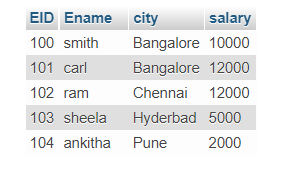
SQL

DAY1

Table1: employee



1. GOLDEN RULE:

SELECT

FROM

WHERE

GROUP BY

HAVING

ORDERBY

* This the way we have to write SQL queries,
  + Ex: SELECT \* from employee ORDER BY Ename;(accepted).
  + Ex: SELECT Ename from employee WHERE Ename ORDER BY Ename asc;(accepted).
  + Ex: SELECT \* from employee HAVING Ename =” Vikram” WHERE Eid=20;(not accepted it will give error.)

1. WHERE:

* Default way:
  + Ex: read the employee name whose salary is > or equal to 10000?

Ans- SELECT Ename from employee WHERE salary >=10000;

* IN (special case, that is used when we are passing more than one value):
  + Ex: give me employee id whose name is smith and carl?

Ans- SELECT Eid from employee WHERE Ename IN (“carl”,”smith”);

//here name which we give is case sensitive

* SORTING IN ASCENDING AND DESCENDING ORDER:
  + Ex: give me the employee ids sorted in descending order?

Ans- SELECT Eid from employee ORDER BY asc;

//default it is asc so even if we don’t pass asc it will sort in asc order.

* Special Case: (using HAVING)
  + Ex: filter the recording using HAVING command & give me employee id whose name is Vikram?

Ans- SELECT Eid from employee HAVING Ename=”Vikram”;

// name is case sensitive.

1. BUILT IN METHODS OR FUNCTIONS:

* MAX():
  + Ex: give me the max salary from the table?

Ans- SELECT MAX(salary) from employee;

* MIN():
  + Ex: give me the min salary from the table?

Ans- SELECT MIN(salary) from employee;

* AVG():
  + Ex: give me the average of all the salary?

Ans- SELECT AVG(salary) from employee;

* SUM():
  + Ex: give me the sum of all the salaries?

Ans- SELECT SUM(salary) from employee;

* COUNT(), GROUP BY:
  + Ex: count number of employee city wise?

Ans- SELECT COUNT(Eid) from employee GROUP BY city;

* + \*\*EX: group the employee based on city & then count citywise & print the count in ascending order?

Ans- SELECT COUNT(Eid) from employee GROUP BY city ORDER BY COUNT(Eid) asc;

* + \*\*Ex: group the city after counting where the city name is bangalore?

Ans- SELECT COUNT(City) from employee GROUP BY city HAVING city = “Bangalore”;

* UCASE():
  + Ex: convert all the employee names in UPPERCASE?

Ans- SELECT UCASE(Ename) from employee;

* LCASE():
  + Ex: convert al the employee names in lowercase?

Ans- SELECT LCASE(Ename) from employee;

DAY 2:

1. LIMIT(selecting either top or bottom members in numbers):

* Ex: give me the top 2 records stored in sql?

Ans- SELECT \* from employee ORDER BY Eid asc LIMIT 2;

//here 2 is number of records we want to accept.

* Ex: give the bottom 2 records stored in sql?

Ans- SELECT \* from employee ORDER BY Eid desc LIMIT 2;

1. BREAK ANYTHING BASED ON LETTERS:

* Ex: break the city name into 3 words?

Ans- SELECT MID(city,1,3) from employee;

1. MORE ON BUILT IN METHODS OR FUNCTIONS:

* MID():
  + Ex: break the city name into 3 words?

Ans- SELECT MID(city,1,3) from employee;

* NOW():
  + Ex: print the current time using sql?

Ans- SELECT NOW() ;

// here table will be named as now() to change the table name we use below command

\*\*SELECT NOW() AS Time;

* AS:
  + EX: in the output change the column name Ename to name & then print names of employee in asc order?

Ans- SELECT Ename AS Name from employee ORDER BY Ename asc;

* WILDCARD:(like & %): it is used to searching name based on input like shown below-
  + Ex: give me the name of the members whose name ends with “m”?

Ans- SELECT Ename from employee WHERE Ename LIKE”%m”;

Note:

“%m”- ends with letter m.

“%m%” – anywhere m maybe present.

“m%” – starts with a word m.

* + \*\*Ex: give me the name of employee whose name consists of 3 letters and ends with m?

Ans- SELECT Ename from employee WHERE Ename LIKE “\_\_m”

// here 2 undersquare and letter ending we write , if question asks 5 words put 5 undersquare in the “”.

