# CSE 4508 – RDBMS Programming Lab

## Lab 3

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A telecom company, OraclePHONE, maintains a database for its customers, to serve various purposes. The most essential information the company is interested to maintain are (but not limited to):

A unique Customer ID, Customer Name, Date of Birth, Permanent Address and Subscription Info.

The address should be handled separately. Create its own table and store information such as division (such as Khulna or Dhaka) and district (such as Dhaka or Gazipur). Ensure that this table is connected to the main table via keys

Subscription Info should be handled separately as well. It should have a “Subscriber_Type” field with options such as “Postpaid” or “Prepaid” and a “Subscriber_Level” field with values such as “Bronze” or “Silver” or “Gold” or “Platinum”. Most importantly, there should be a field called “Lifetime Usage” which is a value to represent the total BDT worth of usage done by that subscriber over their lifetime. Ensure that the table is similarly connected to the main table via keys.

Task A:
1. First implement the above system in SQL.
2. Insert some data in all relevant tables created. (at least 5 entries)
3. Answer the following (should involve Join operations and subqueries):

• Display the Name, Customer ID and Lifetime Usage of the top 5 highest users in OraclePHONE history.
• Display the name, date of birth, district and division of all individuals whose lifetime usage is greater than the average usage of Prepaid users who are currently Silver status.
• Count the number of such people (the ones described in the immediately previous query) who are from Dhaka (Hint: another level of subquery)

Task B:
1. Show with appropriate example the use of the following built-in functions:
*CONCAT, INITCAP, INSTR, LOWER, UPPER, LENGTH, L/R PAD, L/R TRIM, SUBSTR, COUNT*

# — — — Task A — — —

## .1.

```
create table address (
    id int,
    division varchar2(10) not null,
    district varchar2(10) not null,
    constraint pk_address_id primary key(id)
);


create table subscription (
    id int,
    type varchar2(10),
    sublevel varchar2(10),
    usage int,
    constraint pk_subscription_id primary key(id),
    constraint valid check ( type in ('POSTPAID','PREPAID') and sublevel in
('BRONZE','SILVER','GOLD','PLATINUM')) enable
);


create table customer (
    id int,
    name varchar2(10) not null,
    dob date not null,
    constraint pk_citizen_id primary key(id),
    constraint fk_address_id foreign key(id) references address(id),
    constraint fk_subscription_id foreign key(id) references subscription(id)
);
```

# .2.

```
insert into subscription values(1,'POSTPAID','GOLD',2300);
insert into subscription values(2,'PREPAID','GOLD',2400);
insert into subscription values(3,'PREPAID','BRONZE',240);
insert into subscription values (4,'POSTPAID','BRONZE',210);
insert into subscription values (5,'POSTPAID','PLATINUM',3100);
insert into subscription values (6,'POSTPAID','SILVER',310);
insert into subscription values (7,'PREPAID','SILVER',1900);

insert into address values(1, 'Khulna', 'Khulna');
insert into address values(2, 'Dhaka', 'Dhaka');
insert into address values(3, 'Dhaka', 'Gazipur');
insert into address values(4, 'Rajshahi', 'Rajshahi');
insert into address values(5, 'Chattogram', 'Rangamati');
insert into address values(6, 'Chattogram', 'Chattogram');
insert into address values(7, 'Dhaka', 'Munshigonj');

insert into customer values(1, 'alo', to_date('03-APR-2003'));
insert into customer values(2, 'alom', to_date('04-APR-2003'));
insert into customer values(3, 'aloma', to_date('24-APR-2002'));
insert into customer values(4, 'aloman', to_date('14-APR-2012'));
insert into customer values(5, 'alomani', to_date('11-APR-2013'));
insert into customer values(6, 'alomanik', to_date('11-APR-1993'));
insert into customer values(7, 'special', to_date('11-APR-2022'));
```

# .3a.

select customer.name, customer.id, subscription.usage from customer
inner join subscription on customer.id = subscription.id
where rownum <= 5
order by usage desc;

NAME ID USAGE
---------- ---------- ----------
alomani 5 3100
alom 2 2400
alo 1 2300
aloma 3 240
aloman 4 210

```
SQL> select customer.name, customer.id, subscription.usage
  2  from customer
  3  inner join subscription
  4  on customer.id = subscription.id
  5  where rownum <= 5
  6  order by usage desc;

NAME                ID      USAGE
---------- ---------- ----------
alomani              5       3100
alom                 2       2400
alo                  1       2300
aloma                3        240
aloman               4        210
```

# .3b.

```
select customer.name, customer.dob, address.division, address.district,
subscription.usage
from customer
inner join address on customer.id = address.id
inner join subscription on customer.id = subscription.id
where subscription.usage > (
select avg(usage) from subscription
where subscription.type = 'PREPAID' and
subscription.sublevel = 'SILVER'
);
```

