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| **Query** | **Relational Algebra** |  |
| SELECT book.title FROM book INNER JOIN inventory ON book.book\_id = inventory.book\_id WHERE date\_out IS NULL AND title = ? | ) | **1.** |
| SELECT first\_name, last\_name FROM customer WHERE date\_join = (SELECT MIN(date\_join) FROM customer) |  | **2.** |
| SELECT title FROM book WHERE book\_id = (SELECT book\_id FROM inventory WHERE date\_out IS NULL AND date\_in = (SELECT MIN(date\_in) FROM inventory)) |  | **3.** |
| SELECT book.title, customer.first\_name, customer.last\_name, orders.date\_order FROM orders INNER JOIN book ON orders.book\_id = book.book\_id INNER JOIN customer ON customer.customer\_id = orders.customer\_id ORDER By orders.date\_order |  | **4.** |
| SELECT COUNT(\*) FROM inventory i INNER JOIN book b ON i.book\_id = b.book\_id INNER JOIN author a ON a.book\_id = i.book\_id WHERE b.title = ? AND i.deal\_id IS NOT NULL |  | **5.** |
| SELECT a.first\_name, a.last\_name, COUNT(\*) FROM inventory i INNER JOIN book b ON i.book\_id = b.book\_id INNER JOIN author a ON a.book\_id = i.book\_id INNER JOIN deal d ON d.deal\_id = i.deal\_id WHERE i.deal\_id IS NOT NULL AND d.date\_deal BETWEEN ? AND ? GROUP BY a.first\_name , a.last\_name ORDER BY COUNT(\*) DESC LIMIT 1 |  | **6.** |
| SELECT c.first\_name, c.last\_name, COUNT(\*) FROM deal d INNER JOIN customer c ON c.customer\_id = d.customer\_id GROUP BY c.first\_name , c.last\_name ORDER BY COUNT(\*) DESC LIMIT 3 |  | **7.** |
| SELECT title, COUNT(DISTINCT lang) FROM book GROUP BY title ORDER BY COUNT(\*) DESC LIMIT 1 |  | **8.** |
| SELECT d.date\_deal, b.title, i.price FROM customer c INNER JOIN deal d ON c.customer\_id = d.customer\_id INNER JOIN inventory i ON i.deal\_id = d.deal\_id INNER JOIN book b ON b.book\_id = i.book\_id WHERE c.first\_name = 'avivit' and c.last\_name = 'levy' ORDER BY d.date\_deal |  | **9.** |
| SELECT o.date\_order, b.title, o.order\_status FROM orders o INNER JOIN customer c ON c.customer\_id = o.customer\_id INNER JOIN book b ON o.book\_id = b.book\_id WHERE c.first\_name = ? and c.last\_name = ? ORDER BY date\_order |  | **10.** |
| SELECT method\_name, kg\_price \* (SELECT SUM(weight) FROM book b WHERE b.book\_id IN(?,?,?...)) AS total\_shipping\_price FROM shipping\_method |  | **11.** |
| SELECT deal.date\_deal, deal.deal\_id, del.price, del\_status, del.tracking\_num FROM deal INNER JOIN delivery del ON deal.deal\_id = del.deal\_id WHERE deal.deal\_id IN (SELECT deal.deal\_id FROM deal INNER JOIN delivery del ON deal.deal\_id = del.deal\_id INNER JOIN customer c ON deal.customer\_id = c.customer\_id WHERE c.first\_name = ? AND c.last\_name = ? GROUP BY deal.deal\_id HAVING COUNT(deal.deal\_id) > 1) ORDER BY date\_deal |  | **12.** |
| SELECT del.del\_status, del.address FROM delivery del INNER JOIN deal ON deal.deal\_id = del.deal\_id INNER JOIN customer c ON c.customer\_id = deal.customer\_id WHERE deal.date\_deal = ? AND c.first\_name =? AND c.last\_name = ? |  | **13.** |
