Principles of Date-Base Management System

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Table creation and inserting the data

```
SQL> create table Amazon(product_id number(10),product_name varchar2(30),product_price number(10),customer_id number(10),customer_name
varchar2(30),custmer_place varchar2(30),time_of_order number(10),date_purchase varchar2(30));

Table created.

SQL> alter table Amazon modify time_of_order varchar2(30);

Table altered.

SQL> insert into Amazon values(1001,'SmartTV',500000,2001,'Chandler','Washington','9 AM','01-JUL-2019');

1 row created.

SQL> insert into Amazon values(1002,'Dish Wash',25000,2002,'Watson','Australia','10 PM','25-AUGUST-2019');

1 row created.

SQL> insert into Amazon values(1003,'Home Theatre',35000,2003,'Sherlin','United Kingdom','1 AM','18-SEPTEMBER-2019');

1 row created.

SQL> insert into Amazon values(1004,'Alexa',8000,2004,'Sudhanshu','India','11 AM','16-OCTOBER-2019');

1 row created.

SQL> insert into Amazon values(1005,'Mac book pro',100000,2005,'Prashanth','Switzerland','5 PM','10-NOVEMBER-2019');

1 row created.
```

Description of the table

```
SQL> desc Amazon;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 PRODUCT_ID                                         NUMBER(10)
 PRODUCT_NAME                                       VARCHAR2(30)
 PRODUCT_PRICE                                      NUMBER(10)
 CUSTOMER_ID                                        NUMBER(10)
 CUSTOMER_NAME                                      VARCHAR2(30)
 CUSTMER_PLACE                                      VARCHAR2(30)
 TIME_OF_ORDER                                      VARCHAR2(30)
 DATE_PURCHASE                                      VARCHAR2(30)
```

Data’s inside the table

```
SQL> select * from Amazon;

PRODUCT_ID PRODUCT_NAME                   PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
      1001 SmartTV                              500000        2001
Chandler                       Washington
9 AM                           01-JUL-2019

      1002 Dish Wash                             25000        2002
Watson                         Australia
10 PM                          25-AUGUST-2019

PRODUCT_ID PRODUCT_NAME                   PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------

      1003 Home Theatre                          35000        2003
Sherlin                        United Kingdom
1 AM                           18-SEPTEMBER-2019

      1004 Alexa                                  8000        2004
Sudhanshu                      India
```

```
PRODUCT_ID PRODUCT_NAME                   PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
11 AM                          16-OCTOBER-2019

      1005 Mac book pro                         100000        2005
Prashanth                      Switzerland
5 PM                           10-NOVEMBER-2019
```

SELECT * FROM <table_name> WHERE <attribute_name>='data' AND <attribute_name>='data'

```
SQL> SELECT * FROM AMAZON WHERE product_name='Alexa' and customer_name='Sudhanshu';

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
      1004 Alexa                                 8000        2004
Sudhanshu                      India
11 AM                          16-OCTOBER-2019


SQL> SELECT * FROM AMAZON WHERE product_name='Alexa' and customer_name='Chandler';

no rows selected
```

SELECT * FROM <table_name> WHERE <attribute_name>='data' OR <attribute_name>='data'

```
SQL> SELECT * FROM AMAZON WHERE product_name='Alexa' or customer_name='Chandler';

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
      1001 SmartTV                             500000        2001
Chandler                       Washington
9 AM                           01-JUL-2019

      1004 Alexa                                 8000        2004
Sudhanshu                      India
11 AM                          16-OCTOBER-2019

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
```

Though both the attributes's values are not present in the same row, that corresponding data's entire row is displayed.

