Database Management Systems Lab

EXPERIMENT NO 1

DATE 30-09-2021

DDL and DML Commands

AIM: Implementation of DDL and DML commands.

SYNTAX:

```
>CREATE TABLE table_name (
    column1 datatype,
    column2 datatype,
    column3 datatype,
   ....
);

>INSERT INTO table_name (column1, column2, column3, ...)
 VALUES (value1, value2, value3, ...);

>UPDATE table_name
 SET column1 = value1, column2 = value2, ...
 WHERE condition;

>DELETE FROM table_name WHERE condition;

>SELECT column1, column2, ...
 FROM table_name
 WHERE condition;
```

```
> SELECT column_name(s)
  FROM table_name
  WHERE column_name IN (value1, value2, ...);
```

```
> ALTER TABLE table_name
  DROP COLUMN column_name;
```

```
> SELECT column1, column2, ...
FROM table_name
WHERE NOT condition;
```

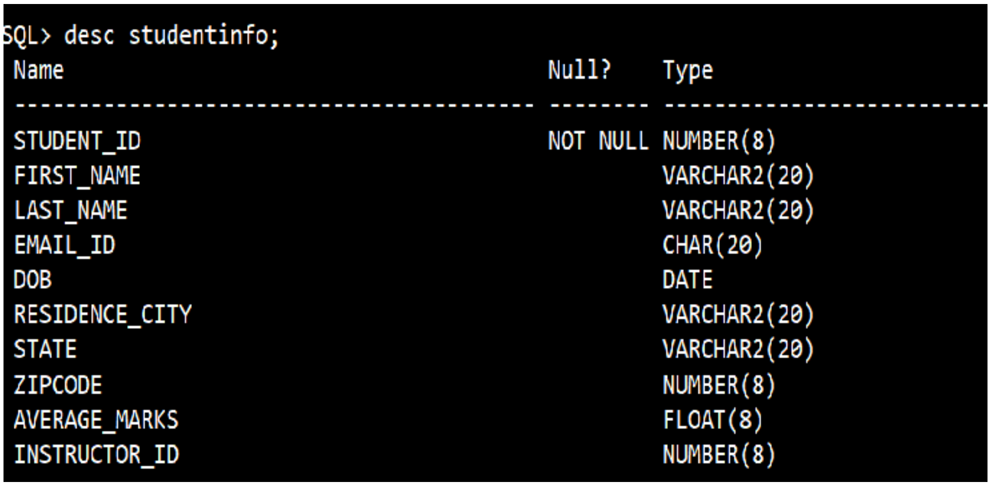
Database Management Systems Lab

QUERIES:

Q1. Create Students table with the above fields and student_id as primary key.

ii) Insert at least 5 rows into the table

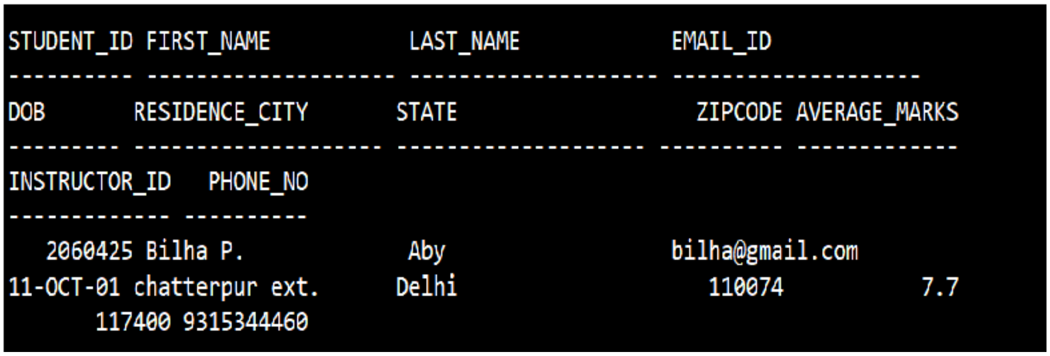
Query: create table studentinfo(student_id number(8) primary key, first_name varchar2(20), last_name varchar2(20), email_id char(20), dob date, residence_city varchar2(20), state varchar(20), zipcode number(8), average_marks float(8), instructor_id number(8));



```
SQL> desc studentinfo;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 STUDENT_ID                                NOT NULL NUMBER(8)
 FIRST_NAME                                         VARCHAR2(20)
 LAST_NAME                                          VARCHAR2(20)
 EMAIL_ID                                           CHAR(20)
 DOB                                                DATE
 RESIDENCE_CITY                                     VARCHAR2(20)
 STATE                                              VARCHAR2(20)
 ZIPCODE                                            NUMBER(8)
 AVERAGE_MARKS                                      FLOAT(8)
 INSTRUCTOR_ID                                      NUMBER(8)
```

Q2. Add a new column phone_number to the table and update values

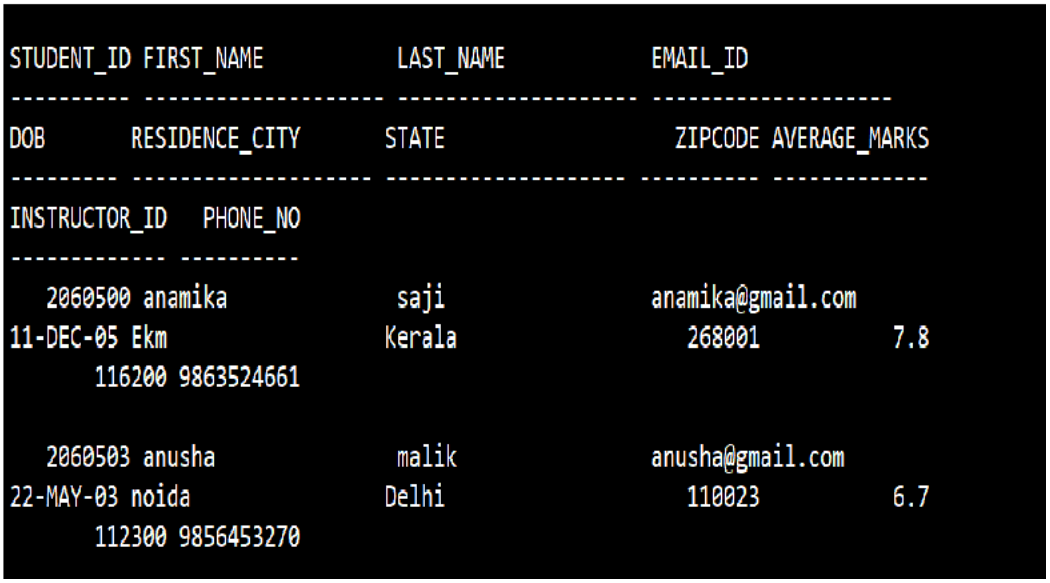
Query: alter table studentinfo add(phone_no number(10));



```
STUDENT_ID FIRST_NAME           LAST_NAME            EMAIL_ID
---------- -------------------- -------------------- --------------------
DOB       RESIDENCE_CITY       STATE                   ZIPCODE AVERAGE_MARKS
--------- -------------------- -------------------- ---------- -------------
INSTRUCTOR_ID   PHONE_NO
------------- ----------
   2060425 Bilha P.             Aby                  bilha@gmail.com
11-OCT-01 chatterpur ext.      Delhi                   110074           7.7
       117400 9315344460
```

Q3. Find the names of students starting with A or ends with a.

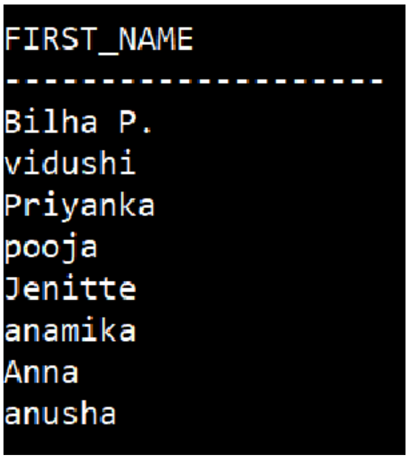
Query: select * from studentinfo where first_name like 'a%';



```
STUDENT_ID FIRST_NAME           LAST_NAME            EMAIL_ID
---------- -------------------- -------------------- --------------------
DOB       RESIDENCE_CITY       STATE                   ZIPCODE AVERAGE_MARKS
--------- -------------------- -------------------- ---------- -------------
INSTRUCTOR_ID   PHONE_NO
------------- ----------
   2060500 anamika              saji                 anamika@gmail.com
11-DEC-05 Ekm                  Kerala                  268001           7.8
       116200 9863524661

   2060503 anusha               malik                anusha@gmail.com
22-MAY-03 noida                Delhi                   110023           6.7
       112300 9856453270
```

Q4. Find the names of the students whose name has ‘l’ in it and has an average mark of more than 60.

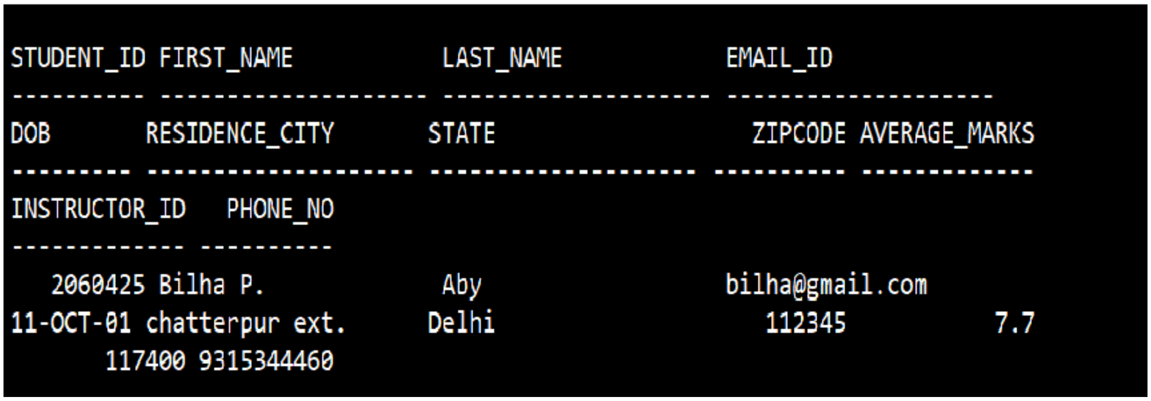
Query: select first_name from studentinfo where average_marks>6.0;



```
FIRST_NAME
--------------------
Bilha P.
vidushi
Priyanka
pooja
Jenitte
anamika
Anna
anusha
```

Q5. Change the Zipcode of any given student_id using update command.

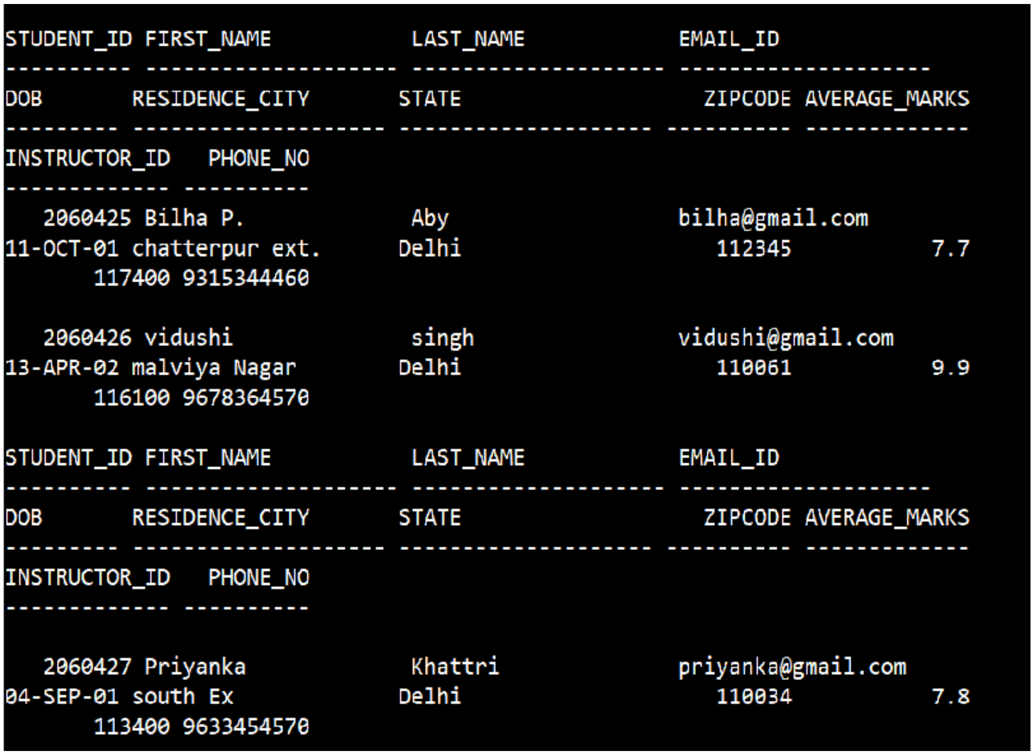
Query: update studentinfo set zipcode=112345 where student_id=2060425



```
STUDENT_ID FIRST_NAME          LAST_NAME           EMAIL_ID
---------- ------------------- ------------------- --------------------
DOB       RESIDENCE_CITY       STATE                   ZIPCODE AVERAGE_MARKS
--------- ------------------- ------------------- ---------- ------------
INSTRUCTOR_ID   PHONE_NO
------------- ----------
   2060425 Bilha P.            Aby                 bilha@gmail.com
11-OCT-01 chatterpur ext.      Delhi                  112345          7.7
       117400 9315344460
```

Q6. Delete the students details who lives in a particular city.

