Introduction to Databases

Tutorial 1

Creating a Simple Database

mysql> create database database01;

Database "database01" created.

Showing Existing Databases

mysql> show databases;

Using a Database

mysql> use database01;

Database changed.

Deleting a Database

mysql> drop database database01;

Change the current database to the 'company' database.

source absolute/path/to/sql/file

Showing Existing Tables

mysql> show tables;

Creating a New Table

mysql> create table table01(field01 integer primary key , field02 char(10));

Query OK, 0 rows affected (0.00 sec)

Show columns in a table

mysql > show columns from table01;

Populating a Table

mysql > insert into table01(field01,field02) values (1,"first");

Query OK, 0 rows affected (0.00 sec)

Selecting all the Records from a Table

mysql > select * from table01;

Selecting a single Record from a Table

mysql > select column01 from table01;

Selecting multiple Records

mysql > select column01,column02 from table01;

Updating Records

mysql > update table01 set field field03='new info' where field01=1;

mysql > update table01 set field field04=1992256,field05=065443 where field01=1;

Deleting Records

mysql > delete from table01 where field03=3;

mysql > update table01 set field field04=1992256,field05=065443 where field01=1;

Adding Fields

mysql > alter table table01 add column field03 char(20);

mysql > alter table table01 add column field04 date, add column field05 time;

DROP table

mysql >Drop table tablename01;

Query OK, 0 rows affected (0.30 sec)

WHERE clause

Q) Find the names of all the male employees ?

A) mysql> select name from employee where sex='m';

Q) Find the ssn id of all employees whose salary is greater than 30000;

A) mysql> select ssn from employee where salary > 3000;

Relating Tables

Q) Get the names and birthdays of all the people who are Dependents of 'John'.

A) Select Dependent_name,DEPENDENT.Bdate from DEPENDENT,EMPLOYEE where DEPENDENT.Essn = EMPLOYEE.Ssn and EMPLOYEE.Fname = "John";

Q) Retrieve the name and address of all employees who work for the 'Research' department.

A) SELECT Fname, Lname, Address FROM EMPLOYEE, DEPARTMENT WHERE Dname='Research' AND Dnumber=Dno;

Distinct

Q) Select all the distinct salaries of employees.

A) SELECT DISTINCT salary from EMPLOYEE;

LIKE

Q) Retrieve all employees whose address is in Houston, Texas.

A) SELECT Fname, Lname FROM EMPLOYEE WHERE Address LIKE '%Houston,TX%';

Q) Find all employees who were born during the 1950s.

A) SELECT Fname, Lname FROM EMPLOYEE WHERE Bdate LIKE '_ _ 5 _ _ _ _ _ _ _';

Order By

Q) Get the first names and birthdays of all employees in their alphabetic order.

   A)   Select Fname,Bdate from employees order by Fname;

Q) Get the last names of all employees in the descending order of their Ssn id.

   A) Select Lname from employees order by Ssn desc;

INNER Join

SELECT column-name-list
from *table-name1*
INNER JOIN
table-name2
WHERE table-name1.column-name = table-name2.column-name;

Id	Name
1	abhi
2	adam
3	alex
4	anu

Table : class

Id	Address
1	Delhi
2	Mumbai
3	Chennai

Table : class_info

SELECT *
FROM
class INNER JOIN
class_info
ON class.id = class_info.id;

Id	Name	Id	Address
1	abhi	1	Delhi
2	adam	2	Mumbai
3	alex	3	Chennai

Id	Name
1	abhi
2	adam
4	anu

Id	Address
1	Delhi
2	Mumbai
5	Hyderabad

SELECT *
FROM
class FULL OUTER JOIN
class_info
ON   class.id = class_info.id;

Id	Name	Id	Address
1	abhi	1	Delhi
2	adam	2	Mumbai
4	anu	null	null
null	null	5	Hyderbad

Id	Name
1	abhi
2	adam
4	anu

Id	Address
1	Delhi
2	Mumbai
5	Hyderabad

SELECT *
FROM
class LEFT OUTER JOIN
class_info
ON   class.id = class_info.id;

Id	Name	Id	Address
1	abhi	1	Delhi
2	adam	2	Mumbai
4	anu	null	null

Id	Name
1	abhi
2	adam
4	anu

Id	Address
1	Delhi
2	Mumbai
5	Hyderabad

SELECT *
FROM
class RIGHT OUTER JOIN
class_info
ON   class.id = class_info.id;

Id	Name	Id	Address
1	abhi	1	Delhi
2	adam	2	Mumbai
null	null	5	Hyderbad

QUIZ

1) Retrieve the names of all employees in department 5 who work more than 10 hours per week on the ProductX project.

2) List the names of all employees who have a dependent with the same first name as themselves.

3) Find the names of all employees who are directly supervised by 'Franklin Wong'.

4) For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birth date.

QUIZ

5) Show the resulting salaries as NEW_SAL if every employee working on the 'ProductX' project is given a 10 percent raise.

6) Retrieve a list of employees and the projects they are working on, ordered by department and, within each department, ordered alphabetically by last name, then first name.