

## Lab Assignment #2

### ➤ Assignment Overview

- **Released date:** 3/28
- **Due date:** 4/24 23:59 PM
- **Assigned points:** 6
- **Where to submit:** to e-class (<http://eclass.seoultech.ac.kr>)
- Late submission is not allowed

### ➤ Problems for Making Equivalent SQL Queries

Given the following queries, transform each query into another equivalent query (i.e., providing the same results) while satisfying the stated requirements.

(Note: the transformed query should not be worked by two steps. That is, it is not allowed to use the results of executing the nested query in the original query.)

1. Transform the following nested query into *unnested query*

```
SELECT pack_id, speed , sector_id
FROM acdb_packages
WHERE sector_id =
    (SELECT sector_id FROM acdb_packages WHERE pack_id = 10);
```

2. Transform the following nested query into *unnested query*

```
SELECT first_name , last_name , join_date
FROM acdb_customers
WHERE extract(year from join_date) =
    (SELECT extract(year from join_date) FROM acdb_customers WHERE customer_id = 372)
    AND
    extract (month from join_date) =
    (SELECT extract (month from join_date) FROM acdb_customers WHERE customer_id = 372);
```

3. Transform the following nested query into *unnested query*

```
SELECT first_name , last_name , city , state, pack_id
FROM acdb_customers
WHERE pack_id IN (SELECT pack_id FROM acdb_packages WHERE speed = '5Mbps');
```

4. Transform the following nested query into unnested query

```
SELECT first_name , monthly_discount , pack_id , main_phone_num ,
       secondary_phone_num
FROM acdb_customers
WHERE pack_id IN
      (SELECT pack_id
       FROM acdb_packages
       WHERE sector_id IN
            (SELECT sector_id
             FROM acdb_sectors
             WHERE sector_name = 'Business'));
```

5. Transform the following nested query into *unnested query*

```
SELECT customer_id , first_name , city , state ,birth_date , monthly_discount
FROM acdb_customers
WHERE birth_date =
      (SELECT birth_date FROM acdb_customers WHERE customer_id = 179)
  AND
  monthly_discount >
      (SELECT monthly_discount FROM acdb_customers WHERE customer_id = 107);
```

6. Transform the following query into another query *so as to use EXISTS or NOT EXISTS operator*

```
SELECT pack_id ,speed , monthly_payment
FROM acdb_packages
WHERE monthly_payment
      > ALL(SELECT monthly_payment FROM acdb_packages WHERE speed = '5Mbps');
```

7. Transform the following query into another query *so as to use EXISTS or NOT EXISTS operator*

```
SELECT pack_id ,speed , monthly_payment
FROM acdb_packages
WHERE monthly_payment >
      ANY (SELECT monthly_payment FROM acdb_packages WHERE speed = '5Mbps');
```

8. Transform the following query into another query *so as to use COUNT(\*) operator*

```
SELECT pack_id ,speed , monthly_payment
FROM acdb_packages p1
WHERE EXISTS (select * FROM acdb_packages p2 WHERE p2.speed = '5Mbps'
      and p1.monthly_payment <= p2.monthly_payment);
```

9. Transform the following query into another query *so as to use EXISTS or NOT EXISTS operator*

```
SELECT pack_id ,speed , monthly_payment
FROM acdb_packages p1
WHERE p1.pack_id IN (select p2.pack_id FROM acdb_packages p2 WHERE p2.speed = '5Mbps'
      AND p1.monthly_payment <= p2.monthly_payment);
```

10. Transform the following query into another query *so as to use EXISTS or NOT EXISTS operator*

```
SELECT pack_id ,speed , monthly_payment
FROM acdb_packages p1
WHERE p1.pack_id NOT IN (select p2.pack_id FROM acdb_packages p2 WHERE p2.speed = '5Mbps'
      AND p1.monthly_payment <= p2.monthly_payment);
```

11. Transform the following query into another query *so as to use MAX operator without ALL operator*

```
SELECT pack_id ,speed , monthly_payment
FROM acdb_packages
WHERE monthly_payment
    > ALL(SELECT monthly_payment FROM acdb_packages WHERE speed = '5Mbps');
```

12. Transform the following query into another query *so as to use MIN operator without SOME operator*

```
SELECT pack_id ,speed , monthly_payment
FROM acdb_packages
WHERE monthly_payment
    > SOME(SELECT monthly_payment FROM acdb_packages WHERE speed = '5Mbps');
```

## ➤ Submission

Read carefully this guidance for submission.

Submission components for given each query: 1) transformed query, 2) actual results executing an original query on Oracle databases (captured image), 3) actual results executing the transformed query on Oracle databases (captured image), and 4) the explanations why the transformed query is equivalent to the original query.

When you capture the screen to show actual results, you MUST contain a cmd window to show your unique IP address (type ipconfig in cmd windows) as follows. This means you show two windows in a screen where one is SQL Plus to show the results and the other is cmd windows to show your IP address of PC you were working.



Make one file named "HW#1\_STUDENTID.doc" (ppt, or pdf) including all the things as stated above and submit the file into e-class system.