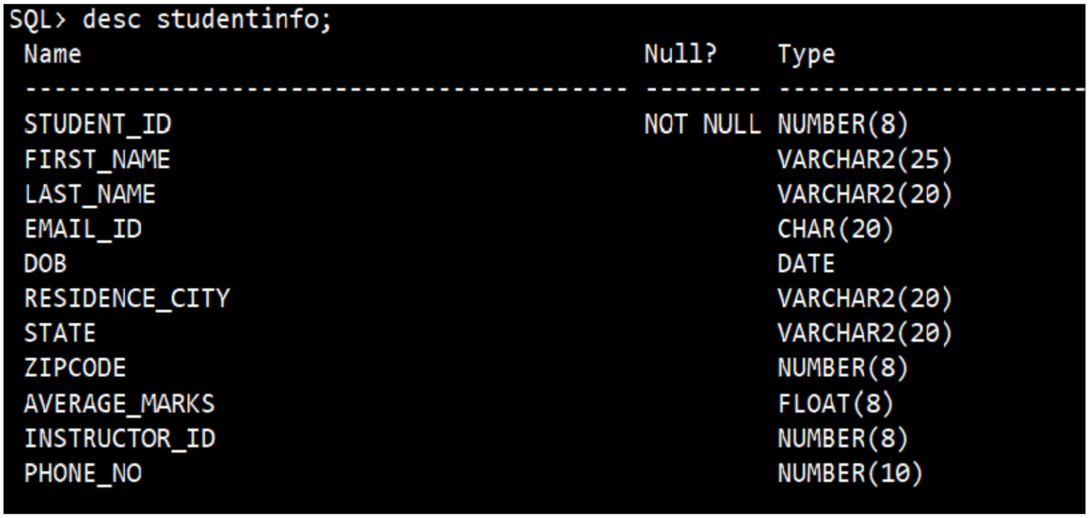
Query: delete from studentinfo where residence_city='Ekm';



```
STUDENT_ID FIRST_NAME          LAST_NAME           EMAIL_ID
---------- ------------------- ------------------- --------------------
DOB       RESIDENCE_CITY       STATE                   ZIPCODE AVERAGE_MARKS
--------- ------------------- ------------------- ---------- ------------
INSTRUCTOR_ID   PHONE_NO
------------- ----------
   2060425 Bilha P.            Aby                 bilha@gmail.com
11-OCT-01 chatterpur ext.      Delhi                  112345          7.7
       117400 9315344460

   2060426 vidushi             singh               vidushi@gmail.com
13-APR-02 malviya Nagar        Delhi                  110061          9.9
       116100 9678364570

STUDENT_ID FIRST_NAME          LAST_NAME           EMAIL_ID
---------- ------------------- ------------------- --------------------
DOB       RESIDENCE_CITY       STATE                   ZIPCODE AVERAGE_MARKS
--------- ------------------- ------------------- ---------- ------------
INSTRUCTOR_ID   PHONE_NO
------------- ----------

   2060427 Priyanka            Khattri             priyanka@gmail.com
04-SEP-01 south Ex             Delhi                  110034          7.8
       113400 9633454570
```

Q8. Increase the datatype of email_id – example varchar (12) to varchar (15)

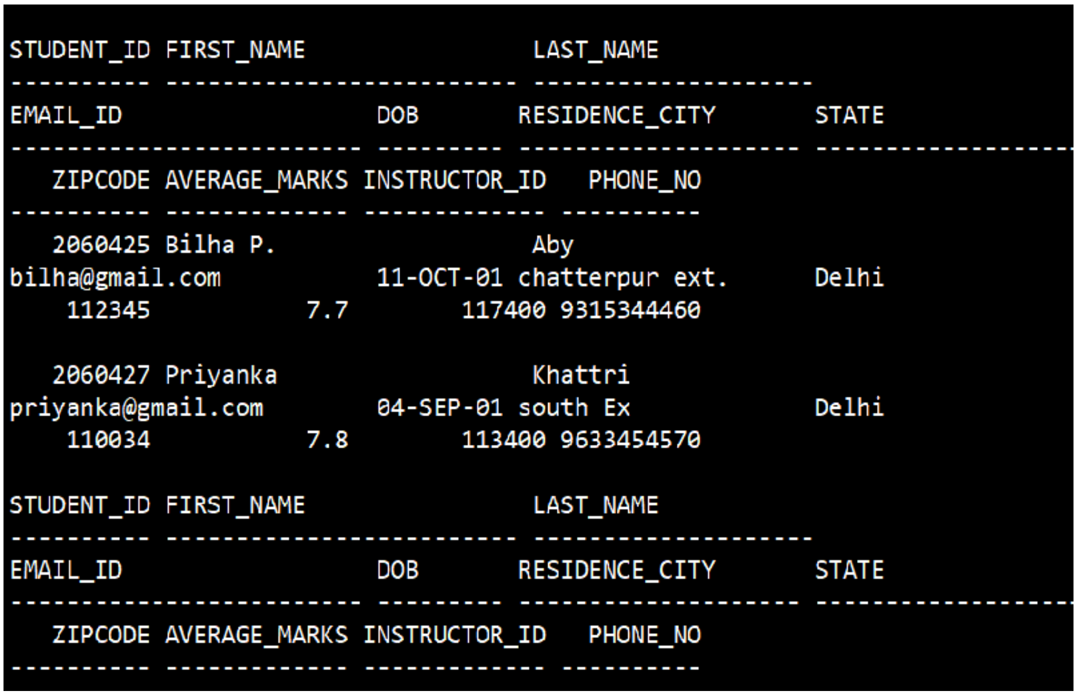
Query: alter table studentinfo modify first_name varchar2(25);



```
SQL> desc studentinfo;
 Name                                      Null?    Type
 ----------------------------------------- -------- --------------------
 STUDENT_ID                                NOT NULL NUMBER(8)
 FIRST_NAME                                         VARCHAR2(25)
 LAST_NAME                                          VARCHAR2(20)
 EMAIL_ID                                           CHAR(20)
 DOB                                                DATE
 RESIDENCE_CITY                                     VARCHAR2(20)
 STATE                                              VARCHAR2(20)
 ZIPCODE                                            NUMBER(8)
 AVERAGE_MARKS                                      FLOAT(8)
 INSTRUCTOR_ID                                      NUMBER(8)
 PHONE_NO                                           NUMBER(10)
```

Q9. Select the students who has average marks in the range 15 and 45.

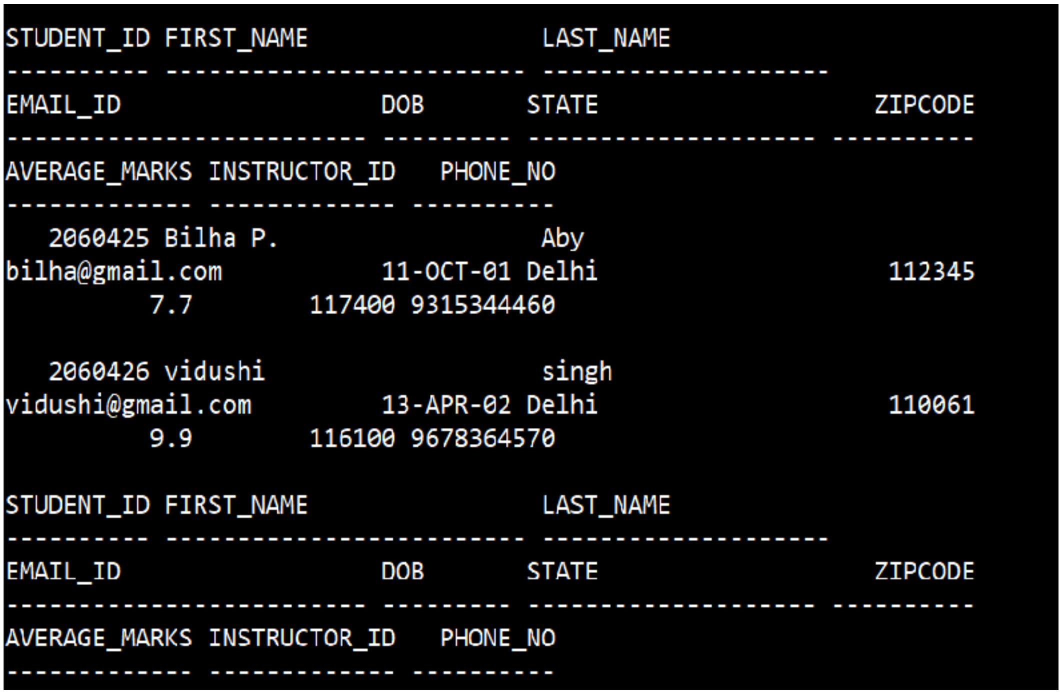
Query: select * from studentinfo where average_marks between 1.5 and 7.9;



```
STUDENT_ID FIRST_NAME                LAST_NAME
---------- ------------------------- --------------------
EMAIL_ID                 DOB       RESIDENCE_CITY       STATE
------------------------ --------- -------------------- ------------------
   ZIPCODE AVERAGE_MARKS INSTRUCTOR_ID   PHONE_NO
---------- ------------- ------------- ----------
   2060425 Bilha P.                  Aby
bilha@gmail.com          11-OCT-01 chatterpur ext.      Delhi
    112345           7.7        117400 9315344460

   2060427 Priyanka                  Khattri
priyanka@gmail.com       04-SEP-01 south Ex             Delhi
    110034           7.8        113400 9633454570

STUDENT_ID FIRST_NAME                LAST_NAME
---------- ------------------------- --------------------
EMAIL_ID                 DOB       RESIDENCE_CITY       STATE
------------------------ --------- -------------------- ------------------
   ZIPCODE AVERAGE_MARKS INSTRUCTOR_ID   PHONE_NO
---------- ------------- ------------- ----------
```

Q10. Drop the column city

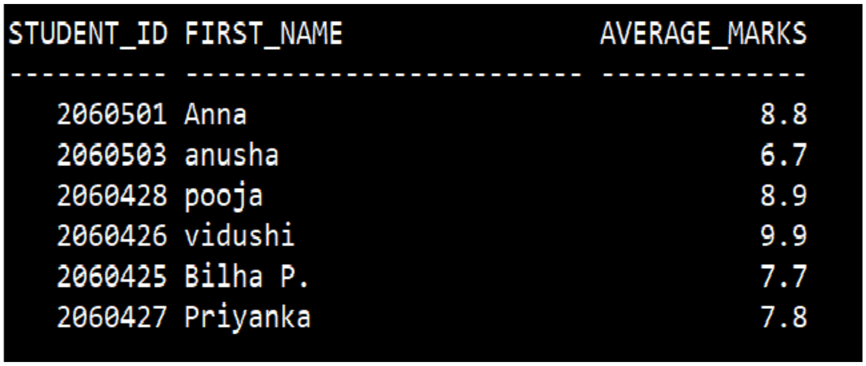
Query: alter table studentinfo drop column residence_city;



```
STUDENT_ID FIRST_NAME                LAST_NAME
---------- ------------------------- --------------------
EMAIL_ID                  DOB       STATE                    ZIPCODE
------------------------- --------- -------------------- ----------
AVERAGE_MARKS INSTRUCTOR_ID   PHONE_NO
------------- ------------- ----------
   2060425 Bilha P.                  Aby
bilha@gmail.com           11-OCT-01 Delhi                     112345
          7.7        117400 9315344460

   2060426 vidushi                   singh
vidushi@gmail.com         13-APR-02 Delhi                     110061
          9.9        116100 9678364570

STUDENT_ID FIRST_NAME                LAST_NAME
---------- ------------------------- --------------------
EMAIL_ID                  DOB       STATE                    ZIPCODE
------------------------- --------- -------------------- ----------
AVERAGE_MARKS INSTRUCTOR_ID   PHONE_NO
------------- ------------- ----------
```

Q11. Display the student_id ,first_name and average marks in the descending order of DOB.

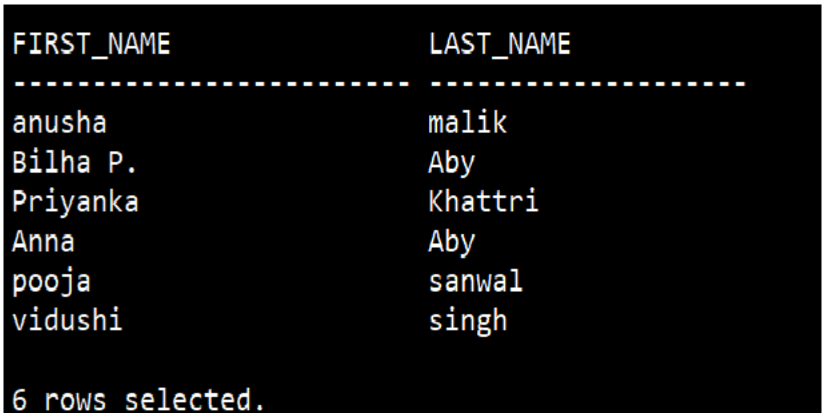
Query: select student_id,first_name,average_marks from studentinfo order by dob desc;



```
STUDENT_ID FIRST_NAME                AVERAGE_MARKS
---------- ------------------------- -------------
   2060501 Anna                                8.8
   2060503 anusha                              6.7
   2060428 pooja                               8.9
   2060426 vidushi                             9.9
   2060425 Bilha P.                            7.7
   2060427 Priyanka                            7.8
```

Q12. Display the first_name and last_name of the students in the ascending order of average_marks

Query: select first_name,last_name from studentinfo order by average_marks asc;

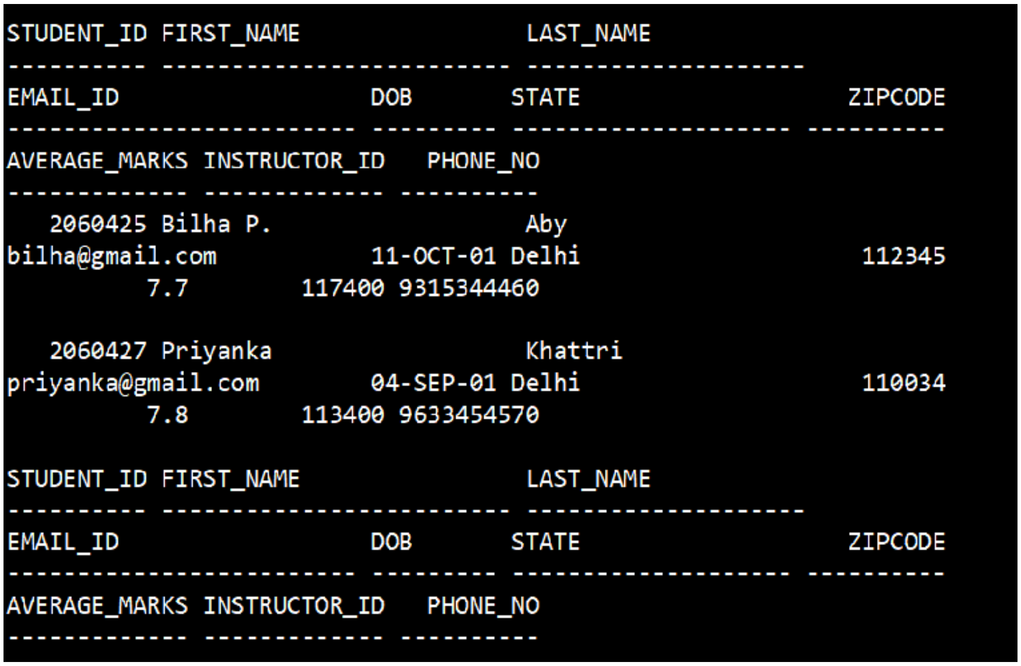


```
FIRST_NAME                LAST_NAME
------------------------- --------------------
anusha                    malik
Bilha P.                  Aby
Priyanka                  Khattri
Anna                      Aby
pooja                     sanwal
vidushi                   singh

6 rows selected.
```

Q13. Illustrate the use of in and not in clause.

