EX 1 CREATING AND MANAGING TABLES

```
mysql> CREATE TABLE DEPT (
    -> ID INT(7),
    -> NAME VARCHAR(25));
Query OK, 0 rows affected (0.01 sec)

mysql> DESC DEPT;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| ID    | int(7)      | YES  |     | NULL    |       |
| NAME  | varchar(25) | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
2 rows in set (0.01 sec)
```

```
mysql> CREATE TABLE EMP (
    -> ID INT(7),
    -> FIRST_NAME VARCHAR(25),
    -> LAST_NAME VARCHAR(25),
    -> DEPT_ID INT(7));
Query OK, 0 rows affected (0.01 sec)

mysql> DESC EMP;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| ID         | int(7)      | YES  |     | NULL    |       |
| FIRST_NAME | varchar(25) | YES  |     | NULL    |       |
| LAST_NAME  | varchar(25) | YES  |     | NULL    |       |
| DEPT_ID    | int(7)      | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
4 rows in set (0.01 sec)
```

```
mysql> ALTER TABLE EMP MODIFY LAST_NAME VARCHAR(50);
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC EMP;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| ID         | int(7)      | YES  |     | NULL    |       |
| FIRST_NAME | varchar(25) | YES  |     | NULL    |       |
| LAST_NAME  | varchar(50) | YES  |     | NULL    |       |
| DEPT_ID    | int(7)      | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
4 rows in set (0.01 sec)
```

```
mysql> CREATE TABLE EMPLOYEES2 (
    -> ID INT(7),
    -> FIRST_NAME VARCHAR(25),
    -> LAST_NAME VARCHAR(25),
    -> SALARY NUMERIC(10, 2),
    -> DEPT_ID INT(7));
Query OK, 0 rows affected (0.01 sec)

mysql> DESC EMPLOYEES2;
+------------+---------------+------+-----+---------+-------+
| Field      | Type          | Null | Key | Default | Extra |
+------------+---------------+------+-----+---------+-------+
| ID         | int(7)        | YES  |     | NULL    |       |
| FIRST_NAME | varchar(25)   | YES  |     | NULL    |       |
| LAST_NAME  | varchar(25)   | YES  |     | NULL    |       |
| SALARY     | decimal(10,2) | YES  |     | NULL    |       |
| DEPT_ID    | int(7)        | YES  |     | NULL    |       |
+------------+---------------+------+-----+---------+-------+
5 rows in set (0.01 sec)
```

```
mysql> DROP TABLE EMP;
Query OK, 0 rows affected (0.00 sec)

mysql> SHOW TABLES;
+--------------------+
| Tables_in_dbms_lab |
+--------------------+
| department         |
| dept               |
| employees          |
| employees2         |
| job_grade          |
| location           |
+--------------------+
6 rows in set (0.00 sec)
```

```
mysql> RENAME TABLE EMPLOYEES2 TO EMP;
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW TABLES;
+--------------------+
| Tables_in_dbms_lab |
+--------------------+
| department         |
| dept               |
| emp                |
| employees          |
| job_grade          |
| location           |
+--------------------+
6 rows in set (0.00 sec)
```

```
mysql> ALTER TABLE DEPT COMMENT "Department Table";
Query OK, 0 rows affected (0.00 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> ALTER TABLE EMP COMMENT "Employee Table";
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
mysql> DESC DEPT;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| ID    | int(7)      | YES  |     | NULL    |       |
| NAME  | varchar(25) | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
2 rows in set (0.01 sec)

mysql> DESC EMP;
+------------+---------------+------+-----+---------+-------+
| Field      | Type          | Null | Key | Default | Extra |
+------------+---------------+------+-----+---------+-------+
| ID         | int(7)        | YES  |     | NULL    |       |
| FIRST_NAME | varchar(25)   | YES  |     | NULL    |       |
| LAST_NAME  | varchar(25)   | YES  |     | NULL    |       |
| SALARY     | decimal(10,2) | YES  |     | NULL    |       |
| DEPT_ID    | int(7)        | YES  |     | NULL    |       |
+------------+---------------+------+-----+---------+-------+
5 rows in set (0.01 sec)
```

```
mysql> ALTER TABLE EMP DROP COLUMN FIRST_NAME;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC EMP;
+-----------+---------------+------+-----+---------+-------+
| Field     | Type          | Null | Key | Default | Extra |
+-----------+---------------+------+-----+---------+-------+
| ID        | int(7)        | YES  |     | NULL    |       |
| LAST_NAME | varchar(25)   | YES  |     | NULL    |       |
| SALARY    | decimal(10,2) | YES  |     | NULL    |       |
| DEPT_ID   | int(7)        | YES  |     | NULL    |       |
+-----------+---------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

EX 2 MANIPULATING DATA

```
mysql> CREATE TABLE MY_EMPLOYEE (
    -> ID INT(4) NOT NULL,
    -> First_Name VARCHAR(25),
    -> Last_Name VARCHAR(25),
    -> Userid VARCHAR(25),
    -> Salary NUMERIC(9, 2));
Query OK, 0 rows affected (0.01 sec)

mysql> DESC MY_EMPLOYEE;
+------------+--------------+------+-----+---------+-------+
| Field      | Type         | Null | Key | Default | Extra |
+------------+--------------+------+-----+---------+-------+
| ID         | int(4)       | NO   |     | NULL    |       |
| First_Name | varchar(25)  | YES  |     | NULL    |       |
| Last_Name  | varchar(25)  | YES  |     | NULL    |       |
| Userid     | varchar(25)  | YES  |     | NULL    |       |
| Salary     | decimal(9,2) | YES  |     | NULL    |       |
+------------+--------------+------+-----+---------+-------+
5 rows in set (0.01 sec)
```

```
mysql> INSERT INTO MY_EMPLOYEE
    -> VALUES (1, "Ralph", "Patel", "rpatel", 895);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO MY_EMPLOYEE
    -> VALUES (2, "Betty", "Dancs", "bdancs", 860);
Query OK, 1 row affected (0.00 sec)
```

```
mysql> SELECT * FROM MY_EMPLOYEE;
+----+------------+-----------+--------+--------+
| ID | First_Name | Last_Name | Userid | Salary |
+----+------------+-----------+--------+--------+
|  1 | Ralph      | Patel     | rpatel | 895.00 |
|  2 | Betty      | Dancs     | bdancs | 860.00 |
+----+------------+-----------+--------+--------+
2 rows in set (0.00 sec)
```

```
mysql> INSERT INTO MY_EMPLOYEE
    -> VALUES (3, "Ben", "Biri", "bbiri", 1100);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO MY_EMPLOYEE
    -> VALUES (4, "Chad", "Newman", "cnewman", 750);
Query OK, 1 row affected (0.00 sec)
```

