SQL - product, depot, stock

Write the following queries in SQL.

Assumptions (confirmed on Slack):

* Using Product, Depot, Stock schemas from HW #3, where #prod = prodid, #dep = depid.
* A product is considered “stocked” if its quantity is greater than 0.
* Using PostgreSQL.

**1. What are the #prods whose name begins with a ’p’ and are less than $300.00?**

SELECT prodid FROM Product P

WHERE P.pname LIKE ‘p%’ AND P.price < 300.00;

**2. Names of the products stocked in “d2”.**

**(a) without IN/NOT IN**

SELECT pname FROM Product

JOIN Stock

ON (Product.prodid = Stock.prodid AND Stock.depid = ‘d2’ AND Stock.quantity > 0;

**(b) with IN/NOT IN**

SELECT pname FROM Product

WHERE prodid

IN (SELECT prodid FROM Stock WHERE depid = ‘d2’ AND quantity > 0);

**3. #prod and names of the products that are out of stock.**

**(a) without IN/NOT IN**

SELECT Product.prodid, pname FROM Product

JOIN Stock

ON (Product.prodid = Stock.prodid AND Stock.quantity <= 0);

**(b) with IN/NOT IN**

SELECT prodid, pname FROM Product

WHERE prodid

IN (SELECT prodid FROM Stock WHERE quantity <= 0);

**4. Addresses of the depots where the product ”p1” is stocked.**

**(a) without EXISTS/NOT EXISTS and without IN/NOT IN**

SELECT DISTINCT addr FROM Depot

JOIN Stock

ON (Depot.depid = Stock.depid AND Stock.prodid = ‘p1’ AND Stock.quantity > 0);

**(b) with IN/NOT IN**

SELECT DISTINCT addr FROM Depot

WHERE depid

IN (SELECT depid FROM Stock WHERE prodid = ‘p1’ AND quantity > 0);

**(c) with EXISTS/NOT EXISTS**

SELECT DISTINCT addr FROM Depot

WHERE EXISTS (SELECT prodid FROM Stock WHERE Stock.depid = Depot.depid AND Stock.prodid = ‘p1’ AND Stock.quantity > 0);

**5. #prods whose price is between $250.00 and $400.00.** \*Assuming inclusive bounds

**(a) using INTERSECT**

SELECT prodid FROM Product

INTERSECT

(SELECT prodid FROM Product WHERE price >= 250.00 AND price <= 400.00);

**(b) without INTERSECT**

SELECT prodid FROM Product

WHERE price >= 250.00 AND price <= 400.00;

**6. How many products are out of stock?**

SELECT COUNT(prodid) FROM Stock

WHERE quantity <= 0;

**7. Average of the prices of the products stocked in the “d2” depot.**

SELECT AVG(price) FROM Product

WHERE prodid

IN (SELECT prodid FROM Stock WHERE depid = ‘d2’ AND quantity > 0);

**8. #deps of the depot(s) with the largest capacity (volume).**

SELECT depid FROM Depot

WHERE (volume = (SELECT MAX(volume) FROM Depot));

**9. Sum of the stocked quantity of each product.**

SELECT prodid, SUM(quantity) FROM Stock

GROUP BY prodid;

**10. Products names stocked in at least 3 depots.**

**(a) using COUNT**

SELECT pname FROM Product

WHERE prodid

IN (SELECT prodid FROM (SELECT prodid, COUNT(depid) AS pcount FROM Stock WHERE quantity > 0 GROUP BY prodid) AS x WHERE pcount > 2);

**(b) without using COUNT**

SELECT pname FROM Product

WHERE prodid

IN (SELECT prodid FROM (SELECT prodid, 1 AS in\_stock FROM Stock WHERE quantity > 0) AS x GROUP BY prodid

HAVING SUM(in\_stock) > 2);

**11. #prod stocked in all depots.**

**(a) using COUNT**

SELECT prodid FROM Stock

WHERE quantity > 0

GROUP BY prodid

HAVING COUNT(\*) = (SELECT COUNT(depid) FROM Depot);

**(b) using EXISTS/NOT EXISTS**

SELECT prodid

FROM Product

WHERE NOT EXISTS (

SELECT Depot.depid FROM Depot EXCEPT (SELECT Stock.depid FROM Stock WHERE Stock.prodid = Product.prodid AND Stock.quantity > 0));