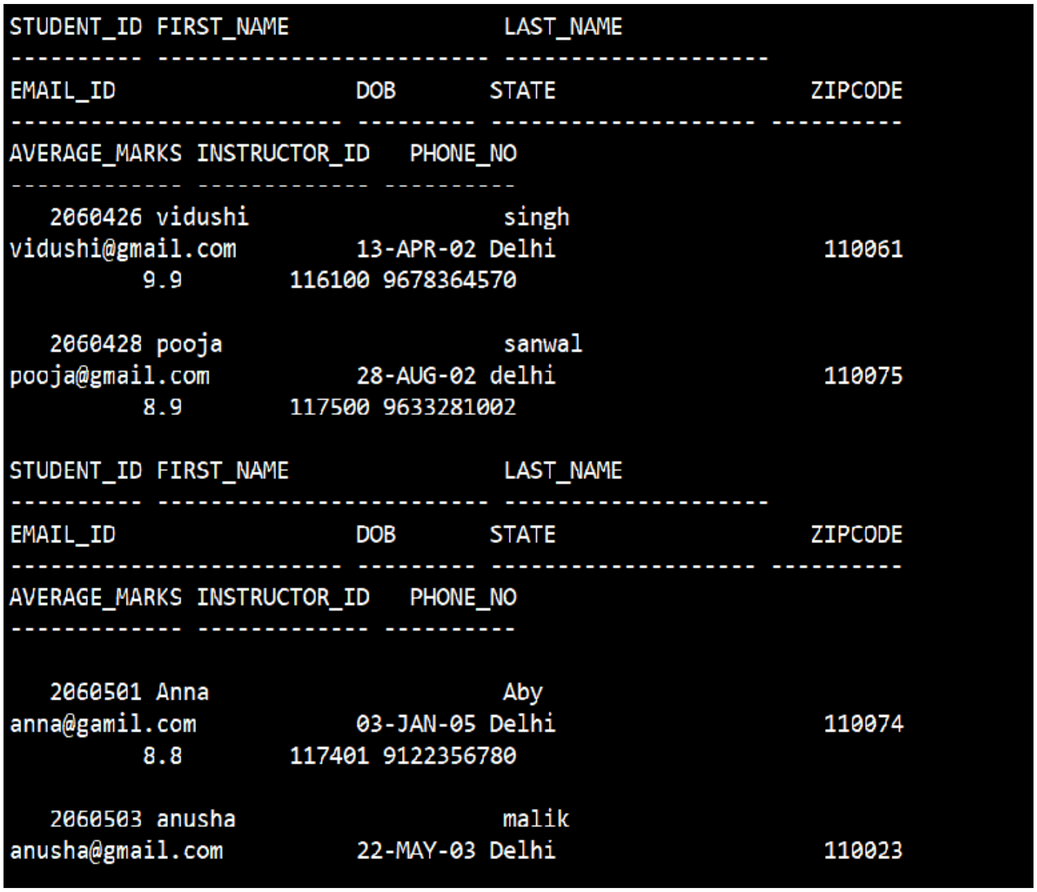
Query: i) select * from studentinfo where average_marks in (7.8,7.7);

ii) select * from studentinfo where average_marks not in (7.8,7.7);



```
STUDENT_ID FIRST_NAME                LAST_NAME
---------- ------------------------- --------------------
EMAIL_ID                  DOB       STATE                   ZIPCODE
------------------------- --------- -------------------- ----------
AVERAGE_MARKS INSTRUCTOR_ID   PHONE_NO
------------- ------------- ----------
   2060425 Bilha P.                  Aby
bilha@gmail.com           11-OCT-01 Delhi                    112345
          7.7        117400 9315344460

   2060427 Priyanka                  Khattri
priyanka@gmail.com        04-SEP-01 Delhi                    110034
          7.8        113400 9633454570

STUDENT_ID FIRST_NAME                LAST_NAME
---------- ------------------------- --------------------
EMAIL_ID                  DOB       STATE                   ZIPCODE
------------------------- --------- -------------------- ----------
AVERAGE_MARKS INSTRUCTOR_ID   PHONE_NO
------------- ------------- ----------
```

Database Management Systems Lab



```
STUDENT_ID FIRST_NAME                LAST_NAME
---------- ------------------------- --------------------
EMAIL_ID                  DOB       STATE                   ZIPCODE
------------------------- --------- -------------------- ----------
AVERAGE_MARKS INSTRUCTOR_ID   PHONE_NO
------------- ------------- ----------
   2060426 vidushi                   singh
vidushi@gmail.com         13-APR-02 Delhi                    110061
          9.9        116100 9678364570

   2060428 pooja                     sanwal
pooja@gmail.com           28-AUG-02 delhi                    110075
          8.9        117500 9633281002

STUDENT_ID FIRST_NAME                LAST_NAME
---------- ------------------------- --------------------
EMAIL_ID                  DOB       STATE                   ZIPCODE
------------------------- --------- -------------------- ----------
AVERAGE_MARKS INSTRUCTOR_ID   PHONE_NO
------------- ------------- ----------

   2060501 Anna                      Aby
anna@gamil.com            03-JAN-05 Delhi                    110074
          8.8        117401 9122356780

   2060503 anusha                    malik
anusha@gmail.com          22-MAY-03 Delhi                    110023
```

Database Management Systems Lab

EXPERIMENT NO 2

DATE: 07-10-2021

Aggregated Functions.

AIM: Implementation of Aggregated Functions.

SYNTAX:

```
> SELECT column1, column2, ...
FROM table_name;

> SELECT * FROM table_name;

>>CREATE TABLE table_name (
    column1 datatype,
    column2 datatype,
    column3 datatype,
   ....
);



>DELETE FROM table_name WHERE condition;



>SELECT column1, column2, ...
 FROM table_name
 WHERE condition;
```

```
> SELECT column_name(s)
  FROM table_name
  WHERE column_name IN (value1, value2, ...);
```

```
> ALTER TABLE table_name
  DROP COLUMN column_name;
```

```
> SELECT column1, column2, ...
FROM table_name
WHERE NOT condition;
```

```
> SELECT column1, column2, ...
FROM table_name
ORDER BY column1, column2, ... ASC|DESC;
```

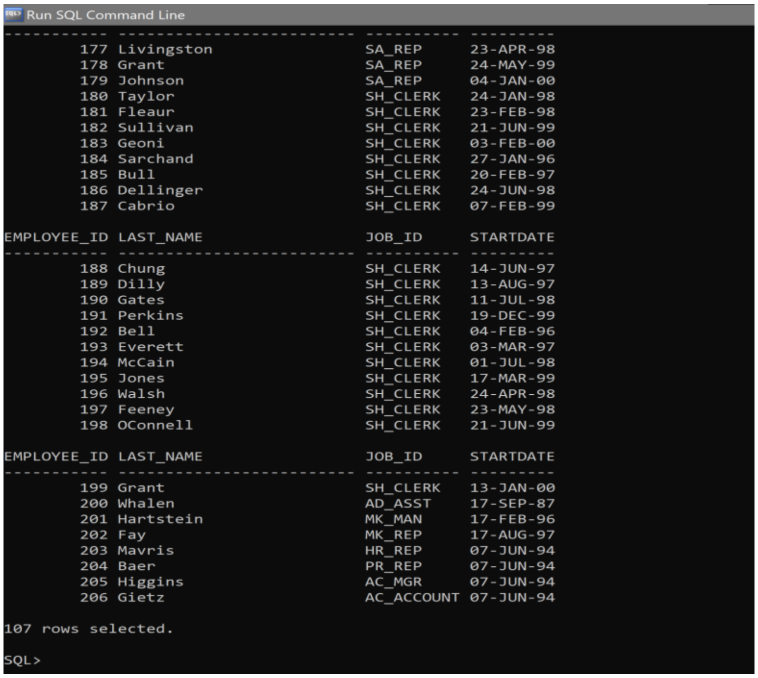
```
> SELECT DISTINCT column1, column2, ...
FROM table_name;
```

Database Management Systems Lab

QUERIES

Q1. The HR department wants a query to display the last name, job code, hire date, and employee number for each employee, with the employee number appearing first. Provide an alias STARTDATE for the HIRE_DATE column. Save your SQL statement to a file named lab_01_07.sql so that you can dispatch this file to the HR department.

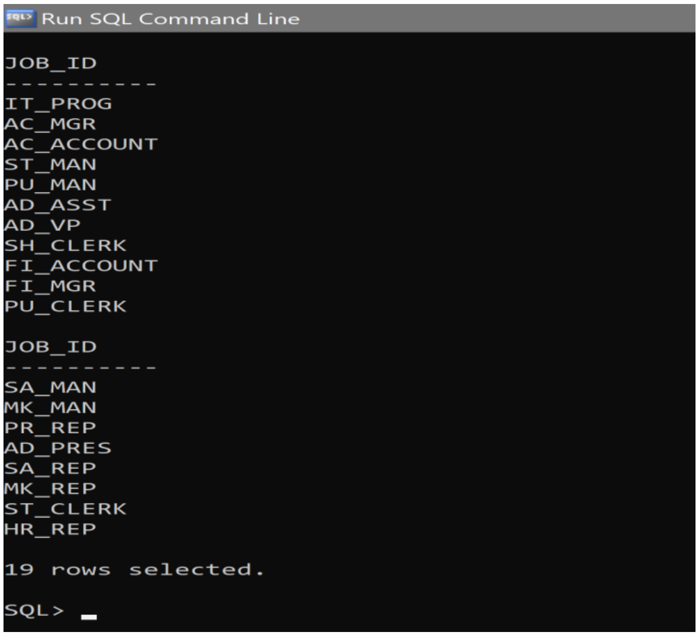
Query: select employee_id, last_name, job_id, hire_date startdate from employees;



```
----------- ------------------------- ---------- ---------
        177 Livingston                SA_REP     23-APR-98
        178 Grant                     SA_REP     24-MAY-99
        179 Johnson                   SA_REP     04-JAN-00
        180 Taylor                    SH_CLERK   24-JAN-98
        181 Fleaur                    SH_CLERK   23-FEB-98
        182 Sullivan                  SH_CLERK   21-JUN-99
        183 Geoni                     SH_CLERK   03-FEB-00
        184 Sarchand                  SH_CLERK   27-JAN-96
        185 Bull                      SH_CLERK   20-FEB-97
        186 Dellinger                 SH_CLERK   24-JUN-98
        187 Cabrio                    SH_CLERK   07-FEB-99

EMPLOYEE_ID LAST_NAME                 JOB_ID     STARTDATE
----------- ------------------------- ---------- ---------
        188 Chung                     SH_CLERK   14-JUN-97
        189 Dilly                     SH_CLERK   13-AUG-97
        190 Gates                     SH_CLERK   11-JUL-98
        191 Perkins                   SH_CLERK   19-DEC-99
        192 Bell                      SH_CLERK   04-FEB-96
        193 Everett                   SH_CLERK   03-MAR-97
        194 McCain                    SH_CLERK   01-JUL-98
        195 Jones                     SH_CLERK   17-MAR-99
        196 Walsh                     SH_CLERK   24-APR-98
        197 Feeney                    SH_CLERK   23-MAY-98
        198 OConnell                  SH_CLERK   21-JUN-99

EMPLOYEE_ID LAST_NAME                 JOB_ID     STARTDATE
----------- ------------------------- ---------- ---------
        199 Grant                     SH_CLERK   13-JAN-00
        200 Whalen                    AD_ASST    17-SEP-87
        201 Hartstein                 MK_MAN     17-FEB-96
        202 Fay                       MK_REP     17-AUG-97
        203 Mavris                    HR_REP     07-JUN-94
        204 Baer                      PR_REP     07-JUN-94
        205 Higgins                   AC_MGR     07-JUN-94
        206 Gietz                     AC_ACCOUNT 07-JUN-94

107 rows selected.

SQL>
```

Q2. The HR department needs a query to display all unique job codes from the EMPLOYEES Table.