```
mysql> COMMIT;
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> UPDATE MY_EMPLOYEE SET Last_Name = "Drexler" WHERE ID = 3;
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM MY_EMPLOYEE;
+----+------------+-----------+---------+---------+
| ID | First_Name | Last_Name | Userid  | Salary  |
+----+------------+-----------+---------+---------+
|  1 | Ralph      | Patel     | rpatel  |  895.00 |
|  2 | Betty      | Dancs     | bdancs  |  860.00 |
|  3 | Ben        | Drexler   | bbiri   | 1100.00 |
|  4 | Chad       | Newman    | cnewman |  750.00 |
+----+------------+-----------+---------+---------+
4 rows in set (0.00 sec)
```

```
mysql> UPDATE MY_EMPLOYEE SET Salary = 1000 WHERE Salary < 900;
Query OK, 3 rows affected (0.00 sec)
Rows matched: 3  Changed: 3  Warnings: 0

mysql> SELECT * FROM MY_EMPLOYEE;
+----+------------+-----------+---------+---------+
| ID | First_Name | Last_Name | Userid  | Salary  |
+----+------------+-----------+---------+---------+
|  1 | Ralph      | Patel     | rpatel  | 1000.00 |
|  2 | Betty      | Dancs     | bdancs  | 1000.00 |
|  3 | Ben        | Drexler   | bbiri   | 1100.00 |
|  4 | Chad       | Newman    | cnewman | 1000.00 |
+----+------------+-----------+---------+---------+
4 rows in set (0.00 sec)
mysql> DELETE FROM MY_EMPLOYEE WHERE First_Name = "Betty" AND Last_Name = "Dancs";
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM MY_EMPLOYEE;
+----+------------+-----------+---------+---------+
| ID | First_Name | Last_Name | Userid  | Salary  |
+----+------------+-----------+---------+---------+
|  1 | Ralph      | Patel     | rpatel  | 1000.00 |
|  3 | Ben        | Drexler   | bbiri   | 1100.00 |
|  4 | Chad       | Newman    | cnewman | 1000.00 |
+----+------------+-----------+---------+---------+
3 rows in set (0.00 sec)
```

```
mysql> DELETE FROM MY_EMPLOYEE WHERE ID = 4;
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM MY_EMPLOYEE;
+----+------------+-----------+--------+---------+
| ID | First_Name | Last_Name | Userid | Salary  |
+----+------------+-----------+--------+---------+
|  1 | Ralph      | Patel     | rpatel | 1000.00 |
|  3 | Ben        | Drexler   | bbiri  | 1100.00 |
+----+------------+-----------+--------+---------+
2 rows in set (0.00 sec)
```

EX 3 INCLUDING CONSTRAINTS

```
mysql> ALTER TABLE EMP
    -> ADD CONSTRAINT my_emp_id_pk PRIMARY KEY (ID);
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC EMP;
+-----------+---------------+------+-----+---------+-------+
| Field     | Type          | Null | Key | Default | Extra |
+-----------+---------------+------+-----+---------+-------+
| ID        | int(7)        | NO   | PRI | 0       |       |
| LAST_NAME | varchar(25)   | YES  |     | NULL    |       |
| SALARY    | decimal(10,2) | YES  |     | NULL    |       |
| DEPT_ID   | int(7)        | YES  |     | NULL    |       |
+-----------+---------------+------+-----+---------+-------+
4 rows in set (0.01 sec)
```

```
mysql> ALTER TABLE DEPT
    -> ADD CONSTRAINT my_dept_id_pk PRIMARY KEY (ID);
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC DEPT;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| ID    | int(7)      | NO   | PRI | 0       |       |
| NAME  | varchar(25) | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

```
mysql> ALTER TABLE EMP
    -> ADD CONSTRAINT my_emp_dept_id_fk
    -> FOREIGN KEY (DEPT_ID) REFERENCES DEPT (ID);
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC EMP;
+-----------+---------------+------+-----+---------+-------+
| Field     | Type          | Null | Key | Default | Extra |
+-----------+---------------+------+-----+---------+-------+
| ID        | int(7)        | NO   | PRI | 0       |       |
| LAST_NAME | varchar(25)   | YES  |     | NULL    |       |
| SALARY    | decimal(10,2) | YES  |     | NULL    |       |
| DEPT_ID   | int(7)        | YES  | MUL | NULL    |       |
+-----------+---------------+------+-----+---------+-------+
4 rows in set (0.01 sec)
```

```
mysql> ALTER TABLE EMP
    -> ADD COMMISSION NUMERIC(2, 2);
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
mysql> ALTER TABLE EMP
    -> ADD CHECK (COMMISSION > 0);
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC EMP;
+------------+---------------+------+-----+---------+-------+
| Field      | Type          | Null | Key | Default | Extra |
+------------+---------------+------+-----+---------+-------+
| ID         | int(7)        | NO   | PRI | 0       |       |
| LAST_NAME  | varchar(25)   | YES  |     | NULL    |       |
| SALARY     | decimal(10,2) | YES  |     | NULL    |       |
| DEPT_ID    | int(7)        | YES  | MUL | NULL    |       |
| COMMISSION | decimal(2,2)  | YES  |     | NULL    |       |
+------------+---------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

EX 4 WRITING BASIC SQL SELECT STATEMENTS

```
mysql> SELECT Employee_id, Last_Name, Salary * 12 "ANNUAL SALARY"
    -> FROM EMPLOYEES;
+-------------+-----------+---------------+
| Employee_id | Last_Name | ANNUAL SALARY |
+-------------+-----------+---------------+
|         100 | King      |     288000.00 |
|         101 | Kochhar   |     204000.00 |
|         102 | Dehaan    |     204000.00 |
|         103 | Hurnld    |     108000.00 |
|         104 | Ernst     |      72000.00 |
|         107 | Lorentz   |      50400.00 |
|         124 | Mourgas   |      69600.00 |
|         141 | D' Souza  |      42000.00 |
|         142 | Dravis    |      37200.00 |
|         143 | Martin    |      31200.00 |
|         144 | Vargese   |      30000.00 |
|         145 | Roy       |     600000.00 |
|         149 | Zlotkey   |     126000.00 |
|         176 | Taylor    |     486000.00 |
+-------------+-----------+---------------+
14 rows in set (0.00 sec)
```

```
mysql> DESC DEPARTMENT;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Dept_id     | int(6)      | NO   |     | NULL    |       |
| Dept_name   | varchar(20) | NO   |     | NULL    |       |
| Manager_id  | int(6)      | YES  |     | NULL    |       |
| Location_id | int(4)      | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.02 sec)

mysql> SELECT * FROM DEPARTMENT;
+---------+----------------+------------+-------------+
| Dept_id | Dept_name      | Manager_id | Location_id |
+---------+----------------+------------+-------------+
|      10 | Administration |        200 |        1700 |
|      20 | Marketing      |        201 |        1800 |
|      50 | Shipping       |        124 |        1500 |
|      60 | IT             |        103 |        1400 |
|      80 | Sales          |        149 |        2500 |
|      90 | Executive      |        100 |        1700 |
|     110 | Accounting     |        205 |        1700 |
|      90 | Contracting    |          0 |        1700 |
+---------+----------------+------------+-------------+
8 rows in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Job_id, Hire_date AS STARTDATE
    -> FROM EMPLOYEES;
+-----------+----------+------------+
| Last_Name | Job_id   | STARTDATE  |
+-----------+----------+------------+
| King      | ad_pres  | 1989-06-17 |
| Kochhar   | ad_vp    | 1987-09-21 |
| Dehaan    | ad_vp    | 1993-01-13 |
| Hurnld    | it_prog  | 1993-01-03 |
| Ernst     | it_prog  | 1991-05-21 |
| Lorentz   | it_prog  | 1999-02-07 |
| Mourgas   | st_man   | 1999-11-16 |
| D' Souza  | st_clerk | 1995-10-17 |
| Dravis    | st_clerk | 1997-01-27 |
| Martin    | st_clerk | 1998-03-15 |
| Vargese   | st_clerk | 1998-07-09 |
| Roy       | sa_exec  | 2004-09-13 |
| Zlotkey   | sa_man   | 2000-01-29 |
| Taylor    | sa_rep   | 2002-03-24 |
+-----------+----------+------------+
14 rows in set (0.00 sec)
```

