	CP	100
2	Easy Boot	2X2	MK	FW	70
3	Cosy Sock	3X3	MK	FW	15
4	Dura Boot	4X4	PG	FW	90
5	Tiny Tent	5X5	MK	CP	150
6	Biggy Tent	6X6	MK	CP	250
7	Hi-Tec GPS	7X7	OA	EL	300
8	Power Pedals	8X8	MK	CY	20
9	Trusty Rope	9X9	WL	CL	30
10	Comfy Harness	1X2	MK	CL	150
11	Sunny Charger	1X3	OA	EL	125
12	Safe-T Helmet	1X4	PG	CY	40
13	Mmm Stove	2X1	WL	CP	80
14	Reflect-o Jacket	2X3	PG	CY	35
15	Strongster Carribeaner	2X4	MK	CL	20
16	Sleepy Pad	3X1	WL	CP	25

Total rows: 24 of 24   Query complete 00:00:00.286

Query 5. For the table PRODUCT, display 3 columns ProductID, ProductPrice, and a column showing ProductPrice increased by 40% (Multiply ProductPrice by 1.40)

Ans: **SELECT** ProductID,ProductPrice,

ProductPrice*1.40 **AS** "price increased by 40%"

FROM product;

Data output   Messages   Notifications

	ProductID [PK] character varying (255)	ProductPrice numeric	price increased by 40% numeric
1	1X1	100	140.00
2	2X2	70	98.00
3	3X3	15	21.00
4	4X4	90	126.00
5	5X5	150	210.00
6	6X6	250	350.00
7	7X7	300	420.00
8	8X8	20	28.00
9	9X9	30	42.00
10	1X2	150	210.00
11	1X3	125	175.00
12	1X4	40	56.00
13	2X1	80	112.00
14	2X3	35	49.00
15	2X4	20	28.00
16	3X1	25	35.00

Total rows: 24 of 24   Query complete 00:00:00.202

Query 6. Display the ProductID, ProductName, and ProductPrice for products with a ProductPrice of $100 or higher.

Ans: **SELECT** ProductID,ProductName,ProductPrice

FROM product

WHERE ProductPrice>=100;

	ProductID [PK] character varying (255)	ProductName character varying (255)	ProductPrice numeric
1	1X1	Zzz Bag	100
2	5X5	Tiny Tent	150
3	6X6	Biggy Tent	250
4	7X7	Hi-Tec GPS	300
5	1X2	Comfy Harness	150
6	1X3	Sunny Charger	125
7	4X3	Mega Camera	275
8	5X3	Luxo Tent	500

Query 7. Retrieve the ProductID, ProductName, VendorID, CategoryID, and ProductPrice of products in the FW category whose price is equal to or below $200 (Hint: two conditions in WHERE clause)

Ans:

SELECT ProductName, ProductID, VendorID, CategoryID, ProductPrice

FROM product

WHERE CategoryID='FW' AND ProductPrice<=200;

	ProductName character varying (255)	ProductID [PK] character varying (255)	VendorID character varying (255)	CategoryID character varying (255)	ProductPrice numeric
1	Easy Boot	2X2	MK	FW	70
2	Cosy Sock	3X3	MK	FW	15
3	Dura Boot	4X4	PG	FW	90
4	Simple Sandal	5X1	PG	FW	50
5	Action Sandal	5X2	PG	FW	70

Query 8. Display the VendorID of all vendors that we have a product from them. In the result, we must not see duplicate vendorIDs. For example, if we have 5 products from 1 vendor, we must see the vendorID of that vendor only one time not 5 times.
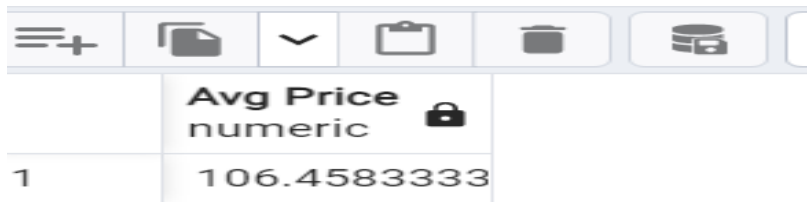
ANS:

SELECT DISTINCT VendorID

FROM product;

	VendorID character varying (255)
1	PG
2	MK
3	OA
4	WL

Query 9. Retrieve the average price of all products. (Hint: Use AVG)

ANS:

SELECT AVG(ProductPrice) AS "Avg Price"
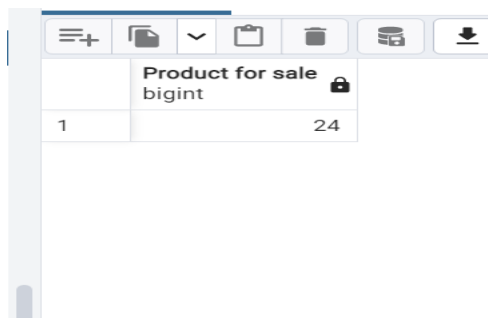
FROM product;

	Avg Price numeric 🔒
1	106.4583333

Query 10. Show how many products are there for sale. (Hint: COUNT)

Ans:
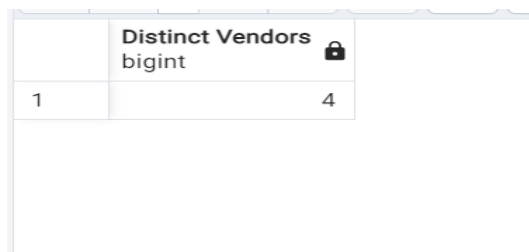
SELECT COUNT(ProductID) AS "Product for sale"