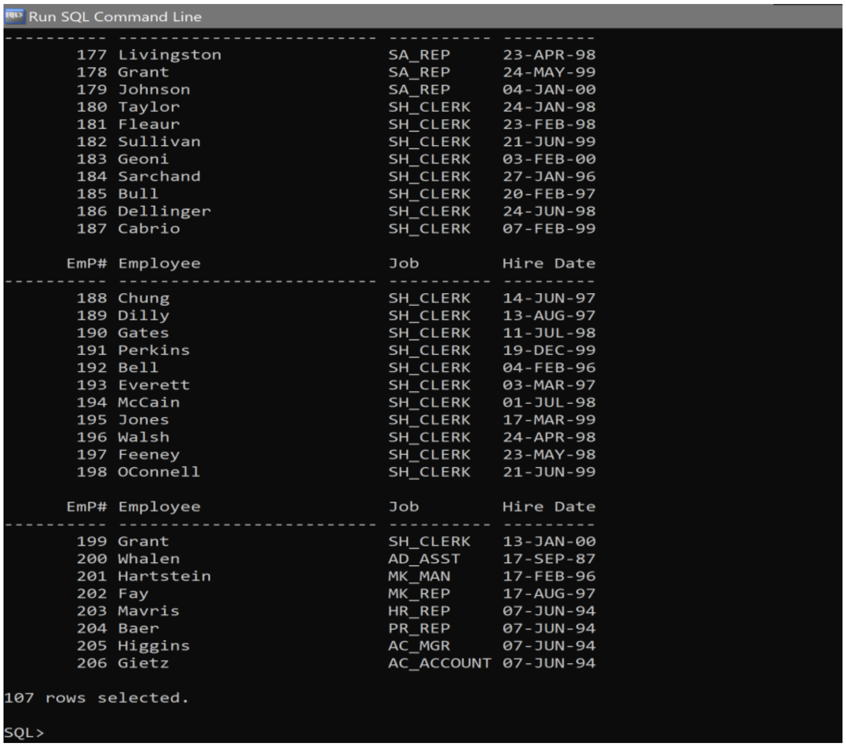
Query: select distinct job_id from employees;



```
JOB_ID
----------
IT_PROG
AC_MGR
AC_ACCOUNT
ST_MAN
PU_MAN
AD_ASST
AD_VP
SH_CLERK
FI_ACCOUNT
FI_MGR
PU_CLERK

JOB_ID
----------
SA_MAN
MK_MAN
PR_REP
AD_PRES
SA_REP
MK_REP
ST_CLERK
HR_REP

19 rows selected.

SQL>
```

Q3. The HR department wants more descriptive column headings for its report on employees. Copy the statement from lab_01_07.sql to the SQL Developer text box. Name the column headings Emp #, Employee, Job, and Hire Date, respectively. Then run your query again.

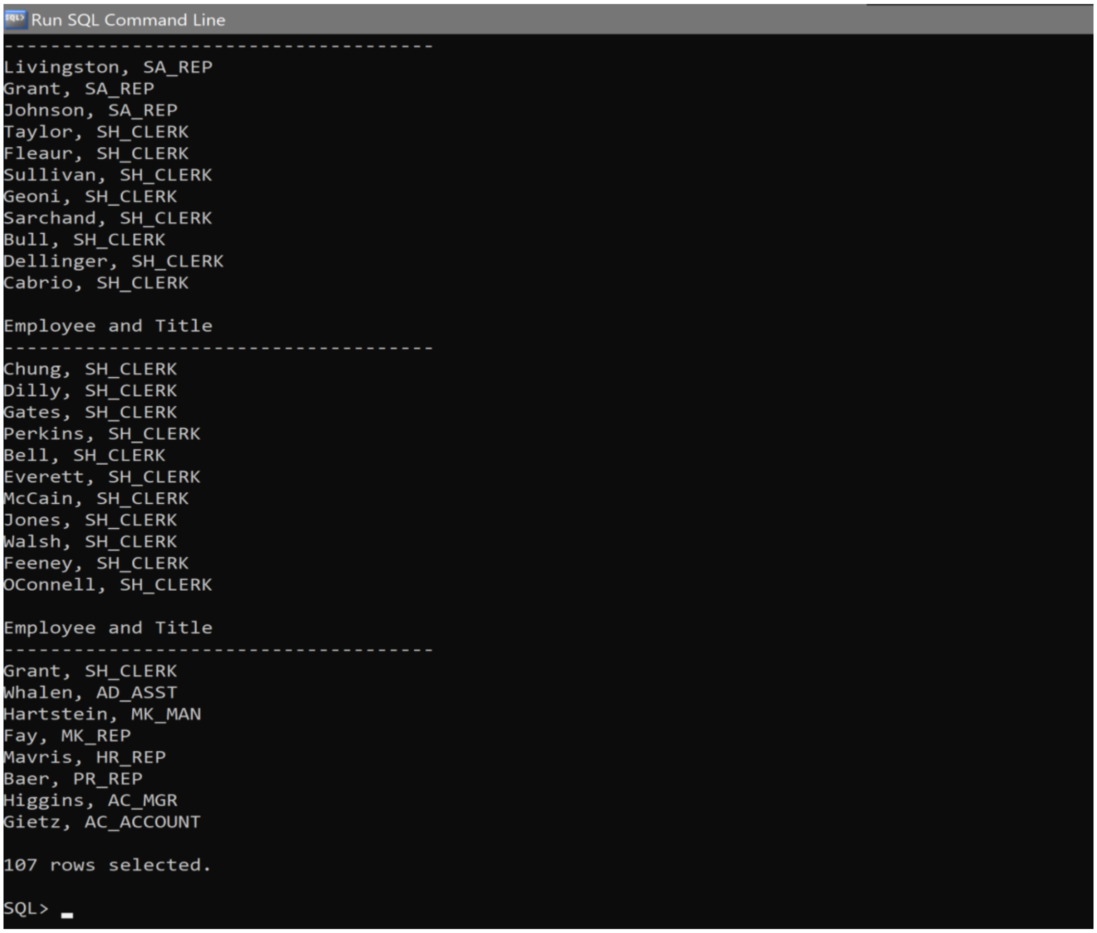
Query: select employee_id “EmP#”, last_name “Employee”, job_id “Job”, hire_date “Hire Date” from employees;



```
---------- ------------------------- ---------- ---------
       177 Livingston                SA_REP     23-APR-98
       178 Grant                     SA_REP     24-MAY-99
       179 Johnson                   SA_REP     04-JAN-00
       180 Taylor                    SH_CLERK   24-JAN-98
       181 Fleaur                    SH_CLERK   23-FEB-98
       182 Sullivan                  SH_CLERK   21-JUN-99
       183 Geoni                     SH_CLERK   03-FEB-00
       184 Sarchand                  SH_CLERK   27-JAN-96
       185 Bull                      SH_CLERK   20-FEB-97
       186 Dellinger                 SH_CLERK   24-JUN-98
       187 Cabrio                    SH_CLERK   07-FEB-99

      EmP# Employee                  Job        Hire Date
---------- ------------------------- ---------- ---------
       188 Chung                     SH_CLERK   14-JUN-97
       189 Dilly                     SH_CLERK   13-AUG-97
       190 Gates                     SH_CLERK   11-JUL-98
       191 Perkins                   SH_CLERK   19-DEC-99
       192 Bell                      SH_CLERK   04-FEB-96
       193 Everett                   SH_CLERK   03-MAR-97
       194 McCain                    SH_CLERK   01-JUL-98
       195 Jones                     SH_CLERK   17-MAR-99
       196 Walsh                     SH_CLERK   24-APR-98
       197 Feeney                    SH_CLERK   23-MAY-98
       198 OConnell                  SH_CLERK   21-JUN-99

      EmP# Employee                  Job        Hire Date
---------- ------------------------- ---------- ---------
       199 Grant                     SH_CLERK   13-JAN-00
       200 Whalen                    AD_ASST    17-SEP-87
       201 Hartstein                 MK_MAN     17-FEB-96
       202 Fay                       MK_REP     17-AUG-97
       203 Mavris                    HR_REP     07-JUN-94
       204 Baer                      PR_REP     07-JUN-94
       205 Higgins                   AC_MGR     07-JUN-94
       206 Gietz                     AC_ACCOUNT 07-JUN-94

107 rows selected.

SQL>
```

Q4. The HR department has requested a report of all employees and their job IDs. Display the last name concatenated with the job ID (separated by a comma and space) and name the column Employee and Title.

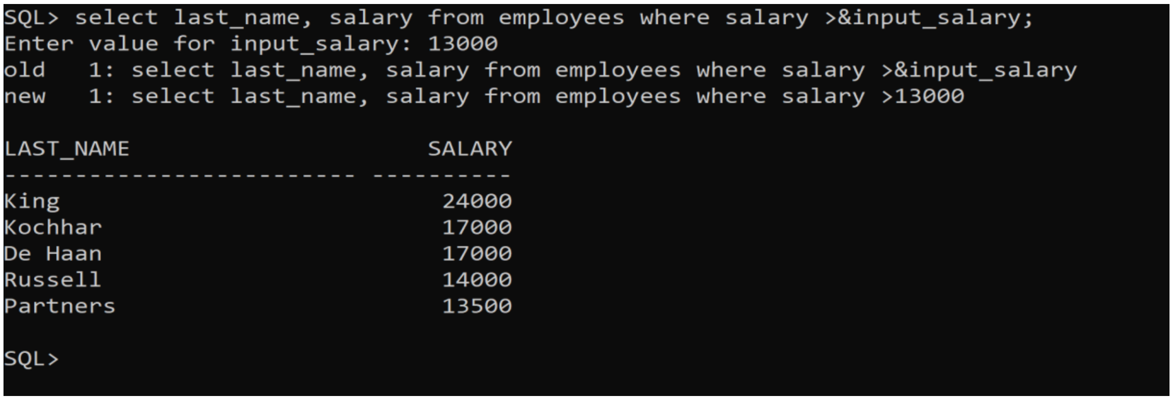
Query: select last_name||', '||job_id "Employee and Title" from employees;



```
-----------------------------------
Livingston, SA_REP
Grant, SA_REP
Johnson, SA_REP
Taylor, SH_CLERK
Fleaur, SH_CLERK
Sullivan, SH_CLERK
Geoni, SH_CLERK
Sarchand, SH_CLERK
Bull, SH_CLERK
Dellinger, SH_CLERK
Cabrio, SH_CLERK

Employee and Title
-----------------------------------
Chung, SH_CLERK
Dilly, SH_CLERK
Gates, SH_CLERK
Perkins, SH_CLERK
Bell, SH_CLERK
Everett, SH_CLERK
McCain, SH_CLERK
Jones, SH_CLERK
Walsh, SH_CLERK
Feeney, SH_CLERK
OConnell, SH_CLERK

Employee and Title
-----------------------------------
Grant, SH_CLERK
Whalen, AD_ASST
Hartstein, MK_MAN
Fay, MK_REP
Mavris, HR_REP
Baer, PR_REP
Higgins, AC_MGR
Gietz, AC_ACCOUNT

107 rows selected.

SQL> _
```

Q5. Members of the HR department want to have more flexibility with the queries that you are writing. They would like a report that displays the last name and salary of employees who earn more than an amount .

Query: select last_name, salary from employees where salary >&input_salary;

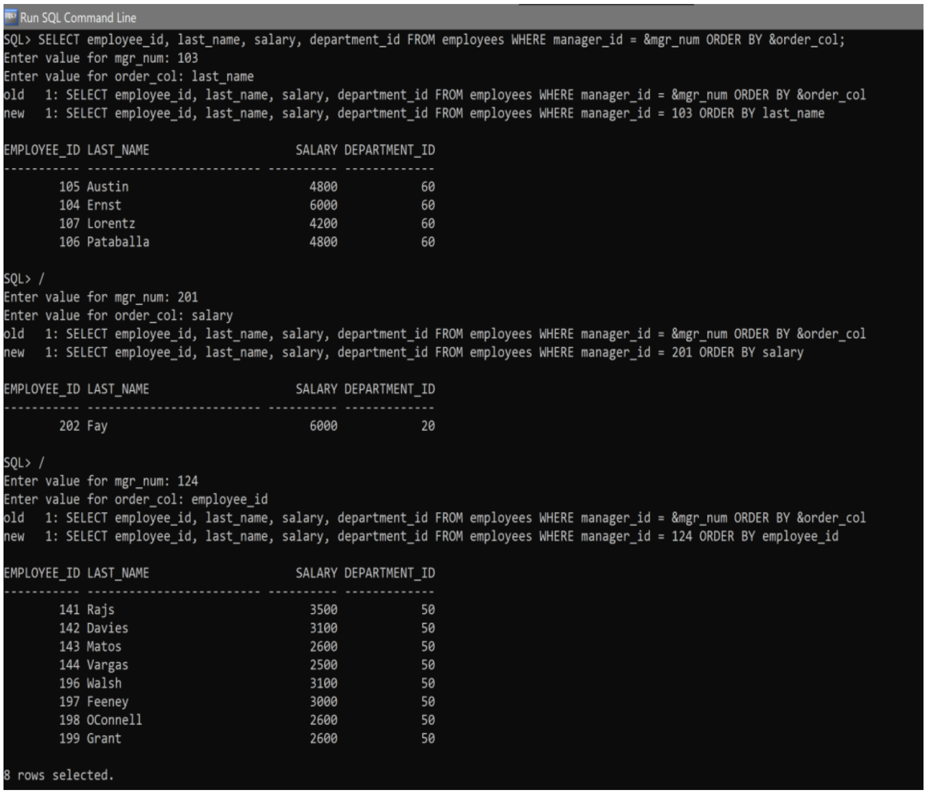


```
SQL> select last_name, salary from employees where salary >&input_salary;
Enter value for input_salary: 13000
old   1: select last_name, salary from employees where salary >&input_salary
new   1: select last_name, salary from employees where salary >13000

LAST_NAME                     SALARY
------------------------- ----------
King                           24000
Kochhar                        17000
De Haan                        17000
Russell                        14000
Partners                       13500

SQL>
```

