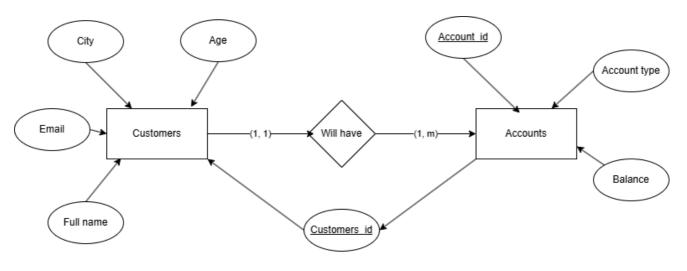
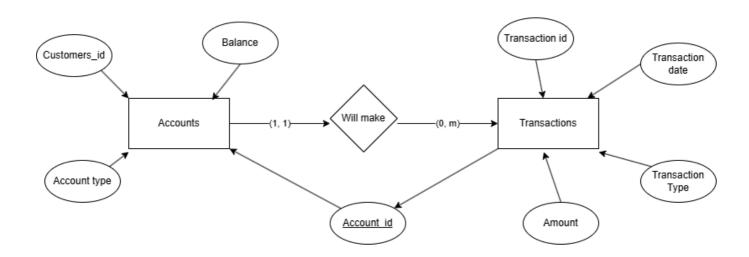
## **DBMS LAB 3 EXERCISES**

## Siddharth Karmokar, 123cs0061

## Exercise 1:1: ER\_DIAGRAM





### Excercise 1:2: Create Customers Table:

```
create table customers(
       customer id number primary key,
       full name varchar2(100),
       email varchar2(100) unique,
       city varchar2(100),
       age number
   1);
 create table accounts(
       accounts_id number primary key,
       customer id number not null,
       account_type varchar2(100),
       balance number,
       foreign key(customer_id) references customers(customer_id)
  ();
 create table transactions (
       txn_id number primary key,
       accounts id number not null,
       txn date date,
       txn_type varchar2(100),
       amount number,
       foreign key (accounts_id) references accounts (accounts_id)
   );
   alter table customers
   add column phone;
Script Output X Query Result X Query Result 1 X Query Result 2 X Query Result 2 X
All Rows Fetched: 0 in 0.002 seconds

⊕ CUSTOME... ⊕ FULL_NAME | ⊕ EMAIL
```

### Excercise 1:3: Create Accounts Table:

```
create table accounts(
        accounts_id number primary key,
        customer id number not null,
        account_type varchar2(100),
        balance number,
        foreign key(customer_id) references customers(customer
     );
   create table transactions(
        txn id number primary key,
        accounts_id number not null,
        txn date date,
        txn_type varchar2(100),
        amount number,
        foreign key(accounts_id) references accounts(accounts_
     );
     alter table customers
     add column phone;
Script Output X | Query Result X | Query Result 1 X | Query Result 2 X |
📌 🚇 🙀 🗽 SQL | All Rows Fetched: 0 in 0.002 seconds
```

### Excercise 1:4: Create Transactions Table:

```
create table transactions(
       txn id number primary key,
       accounts_id number not null,
       txn date date,
       txn type varchar2(100),
       amount number,
       foreign key (accounts id) references accounts (accounts id
   );
   alter table customers
   add column phone;
 alter table customers
   drop column city
   select * from transactions;
   select * from accounts;
   select * from customers;
Script Output X Degree Result X Query Result 1 X Query Result 2 X Query Result 1 X
🖺 🙀 🔯 SQL | All Rows Fetched: 0 in 0.001 seconds

⊕ TXN_ID
```