1. DELETE:(delete from employee ………………)

* Ex: delete the record from employee table where employee id =101?

Ans- DELETE from employee WHERE Eid = 101;

* \*\*Ex: delete the record from employee table where employee id is 101 & 102?

Ans- DELETE from employee WHERE Eid IN (101,102);

// always use in when there are more than 1 things.

* \*\*Ex: delete the record from employee table where employee name is smith?

Ans- DELETE from employee WHERE Ename= “smith”;

1. DROP:(DROP TABLE)

* Ex: Drop the table employee?

Ans- DROP table employee;

1. DISTINCT:(unique/distinct)

* Ex: give me the distinct/ unique salary from employee table?

Ans- SELECT DISTINCT salary from employee;

1. CONCAT:

* EX: separate employee name & salary with an “\_” & then concat/add the content of these columns?

Ans- SELECT CONCAT(Ename,”\_”,salary) from employee;

* EX: Concat ename and salary and print the output in desc order?

Ans- SELECT CONCAT(Ename, salary) from employee ORDER BY CONCAT(Ename, salary) desc;

1. LTRIM():

* Ex: remove the white spaces from the left side of the employee name and then print name?

Ans- SELECT LTRIM(Ename) from employee;

1. RTRIM():

* Ex: remove the white spaces from the right side of the employee name and then print name?

Ans- SELECT RTRIM(Ename) from employee;

1. TRIM():

* Ex: remove the white spaces from both side of the employee name and then print name?

Ans- SELECT TRIM(Ename) from employee;

1. TRIM & CONCAT together SPECIAL CASE:

* Ex: remove the white spaces from name and salary from both sides and then concat/add them separated with \_ ?

Ans- SELECT CONCAT(TRIM(Ename),”\_”,TRIM(salary)) from employee;

1. UPDATE:(UPDATE employee SET …….)

* Ex: Update the employee name smith to abc where employee id is 101?

Ans- UPDATE employee SET Ename=”abc” WHERE Ename=”smith”;

* Ex: replace the city name bangalore to bangaluru in table?

Ans- UPDATE employee SET city = bangaluru WHERE city =Bangalore;

* Ex: update everyones salary by 400?

Ans- UPDATE employee SET salary = salary +400;

1. ALTER:(ALTER TABLE employee ADD ……………)

* Ex: add the coloum email at the beginning of table?

Ans- ALTER TABLE employee ADD email varchar(20) FIRST;

// for creating table at last, remove first keyword from above code.

// for creating table after another table, remove first keyword from above code And Insert “AFTER” with which column we have to choose-> ALTER TABLE employee ADD email varchar(20) AFTER Ename;

* Ex: delete column email from the table?

Ans-ALTER TABLE employee DROP ”email”;

1. LENGTH():(to find the length of full column or just a string as shown below)

* Ex: Find the length of each and every name in the table?

Ans- SELECT LENGTH(Ename) from employee;

* \*\*Ex: find the length of the string “I will kill you”?

Ans- SELECT LENGTH(“I will kill you”);

DAY3

Tables:

Table1: incentive

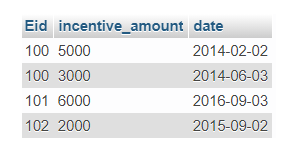


Table2: status

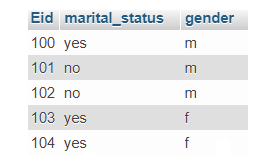
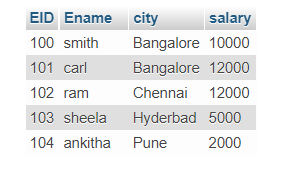


Table3: employee



1. SUB\_QUERY: query within query, what we write in paranthesis will execute first.

* Ex: give me second max salary?

Ans: SELECT MAX(salary) from employee WHERE salary <(SELECT MAX(salary from employee);

* Ex: give me Third max salary?

Ans- SELECT MAX(salary) from employee WHERE salary <(SELECT MAX(salary) from employee WHERE salary< (SELECT MAX(salary) from employee));

* + NOTE: sub-query can be created between 2 tables if 2 tables have same column and only one column of one table is printed.
* Ex: give an employee name who got incentive? (Table1&Table3)

Ans- SELECT DISTINCT Ename from employee WHERE Eid IN (SELECT Eid from incentive\_table);

* Ex: Give me the employee names of only female’s candidates and also their salary? (Table 1&3)

Ans- SELECT Ename, salary from employee WHERE IN (SELECT Eid from status WHERE gender=” f”);

* \*\*EX: give me the employee’s name who is married and has got incentives? (Table1&2&3)?