Q6. The HR department wants to run reports based on a manager. Create a query that prompts the user for a manager ID and generates the employee ID, last name, salary, and department for that manager’s employees. The HR department wants the ability to sort the report on a selected column. You can test the data with the following values:

manager ID = 103, sorted by employee last name:
manager ID = 201, sorted by salary:
manager ID = 124, sorted by employee ID:

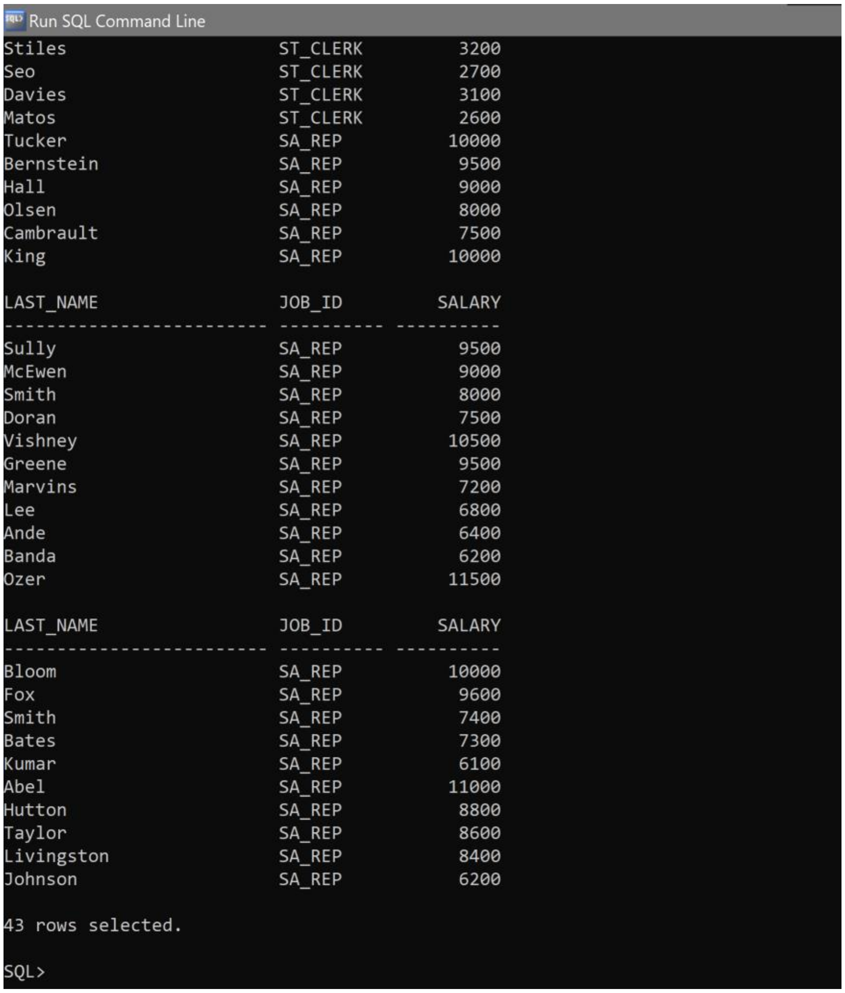
Query: SELECT employee_id, last_name, salary, department_id FROM employees WHERE manager_id = &mgr_num ORDER BY &order_col;



```
SQL> SELECT employee_id, last_name, salary, department_id FROM employees WHERE manager_id = &mgr_num ORDER BY &order_col;
Enter value for mgr_num: 103
Enter value for order_col: last_name
old   1: SELECT employee_id, last_name, salary, department_id FROM employees WHERE manager_id = &mgr_num ORDER BY &order_col
new   1: SELECT employee_id, last_name, salary, department_id FROM employees WHERE manager_id = 103 ORDER BY last_name

EMPLOYEE_ID LAST_NAME                     SALARY DEPARTMENT_ID
----------- ------------------------- ---------- -------------
        105 Austin                          4800            60
        104 Ernst                           6000            60
        107 Lorentz                         4200            60
        106 Pataballa                       4800            60

SQL> /
Enter value for mgr_num: 201
Enter value for order_col: salary
old   1: SELECT employee_id, last_name, salary, department_id FROM employees WHERE manager_id = &mgr_num ORDER BY &order_col
new   1: SELECT employee_id, last_name, salary, department_id FROM employees WHERE manager_id = 201 ORDER BY salary

EMPLOYEE_ID LAST_NAME                     SALARY DEPARTMENT_ID
----------- ------------------------- ---------- -------------
        202 Fay                             6000            20

SQL> /
Enter value for mgr_num: 124
Enter value for order_col: employee_id
old   1: SELECT employee_id, last_name, salary, department_id FROM employees WHERE manager_id = &mgr_num ORDER BY &order_col
new   1: SELECT employee_id, last_name, salary, department_id FROM employees WHERE manager_id = 124 ORDER BY employee_id

EMPLOYEE_ID LAST_NAME                     SALARY DEPARTMENT_ID
----------- ------------------------- ---------- -------------
        141 Rajs                            3500            50
        142 Davies                          3100            50
        143 Matos                           2600            50
        144 Vargas                          2500            50
        196 Walsh                           3100            50
        197 Feeney                          3000            50
        198 OConnell                        2600            50
        199 Grant                           2600            50

8 rows selected.
```

Q7. Display the last name, job, and salary for all employees whose jobs are either that of a sales representative ‘SA-REP’ or a stock clerk ‘ST- CLERK’, and whose salaries are not equal to $2,500, $3,500, or $7,000.

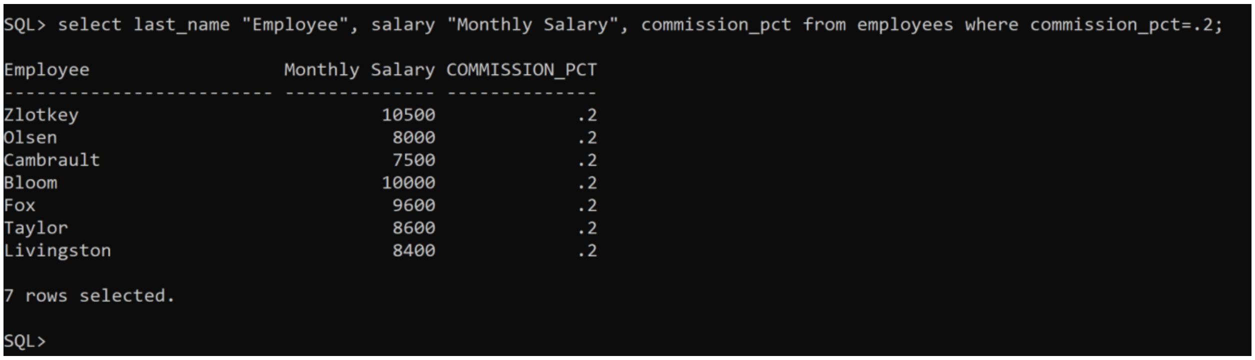
Query: select last_name, job_id, salary from employees where (job_id='SA_REP' or job_id='ST_CLERK') and salary not in(2500,3500,7000);



```
Stiles                   ST_CLERK         3200
Seo                      ST_CLERK         2700
Davies                   ST_CLERK         3100
Matos                    ST_CLERK         2600
Tucker                   SA_REP          10000
Bernstein                SA_REP           9500
Hall                     SA_REP           9000
Olsen                    SA_REP           8000
Cambrault                SA_REP           7500
King                     SA_REP          10000

LAST_NAME                JOB_ID         SALARY
------------------------ ---------- ----------
Sully                    SA_REP           9500
McEwen                   SA_REP           9000
Smith                    SA_REP           8000
Doran                    SA_REP           7500
Vishney                  SA_REP          10500
Greene                   SA_REP           9500
Marvins                  SA_REP           7200
Lee                      SA_REP           6800
Ande                     SA_REP           6400
Banda                    SA_REP           6200
Ozer                     SA_REP          11500

LAST_NAME                JOB_ID         SALARY
------------------------ ---------- ----------
Bloom                    SA_REP          10000
Fox                      SA_REP           9600
Smith                    SA_REP           7400
Bates                    SA_REP           7300
Kumar                    SA_REP           6100
Abel                     SA_REP          11000
Hutton                   SA_REP           8800
Taylor                   SA_REP           8600
Livingston               SA_REP           8400
Johnson                  SA_REP           6200

43 rows selected.

SQL>
```

Q8. Display the last name, salary, and commission for all employees whose commission amount is 20% (0.2).

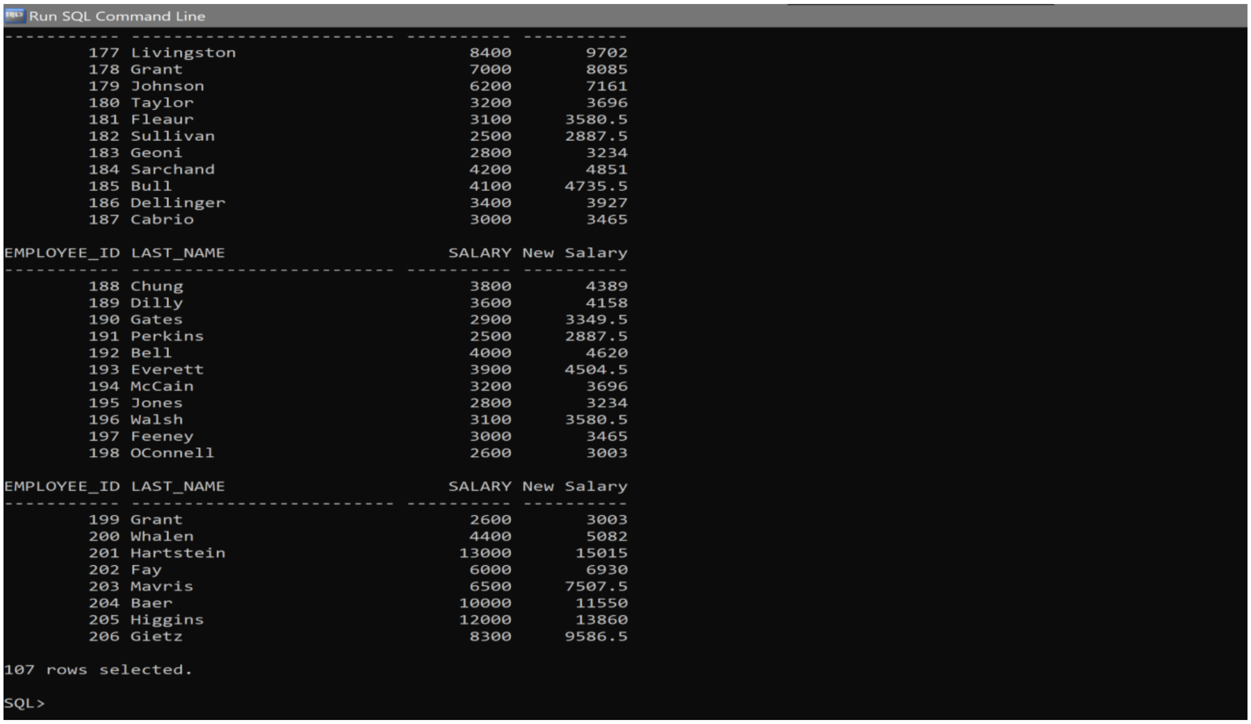
Query: select last_name "Employee", salary "Monthly Salary", commission_pct from employees where commission_pct=.2;



```
SQL> select last_name "Employee", salary "Monthly Salary", commission_pct from employees where commission_pct=.2;

Employee                 Monthly Salary COMMISSION_PCT
------------------------- -------------- --------------
Zlotkey                           10500             .2
Olsen                              8000             .2
Cambrault                          7500             .2
Bloom                             10000             .2
Fox                                9600             .2
Taylor                             8600             .2
Livingston                         8400             .2

7 rows selected.

SQL>
```

Q9. The HR department needs a report to display the employee number, last name, salary, and salary increased by 15.5% (expressed as a whole number) for each employee. Label the column New Salary.

Query: select employee_id, last_name, salary, salary+(salary*15.5/100) "New Salary" from employees;



```
----------- ------------------------- ---------- ----------
        177 Livingston                      8400       9702
        178 Grant                           7000       8085
        179 Johnson                         6200       7161
        180 Taylor                          3200       3696
        181 Fleaur                          3100     3580.5
        182 Sullivan                        2500     2887.5
        183 Geoni                           2800       3234
        184 Sarchand                        4200       4851
        185 Bull                            4100     4735.5
        186 Dellinger                       3400       3927
        187 Cabrio                          3000       3465

EMPLOYEE_ID LAST_NAME                     SALARY New Salary
----------- ------------------------- ---------- ----------
        188 Chung                           3800       4389
        189 Dilly                           3600       4158
        190 Gates                           2900     3349.5
        191 Perkins                         2500     2887.5
        192 Bell                            4000       4620
        193 Everett                         3900     4504.5
        194 McCain                          3200       3696
        195 Jones                           2800       3234
        196 Walsh                           3100     3580.5
        197 Feeney                          3000       3465
        198 OConnell                        2600       3003

EMPLOYEE_ID LAST_NAME                     SALARY New Salary
----------- ------------------------- ---------- ----------
        199 Grant                           2600       3003
        200 Whalen                          4400       5082
        201 Hartstein                      13000      15015
        202 Fay                             6000       6930
        203 Mavris                          6500     7507.5
        204 Baer                           10000      11550
        205 Higgins                        12000      13860
        206 Gietz                           8300     9586.5

107 rows selected.

SQL>
```

EXPERIMENT NO 3

DATE: 21-10-2021

SUB QUERIES

AIM: Implementation of Sub queries.