SELECT * FROM <table_name> WHERE NOT <attribute_name>='data'

```
SQL> SELECT * FROM AMAZON WHERE NOT product_name='Alexa';

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
      1001 SmartTV                             500000        2001
Chandler                       Washington
9 AM                           01-JUL-2019

      1002 Dish Wash                            25000        2002
Watson                         Australia
10 PM                          25-AUGUST-2019

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------

      1003 Home Theatre                         35000        2003
Sherlin                        United Kingdom
1 AM                           18-SEPTEMBER-2019

      1005 Mac book pro                        100000        2005
Prashanth                      Switzerland

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
5 PM                           10-NOVEMBER-2019
```

Except 'Alexa' data's row all other rows are displayed

SELECT * FROM <table_name> WHERE NOT <attribute_name>='data' AND <attribute_name>='data'

```
SQL> SELECT * FROM AMAZON WHERE NOT product_name='Mac book pro' and customer_name='Prashanth';

no rows selected

SQL> SELECT * FROM AMAZON WHERE NOT product_name='Mac book pro' and customer_name='Chandler';

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
      1001 SmartTV                               500000        2001
Chandler                       Washington
9 AM                           01-JUL-2019
```

SELECT * FROM <table_name> WHERE NOT <attribute_name>='data' OR <attribute_name>='data'

```
SQL> SELECT * FROM AMAZON WHERE NOT product_name='Mac book pro' or customer_name='Chandler';

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
      1001 SmartTV                               500000        2001
Chandler                       Washington
9 AM                           01-JUL-2019

      1002 Dish Wash                              25000        2002
Watson                         Australia
10 PM                          25-AUGUST-2019

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------

      1003 Home Theatre                           35000        2003
Sherlin                        United Kingdom
1 AM                           18-SEPTEMBER-2019

      1004 Alexa                                   8000        2004
Sudhanshu                      India
```

```
PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
11 AM                          16-OCTOBER-2019
```

Except 'Mac book pro' datas row, all other rows are displayed.

SELECT * FROM <table_name> WHERE <attribute_name>='data' AND(<attribute_name>='data' OR <attribute_name>='data')

SELECT * FROM <table_name> WHERE <attribute_name>='data' AND(<attribute_name>='data' AND <attribute_name>='data')

```
SQL> SELECT * FROM AMAZON WHERE customer_name='Sherlin' AND (custmer_place='United Kingdom' and customer_id=1003);

no rows selected

SQL> SELECT * FROM AMAZON WHERE customer_name='Sherlin' AND (custmer_place='United Kingdom' or customer_id=1003);

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
      1003 Home Theatre                           35000        2003
Sherlin                        United Kingdom
1 AM                           18-SEPTEMBER-2019
```

Since Sherlin's customer id is wrong, no rows are selected.

Even-though there is a wrong customer id, the mistake is ignored.

SELECT * FROM <table_name>
2 ORDER BY <attribute_name> DESC;

```
SQL> SELECT * FROM AMAZON
  2  ORDER BY product_price DESC;

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
      1001 SmartTV                              500000        2001
Chandler                       Washington
9 AM                           01-JUL-2019

      1005 Mac book pro                         100000        2005
Prashanth                      Switzerland
5 PM                           10-NOVEMBER-2019

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------

      1003 Home Theatre                          35000        2003
Sherlin                        United Kingdom
1 AM                           18-SEPTEMBER-2019

      1002 Dish Wash                             25000        2002
Watson                         Australia

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
10 PM                          25-AUGUST-2019

      1004 Alexa                                 8000        2004
Sudhanshu                      India
11 AM                          16-OCTOBER-2019
```

The prices are arranged in descending order

SELECT * FROM <table_name>
2 ORDER BY <attribute_name> ASC;

```
SQL> SELECT * FROM AMAZON
  2  ORDER BY product_price ASC;

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
      1004 Alexa                                 8000        2004
Sudhanshu                      India
11 AM                          16-OCTOBER-2019

      1002 Dish Wash                             25000        2002
Watson                         Australia
10 PM                          25-AUGUST-2019

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------

      1003 Home Theatre                          35000        2003
Sherlin                        United Kingdom
1 AM                           18-SEPTEMBER-2019

      1005 Mac book pro                         100000        2005
Prashanth                      Switzerland

PRODUCT_ID PRODUCT_NAME                    PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
5 PM                           10-NOVEMBER-2019

      1001 SmartTV                              500000        2001
Chandler                       Washington
9 AM                           01-JUL-2019
```