## Excercise 1:5: Alter Customers Table

```
alter table customers
add phone number;

alter table customers
drop column city

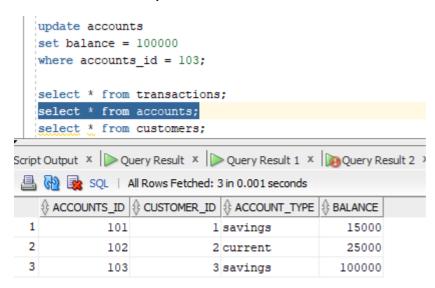
select * from transactions;
select * from accounts;
select * from customers;

Script Output *  Query Result *  Query Result 1 *  Query Result 2 *  Query Result 2 *  Query Result 3 *  Query Result 4 *  Query Result 5 *  Query Result 6 *  Query Result 7 *  Query Result 8 *  Query Result 9 *
```

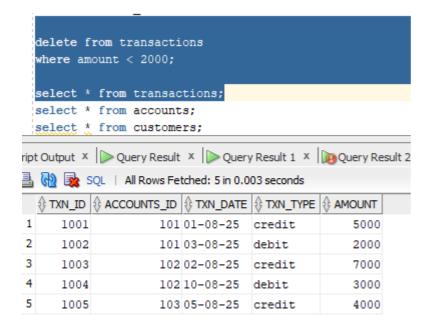
### Excercise 1:6: Insert into Customers, Accounts, and Transactions

```
insert into customers (customer id, full name, email, age, phone) values (1, 'arjun rao', 'arjun.rao@example.com', 29, 9876543210);
  insert into customers (customer_id, full_name, email, age, phone) values (2, 'meena kumari', 'meena.kumari@example.com', 34, 9876543211); insert into customers (customer_id, full_name, email, age, phone) values (3, 'rahul singh', 'rahul.singh@example.com', 31, 9876543212);
  insert into customers (customer_id, full_name, email, age, phone) values (4, 'sneha patel', 'sneha.patel@example.com', 27, 9876543213);
  insert into customers (customer_id, full_name, email, age, phone) values (5, 'vikram gupta', 'vikram.gupta@example.com', 38, 9876543214);
Script Output 🗴 🕟 Query Result 🗴 🕼 Query Result 1 🗴 🌇 Query Result 2 🗴 🖟 Query Result 3 🗴 🖟 Query Result 4 🗡 🖟 Query Result 5 🗡 🕒 Query Result 6 🗡 🗷 Query Result 7 🗴
🖺 🙀 🗽 SQL | All Rows Fetched: 5 in 0.001 seconds
                                                  larjun rao
                          arjun.rao@example.com
                                                      29 9876543210
 2
              2 meena kumari meena.kumari@example.com
                                                     34 9876543211
              3 rahul singh rahul.singh@example.com
                                                      31 9876543212
              4 sneha patel sneha.patel@example.com
                                                      27 9876543213
                                                    38 9876543214
              5 vikram gupta vikram.gupta@example.com
       insert into accounts (accounts_id, customer_id, account_type, balance) values (101, 1, 'savings', 15000);
       insert into accounts (accounts id, customer id, account type, balance) values (102, 2, 'current', 25000);
      insert into accounts (accounts id, customer id, account type, balance) values (103, 3, 'savings', 18000);
      insert into transactions (txn_id, accounts_id, txn_date, txn_type, amount) values (1001, 101, to date('202
      insert into transactions (txn_id, accounts_id, txn_date, txn_type, amount) values (1002, 101, to date('202
      insert into transactions (txn_id, accounts_id, txn_date, txn_type, amount) values (1003, 102, to date('202
      insert into transactions (txn_id, accounts_id, txn_date, txn_type, amount) values (1004, 102, to_date('202
      insert into transactions (txn_id, accounts_id, txn_date, txn_type, amount) values (1005, 103, to_date('202
      insert into transactions (txn_id, accounts_id, txn_date, txn_type, amount) values (1006, 103, to date('202
       select * from transactions;
       select * from accounts;
       select * from customers;
屋 Script Output 🗴 🕟 Query Result 🗴 🕟 Query Result 1 🗴 🌇 Query Result 2 🗴 🏚 Query Result 3 🗴 🖟 Query Result 4 🗴 🙀 Query Result 5 🗴
📌 📇 🙌 🗽 SQL | All Rows Fetched: 3 in 0.001 seconds
        1
                   101
                                                            15000
                                     1 savings
     2
                   102
                                     2 current
                                                            25000
     3
                   103
                                     3 savings
                                                            18000
  insert into transactions (txn_id, accounts_id, txn_date, txn_type, amount) values (1001, 101, to_date('2025-08-01', 'yyyy-mm-dd'), 'credit', 5000);
  insert into transactions (txn_id, accounts_id, txn_date, txn_type, amount) values (1002, 101, to_date('2025-08-03', 'yyyy-mm-dd'), 'debit', 2000);
  insert into transactions (txn id, accounts id, txn date, txn type, amount) values (1003, 102, to date('2025-08-02', 'yyyy-mm-dd'), 'credit', 7000);
  insert into transactions (txn_id, accounts_id, txn_date, txn_type, amount) values (1004, 102, to_date('2025-08-10', 'yyyy-mm-dd'), 'debit', 3000);
  insert into transactions (txn_id, accounts_id, txn_date, txn_type, amount) values (1005, 103, to_date('2025-08-05', 'yyyy-mm-dd'), 'credit', 4000);
  insert into transactions (txn_id, accounts_id, txn_date, txn_type, amount) values (1006, 103, to_date('2025-08-12', 'yyyy-mm-dd'), 'debit', 1500);
  select * from transactions;
  select * from customers;
Script Output × 🕟 Query Result × 🖟 Query Result 1 × 🖟 Query Result 2 × 🎧 Query Result 3 × 🖟 Query Result 4 × 🕼 Query Result 5 × 🖟 Query Result 6 × 🖟 Query Result 7 ×
📇 🙀 🗽 SQL | All Rows Fetched: 6 in 0.001 seconds
101 01-08-25 credit
                  101 03-08-25 debit
     1002
                                           2000
                  102 02-08-25 credit
                                           7000
     1004
                  102 10-08-25 debit
                                           3000
      1005
                  103 05-08-25 credit
                                           4000
     1006
                  103 12-08-25 debit
                                           1500
```