```
mysql> SELECT DISTINCT Job_id
    -> FROM EMPLOYEES;
+----------+
| Job_id   |
+----------+
| ad_pres  |
| ad_vp    |
| it_prog  |
| st_man   |
| st_clerk |
| sa_exec  |
| sa_man   |
| sa_rep   |
+----------+
8 rows in set (0.00 sec)
```

```
mysql> SELECT CONCAT(Last_Name, ", ", Job_id) AS "EMPLOYEE AND TITLE"
    -> FROM EMPLOYEES;
+--------------------+
| EMPLOYEE AND TITLE |
+--------------------+
| King, ad_pres      |
| Kochhar, ad_vp     |
| Dehaan, ad_vp      |
| Hurnld, it_prog    |
| Ernst, it_prog     |
| Lorentz, it_prog   |
| Mourgas, st_man    |
| D' Souza, st_clerk |
| Dravis, st_clerk   |
| Martin, st_clerk   |
| Vargese, st_clerk  |
| Roy, sa_exec       |
| Zlotkey, sa_man    |
| Taylor, sa_rep     |
+--------------------+
14 rows in set (0.00 sec)
```

```
mysql> SELECT CONCAT(Employee_id, ", ", First_Name, ", ", Last_Name, ", ", Email, ", ", Phone_Number, ", ", Hire_date, ", ", Job_id, ", ", Salary, ", ", Commission_pct,
 ", ", Manager_id, ", ", Department_id) AS THE_OUTPUT
   -> FROM EMPLOYEES;
+-----------------------------------------------------------------------------------------+
| THE_OUTPUT                                                                              |
+-----------------------------------------------------------------------------------------+
| NULL                                                                                    |
| NULL                                                                                    |
| NULL                                                                                    |
| 103, Alexander, Hurnld, ahurnld, 98765 01432, 1993-01-03, it_prog, 9000.00, 0.20, 102, 60 |
| NULL                                                                                    |
| NULL                                                                                    |
| 124, Kevin, Mourgas, kmourgas, 98765 02341, 1999-11-16, st_man, 5800.00, 0.10, 100, 50  |
| NULL                                                                                    |
| NULL                                                                                    |
| NULL                                                                                    |
| NULL                                                                                    |
| 145, Samridhi, Roy, sroy, 98765 40123, 2004-09-13, sa_exec, 50000.00, 0.50, 113, 90     |
| 149, Eleni, Zlotkey, ezlotkey, 98765 40132, 2000-01-29, sa_man, 10500.00, 0.20, 100, 80 |
| 176, Jonathan, Taylor, jtaylor, 98765 40213, 2002-03-24, sa_rep, 40500.00, 0.30, 149, 80 |
+-----------------------------------------------------------------------------------------+
14 rows in set (0.00 sec)
```

EX 5 RESTRICTING AND SORTING DATA

```
mysql> SELECT Last_Name, Salary
    -> FROM EMPLOYEES
    -> WHERE Salary > 12000;
+-----------+----------+
| Last_Name | Salary   |
+-----------+----------+
| King      | 24000.00 |
| Kochhar   | 17000.00 |
| Dehaan    | 17000.00 |
| Roy       | 50000.00 |
| Taylor    | 40500.00 |
+-----------+----------+
5 rows in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Department_id
    -> FROM EMPLOYEES
    -> WHERE Employee_id = 176;
+-----------+---------------+
| Last_Name | Department_id |
+-----------+---------------+
| Taylor    |            80 |
+-----------+---------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Salary
    -> FROM EMPLOYEES
    -> WHERE Salary NOT BETWEEN 5000 AND 12000;
+-----------+----------+
| Last_Name | Salary   |
+-----------+----------+
| King      | 24000.00 |
| Kochhar   | 17000.00 |
| Dehaan    | 17000.00 |
| Lorentz   |  4200.00 |
| D' Souza  |  3500.00 |
| Dravis    |  3100.00 |
| Martin    |  2600.00 |
| Vargese   |  2500.00 |
| Roy       | 50000.00 |
| Taylor    | 40500.00 |
+-----------+----------+
10 rows in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Job_id, Hire_date
    -> FROM EMPLOYEES
    -> WHERE Hire_date BETWEEN "1998-02-20" AND "1998-05-01"
    -> ORDER BY Hire_date ASC;
+-----------+----------+------------+
| Last_Name | Job_id   | Hire_date  |
+-----------+----------+------------+
| Martin    | st_clerk | 1998-03-15 |
+-----------+----------+------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Department_id
    -> FROM EMPLOYEES
    -> WHERE Department_id IN(20, 50)
    -> ORDER BY Last_Name ASC;
+-----------+---------------+
| Last_Name | Department_id |
+-----------+---------------+
| D' Souza  |            50 |
| Dravis    |            50 |
| Martin    |            50 |
| Mourgas   |            50 |
| Vargese   |            50 |
+-----------+---------------+
5 rows in set (0.01 sec)
```

```
mysql> SELECT Last_Name AS EMPLOYEE, Salary AS MONTHLY_SALARY
    -> FROM EMPLOYEES
    -> WHERE Salary BETWEEN 5000 AND 12000
    -> AND Department_ID IN(20, 50)
    -> ORDER BY Last_Name ASC;
+----------+----------------+
| EMPLOYEE | MONTHLY_SALARY |
+----------+----------------+
| Mourgas  |        5800.00 |
+----------+----------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Hire_date
    -> FROM EMPLOYEES
    -> WHERE Hire_date LIKE "1994-__-__";
Empty set, 1 warning (0.00 sec)
```

```
mysql> SELECT Last_Name, Job_id
    -> FROM EMPLOYEES
    -> WHERE Manager_id IS NULL;
+-----------+---------+
| Last_Name | Job_id  |
+-----------+---------+
| King      | ad_pres |
+-----------+---------+
1 row in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Salary, Commission_pct
    -> FROM EMPLOYEES
    -> WHERE Commission_pct IS NOT NULL
    -> ORDER BY Salary, Commission_pct DESC;
+-----------+----------+----------------+
| Last_Name | Salary   | Commission_pct |
+-----------+----------+----------------+
| Mourgas   |  5800.00 |           0.10 |
| Hurnld    |  9000.00 |           0.20 |
| Zlotkey   | 10500.00 |           0.20 |
| Taylor    | 40500.00 |           0.30 |
| Roy       | 50000.00 |           0.50 |
+-----------+----------+----------------+
5 rows in set (0.00 sec)
```