Ans- SELECT Ename from employee WHERE Eid in (SELECT Eid from incentive WHERE Eid IN (SELECT Eid from status WHERE marital\_status=” yes”));

* \*\*V-IMP\*\*Ex: give me the name of the employee who is married and male? (Table 1&3) (use AND operator)?

Ans- SELECT Ename from employee WHERE Eid IN (SELECT Eid from status WHERE gender=”m” AND marital\_status=” yes”);

DAY4

1. DATA- TYPES:

* Numbers:(desc -> asc)
  + TINNY INT -> 128 to -128
  + SMALL INT
  + MEDIUM INT
  + INT (most of time we use this)
* String:(desc -> asc)
  + CHAR-> Char (4) -> fixed value- bad memory management.
  + VarChar-> dynamic good memory management.
  + BLOB -> for huge paragraphs we use this.
* Special CASES:
  + FLOAT
  + DOUBLE
  + ENUM(‘F’,’M’);
  + DATE // YYYY-MM-DD (Note: always write in “”)
  + TIME // HH:MM: SS.
  + TIMESTAMP // YYYY\_MM\_DD :: HH:MM:SS (Note: always write now () to store timestamp.)
  + YEAR// YYYY.

1. CREATING TABLE

* Step 1: CREATING NEW TABLE
  + CREATE TABLE Pet (Name varchar (20) , owner varchar(20), BirthDate Date,

Gender Enum(‘F’,’M’), Pid INT (5));

* Step 2: TO ANALYZE TABLE
  + DESCRIBE Pet;
* Step 3: INSERTING VALUE IN TABLE
  + INSERT INTO pet VALUES (‘Rinky’, ‘Pinky’, “2015-2-23”, ‘F’, 100);
* Step 4: SEE CONTENT
  + SELECT \* from pet;
* Step 5: CREATING NEW TABLE 2
  + CREATE TABLE Registration (First\_Name varchar (20), LAST\_Name varchar (20), DOB Date, Reg\_Time TimeStamp, Location VarChar (20), Rid Int (5));
* Step 6: TO ANALYZE TABLE
  + DESCRIBE Registration;
* Step 7: INSERTING VALUE IN TABLE
  + INSERT INTO Registration VALUES (‘Lilly’, ‘silly’, “2016-2-23”, now (), ‘BA’, 100);
* Step 8: SEE CONTENT
  + SELECT \* from Registration;

DAY 5

1. Constraints(restrictions):
   1. NOT NULL: If you make a column NOT NULL, then it means it can consist of duplicate records/value, but not null values.

* Ex: names.
  1. UNIQUE: It can consist of only unique records and also null values as 2 null values can never be same.
* Ex: phone numbers.
  1. PRIMARY KEY: it is combination of UNIQUE & NOT NULL.
* Ex: ID’s.
  1. FOREIGN KEY:
     1. It helps us to build the relation between 2 tables.
     2. Foreign key can consist of repeated records/values.
     3. Foreign key can be written multiple times in different tables of same column.
* Ex: 2 tables having same column ID one parent table having primary key and child table should have foreign key, in RDBMS&DBMS.
  1. Enum: gives us fixed values to select.
* Ex: Enum(‘T’,’F’), here we can only select any1 value between these 2 given values.
  1. SET: it is a group of values & this constraint helps us to select any one value from set or all the values from the set or few values from the set.
* EX: SET(‘QTP’,’SELENIUM’,’J2EE’)

1. Create a table with constraints for shown below with specific datatype.?

Table name: students.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SID | name | gender | DOB | phone\_number | LOC |
| DATA TYPES | Int(10) | Varchar(20) | Enum(‘M’,’F’) | DATE  (YYYY-MM-DD) | Varchar (10) | Varchar(20) |
| CONSTARAINTS | Primary key | NOT NULL | -,,---,,- | NOT NULL | Unique | ------------- |

Ans:

Step1: CREATE TABLE students (

SID int(10) PRIMARY KEY,

name varchar(20) NOT NULL,

gender Enum (‘M’,’F’),

DOB DATE NOT NULL,

phone\_number varchar(20) UNIQUE,

LOC varchar(20) );

DAY 6:

1. Create a table with constraints including SET?

Table name : students.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | SID | name | gender | DOB | phone\_number | LOC | certificate |
| DATA TYPES | Int(10) | Varchar(20) | Enum(‘M’,’F’) | DATE  (YYYY-MM-DD) | Varchar (10) | Varchar(20) | ------------ |
| CONSTARAINTS | Primary key | NOT NULL | -,,---,,- | NOT NULL | Unique | ------------- | SET(‘QTP’,’SELENIUM’,’J2EE’) |