## Excercise 1:7: Update Balance in Accounts



### **Excercise 1:8: Delete Transactions**

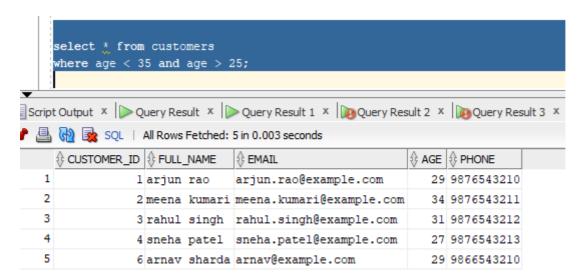


## Exercise 1:9: Merge into Accounts Table

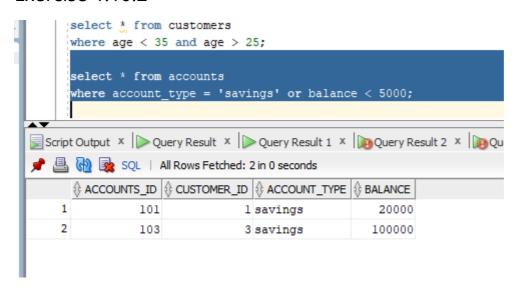
```
create table dum_accounts(
     accounts id number primary key,
     customer id number not null,
     account_type varchar2(100),
     balance number.
     foreign key (customer id) references customers (customer id)
 );
 insert into customers (customer_id, full_name, email, age, phone) values (6, 'arnav sharda', 'arnav@example.com', 29, 9866543210);
 insert into dum_accounts (accounts_id, customer_id, account_type, balance) values (101, 1, 'savings', 15000);
 insert into dum_accounts (accounts_id, customer_id, account_type, balance) values (104, 6, 'current', 27000);
merge into accounts as a
ript Output 🗴 🕟 Query Result 🗴 🕼 Query Result 1 🗴 🌇 Query Result 2 🗴 🕼 Query Result 3 🗴 🖟 Query Result 4 🗴 🖟 Query Result 5 🗡 🖟 Query Result 6 🗡 🖟 Query Result 6 🗡
All Rows Fetched: 2 in 0.003 seconds
  101
                          1 savings
           104
                           6 current
                                              27000
  create table dum_accounts(
       accounts_id number primary key,
        customer_id number not null,
        account_type varchar2(100),
        balance number,
        foreign key (customer_id) references customers (customer_id)
   );
    insert into customers (customer id, full name, email, age, phone) values (6, 'arnav sharda', 'arnav@example.com', 29, 9866543210);
    insert into dum_accounts (accounts_id, customer_id, account_type, balance) values (101, 1, 'savings', 20000);
    insert into dum_accounts (accounts_id, customer_id, account_type, balance) values (104, 6, 'current', 27000);
    select * from dum_accounts;
  merge into accounts a
    using dum_accounts src
    on (a.accounts_id = src.accounts_id)
    when matched then
       update set a.balance = src.balance
    when not matched then
        insert (accounts_id, customer_id, account_type, balance) values (src.accounts_id, src.customer_id, src.account_type, src.balance)
     select * from transactions;
    select * from accounts;
    select * from customers:
🛮 Script Output 🗴 🕪 Query Result 🗴 🕩 Query Result 1 🗴 🕼 Query Result 2 🗴 🎉 Query Result 3 🗡 🖟 Query Result 4 🗡 🖟 Query Result 5 🗡 🖟 Query Result 6 🔻 🖟 Query Res
🥐 🚇 🙀 🔯 SQL | All Rows Fetched: 4 in 0.001 seconds
     101
                            1 savings
   2
              102
                                               25000
   3
             103
                            3 savings
                                              100000
             104
                            6 current
                                               27000
```