```
mysql> SELECT Last_Name
    -> FROM EMPLOYEES
    -> WHERE Last_Name LIKE "__a%";
+-----------+
| Last_Name |
+-----------+
| Dravis    |
+-----------+
1 row in set (0.00 sec)
```

```
mysql> SELECT Last_Name
    -> FROM EMPLOYEES
    -> WHERE Last_Name LIKE "%a%e%";
+-----------+
| Last_Name |
+-----------+
| Vargese   |
+-----------+
1 row in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Job_id, Salary
    -> FROM EMPLOYEES
    -> WHERE Job_id IN ("sa_rep", "st_clerk")
    -> AND Salary NOT IN (2500, 3500, 7000);
+-----------+----------+----------+
| Last_Name | Job_id   | Salary   |
+-----------+----------+----------+
| Dravis    | st_clerk |  3100.00 |
| Martin    | st_clerk |  2600.00 |
| Taylor    | sa_rep   | 40500.00 |
+-----------+----------+----------+
3 rows in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Salary, Commission_pct
    -> FROM EMPLOYEES
    -> WHERE Commission_pct = .2;
+-----------+----------+----------------+
| Last_Name | Salary   | Commission_pct |
+-----------+----------+----------------+
| Hurnld    |  9000.00 |           0.20 |
| Zlotkey   | 10500.00 |           0.20 |
+-----------+----------+----------------+
2 rows in set (0.00 sec)
```

EX 6 SINGLE ROW FUNCTIONS

```
mysql> SELECT CURRENT_DATE() AS Date;
+------------+
| Date       |
+------------+
| 2024-04-02 |
+------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT Employee_id, Last_Name, Salary, ROUND((Salary * 115.5 / 100), 2) "NEW SALARY", ROUND(Salary * 15.5, 2) "INCREASE"
    -> FROM EMPLOYEES;
+-------------+-----------+----------+------------+-----------+
| Employee_id | Last_Name | Salary   | NEW SALARY | INCREASE  |
+-------------+-----------+----------+------------+-----------+
|         100 | King      | 24000.00 |   27720.00 | 372000.00 |
|         101 | Kochhar   | 17000.00 |   19635.00 | 263500.00 |
|         102 | Dehaan    | 17000.00 |   19635.00 | 263500.00 |
|         103 | Hurnld    |  9000.00 |   10395.00 | 139500.00 |
|         104 | Ernst     |  6000.00 |    6930.00 |  93000.00 |
|         107 | Lorentz   |  4200.00 |    4851.00 |  65100.00 |
|         124 | Mourgas   |  5800.00 |    6699.00 |  89900.00 |
|         141 | D' Souza  |  3500.00 |    4042.50 |  54250.00 |
|         142 | Dravis    |  3100.00 |    3580.50 |  48050.00 |
|         143 | Martin    |  2600.00 |    3003.00 |  40300.00 |
|         144 | Vargese   |  2500.00 |    2887.50 |  38750.00 |
|         145 | Roy       | 50000.00 |   57750.00 | 775000.00 |
|         149 | Zlotkey   | 10500.00 |   12127.50 | 162750.00 |
|         176 | Taylor    | 40500.00 |   46777.50 | 627750.00 |
+-------------+-----------+----------+------------+-----------+
14 rows in set (0.00 sec)
```

```
mysql> SELECT CONCAT(UPPER(SUBSTRING(Last_Name, 1, 1)), SUBSTRING(Last_Name, 2, 25)) "Name", LENGTH(Last_Name) "Length"
    -> FROM EMPLOYEES
    -> WHERE Last_Name LIKE "J%"
    -> OR Last_Name LIKE "A%"
    -> OR Last_Name LIKE "M%";
+---------+--------+
| Name    | Length |
+---------+--------+
| Mourgas |      7 |
| Martin  |      6 |
+---------+--------+
2 rows in set (0.00 sec)
```

```
mysql> SELECT Last_Name, ROUND(TIMESTAMPDIFF(MONTH, Hire_date, SYSDATE())) AS MONTHS_WORKED
    -> FROM EMPLOYEES
    -> ORDER BY TIMESTAMPDIFF(MONTH, Hire_date, SYSDATE());
+-----------+---------------+
| Last_Name | MONTHS_WORKED |
+-----------+---------------+
| Roy       |           234 |
| Taylor    |           264 |
| Zlotkey   |           289 |
| Mourgas   |           292 |
| Lorentz   |           301 |
| Vargese   |           308 |
| Martin    |           312 |
| Dravis    |           325 |
| D' Souza  |           341 |
| Dehaan    |           374 |
| Hurnld    |           374 |
| Ernst     |           394 |
| King      |           417 |
| Kochhar   |           438 |
+-----------+---------------+
14 rows in set (0.00 sec)
```

```
mysql> SELECT Last_Name, "earns", Salary, "monthly but wants", 3 * Salary AS "Dream Salaries"
    -> FROM EMPLOYEES;
+-----------+-------+----------+-------------------+----------------+
| Last_Name | earns | Salary   | monthly but wants | Dream Salaries |
+-----------+-------+----------+-------------------+----------------+
| King      | earns | 24000.00 | monthly but wants |       72000.00 |
| Kochhar   | earns | 17000.00 | monthly but wants |       51000.00 |
| Dehaan    | earns | 17000.00 | monthly but wants |       51000.00 |
| Hurnld    | earns |  9000.00 | monthly but wants |       27000.00 |
| Ernst     | earns |  6000.00 | monthly but wants |       18000.00 |
| Lorentz   | earns |  4200.00 | monthly but wants |       12600.00 |
| Mourgas   | earns |  5800.00 | monthly but wants |       17400.00 |
| D' Souza  | earns |  3500.00 | monthly but wants |       10500.00 |
| Dravis    | earns |  3100.00 | monthly but wants |        9300.00 |
| Martin    | earns |  2600.00 | monthly but wants |        7800.00 |
| Vargese   | earns |  2500.00 | monthly but wants |        7500.00 |
| Roy       | earns | 50000.00 | monthly but wants |      150000.00 |
| Zlotkey   | earns | 10500.00 | monthly but wants |       31500.00 |
| Taylor    | earns | 40500.00 | monthly but wants |      121500.00 |
+-----------+-------+----------+-------------------+----------------+
14 rows in set (0.00 sec)
```