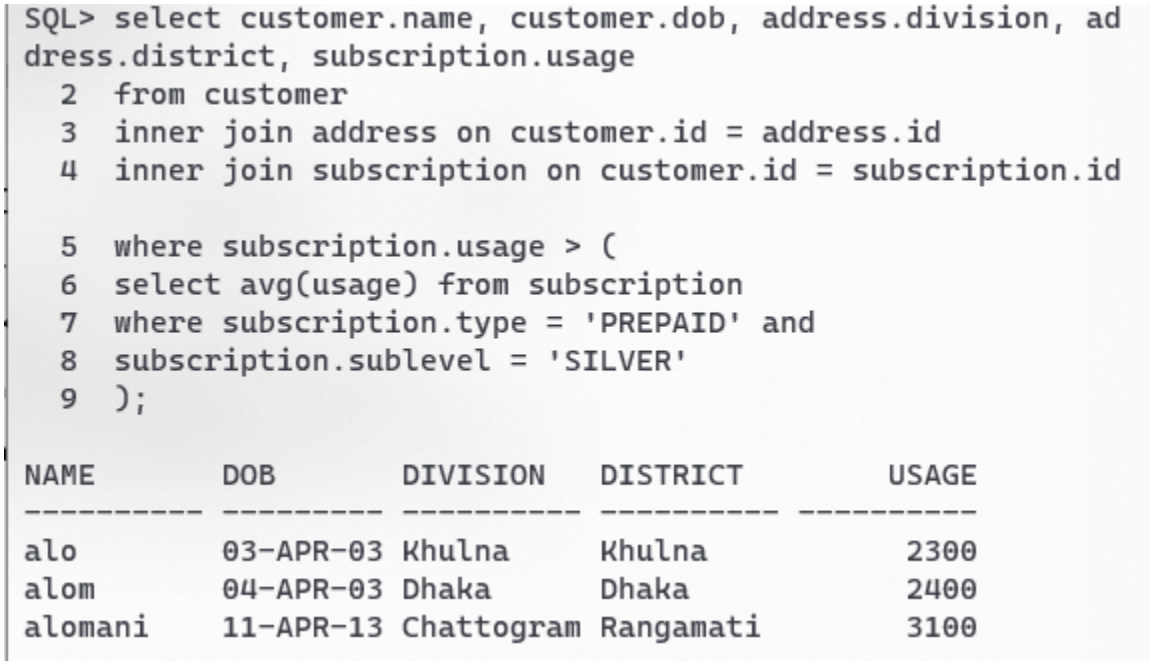
NAME DOB DIVISION DISTRICT USAGE

---------- --------- ---------- ---------- ----------

alo 03-APR-03 Khulna Khulna 2300

alom 04-APR-03 Dhaka Dhaka 2400

alomani 11-APR-13 Chattogram Rangamati 3100



```
SQL> select customer.name, customer.dob, address.division, ad
dress.district, subscription.usage
  2  from customer
  3  inner join address on customer.id = address.id
  4  inner join subscription on customer.id = subscription.id

  5  where subscription.usage > (
  6  select avg(usage) from subscription
  7  where subscription.type = 'PREPAID' and
  8  subscription.sublevel = 'SILVER'
  9  );

NAME       DOB       DIVISION   DISTRICT        USAGE
---------- --------- ---------- ---------- ----------
alo        03-APR-03 Khulna     Khulna           2300
alom       04-APR-03 Dhaka      Dhaka            2400
alomani    11-APR-13 Chattogram Rangamati        3100
```

# .3c.

```
select count(*) from (
select customer.name, customer.dob, address.division, address.district,
subscription.usage
from customer
inner join address on customer.id = address.id
inner join subscription on customer.id = subscription.id
where subscription.usage > (
select avg(usage) from subscription
where subscription.type = 'PREPAID' and
subscription.sublevel = 'SILVER' and
address.division = 'Dhaka'
));
```

```
  COUNT(*)
----------
         1
```

```
SQL> select count(*) from (
  2  select customer.name, customer.dob, address.division, ad
dress.district, subscription.usage
  3  from customer
  4  inner join address on customer.id = address.id
  5  inner join subscription on customer.id = subscription.id

  6  where subscription.usage > (
  7  select avg(usage) from subscription
  8  where subscription.type = 'PREPAID' and
  9  subscription.sublevel = 'SILVER' and
 10  address.division = 'Dhaka'
 11  ));

  COUNT(*)
----------
         1
```

# — — — Task B — — —

**CONCAT**

```
select concat('Tasnimul',' Hasnat') from dual ;

CONCAT('TASNIMU
---------------
Tasnimul Hasnat
```

**INITCAP**

```
select initcap('tasnimul') from dual ;

INITCAP(
--------
Tasnimul
```

**INSTR**

```
select instr('Tasnimul','a') from dual ;

INSTR('TASNIMUL','A')
---------------------
                    2
```

**LOWER**

```
select lower('TASnimul') from dual ;

LOWER('T
--------
tasnimul
```

**UPPER**

select UPPER('tasnimul') from dual ;

UPPER('T

--------

TASNIMUL

**LENGTH**

select length('TASnimul') from dual ;

LENGTH('TASNIMUL')

------------------

8

**LPAD**

select lpad('Tasnimul',10,'t') from dual ;

LPAD('TASN

----------

ttTasnimul

**RPAD**

select rpad('Tasnimul',10,'t') from dual ;

RPAD('TASN

----------

Tasnimultt

**LTRIM**

select ltrim('  TASnimul') from dual ;

LTRIM('T

--------

TASnimul

**RTRIM**

```
select rtrim('TASnimul   ') from dual ;

RTRIM('T
--------
TASnimul
```

**SUBSTR**

```
select substr('Tasnimul',3,7) from dual ;

SUBSTR
------
snimul
```

**COUNT**

```
select count(sublevel)  from subscription;

COUNT(SUBLEVEL)
---------------
              7
```