| SELECT xpress FROM expenses WHERE MONTH(date\_ex) = ? AND YEAR(date\_ex) = ? |  | **14.** |
| SELECT SUM(total\_price) FROM deal WHERE payment\_type = 'Bit' AND MONTH(date\_deal) = ? AND YEAR(date\_deal) = ? |  | **15.** |
| SELECT i.deal\_id, SUM(i.price - i.cost) AS book\_profit FROM inventory i INNER JOIN deal d ON i.deal\_id = d.deal\_id WHERE i.deal\_id IS NOT NULL AND d.date\_deal >= DATE\_SUB(NOW(), INTERVAL 12 MONTH) GROUP BY i.deal\_id HAVING (SELECT AVG(book\_profit) AS average FROM (SELECT i.deal\_id, SUM(i.price - i.cost) AS book\_profit FROM inventory i INNER JOIN deal d ON i.deal\_id = d.deal\_id WHERE i.deal\_id IS NOT NULL AND d.date\_deal >= DATE\_SUB(NOW(), INTERVAL 12 MONTH) GROUP BY i.deal\_id) AS inner\_query) < book\_profit |  | **16.** |
| SELECT s\_m.company,count(\*) FROM deal d INNER JOIN delivery del ON d.deal\_id = del.deal\_id INNER JOIN shipping\_method s\_m ON s\_m.method\_id = del.method\_id where d.date\_deal >= date\_sub(Now(), INTERVAL 12 MONTH) GROUP BY company; |  | **17.** |
| SELECT d.date\_deal, del.del\_id, del.del\_status, del.price,del.tracking\_num FROM delivery\_book d\_b INNER JOIN book b ON b.book\_id = d\_b.book\_id INNER JOIN delivery del ON del.del\_id = d\_b.del\_id INNER JOIN deal d ON d.deal\_id = del.deal\_id GROUP BY b.title , del.tracking\_num HAVING COUNT(b.title) > 1 AND COUNT(del.tracking\_num) > 1 ORDER BY d.date\_deal |  | **18.** |
| SELECT c.first\_name, c.last\_name, d.date\_deal FROM customer c INNER JOIN deal d ON c.customer\_id = d.customer\_id WHERE d.date\_deal <= (NOW() - INTERVAL 24 MONTH) AND c.customer\_id NOT IN( SELECT c.customer\_id FROM customer c INNER JOIN deal d ON c.customer\_id = d.customer\_id WHERE d.date\_deal > (NOW() - INTERVAL 24 MONTH) ); |  | **19.** |
| SELECT c.first\_name, c.last\_name FROM orders o INNER JOIN customer c ON c.customer\_id = o.customer\_id WHERE o.order\_status = 'CUSTOMER NOTED' AND o.date\_chg\_st < (NOW() - INTERVAL 14 DAY); |  | **20.** |
| SELECT COUNT(\*) FROM inventory WHERE location = 'storage' AND date\_in < ? AND (date\_out >= ? OR date\_out IS NULL); |  | **21.** |
| SELECT SUM(cost), COUNT(\*) as total\_books FROM inventory WHERE date\_in >= '2018-05-21' AND date\_in < '2020-12-31'; |  | **22.** |
| SELECT ((SELECT SUM(total\_price) FROM deal WHERE date\_deal >= ? AND date\_deal < ?) - SUM(cost)) AS profit FROM inventory WHERE date\_in >= ? AND date\_in < ?; |  | **23. (22b)** |
| S SELECT AVG(total) FROM (SELECT SUM(total\_price) AS total FROM deal WHERE YEAR(date\_deal) =GROUP BY MONTH(date\_deal)) AS t; |  | **24 (23)** |
| SELECT w.total\_hours \* e.wage as emp\_brutto FROM employee e INNER JOIN working\_hours w ON e.emp\_id = w.emp\_id WHERE e.first\_name = ? AND e.last\_name = ? AND MONTH(w.date\_m) = 1 AND YEAR(w.date\_m) = 2019; |  | **25 (24)** |
| SELECT e.first\_name, e.last\_name, COUNT(\*) as total\_sales FROM deal d INNER JOIN employee e ON e.emp\_id = d.emp\_id WHERE MONTH(d.date\_deal) = ? AND YEAR(d.date\_deal) = ? GROUP BY (e.emp\_id) order by total\_sales DESC LIMIT 1; |  | **26 (25)** |