```
mysql> SELECT Last_Name, LPAD(Salary, 15, "$") AS SALARY
    -> FROM EMPLOYEES;
+-----------+-----------------+
| Last_Name | SALARY          |
+-----------+-----------------+
| King      | $$$$$$$24000.00 |
| Kochhar   | $$$$$$$17000.00 |
| Dehaan    | $$$$$$$17000.00 |
| Hurnld    | $$$$$$$$9000.00 |
| Ernst     | $$$$$$$$6000.00 |
| Lorentz   | $$$$$$$$4200.00 |
| Mourgas   | $$$$$$$$5800.00 |
| D' Souza  | $$$$$$$$3500.00 |
| Dravis    | $$$$$$$$3100.00 |
| Martin    | $$$$$$$$2600.00 |
| Vargese   | $$$$$$$$2500.00 |
| Roy       | $$$$$$$50000.00 |
| Zlotkey   | $$$$$$$10500.00 |
| Taylor    | $$$$$$$40500.00 |
+-----------+-----------------+
14 rows in set (0.01 sec)
```

```
mysql> SELECT Last_Name, DATE_FORMAT(ADDDATE(Hire_date, Interval 6 MONTH), "%W, the %D of %M, %Y") AS REVIEW
    -> FROM EMPLOYEES;
+-----------+-----------------------------------+
| Last_Name | REVIEW                            |
+-----------+-----------------------------------+
| King      | Sunday, the 17th of December, 1989   |
| Kochhar   | Monday, the 21st of March, 1988      |
| Dehaan    | Tuesday, the 13th of July, 1993      |
| Hurnld    | Saturday, the 3rd of July, 1993      |
| Ernst     | Thursday, the 21st of November, 1991 |
| Lorentz   | Saturday, the 7th of August, 1999    |
| Mourgas   | Tuesday, the 16th of May, 2000       |
| D' Souza  | Wednesday, the 17th of April, 1996   |
| Dravis    | Sunday, the 27th of July, 1997       |
| Martin    | Tuesday, the 15th of September, 1998 |
| Vargese   | Saturday, the 9th of January, 1999   |
| Roy       | Sunday, the 13th of March, 2005      |
| Zlotkey   | Saturday, the 29th of July, 2000     |
| Taylor    | Tuesday, the 24th of September, 2002 |
+-----------+-----------------------------------+
14 rows in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Hire_date, DATE_FORMAT(Hire_date, "%W") AS DAY
    -> FROM EMPLOYEES
    -> ORDER BY DAYOFWEEK(Hire_date);
+-----------+------------+-----------+
| Last_Name | Hire_date  | DAY       |
+-----------+------------+-----------+
| Hurnld    | 1993-01-03 | Sunday    |
| Lorentz   | 1999-02-07 | Sunday    |
| Martin    | 1998-03-15 | Sunday    |
| Taylor    | 2002-03-24 | Sunday    |
| Kochhar   | 1987-09-21 | Monday    |
| Dravis    | 1997-01-27 | Monday    |
| Roy       | 2004-09-13 | Monday    |
| Ernst     | 1991-05-21 | Tuesday   |
| Mourgas   | 1999-11-16 | Tuesday   |
| D' Souza  | 1995-10-17 | Tuesday   |
| Dehaan    | 1993-01-13 | Wednesday |
| Vargese   | 1998-07-09 | Thursday  |
| King      | 1989-06-17 | Saturday  |
| Zlotkey   | 2000-01-29 | Saturday  |
+-----------+------------+-----------+
14 rows in set (0.02 sec)
```

EX 7 DISPLAYING DATA FROM MULTIPLE TABLES

```
mysql> SELECT e.Last_Name, e.Department_id, d.Dept_name
    -> FROM EMPLOYEES e
    -> LEFT OUTER JOIN DEPARTMENT d
    -> ON (e.Department_id = d.Dept_id);
+-----------+---------------+-----------+
| Last_Name | Department_id | Dept_name |
+-----------+---------------+-----------+
| King      |            90 | Executive |
| Kochhar   |            90 | Executive |
| Dehaan    |            90 | Executive |
| Hurnld    |            60 | IT        |
| Ernst     |            60 | IT        |
| Lorentz   |            60 | IT        |
| Mourgas   |            50 | Shipping  |
| D' Souza  |            50 | Shipping  |
| Dravis    |            50 | Shipping  |
| Martin    |            50 | Shipping  |
| Vargese   |            50 | Shipping  |
| Roy       |            90 | Executive |
| Zlotkey   |            80 | Sales     |
| Taylor    |            80 | Sales     |
+-----------+---------------+-----------+
14 rows in set (0.00 sec)
```

```
mysql> SELECT DISTINCT Job_id, Location_id
    -> FROM EMPLOYEES, DEPARTMENT
    -> WHERE EMPLOYEES.Department_id = DEPARTMENT.Dept_id
    -> AND EMPLOYEES.Department_id = 80;
+--------+-------------+
| Job_id | Location_id |
+--------+-------------+
| sa_man |        2500 |
| sa_rep |        2500 |
+--------+-------------+
2 rows in set (0.00 sec)
```

```
mysql> SELECT e.Last_Name, d.Dept_name, d.Location_id, l.City
    -> FROM EMPLOYEES e, DEPARTMENT d, LOCATION l
    -> WHERE e.Department_id = d.Dept_id
    -> AND d.Location_id = l.Location_id
    -> AND e.Commission_pct IS NOT NULL;
+-----------+-----------+-------------+---------+
| Last_Name | Dept_name | Location_id | City    |
+-----------+-----------+-------------+---------+
| Hurnld    | IT        |        1400 | Chennai |
| Mourgas   | Shipping  |        1500 | Chennai |
+-----------+-----------+-------------+---------+
2 rows in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Dept_name
    -> FROM EMPLOYEES, DEPARTMENT
    -> WHERE EMPLOYEES.Department_id = DEPARTMENT.Dept_id
    -> AND Last_Name LIKE "%a%";
+-----------+-----------+
| Last_Name | Dept_name |
+-----------+-----------+
| Vargese   | Shipping  |
| Martin    | Shipping  |
| Dravis    | Shipping  |
| D' Souza  | Shipping  |
| Mourgas   | Shipping  |
| Taylor    | Sales     |
| Dehaan    | Executive |
| Kochhar   | Executive |
+-----------+-----------+
8 rows in set (0.00 sec)
```

```
mysql> SELECT e.Last_Name, e.Job_id, e.Department_id, d.Dept_name
   -> FROM EMPLOYEES e
   -> JOIN DEPARTMENT d ON e.Department_id = d.Dept_id
   -> WHERE d.Location_id IN (SELECT Location_id FROM LOCATION WHERE City = "Toronto");
Empty set (0.02 sec)
```

```
mysql> SELECT e.Last_Name "Employee", e.Employee_id "Emp#", m.Last_name "Manager", m.Employee_id "Mgr#"
    -> FROM EMPLOYEES e
    -> JOIN EMPLOYEES m on (e.Employee_id = m.Employee_id);
+----------+------+----------+------+
| Employee | Emp# | Manager  | Mgr# |
+----------+------+----------+------+
| King     |  100 | King     |  100 |
| Kochhar  |  101 | Kochhar  |  101 |
| Dehaan   |  102 | Dehaan   |  102 |
| Hurnld   |  103 | Hurnld   |  103 |
| Ernst    |  104 | Ernst    |  104 |
| Lorentz  |  107 | Lorentz  |  107 |
| Mourgas  |  124 | Mourgas  |  124 |
| D' Souza |  141 | D' Souza |  141 |
| Dravis   |  142 | Dravis   |  142 |
| Martin   |  143 | Martin   |  143 |
| Vargese  |  144 | Vargese  |  144 |
| Roy      |  145 | Roy      |  145 |
| Zlotkey  |  149 | Zlotkey  |  149 |
| Taylor   |  176 | Taylor   |  176 |
+----------+------+----------+------+
14 rows in set (0.00 sec)
```