SYNTAX:

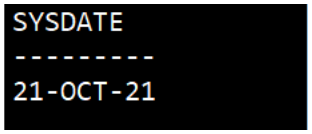
```
CREATE TABLE table_name (
    column1 datatype,
    column2 datatype,
    column3 datatype,
   ....
);

> SELECT column1, column2, ...
FROM table_name;

> SELECT * FROM table_name;

> SELECT column1, column2, ...
  FROM table_name
  WHERE condition;

> SELECT column1, column2, ...
  FROM table_name
  ORDER BY column1, column2, ... ASC|DESC;
```

Database Management Systems Lab

QUERIES

Q1. Write a query to display the current date. Label the column Date.

Query: select sysdate from dual;

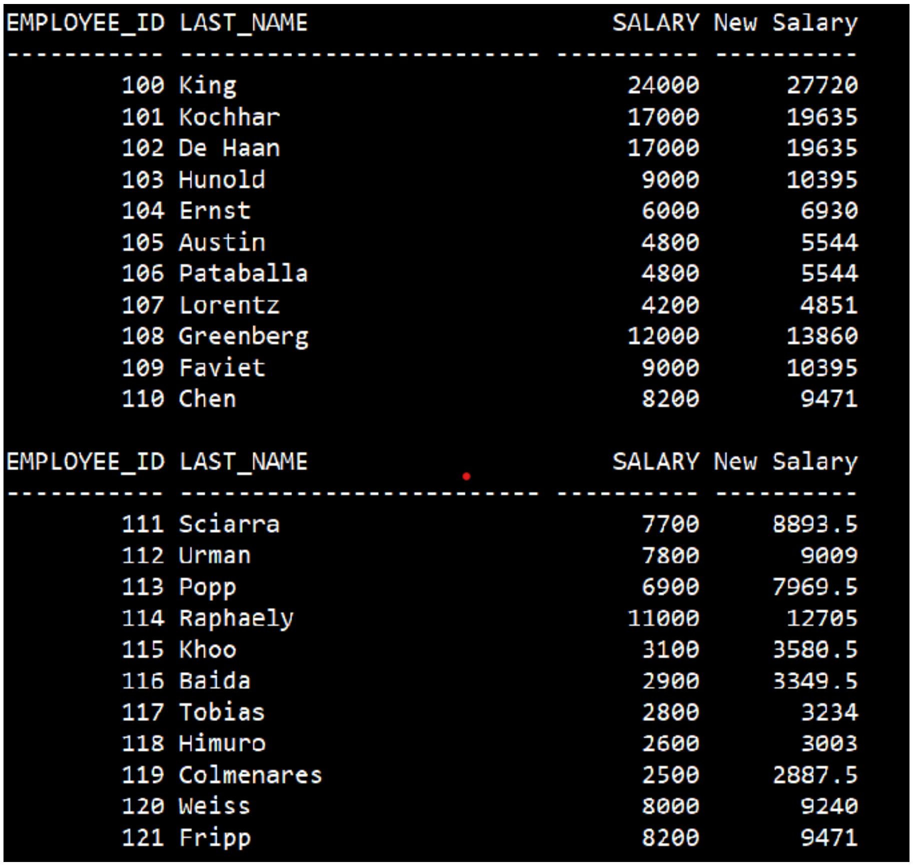


```
SYSDATE
---------
21-OCT-21
```

Q2.The HR department needs a report to display the employee number, last name, salary, and salary increased by 15.5% (expressed as a whole number) for each employee. Label the column New Salary.

Query: select employee_id, last_name, salary, salary+(salary*15.5/100) "New Salary"

from employees;



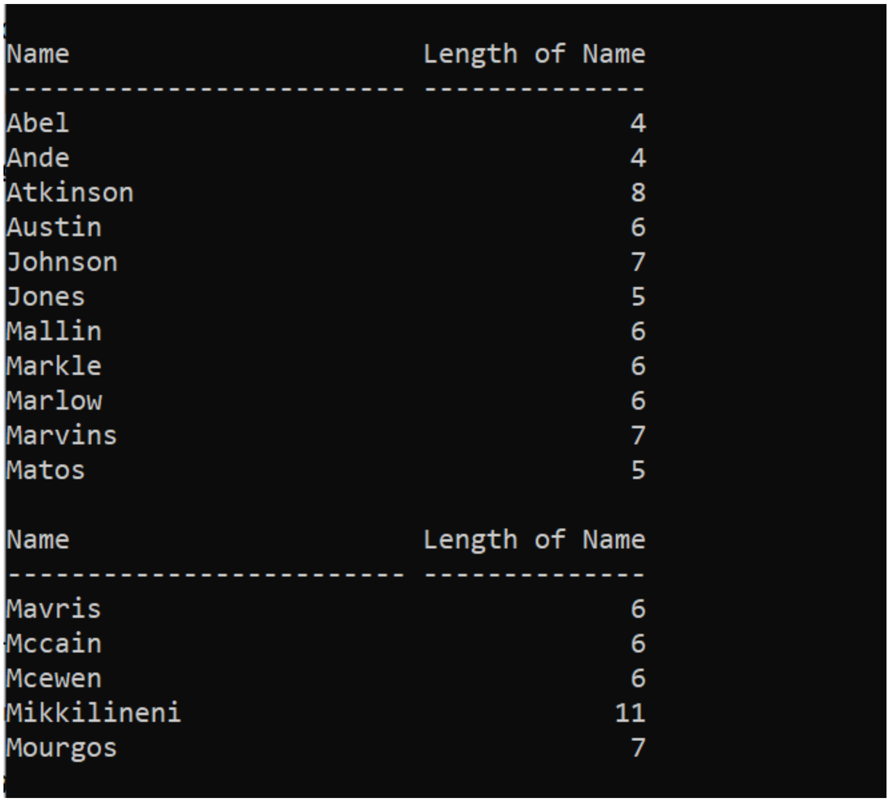
```
EMPLOYEE_ID LAST_NAME                     SALARY New Salary
----------- ------------------------- ---------- ----------
        100 King                           24000      27720
        101 Kochhar                        17000      19635
        102 De Haan                        17000      19635
        103 Hunold                          9000      10395
        104 Ernst                           6000       6930
        105 Austin                          4800       5544
        106 Pataballa                       4800       5544
        107 Lorentz                         4200       4851
        108 Greenberg                      12000      13860
        109 Faviet                          9000      10395
        110 Chen                            8200       9471

EMPLOYEE_ID LAST_NAME                     SALARY New Salary
----------- ------------------------- ---------- ----------
        111 Sciarra                         7700     8893.5
        112 Urman                           7800       9009
        113 Popp                            6900     7969.5
        114 Raphaely                       11000      12705
        115 Khoo                            3100     3580.5
        116 Baida                           2900     3349.5
        117 Tobias                          2800       3234
        118 Himuro                          2600       3003
        119 Colmenares                      2500     2887.5
        120 Weiss                           8000       9240
        121 Fripp                           8200       9471
```

Q3. Write a query that displays the last name (with the first letter uppercase and all other letters lowercase) and the length of the last name for all employees whose name starts with the letters J, A, or M. Give each column an appropriate label. Sortthe results by the last names of the employees.

Query: select initcap(last_name) "Name", length(last_name) "Length of Name"

from employees where last_name like 'J%' or last_name like 'A%' or last_name like 'M%'

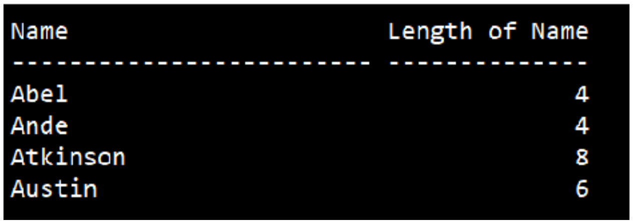
order by last_name;



```
Name                      Length of Name
------------------------- --------------
Abel                                   4
Ande                                   4
Atkinson                               8
Austin                                 6
Johnson                                7
Jones                                  5
Mallin                                 6
Markle                                 6
Marlow                                 6
Marvins                                7
Matos                                  5

Name                      Length of Name
------------------------- --------------
Mavris                                 6
Mccain                                 6
Mcewen                                 6
Mikkilineni                           11
Mourgos                                7
```

Q4. Rewrite the query so that the user is prompted to enter a letter that starts the last name. For example, if the user enters H when prompted for a letter, the outputshould show all employees whose last name starts with the letter H.

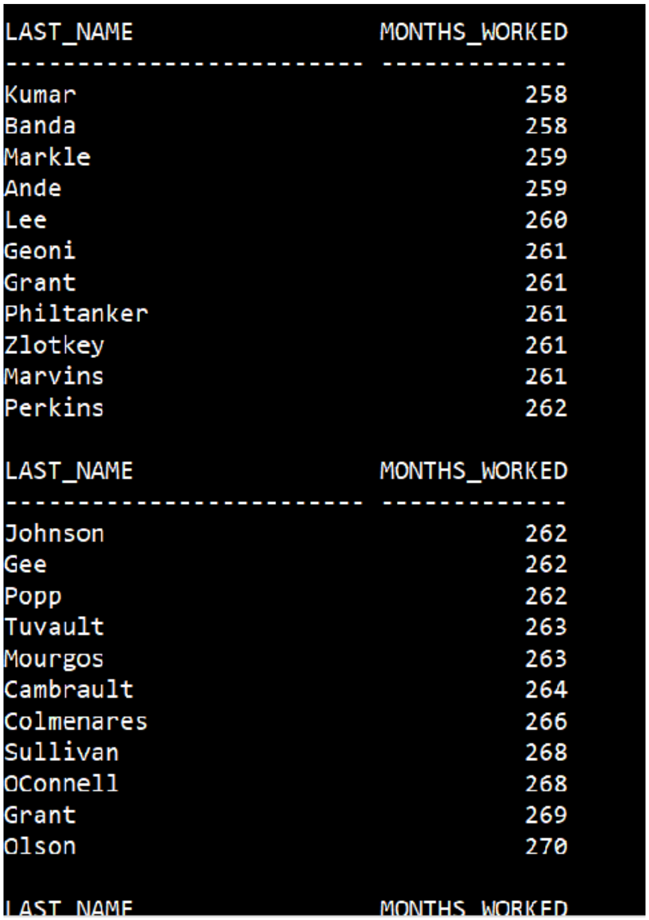
Query: select initcap(last_name)"Name",length(last_name)"Length of Name" from employees where last_name like 'A%' order by last_name



```
Name                     Length of Name
------------------------ --------------
Abel                                  4
Ande                                  4
Atkinson                              8
Austin                                6
```

Q5. The HR department wants to find the duration of employment for each employee. For each employee, display the last name and calculate the number of months between today and the date on which the employee was hired. Label the column MONTHS_WORKED. Order your results by the number of months employed. Round the number of months up to the closest whole number.

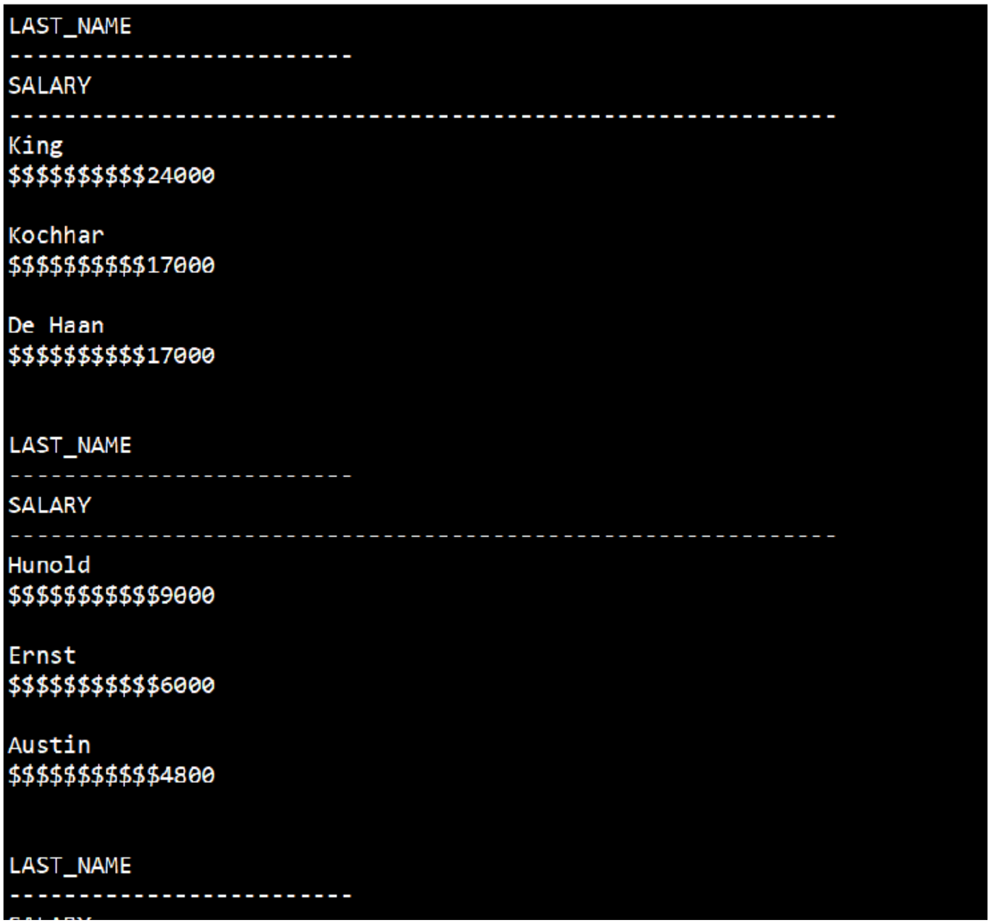
Query: select last_name, round(months_between(sysdate,hire_date),0) Months_worked from employees order by 2;



```
LAST_NAME                 MONTHS_WORKED
------------------------- -------------
Kumar                               258
Banda                               258
Markle                              259
Ande                                259
Lee                                 260
Geoni                               261
Grant                               261
Philtanker                          261
Zlotkey                             261
Marvins                             261
Perkins                             262

LAST_NAME                 MONTHS_WORKED
------------------------- -------------
Johnson                             262
Gee                                 262
Popp                                262
Tuvault                             263
Mourgos                             263
Cambrault                           264
Colmenares                          266
Sullivan                            268
OConnell                            268
Grant                               269
Olson                               270

LAST_NAME                 MONTHS_WORKED
```

Q6. Create a query to display the last name and salary for all employees. Format the salary to be 15 characters long, left-padded with the $ symbol. Label the column SALARY.