### Exercise 1:10: Queries

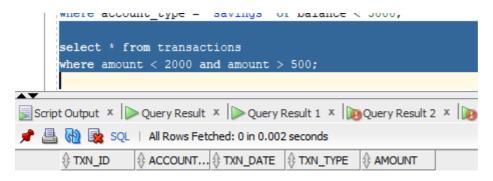
#### Exercise 1:10:1



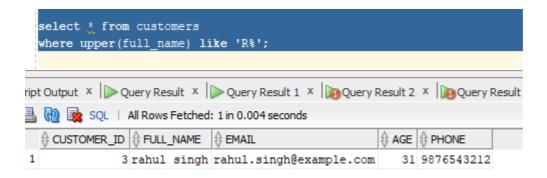
#### Exercise 1:10:2



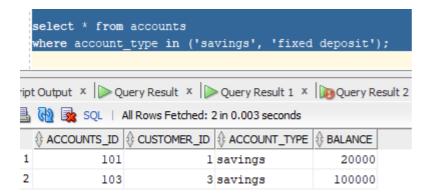
### Exercise 1:10:3



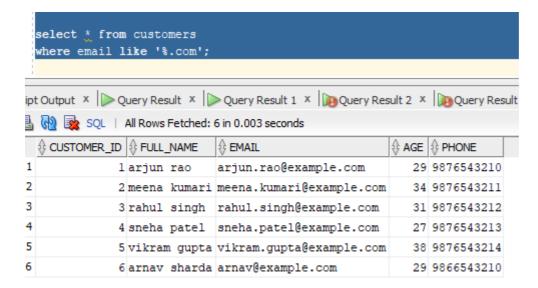
## Exercise 1:10:4



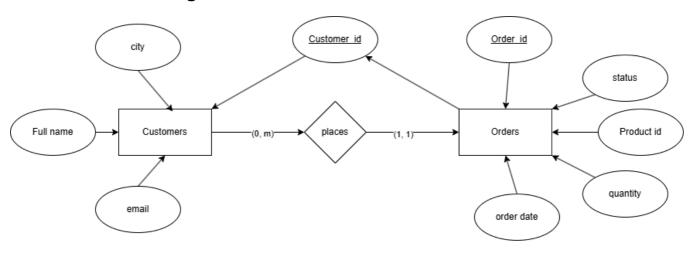
#### Exercise 1:10:5

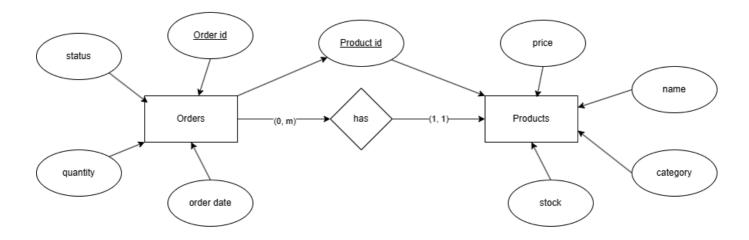


#### Exercise 1:10:6



# Exercise 2:1: ER Diagram





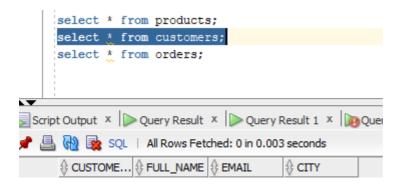
### Exercise 2:2: Create PRODUCTS Table

```
create table products (
    product_id number primary key,
    name varchar2(100) unique,
    category varchar2(100),
    price number,
    stock number
);

create table customers (
    customer_id number primary key,