```
mysql> SELECT e.Last_Name "Employee", e.Employee_id "Emp#", m.Last_name "Manager", m.Employee_id "Mgr#"
    -> FROM EMPLOYEES e
    -> JOIN EMPLOYEES m on (e.Employee_id = m.Employee_id)
    -> ORDER BY e.Employee_id;
+----------+------+----------+------+
| Employee | Emp# | Manager  | Mgr# |
+----------+------+----------+------+
| King     |  100 | King     |  100 |
| Kochhar  |  101 | Kochhar  |  101 |
| Dehaan   |  102 | Dehaan   |  102 |
| Hurnld   |  103 | Hurnld   |  103 |
| Ernst    |  104 | Ernst    |  104 |
| Lorentz  |  107 | Lorentz  |  107 |
| Mourgas  |  124 | Mourgas  |  124 |
| D' Souza |  141 | D' Souza |  141 |
| Dravis   |  142 | Dravis   |  142 |
| Martin   |  143 | Martin   |  143 |
| Vargese  |  144 | Vargese  |  144 |
| Roy      |  145 | Roy      |  145 |
| Zlotkey  |  149 | Zlotkey  |  149 |
| Taylor   |  176 | Taylor   |  176 |
+----------+------+----------+------+
14 rows in set (0.00 sec)
```

```
mysql> SELECT e.Last_Name "Employee", e.Department_id "Department", c.Last_Name "Colleague"
    -> FROM EMPLOYEES e
    -> JOIN EMPLOYEES c ON (e.Department_id = c.Department_id)
    -> WHERE e.Employee_id <> c.Employee_id
    -> ORDER BY e.Last_Name, e.Department_id, c.Last_Name;
+----------+------------+-----------+
| Employee | Department | Colleague |
+----------+------------+-----------+
| D' Souza |         50 | Dravis    |
| D' Souza |         50 | Martin    |
| D' Souza |         50 | Mourgas   |
| D' Souza |         50 | Vargese   |
| Dehaan   |         90 | King      |
| Dehaan   |         90 | Kochhar   |
| Dehaan   |         90 | Roy       |
| Dravis   |         50 | D' Souza  |
| Dravis   |         50 | Martin    |
| Dravis   |         50 | Mourgas   |
| Dravis   |         50 | Vargese   |
| Ernst    |         60 | Hurnld    |
| Ernst    |         60 | Lorentz   |
| Hurnld   |         60 | Ernst     |
| Hurnld   |         60 | Lorentz   |
| King     |         90 | Dehaan    |
| King     |         90 | Kochhar   |
| King     |         90 | Roy       |
| Kochhar  |         90 | Dehaan    |
| Kochhar  |         90 | King      |
| Kochhar  |         90 | Roy       |
| Lorentz  |         60 | Ernst     |
| Lorentz  |         60 | Hurnld    |
| Martin   |         50 | D' Souza  |
| Martin   |         50 | Dravis    |
| Martin   |         50 | Mourgas   |
| Martin   |         50 | Vargese   |
| Mourgas  |         50 | D' Souza  |
| Mourgas  |         50 | Dravis    |
| Mourgas  |         50 | Martin    |
| Mourgas  |         50 | Vargese   |
| Roy      |         90 | Dehaan    |
| Roy      |         90 | King      |
| Roy      |         90 | Kochhar   |
| Taylor   |         80 | Zlotkey   |
| Vargese  |         50 | D' Souza  |
| Vargese  |         50 | Dravis    |
| Vargese  |         50 | Martin    |
| Vargese  |         50 | Mourgas   |
| Zlotkey  |         80 | Taylor    |
+----------+------------+-----------+
40 rows in set (0.00 sec)
```

```
mysql> DESC JOB_GRADE;
+-------------+---------------+------+-----+---------+-------+
| Field       | Type          | Null | Key | Default | Extra |
+-------------+---------------+------+-----+---------+-------+
| Grade_level | varchar(2)    | YES  |     | NULL    |       |
| Least_sal   | decimal(8,2)  | YES  |     | NULL    |       |
| Highest_sal | decimal(10,2) | YES  |     | NULL    |       |
+-------------+---------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

```
mysql> SELECT e.Last_Name "Name", e.Job_id "Job", d.Dept_name "Department Name", e.Salary "Salary", j.Grade_level
    -> FROM EMPLOYEES e
    -> JOIN DEPARTMENT d ON (e.Department_id = d.Dept_id)
    -> JOIN JOB_GRADE j ON (e.Salary > j.Least_sal) AND (e.Salary <= j.Highest_sal);
+----------+----------+-----------------+----------+-------------+
| Name     | Job      | Department Name | Salary   | Grade_level |
+----------+----------+-----------------+----------+-------------+
| Vargese  | st_clerk | Shipping        |  2500.00 | A           |
| Martin   | st_clerk | Shipping        |  2600.00 | A           |
| Dravis   | st_clerk | Shipping        |  3100.00 | B           |
| D' Souza | st_clerk | Shipping        |  3500.00 | B           |
| Mourgas  | st_man   | Shipping        |  5800.00 | B           |
| Lorentz  | it_prog  | IT              |  4200.00 | B           |
| Hurnld   | it_prog  | IT              |  9000.00 | C           |
| Zlotkey  | sa_man   | Sales           | 10500.00 | D           |
| Dehaan   | ad_vp    | Executive       | 17000.00 | E           |
| Kochhar  | ad_vp    | Executive       | 17000.00 | E           |
| King     | ad_pres  | Executive       | 24000.00 | E           |
+----------+----------+-----------------+----------+-------------+
11 rows in set (0.05 sec)
```

```
mysql> SELECT e.Last_Name, e.Hire_date
    -> FROM EMPLOYEES e, EMPLOYEES d
    -> WHERE d.Last_Name = "Dravis"
    -> AND e.Hire_date < d.Hire_date;
+-----------+-------------+
| Last_Name | Hire_date   |
+-----------+-------------+
| King      | 1989-06-17 |
| Kochhar   | 1987-09-21 |
| Dehaan    | 1993-01-13 |
| Hurnld    | 1993-01-03 |
| Ernst     | 1991-05-21 |
| D' Souza  | 1995-10-17 |
+-----------+-------------+
6 rows in set (0.00 sec)
```

```
mysql> SELECT e.Last_Name "Employee", e. Hire_date "Emp Hired", m.Last_Name "Manager", m.Hire_date "Mgr Hired"
    -> FROM EMPLOYEES e, EMPLOYEES m
    -> WHERE e.Manager_id = m.Employee_id
    -> AND e.Hire_date < m.Hire_date;
+----------+------------+---------+------------+
| Employee | Emp Hired  | Manager | Mgr Hired  |
+----------+------------+---------+------------+
| Kochhar  | 1987-09-21 | King    | 1989-06-17 |
| Hurnld   | 1993-01-03 | Dehaan  | 1993-01-13 |
| Ernst    | 1991-05-21 | Hurnld  | 1993-01-03 |
| D' Souza | 1995-10-17 | Mourgas | 1999-11-16 |
| Dravis   | 1997-01-27 | Mourgas | 1999-11-16 |
| Martin   | 1998-03-15 | Mourgas | 1999-11-16 |
| Vargese  | 1998-07-09 | Mourgas | 1999-11-16 |
+----------+------------+---------+------------+
7 rows in set (0.02 sec)
```