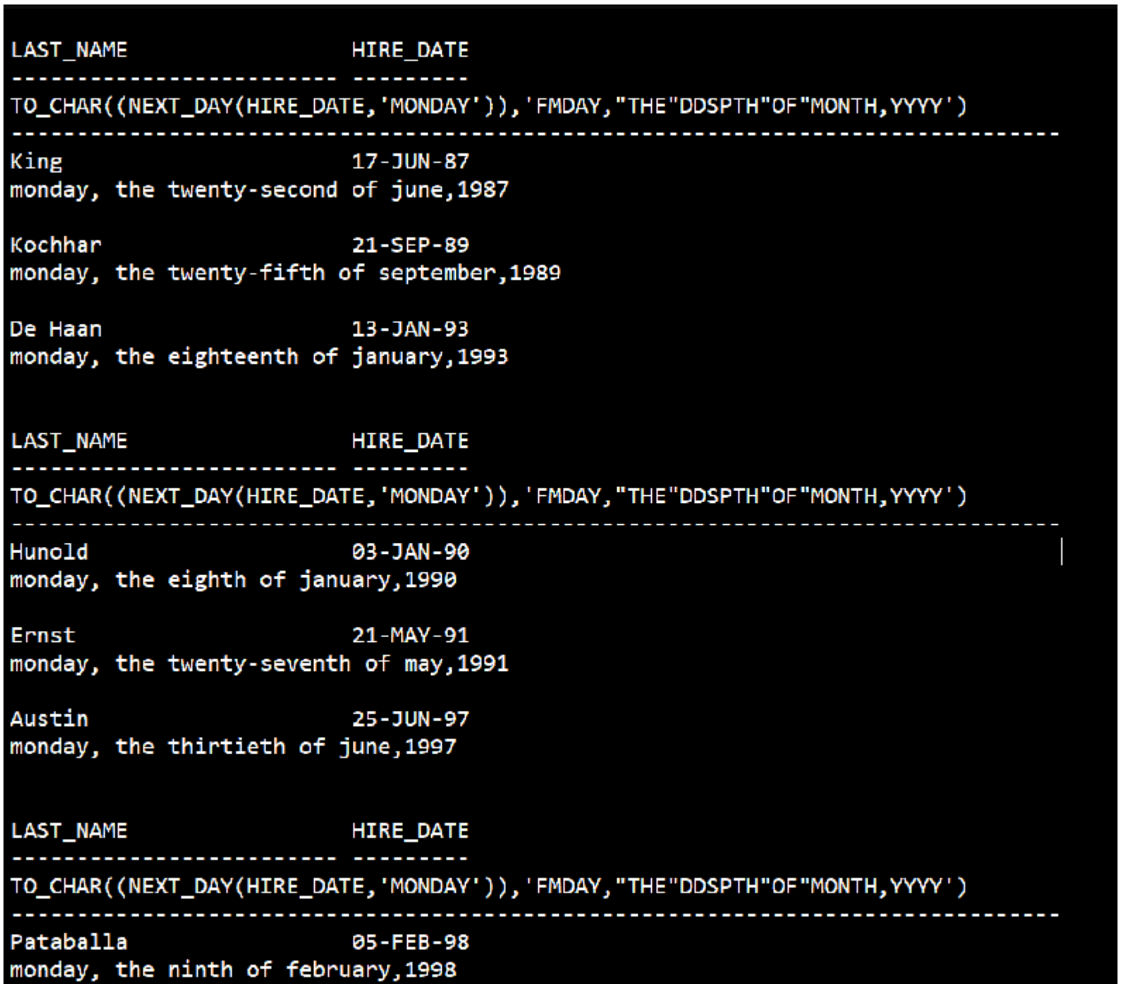
Query: select last_name, lpad(salary,15,'$') Salary from employees;



```
LAST_NAME
-------------------------
SALARY
------------------------------------------------------------
King
$$$$$$$$$$24000

Kochhar
$$$$$$$$$$17000

De Haan
$$$$$$$$$$17000


LAST_NAME
-------------------------
SALARY
------------------------------------------------------------
Hunold
$$$$$$$$$$$9000

Ernst
$$$$$$$$$$$6000

Austin
$$$$$$$$$$$4800


LAST_NAME
-------------------------
```

Q7 Display each employee’s last name, hire date, and salary review date, which is the first Monday after six months of service. Label the column REVIEW. Format the dates to appear in the format similar to “Monday, the Thirty-First of July, 2000.”

Query: select last_name, hire_date, to_char((next_day(hire_date,'Monday')),'fmday,'' the "ddspth "of" month,yyyy')   from employees;



```
LAST_NAME                 HIRE_DATE
------------------------- ---------
TO_CHAR((NEXT_DAY(HIRE_DATE,'MONDAY')),'FMDAY,"THE"DDSPTH"OF"MONTH,YYYY')
--------------------------------------------------------------------------------
King                      17-JUN-87
monday, the twenty-second of june,1987

Kochhar                   21-SEP-89
monday, the twenty-fifth of september,1989

De Haan                   13-JAN-93
monday, the eighteenth of january,1993


LAST_NAME                 HIRE_DATE
------------------------- ---------
TO_CHAR((NEXT_DAY(HIRE_DATE,'MONDAY')),'FMDAY,"THE"DDSPTH"OF"MONTH,YYYY')
--------------------------------------------------------------------------------
Hunold                    03-JAN-90
monday, the eighth of january,1990

Ernst                     21-MAY-91
monday, the twenty-seventh of may,1991

Austin                    25-JUN-97
monday, the thirtieth of june,1997


LAST_NAME                 HIRE_DATE
------------------------- ---------
TO_CHAR((NEXT_DAY(HIRE_DATE,'MONDAY')),'FMDAY,"THE"DDSPTH"OF"MONTH,YYYY')
--------------------------------------------------------------------------------
Pataballa                 05-FEB-98
monday, the ninth of february,1998
```

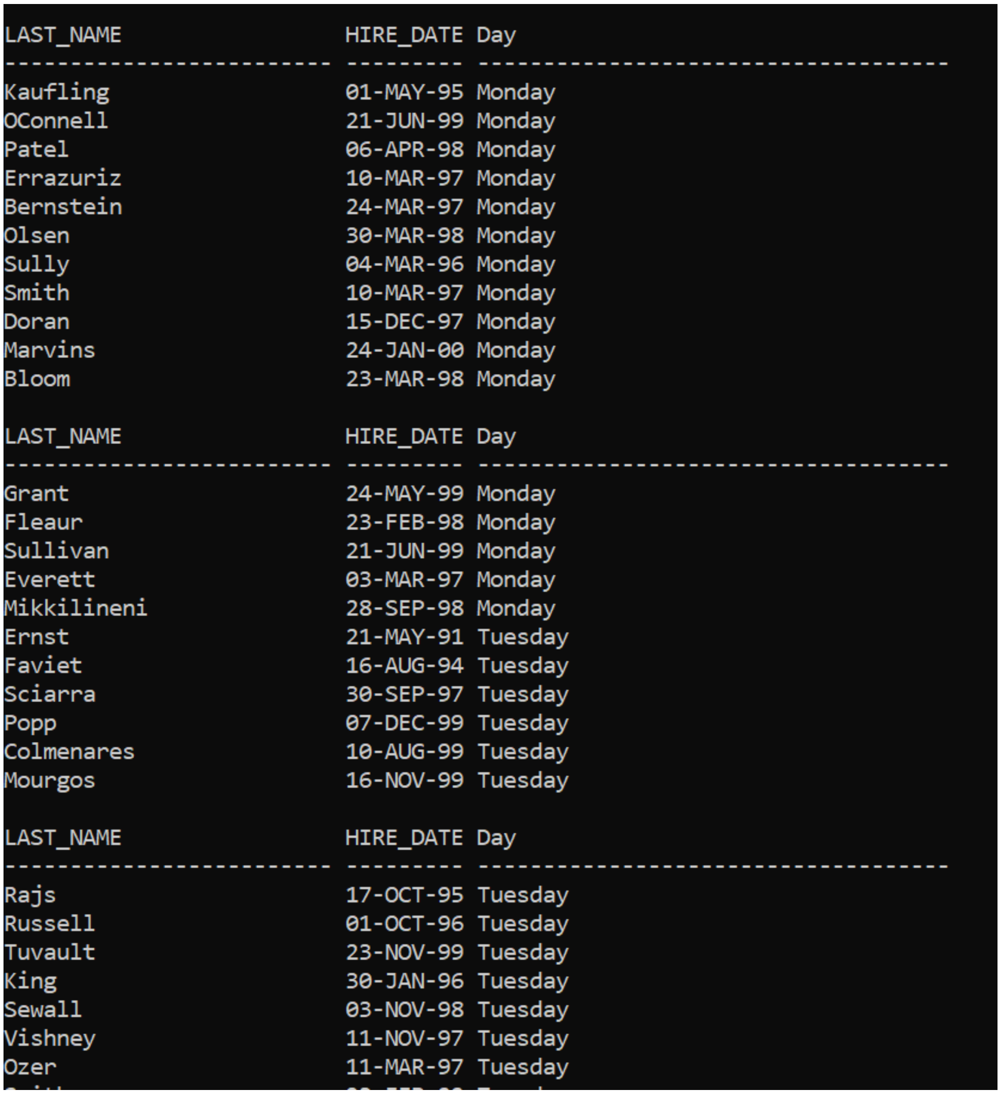
Q8. Display the last name, hire date, and day of the week on which an employee started.

Label the column DAY. Order the results by the day of the week, starting with

Monday.

Query: select Last_name, hire_date, to_char(hire_date,'Day') "Day"

from employees order by to_char(hire_date-1,'d')

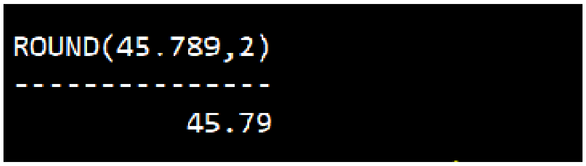


```
LAST_NAME                 HIRE_DATE Day
------------------------- --------- ------------------------------------
Kaufling                  01-MAY-95 Monday
OConnell                  21-JUN-99 Monday
Patel                     06-APR-98 Monday
Errazuriz                 10-MAR-97 Monday
Bernstein                 24-MAR-97 Monday
Olsen                     30-MAR-98 Monday
Sully                     04-MAR-96 Monday
Smith                     10-MAR-97 Monday
Doran                     15-DEC-97 Monday
Marvins                   24-JAN-00 Monday
Bloom                     23-MAR-98 Monday

LAST_NAME                 HIRE_DATE Day
------------------------- --------- ------------------------------------
Grant                     24-MAY-99 Monday
Fleaur                    23-FEB-98 Monday
Sullivan                  21-JUN-99 Monday
Everett                   03-MAR-97 Monday
Mikkilineni               28-SEP-98 Monday
Ernst                     21-MAY-91 Tuesday
Faviet                    16-AUG-94 Tuesday
Sciarra                   30-SEP-97 Tuesday
Popp                      07-DEC-99 Tuesday
Colmenares                10-AUG-99 Tuesday
Mourgos                   16-NOV-99 Tuesday

LAST_NAME                 HIRE_DATE Day
------------------------- --------- ------------------------------------
Rajs                      17-OCT-95 Tuesday
Russell                   01-OCT-96 Tuesday
Tuvault                   23-NOV-99 Tuesday
King                      30-JAN-96 Tuesday
Sewall                    03-NOV-98 Tuesday
Vishney                   11-NOV-97 Tuesday
Ozer                      11-MAR-97 Tuesday
```

Q9 Write Queries to demonstrate the Following

1) Round

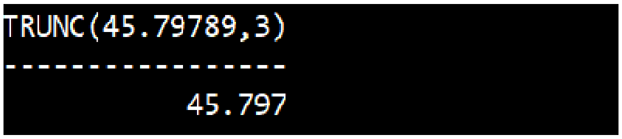
Query: select ROUND(45.789, 2) from dual;



```
ROUND(45.789,2)
---------------
          45.79
```

2) Truncate

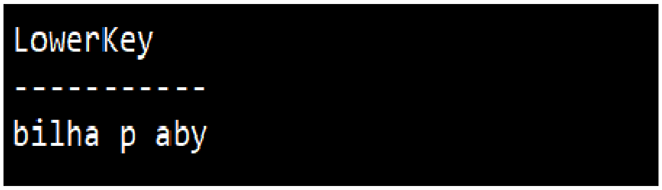
Query: select TRUNC(45.79789, 3) from dual;



```
TRUNC(45.79789,3)
-----------------
           45.797
```

3) LOWER

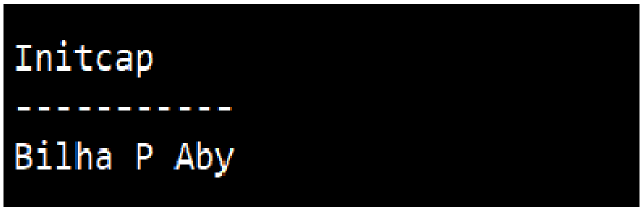
Query: select LOWER('Bilha P Aby')"LowerKey" from dual;



```
LowerKey
-----------
bilha p aby
```