FROM product;

	Product for sale bigint 🔒
1	24

Query 11. Count how many distinct vendors are there in the product table. (Hint: the answer is 4)

Ans: **SELECT** COUNT(DISTINCT(VendorID)) AS "Distinct Vendors"

      FROM product

	Distinct Vendors bigint 🔒
1	4

Query 12. Retrieve the number of products, average product price, lowest product price, and highest product price in the CP product category

Ans:

SELECT COUNT(ProductID) AS "NUMBER OF PRODUCTS",

AVG(ProductPrice) AS "Average product Price",

 MIN(ProductPrice) AS "Lowest Product Price",

 MAX(ProductPrice) AS "Highest Product Price"

FROM product

WHERE CategoryID='CP';

	NUMBER OF PRODUCTS bigint	Average product Price numeric	Lowest Product Price numeric	Highest Product Price numeric
1	7	166.4285714285714286	25	500

Query 13. Retrieve the product ID, product name, category ID, and product price for each product in the FW product category, sorted by product price in descending order

ANS:

SELECT ProductID,ProductName,CategoryID,

     ProductPrice

FROM product

WHERE CategoryID='FW'

ORDER BY ProductPrice DESC

	ProductID [PK] character varying (255)	ProductName character varying (255)	CategoryID character varying (255)	ProductPrice numeric
1	4X4	Dura Boot	FW	90
2	2X2	Easy Boot	FW	70
3	5X2	Action Sandal	FW	70
4	5X1	Simple Sandal	FW	50
5	3X3	Cosy Sock	FW	15

Query 14. For each product, retrieve the ProductID, and the total number of product items sold within all transactions. (Hint: transactions can be found in SoldVia table. NoOfItems attribute holds how many items sold in one transaction, but we need to find the total sold of a product in all transactions. See the table below for your reference).

ANS:

SELECT ProductID AS "PRODUCTID",

     SUM (NoOfItems) AS "TOTALSOLD"

FROM soldvia

GROUP BY ProductID;

	PRODUCTID character varying	TOTALSOLD numeric
1	4X1	2
2	6X6	2
3	8X8	4
4	2X4	12
5	1X2	8
6	4X3	4
7	5X3	1
8	3X3	12
9	1X4	7
10	3X1	6
11	5X1	2
12	2X1	6
13	2X3	5
14	4X2	4
15	1X1	2

Total rows: 23 of 23   Query complete 00:00:00.112

Query 15. For each vendor, retrieve the VendorID, number of products supplied by the vendor, and average price of the products supplied by the vendor:

Ans:

SELECT VendorID,

        COUNT(ProductID) AS "No. of Products by Vedors",

        AVG(ProductPrice)::numeric(8,2) AS "Average Price"

FROM product

GROUP BY (VendorID);

	VendorID character varying (255) 🔒	No. of Products by Vedors bigint 🔒	Average Price numeric (8,2) 🔒
1	PG	6	64.17
2	MK	8	90.00
3	OA	5	196.00
4	WL	5	94.00

Query 16. Retrieve all attributes of products whose name starts with "Tiny", for example, 'Tiny Tent'

ANS:

  SELECT *

FROM product

WHERE ProductName LIKE 'Tiny%'

Data output   Messages   Notifications

	ProductID [PK] character varying (255)	ProductName character varying (255)	ProductPrice numeric	VendorID character varying (255)	CategoryID character varying (255)
1	5X5	Tiny Tent	150	MK	CP

Query 17. Display the ProductID, ProductName, and ProductPrice for products in the category whose CategoryID value is 'CP'. Sort the results by ProductID

ANS:

SELECT ProductID,ProductName,ProductPrice

FROM product

WHERE CategoryID='CP'

ORDER BY ProductID

Data output   Messages   Notifications

	ProductID [PK] character varying (255)	ProductName character varying (255)	ProductPrice numeric
1	1X1	Zzz Bag	100
2	2X1	Mmm Stove	80
3	3X1	Sleepy Pad	25
4	3X2	Bucky Knife	60
5	5X3	Luxo Tent	500
6	5X5	Tiny Tent	150
7	6X6	Biggy Tent	250

Query 18. Display the transaction id (TID) and the total number of items sold in that transaction (of all products) that the total number of items (of all products) sold in that transaction is greater than five. In other words, we want to get the sample result as follows. We need the heading of the columns be exactly 'TID' and 'Total Items Sold' as you can see below

Ans:

SELECT TID AS "TID" , SUM(NoOfItems) AS "Total Items Sold"

FROM soldvia

GROUP BY(TID)

HAVING SUM(NoOfItems)>5;

Data output   Messages   Notifications

	TID character varying	Total Items Sold numeric
1	T888	7
2	T333	6
3	T707	7
4	T303	9
5	T505	8
6	T999	10
7	T606	18
8	T808	8
9	T022	8
10	T555	7

Query 19. Display all RegionIDs and number of stores in their region

Ans:

SELECT RegionID,COUNT(StoreID) AS "Number of Stores"

FROM store

GROUP BY RegionID;

	RegionID character varying (255) 🔒	Number of Stores 🔒 bigint
1	N	3
2	I	3
3	C	4
4	T	4

Query 20. Display RegionID and number of Stores in regions that number of stores in their region is 4 or more

ANS:

SELECT RegionID, COUNT(StoreID) AS "Number of Stores"

FROM store

GROUP BY RegionID

HAVING COUNT(StoreID)>=4

	RegionID character varying (255) 🔒	Number of Stores 🔒 bigint
1	C	4
2	T	4