EX 8 AGGREGATING DATA USING GROUP FUNCTIONS

```
mysql> SELECT ROUND(MAX(Salary), 0) "Maximum", ROUND(MIN(Salary), 0) "Minimum", ROUND(SUM(Salary), 0) "Sum", ROUND(AVG(Salary), 0) "Average"
    -> FROM EMPLOYEES;
+---------+---------+--------+---------+
| Maximum | Minimum | Sum    | Average |
+---------+---------+--------+---------+
|   50000 |    2500 | 195700 |   13979 |
+---------+---------+--------+---------+
1 row in set (0.01 sec)
```

```
mysql> SELECT ROUND(MAX(Salary), 0) "Maximum", ROUND(MIN(Salary), 0) "Minimum", ROUND(SUM(Salary), 0) "Sum", ROUND(AVG(Salary), 0) "Average"
    -> FROM EMPLOYEES
    -> GROUP BY Job_id;
+---------+---------+-------+---------+
| Maximum | Minimum | Sum   | Average |
+---------+---------+-------+---------+
|   24000 |   24000 | 24000 |   24000 |
|   17000 |   17000 | 34000 |   17000 |
|    9000 |    4200 | 19200 |    6400 |
|   50000 |   50000 | 50000 |   50000 |
|   10500 |   10500 | 10500 |   10500 |
|   40500 |   40500 | 40500 |   40500 |
|    3500 |    2500 | 11700 |    2925 |
|    5800 |    5800 |  5800 |    5800 |
+---------+---------+-------+---------+
8 rows in set (0.01 sec)
```

```
mysql> SELECT Job_id, COUNT(*)
    -> FROM EMPLOYEES
    -> GROUP BY Job_id;
+----------+----------+
| Job_id   | COUNT(*) |
+----------+----------+
| ad_pres  |        1 |
| ad_vp    |        2 |
| it_prog  |        3 |
| sa_exec  |        1 |
| sa_man   |        1 |
| sa_rep   |        1 |
| st_clerk |        4 |
| st_man   |        1 |
+----------+----------+
8 rows in set (0.00 sec)
```

```
mysql> SELECT COUNT(DISTINCT Manager_id) "Number of Managers"
    -> FROM EMPLOYEES;
+--------------------+
| Number of Managers |
+--------------------+
|                  6 |
+--------------------+
1 row in set (0.01 sec)
```

```
mysql> SELECT MAX(Salary) - MIN(Salary) "DIFFERENCE"
    -> FROM EMPLOYEES;
+------------+
| DIFFERENCE |
+------------+
|   47500.00 |
+------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT Manager_id, MIN(Salary)
    -> FROM EMPLOYEES
    -> WHERE Manager_id IS NOT NULL
    -> GROUP BY Manager_id
    -> HAVING MIN(Salary) <= 6000
    -> ORDER BY MIN(Salary);
+------------+-------------+
| Manager_id | MIN(Salary) |
+------------+-------------+
|        124 |     2500.00 |
|        103 |     4200.00 |
|        100 |     5800.00 |
+------------+-------------+
3 rows in set (0.01 sec)
```

```
mysql> SELECT
    -> COUNT(*) "Total Employees",
    -> SUM(IF(YEAR(Hire_date) = 1995, 1, 0)) "1995 Hired Employees",
    -> SUM(IF(YEAR(Hire_date) = 1996, 1, 0)) "1996 Hired Employees",
    -> SUM(IF(YEAR(Hire_date) = 1997, 1, 0)) "1997 Hired Employees",
    -> SUM(IF(YEAR(Hire_date) = 1998, 1, 0)) "1998 Hired Employees"
    -> FROM EMPLOYEES;
+-----------------+----------------------+----------------------+----------------------+----------------------+
| Total Employees | 1995 Hired Employees | 1996 Hired Employees | 1997 Hired Employees | 1998 Hired Employees |
+-----------------+----------------------+----------------------+----------------------+----------------------+
|              14 |                    1 |                    0 |                    1 |                    2 |
+-----------------+----------------------+----------------------+----------------------+----------------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT Job_id "Job", Department_id, MAX(Salary) "Salary for Department", SUM(Salary) "Total Salary for Job"
    -> FROM EMPLOYEES
    -> WHERE Department_id IN (20, 50, 80, 90)
    -> GROUP BY Job_id, Department_id;
+----------+---------------+-----------------------+---------------------+
| Job      | Department_id | Salary for Department | Total Salary for Job |
+----------+---------------+-----------------------+---------------------+
| ad_pres  |            90 |              24000.00 |             24000.00 |
| ad_vp    |            90 |              17000.00 |             34000.00 |
| sa_exec  |            90 |              50000.00 |             50000.00 |
| sa_man   |            80 |              10500.00 |             10500.00 |
| sa_rep   |            80 |              40500.00 |             40500.00 |
| st_clerk |            50 |               3500.00 |             11700.00 |
| st_man   |            50 |               5800.00 |              5800.00 |
+----------+---------------+-----------------------+---------------------+
7 rows in set (0.00 sec)
```

```
mysql> SELECT d.Dept_name "Department Name", l.City "Location", COUNT(e.Employee_id) "Number of People", ROUND(AVG(e.Salary), 2) "Salary"
    -> FROM DEPARTMENT d
    -> JOIN  EMPLOYEES e ON d.Dept_id = e.Department_id
    -> JOIN LOCATION l ON d.Location_id = l.Location_id
    -> GROUP BY d.Dept_name, d.Location_id;
+-----------------+----------+-----------------+---------+
| Department Name | Location | Number of People | Salary  |
+-----------------+----------+-----------------+---------+
| IT              | Chennai  |               3 | 6400.00 |
| Shipping        | Chennai  |               5 | 3500.00 |
+-----------------+----------+-----------------+---------+
2 rows in set (0.00 sec)
```