The prices are arranged in ascending order

SELECT * FROM <table_name>
2 ORDER BY <attribute_name> <attribute_name>;

```
SQL> SELECT * FROM AMAZON
  2  ORDER BY custmer_place,product_price;

PRODUCT_ID PRODUCT_NAME                   PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
      1002 Dish Wash                              25000        2002
Watson                         Australia
10 PM                          25-AUGUST-2019

      1004 Alexa                                   8000        2004
Sudhanshu                      India
11 AM                          16-OCTOBER-2019

PRODUCT_ID PRODUCT_NAME                   PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------

      1005 Mac book pro                           100000        2005
Prashanth                      Switzerland
5 PM                           10-NOVEMBER-2019

      1003 Home Theatre                            35000        2003
Sherlin                        United Kingdom
```

```
PRODUCT_ID PRODUCT_NAME                   PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
1 AM                           18-SEPTEMBER-2019

      1001 SmartTV                                500000        2001
Chandler                       Washington
9 AM                           01-JUL-2019
```

SELECT * FROM <table_name>
2 ORDER BY <attribute_name> ASC,<attribute_name> DESC;

```
SQL> SELECT * FROM AMAZON
  2  ORDER BY customer_id ASC,product_price DESC;

PRODUCT_ID PRODUCT_NAME                   PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
      1001 SmartTV                                500000        2001
Chandler                       Washington
9 AM                           01-JUL-2019

      1002 Dish Wash                               25000        2002
Watson                         Australia
10 PM                          25-AUGUST-2019

PRODUCT_ID PRODUCT_NAME                   PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------

      1003 Home Theatre                            35000        2003
Sherlin                        United Kingdom
1 AM                           18-SEPTEMBER-2019

      1004 Alexa                                   8000        2004
Sudhanshu                      India
```

```
PRODUCT_ID PRODUCT_NAME                   PRODUCT_PRICE CUSTOMER_ID
---------- ------------------------------ ------------- -----------
CUSTOMER_NAME                  CUSTMER_PLACE
------------------------------ ------------------------------
TIME_OF_ORDER                  DATE_PURCHASE
------------------------------ ------------------------------
11 AM                          16-OCTOBER-2019

      1005 Mac book pro                           100000        2005
Prashanth                      Switzerland
5 PM                           10-NOVEMBER-2019
```

SELECT DISTINCT <attribute_name> FROM <table_name>;

```
SQL> SELECT DISTINCT custmer_place FROM Amazon;

CUSTMER_PLACE
------------------------------
United Kingdom
India
Australia
Washington
Switzerland

SQL> SELECT DISTINCT product_name FROM Amazon;

PRODUCT_NAME
------------------------------
Mac book pro
Dish Wash
SmartTV
Home Theatre
Alexa
```

```
SQL> select 90+21 from dual;

     90+21
----------
       111

SQL> select mod(17,5) from dual;

 MOD(17,5)
----------
         2
```

SELECT ROUND(<attribute_name>) from <table_name>;
SELECT UPPER(<attribute_name>) from <table_name>;
SELECT LOWER(<attribute_name>) from <table_name>;

```
SQL> select ROUND(product_price) from Amazon;

ROUND(PRODUCT_PRICE)
--------------------
              500000
               25000
               35000
                8000
              100000

SQL> select UPPER(product_name) from Amazon;

UPPER(PRODUCT_NAME)
------------------------------
SMARTTV
DISH WASH
HOME THEATRE
ALEXA
MAC BOOK PRO

SQL> select LOWER(customer_name) from Amazon;

LOWER(CUSTOMER_NAME)
------------------------------
chandler
watson
sherlin
sudhanshu
prashanth
```

SELECT CONCAT(<attribute_name>,<attribute_name>) from <table_name>;

```
SQL> select CONCAT(customer_name,custmer_place) from Amazon;

CONCAT(CUSTOMER_NAME,CUSTMER_PLACE)
------------------------------------------------------------
ChandlerWashington
WatsonAustralia
SherlinUnited Kingdom
SudhanshuIndia
PrashanthSwitzerland
```

SELECT LENGTH(<attribute_name>) from <table_name>

```
SQL> select LENGTH(customer_name) from Amazon;

LENGTH(CUSTOMER_NAME)
---------------------
                    8
                    6
                    7
                    9
                    9
```

SELECT SUBSTR(<attribute_name>,start,end) from <table_name>

```
SQL> SELECT SUBSTR(product_name,6,9) from Amazon;

SUBSTR(PRODUCT_NAME,6,9)
------------------------------------
TV
Wash
Theatre

ook pro
```