cript Output x | Query Result x | Query Result 1 x | Query Result 2 x | Query Result 2 x | Query Result 2 x | Query Result 3 x | Query Result 4 x | Query Result 5 x | Query Result 6 x | Query Result 6 x | Query Result 7 x | Query Result 8 x | Query Result 9 x | Query R
```

## Exercise 2:3: Create CUSTOMERS Table



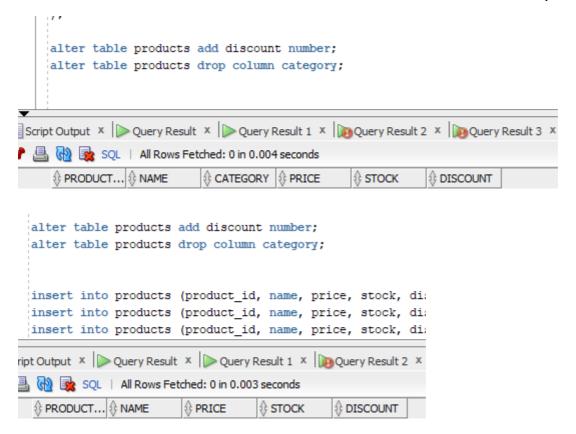
### Exercise 2:4: Create ORDERS Table

```
create table orders (
    order_id number primary key,
    customer_id number references customers(customer_id),
    product_id number references products(product_id),
    order_date date,
    quantity number,
    status varchar2(20) check (status in ('Pending', 'Delivered', 'Cancelled'))
);

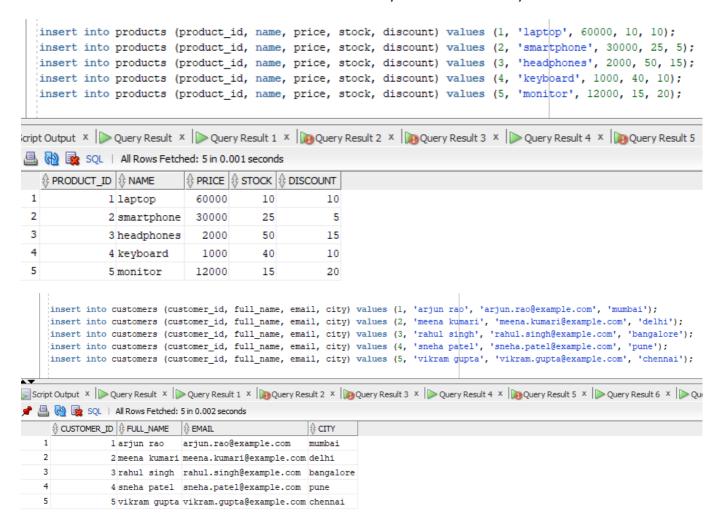
alter table products add discount number;
alter table products drop column category;

| Script Output x | Query Result x | Query Result 1 x | Query Result 2 x | Query Result 3 x | Query Result 2 x | Query Result 3 x | Query Result 3
```

