

3.8: Performing Subqueries

Rick Takeuchi

Question 1:

```
1 SELECT AVG(total_amount_paid) AS "Average"
2 FROM
3 (SELECT A.customer_id, A.first_name AS "customer first name", A.last_name AS "customer last name",
4  D.country, C.city, SUM(E.amount) AS total_amount_paid
5 FROM customer A
6 INNER JOIN address B ON A.address_id = B.address_id
7 INNER JOIN city C on B.city_id = C.city_id
8 INNER JOIN country D on C.country_id = D.country_id
9 INNER JOIN payment E ON A.customer_id = E.customer_id
10 WHERE city IN('Aurora','Acua','Citrus Heights','Iwaki','Ambattur','Shanwei','So
11 Leopoldo','Teboksary','Tianjin','Cianjur')
12 GROUP BY A.customer_id, first_name, last_name, country, city
13 ORDER BY total_amount_paid DESC
14 LIMIT 5) AS total_amount_paid;
```

Data Output Explain Messages Notifications

	Average numeric
1	105.5540000000000000

Question 2:

```
1 SELECT D.country, COUNT(A.customer_id) as all_customer_count, COUNT(top_5_customers) as top_5_customers
2 FROM customer A
3 INNER JOIN address B ON A.address_id = B.address_id
4 INNER JOIN city C on B.city_id = C.city_id
5 INNER JOIN country D on C.country_id = D.country_id
6 LEFT JOIN (SELECT A.customer_id, A.first_name AS "customer first name", A.last_name AS "customer last name",
7  D.country, C.city, SUM(E.amount) AS total_amount_paid
8 FROM customer A
9 INNER JOIN address B ON A.address_id = B.address_id
10 INNER JOIN city C on B.city_id = C.city_id
11 INNER JOIN country D on C.country_id = D.country_id
12 INNER JOIN payment E ON A.customer_id = E.customer_id
13 WHERE city IN('Aurora','Acua','Citrus Heights','Iwaki','Ambattur','Shanwei','So Leopoldo','Teboksary','Tianjin','Cianjur')
14 GROUP BY A.customer_id, first_name, last_name, country, city
15 ORDER BY total_amount_paid DESC
16 LIMIT 5) AS top_5_customers ON A.customer_id = top_5_customers.customer_id
17 GROUP BY D.country HAVING COUNT(top_5_customers) > 0
18 ORDER BY COUNT(top_5_customers), COUNT(A.customer_id) DESC;
```

Data Output Explain Messages Notifications

	country character varying (50)	all_customer_count bigint	top_5_customers bigint	
1	India		60	1
2	China		53	1
3	United States		36	1
4	Japan		31	1
5	Mexico		30	1

Question 3:

I think that these two queries can be done without subqueries. It can be done using join functions between the tables. However, if a subquery allows us to pick up the most recent data, a join function will need to be rewritten every time data is updated. Explain function may be needed to provide a cost-efficient function to run the queries.