SELECT INSTR(<attribute_name>, ‘ content_name’) from <table_name> where constrain

```
SQL> SELECT INSTR(PRODUCT_NAME,'book') from Amazon WHERE customer_id=2005;

INSTR(PRODUCT_NAME,'BOOK')
--------------------------
                         5
```

```
SQL> insert all
  2  into Amazon (customer_phonenumber) values (34569)
  3  into Amazon (customer_phonenumber) values (65789)
  4  into Amazon (customer_phonenumber) values (90021)
  5  into Amazon (customer_phonenumber) values (62412)
  6  into Amazon (customer_phonenumber) values (57321)
  7  select * from dual;

5 rows created.
```

SELECT LPAD(<table_name>,8,'x') from <table_name>;
SELECT RPAD(<table_name>,8,'x') from <table_name>;

```
SQL> select RPAD(customer_phonenumber,8,'x') from Amazon;

RPAD(CUSTOMER_PHONENUMBER,8,'X')
--------------------------------




34569xxx
65789xxx
90021xxx
62412xxx
57321xxx

10 rows selected.
```

```
SQL> select LPAD(customer_phonenumber,8,'x') from Amazon;

LPAD(CUSTOMER_PHONENUMBER,8,'X')
--------------------------------




xxx34569
xxx65789
xxx90021
xxx62412
xxx57321

10 rows selected.
```

Select TRIM(<letters> from <string>) from <table_name>

```
SQL> Select TRIM('p' FROM 'prashanth') from Amazon;

TRIM('P'
--------
rashanth
rashanth
rashanth
rashanth
rashanth
rashanth
rashanth
rashanth
rashanth
rashanth

10 rows selected.
```

```
SQL> Select TRIM('p' FROM 'prashanth') from Amazon WHERE product_name='Mac book pro';

TRIM('P'
--------
rashanth
```

Present purchase_date

```
SQL> SELECT
  2  date_purchase
  3  FROM
  4  Amazon;

DATE_PURCHASE
------------------------------
01-JUL-2019
25-AUGUST-2019
18-SEPTEMBER-2019
16-OCTOBER-2019
10-NOVEMBER-2019




10 rows selected.
```

SELECT add_months(<column_name>,3) FROM <table_name>

```
SQL> SELECT add_months(date_purchase,3) FROM Amazon;

ADD_MONTH
---------
01-OCT-19
25-NOV-19
18-DEC-19
16-JAN-20
10-FEB-20



10 rows selected.
```

From the present date to date after 3 months

SELECT add_months(<column_name>,-3) FROM <table_name>

```
SQL> SELECT add_months(date_purchase,-3) FROM Amazon;

ADD_MONTH
---------
01-APR-19
25-MAY-19
18-JUN-19
16-JUL-19
10-AUG-19




10 rows selected.
```

From the present date to date before 3 months

SELECT last_day(<column_name>) FROM <table_name>;

```
SQL> SELECT last_day(date_purchase) FROM Amazon;

LAST_DAY(
---------
31-JUL-19
31-AUG-19
30-SEP-19
31-OCT-19
30-NOV-19




10 rows selected.
```

Last day of that particular month

```
SQL> SELECT next_day(date_purchase,'FRIDAY') from Amazon;

NEXT_DAY(
---------
05-JUL-19
30-AUG-19
20-SEP-19
18-OCT-19
15-NOV-19




10 rows selected.
```

SELECT <column_name>,ceil(<column_name>) from <table_name>

```
SQL> SELECT product_name,ceil(product_price) from Amazon;

PRODUCT_NAME                   CEIL(PRODUCT_PRICE)
------------------------------ -------------------
SmartTV                                     500000
Dish Wash                                    25000
Home Theatre                                 35000
Alexa                                         8000
Mac book pro                                100000



10 rows selected.
```

SELECT mod(number1,number2) from dual;
SELECT power(number1,number2) from dual;

```
10 rows selected.

SQL> SELECT mod(100,20) from dual;

MOD(100,20)
-----------
          0

SQL> SELECT mod(17,2) from dual;

 MOD(17,2)
----------
         1

SQL> SELECT power(2,20) from dual;

POWER(2,20)
-----------
    1048576
```