4) INITCAP

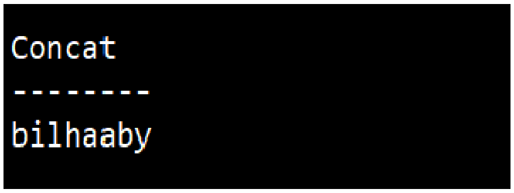
Query:select INITCAP('bilha p aby')"Initcap" from dual;



```
Initcap
-----------
Bilha P Aby
```

5) CONCAT

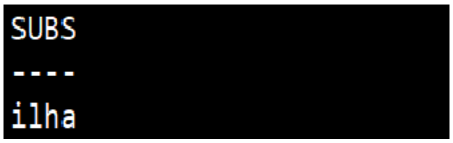
Query: select CONCAT('bilha', 'aby')"Concat" from dual;



```
Concat
--------
bilhaaby
```

6) SUBSTR

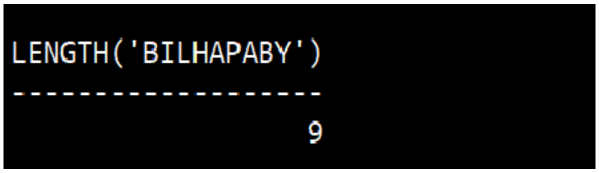
Query: select SUBSTR('bilhapaby',2,4) from dual*;*



```
SUBS
----
ilha
```

7) LENGTH

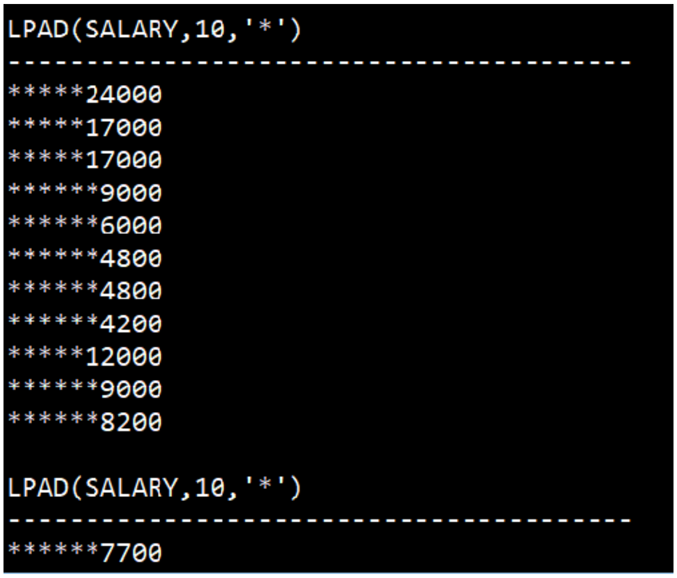
Query: select LENGTH('bilhapaby') from dual;



```
LENGTH('BILHAPABY')
-------------------
                  9
```

8) LPAD

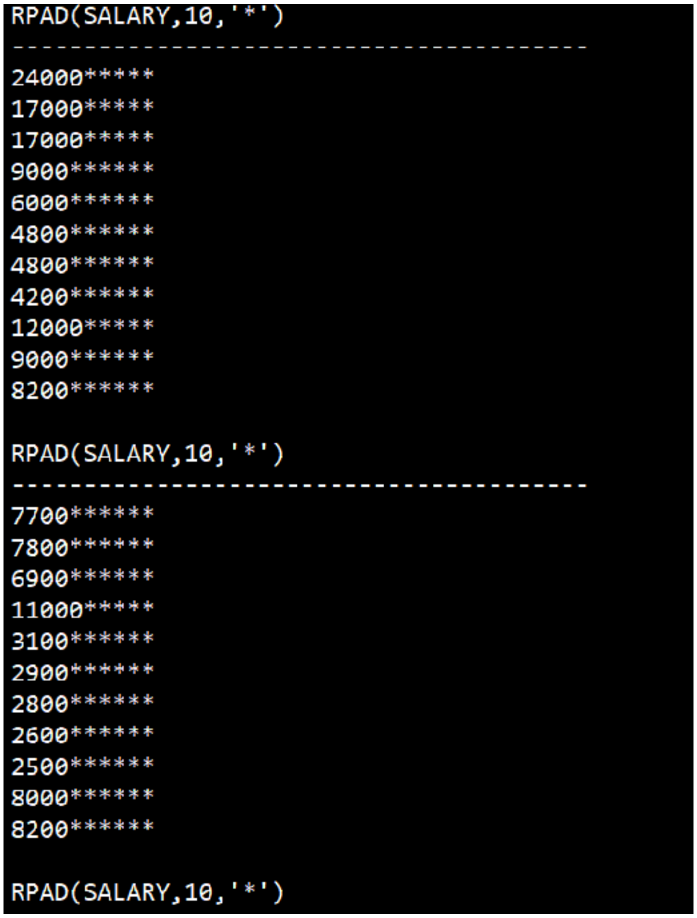
Query: select LPAD(salary, 10, '*') from employees;



```
LPAD(SALARY,10,'*')
----------------------------------------
*****24000
*****17000
*****17000
******9000
******6000
******4800
******4800
******4200
*****12000
******9000
******8200

LPAD(SALARY,10,'*')
----------------------------------------
******7700
```

9) RPAD

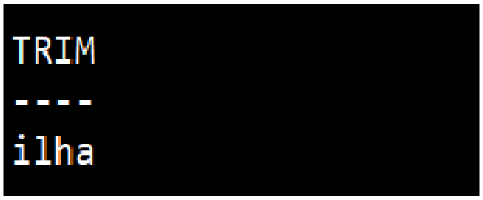
Query: select RPAD(salary, 10, '*') from employees;



```
RPAD(SALARY,10,'*')
----------------------------------------
24000*****
17000*****
17000*****
9000******
6000******
4800******
4800******
4200******
12000*****
9000******
8200******

RPAD(SALARY,10,'*')
----------------------------------------
7700******
7800******
6900******
11000*****
3100******
2900******
2800******
2600******
2500******
8000******
8200******

RPAD(SALARY,10,'*')
```

10) TRIM

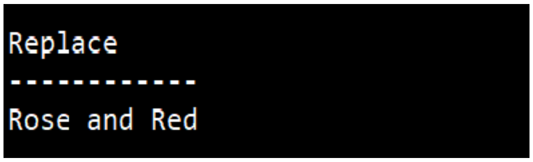
Query:select TRIM('B' from 'Bilha') from dual;



```
TRIM
----
ilha
```

11) REPLACE

Query: select REPLACE('Lose and Led','L','R')"Replace" from dual;



```
Replace
-----------
Rose and Red
```

EXPERIMENT NO 4

DATE: 04-11-2021

JOINS

AIM: Implementation of joins.

SYNTAX:

```
CREATE TABLE table_name (
   column1 datatype,
   column2 datatype,
   column3 datatype,
  ....
);
>SELECT column1, column2, ...
FROM table_name
WHERE condition;
>SELECT column_name(s)
FROM table1
INNER JOIN table2
ON table1.column_name = table2.column_name;
>SELECT column1, column2, ...
FROM table_name
ORDER BY column1, column2, ... ASC|DESC;
```

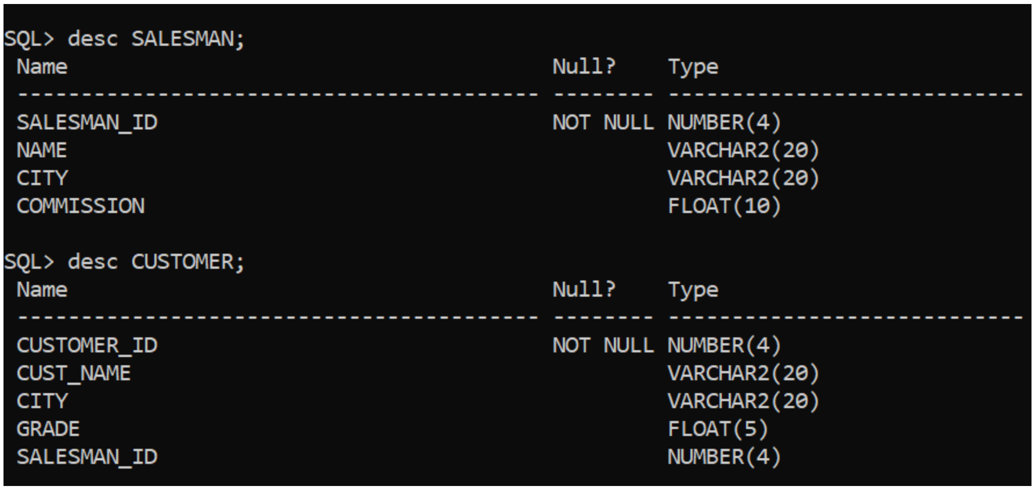
Database Management Systems Lab

QUERIES

Q1. Create the Tables

Query: create table SALESMAN(salesman_id number(4) primary key, name varchar2(20), city varchar2(20), commission float(10));

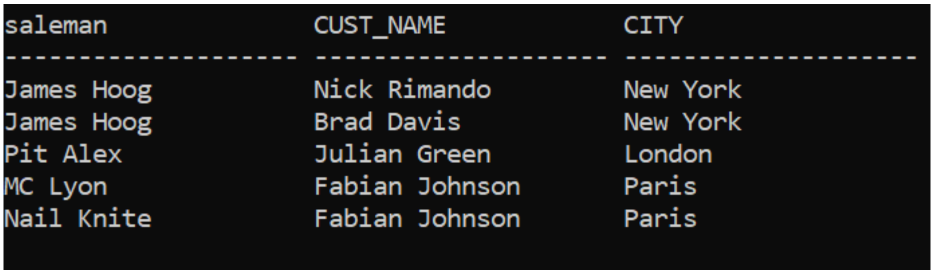
create table CUSTOMER(customer_id number(4) primary key, cust_name varchar2(20), city varchar2(20), grade float(5), salesman_id number(4));



```
SQL> desc SALESMAN;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 SALESMAN_ID                               NOT NULL NUMBER(4)
 NAME                                               VARCHAR2(20)
 CITY                                               VARCHAR2(20)
 COMMISSION                                         FLOAT(10)

SQL> desc CUSTOMER;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTOMER_ID                               NOT NULL NUMBER(4)
 CUST_NAME                                          VARCHAR2(20)
 CITY                                               VARCHAR2(20)
 GRADE                                              FLOAT(5)
 SALESMAN_ID                                        NUMBER(4)
```

Q2. Write a SQL statement to prepare a list with salesman name, customer name and their cities for the salesmen and customer who belongs to the same city.

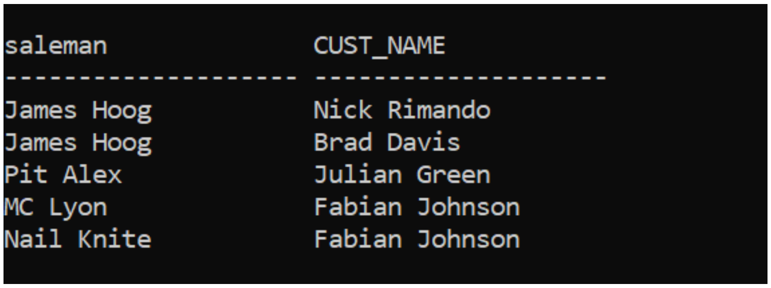
Query: select salesman.name as "saleman", customer.cust_name, customer.city from salesman,customer where salesman.city=customer.city;



```
saleman              CUST_NAME            CITY
-------------------- -------------------- --------------------
James Hoog           Nick Rimando         New York
James Hoog           Brad Davis           New York
Pit Alex             Julian Green         London
MC Lyon              Fabian Johnson       Paris
Nail Knite           Fabian Johnson       Paris
```

Q3. Write a SQL statement to know which salesman are working for which customer.

Query: select salesman.name as "saleman", customer.cust_name from salesman,customer where salesman.city=customer.city;

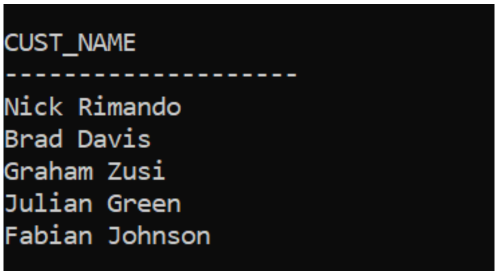


```
saleman              CUST_NAME
-------------------- --------------------
James Hoog           Nick Rimando
James Hoog           Brad Davis
Pit Alex             Julian Green
MC Lyon              Fabian Johnson
Nail Knite           Fabian Johnson
```

Q4. Write a SQL statement to find the list of customers who appointed a salesman for

their jobs who gets a commission from the company is more than 12%.

Query: select customer.cust_name from customer inner join salesman on customer.salesman_id=salesman.salesman_id where salesman.commission>.12;

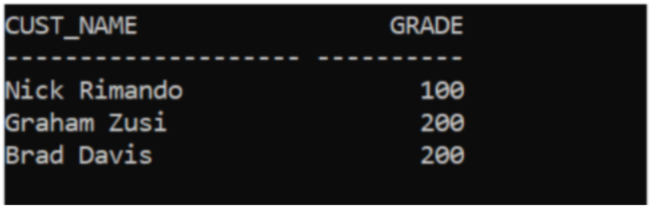


```
CUST_NAME
--------------------
Nick Rimando
Brad Davis
Graham Zusi
Julian Green
Fabian Johnson
```

Q5. Write a SQL statement to make a list in ascending order for the customer who

holds a grade less than 300 and works either through a salesman or by own.

Query: *:* select customer.cust_name,customer.grade from customer left outer join salesman on customer.salesman_id=salesman.salesman_id where grade<300 order by grade asc;



```
CUST_NAME                 GRADE
-------------------- ----------
Nick Rimando                100
Graham Zusi                 200
Brad Davis                  200
```