## Exercise 2:5: Alter PRODUCTS Table (Add DISCOUNT, Drop CATEGORY)



### Exercise 2:6: Insert Data into PRODUCTS, CUSTOMERS, ORDERS



```
insert into orders (order id, customer id, product id, order date, quantity, status)
         values (1, 1, 1, to date('2025-08-01', 'yyyy-mm-dd'), 1, 'Delivered');
         insert into orders (order_id, customer_id, product_id, order_date, quantity, status)
         values (2, 2, 2, to_date('2025-08-03', 'yyyy-mm-dd'), 2, 'Cancelled');
        insert into orders (order id, customer id, product id, order date, quantity, status)
         values (3, 3, 3, to date('2025-08-05', 'yyyy-mm-dd'), 1, 'Pending');
         insert into orders (order_id, customer_id, product_id, order_date, quantity, status)
        values (4, 4, 4, to date('2025-08-07', 'yyyy-mm-dd'), 1, 'Delivered');
         insert into orders (order_id, customer_id, product_id, order_date, quantity, status)
         values (5, 5, 5, to date('2025-08-10', 'yyyy-mm-dd'), 1, 'Pending');
         insert into orders (order_id, customer_id, product_id, order_date, quantity, status)
         values (6, 1, 3, to date('2025-08-12', 'yyyy-mm-dd'), 2, 'Cancelled');
|Script Output × | Query Result × | Query Result 1 × | Query Result 2 × | Query Result 3 × | Query Result 4 × | Query Result 4 × | Query Result 5 × | Query Result 6 × | Query Result 6 × | Query Result 7 × | Query Result 8 × | Query Result 8 × | Query Result 9 
   All Rows Fetched: 6 in 0.001 seconds

    ₱ PRODUCT_ID

                                                                                                                          ⊕ ORDER_DATE
                                                                                                                                                                      QUANTITY
                                                                                                                                                                                                                  ⊕ STATUS
      1
                                                                           1
                                                                                                                      1 01-08-25
                                                                                                                                                                                                               1 Delivered
                                  1
      2
                                                                                                                      2 03-08-25
                                  2
                                                                            2
                                                                                                                                                                                                               2 Cancelled
      3
                                  3
                                                                            3
                                                                                                                      3 05-08-25
                                                                                                                                                                                                              1 Pending
      4
                                  4
                                                                            4
                                                                                                                      4 07-08-25
                                                                                                                                                                                                              1 Delivered
```