EX 9 SUB QUERIES

```
mysql> SELECT Last_Name, Hire_date
    -> FROM EMPLOYEES
    -> WHERE Department_id = (SELECT Department_id
    -> FROM EMPLOYEES
    -> WHERE Last_Name = "Zlotkey")
    -> AND Last_Name <> "Zlotkey";
+-----------+------------+
| Last_Name | Hire_date  |
+-----------+------------+
| Taylor    | 2002-03-24 |
+-----------+------------+
1 row in set (0.01 sec)
```

```
mysql> SELECT Employee_id, Last_Name, Salary
    -> FROM EMPLOYEES
    -> WHERE Salary > (SELECT AVG(Salary)
    -> FROM EMPLOYEES)
    -> ORDER BY Salary;
+-------------+-----------+----------+
| Employee_id | Last_Name | Salary   |
+-------------+-----------+----------+
|         101 | Kochhar   | 17000.00 |
|         102 | Dehaan    | 17000.00 |
|         100 | King      | 24000.00 |
|         176 | Taylor    | 40500.00 |
|         145 | Roy       | 50000.00 |
+-------------+-----------+----------+
5 rows in set (0.00 sec)
```

```
mysql> SELECT Employee_id, Last_Name
    -> FROM EMPLOYEES
    -> WHERE Department_id IN (SELECT Department_id
    -> FROM EMPLOYEES
    -> WHERE Last_Name LIKE "%u%");
+-------------+-----------+
| Employee_id | Last_Name |
+-------------+-----------+
|         103 | Hurnld    |
|         104 | Ernst     |
|         107 | Lorentz   |
|         124 | Mourgas   |
|         141 | D' Souza  |
|         142 | Dravis    |
|         143 | Martin    |
|         144 | Vargese   |
+-------------+-----------+
8 rows in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Department_id, Job_id
    -> FROM EMPLOYEES
    -> WHERE Department_id IN (SELECT Department_id
    -> FROM DEPARTMENT
    -> WHERE Location_id = 1700);
+-----------+---------------+----------+
| Last_Name | Department_id | Job_id   |
+-----------+---------------+----------+
| King      |            90 | ad_pres  |
| Kochhar   |            90 | ad_vp    |
| Dehaan    |            90 | ad_vp    |
| Hurnld    |            60 | it_prog  |
| Ernst     |            60 | it_prog  |
| Lorentz   |            60 | it_prog  |
| Mourgas   |            50 | st_man   |
| D' Souza  |            50 | st_clerk |
| Dravis    |            50 | st_clerk |
| Martin    |            50 | st_clerk |
| Vargese   |            50 | st_clerk |
| Roy       |            90 | sa_exec  |
| Zlotkey   |            80 | sa_man   |
| Taylor    |            80 | sa_rep   |
+-----------+---------------+----------+
14 rows in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Salary
    -> FROM EMPLOYEES
    -> WHERE Manager_id = (SELECT Employee_id
    -> FROM EMPLOYEES
    -> WHERE Last_Name = "King");
+-----------+----------+
| Last_Name | Salary   |
+-----------+----------+
| Kochhar   | 17000.00 |
| Dehaan    | 17000.00 |
| Mourgas   |  5800.00 |
| Zlotkey   | 10500.00 |
+-----------+----------+
4 rows in set (0.00 sec)
```

```
mysql> SELECT Department_id, Last_Name, Job_id
    -> FROM EMPLOYEES
    -> WHERE Department_id IN (SELECT Dept_id
    -> FROM DEPARTMENT
    -> WHERE Dept_name = "Executive");
+---------------+-----------+---------+
| Department_id | Last_Name | Job_id  |
+---------------+-----------+---------+
|            90 | King      | ad_pres |
|            90 | Kochhar   | ad_vp   |
|            90 | Dehaan    | ad_vp   |
|            90 | Roy       | sa_exec |
+---------------+-----------+---------+
4 rows in set (0.00 sec)
```

```
mysql> SELECT Employee_id, Last_Name, Salary
    -> FROM EMPLOYEES
    -> WHERE Department_id IN (SELECT Department_id
    -> FROM EMPLOYEES
    -> WHERE Last_Name LIKE "%u%")
    -> AND Salary > (SELECT AVG(Salary)
    -> FROM EMPLOYEES);
Empty set (0.00 sec)
```

EX 10 USING THE SET OPERATORS

```
mysql> SELECT Job_id, Department_id FROM EMPLOYEES WHERE Department_id = 10
    -> UNION
    -> SELECT Job_id, Department_id FROM EMPLOYEES WHERE Department_id = 50
    -> UNION
    -> SELECT Job_id, Department_id FROM EMPLOYEES WHERE Department_id = 20;
+----------+---------------+
| Job_id   | Department_id |
+----------+---------------+
| st_man   |            50 |
| st_clerk |            50 |
+----------+---------------+
2 rows in set (0.01 sec)
```

```
mysql> SELECT Job_id, Department_id FROM EMPLOYEES WHERE Department_id = 10
    -> UNION ALL
    -> SELECT Job_id, Department_id FROM EMPLOYEES WHERE Department_id = 50
    -> UNION ALL
    -> SELECT Job_id, Department_id FROM EMPLOYEES WHERE Department_id = 20;
+----------+---------------+
| Job_id   | Department_id |
+----------+---------------+
| st_man   |            50 |
| st_clerk |            50 |
| st_clerk |            50 |
| st_clerk |            50 |
| st_clerk |            50 |
+----------+---------------+
5 rows in set (0.00 sec)
```

```
mysql> SELECT e.Employee_id, e.Job_id
    -> FROM EMPLOYEES e
    -> JOIN EMPLOYEES e2 ON e.Employee_id = e2.Employee_id
    -> AND e.Job_id = e2.Job_id
    -> AND e.Hire_date = e2.Hire_date;
+-------------+----------+
| Employee_id | Job_id   |
+-------------+----------+
|         100 | ad_pres  |
|         101 | ad_vp    |
|         102 | ad_vp    |
|         103 | it_prog  |
|         104 | it_prog  |
|         107 | it_prog  |
|         124 | st_man   |
|         141 | st_clerk |
|         142 | st_clerk |
|         143 | st_clerk |
|         144 | st_clerk |
|         145 | sa_exec  |
|         149 | sa_man   |
|         176 | sa_rep   |
+-------------+----------+
14 rows in set (0.00 sec)
```

```
mysql> SELECT Last_Name, Department_id FROM EMPLOYEES
    -> UNION ALL
    -> SELECT NULL AS Dept_id, Dept_name FROM DEPARTMENT;
+-----------+----------------+
| Last_Name | Department_id  |
+-----------+----------------+
| King      | 90             |
| Kochhar   | 90             |
| Dehaan    | 90             |
| Hurnld    | 60             |
| Ernst     | 60             |
| Lorentz   | 60             |
| Mourgas   | 50             |
| D' Souza  | 50             |
| Dravis    | 50             |
| Martin    | 50             |
| Vargese   | 50             |
| Roy       | 90             |
| Zlotkey   | 80             |
| Taylor    | 80             |
| NULL      | Administration |
| NULL      | Marketing      |
| NULL      | Shipping       |
| NULL      | IT             |
| NULL      | Sales          |
| NULL      | Executive      |
| NULL      | Accounting     |
| NULL      | Contracting    |
+-----------+----------------+
22 rows in set (0.02 sec)
```