5 10-08-25

3 12-08-25

1 Pending

2 Cancelled

5

6

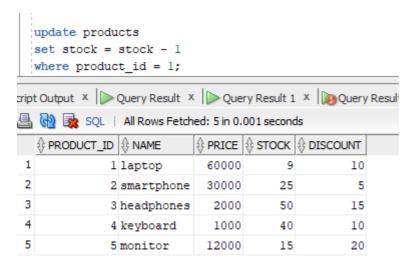
5

6

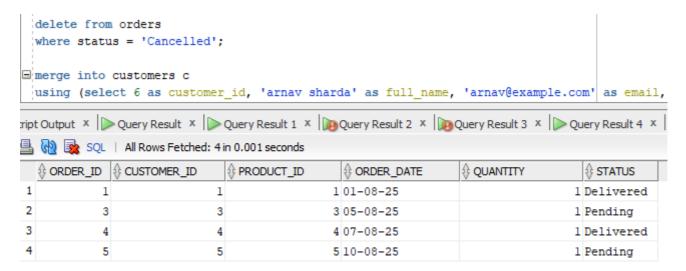
5

1

## Exercise 2:7: Update Stock of One Product



## Exercise 2:8: Delete Orders with Status = 'Cancelled'



## Exercise 2:9: Use MERGE to Insert or Update Customer Record

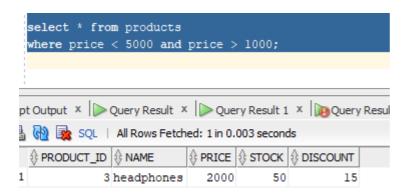
```
create table dummy customers (
                          customer id number,
                          full_name varchar2(100),
                          email varchar2(100),
                           city varchar2(100)
             );
             insert into dummy customers (customer id, full name, email, city)
             values (6, 'arnav sharda', 'arnav@example.com', 'hyderabad');
         merge into customers c
             using dummy customers src
             on (c.customer id = src.customer id)
              when matched then
                         update set c.full_name = src.full_name,
                                                            c.email = src.email,
                                                            c.city = src.city
              when not matched then
                         insert (customer id, full name, email, city)
                           values (src.customer_id, src.full_name, src.email, src.city);
☑ Script Output × Dequery Result × Dequery Result 1 × Dequery Result 2 × Result 2 × Seript Output × Seript Output × Dequery Result 2 × Seript Output × Dequery Result 2 × Seript Output × Seript Output × Dequery Result 2 × Dequery Result 2 × Seript Output × Seript Output
      All Rows Fetched: 6 in 0.001 seconds
                ⊕ CUSTOMER_ID | ⊕ FULL_NAME

⊕ CITY

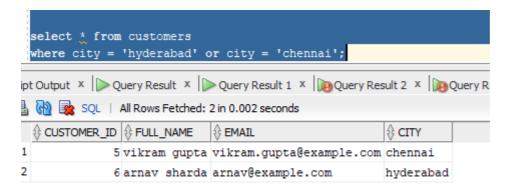
                                                                                              arjun.rao@example.com
                                                   larjun rao
                                                                                                                                                                         mumbai
          2
                                                   2 meena kumari meena.kumari@example.com delhi
           3
                                                   3 rahul singh rahul.singh@example.com bangalore
           4
                                                   4 sneha patel sneha.patel@example.com pune
           5
                                                   5 vikram gupta vikram.gupta@example.com chennai
                                                   6 arnav sharda arnav@example.com
                                                                                                                                                                         hyderabad
```

### Exercise 2:10: Queries

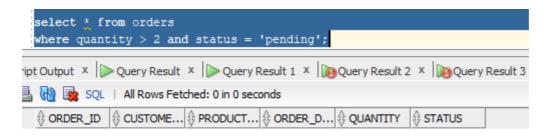
#### Exercise 2:10:1



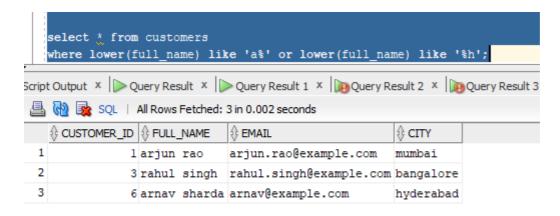
#### Exercise 2:10:2



#### Exercise 2:10:3



Exercise 2:10:4



#### Exercise 2:10:5