Ans:

Step1: CREATE TABLE students (

SID int(10) PRIMARY KEY,

name varchar(20) NOT NULL,

gender Enum (‘M’,’F’),

DOB DATE NOT NULL,

phone\_number varchar(20) UNIQUE,

LOC varchar(20),

Certificate SET(‘QTP’,’SELENIUM’,’J2EE’));

Step 2: insert into students VALUES( 100,’XYZ’,’F’,

”1999-02- 23”,’6361317502’,’QTP,J2EE):

DAY 6:

1. Difference between DBMS & RDMS.

* DBMS: one big table having multiple columns, its very hard to read.
* RDMS: one big table is divided into number of small tables with a common column where parent table common column has primary key and child table common column has foreign key.

1. Create a table with RDMS, with using constraints, primary key and foreign key?

Table name: students.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | SID | name | gender | DOB | phone\_number | LOC | certificate |
| DATA TYPES | Int(10) | Varchar(20) | Enum(‘M’,’F’) | DATE  (YYYY-MM-DD) | Varchar (10) | Varchar(20) | ------------ |
| CONSTARAINTS | Primary key | NOT NULL | -,,---,,- | NOT NULL | Unique | ------------- | SET(‘QTP’,’SELENIUM’,’J2EE’) |

Table name: attendance (child class).

|  |  |  |  |
| --- | --- | --- | --- |
|  | SID | Subject | attendance |
| DATA TYPE | Int(10) | Varchar(20) | Enum(‘P’,’A’) |
| CONSTRAINTS | Not null,Foreign key. | Not null | -------------------- |

Ans:

Step1:

Table1: (parent table)

CREATE TABLE students (

SID int(10) PRIMARY KEY,

name varchar(20) NOT NULL,

gender Enum (‘M’,’F’),

DOB DATE NOT NULL,

phone\_number varchar(20) UNIQUE,

LOC varchar(20),

Certificate SET(‘QTP’,’SELENIUM’,’J2EE’));

Step 2:

Table 2: (child table)

CREATE TABLE attendance (

SID int(10) NOT NULL,

Subject varchar(20) not null,

Attendance Enum(‘P’,’A’),

FOREIGN KEY(SID) REFERENCES students (SID));

Note: foreign key and primary key can be applied between 2 tables if they got common column, where parent table having primary key and child table having foreign key.

Note: AUTO\_INCREMENT-> if we use this in place of id’s, then id’s are incremented automatically and inserted in order.

DAY 8:

1. Subtract 2 tables in mysql?

Table name: students.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SID | name | gender | DOB | phone\_number | LOC |
| 100 | xyz | F | 2000/02/02 | \*\*\*\*\*\*\*\*\*\*\* | \* |
| 101 | ABC | M | “ | “ | “ |
| 102 | AAA | F | “ | “ | “ |
| 103 | XXX | F | “ | “ | “ |

Table name: attendance (child class).

|  |  |  |
| --- | --- | --- |
| SID | Subject | attendance |
| 100 | P1 | P |
| 100 | P2 | A |
| 100 | P3 | P |
| 101 | P1 | A |

Ans:

SELECT \* from students where SID NOT IN (SELECT DISTINCT SID from attendance);

1. CRUD OPERATION in SQL?  
   C: create.

R: Read(select).

U: Update.

D: DELETE (delete, drop).

1. Joins: If we want to display content of 2 column that belong to different tables then we use joins operation.

Table 1: t1

|  |  |  |
| --- | --- | --- |
| A | B | C |

Table 1: t2

|  |  |  |
| --- | --- | --- |
| A | D | E |

Joins: t1+t2(C&D)

|  |  |
| --- | --- |
| C | D |

There are 4 types:

* INNER JOINS
* LEFT JOINS
* RIGHT JOINS
* CARTISION JOINS

1. INNER JOIN:

Table 1: employee

|  |  |  |  |
| --- | --- | --- | --- |
| Empid | Ename | dept | location |
| 100 | Smith | Science | Bangalore. |
| 101 | carl | social | Chennai |
| 102 | jimmy | Math’s | Bangalore. |
| 103 | dummy | English | Pune |
| 104 | donjhon | Hindi | Mumbai |
| 105 | kimalex | Kannada | Chennai |

Table 2: attendance

|  |  |  |
| --- | --- | --- |
| Empid | Attd\_date | class |
| 100 | 2016-02-23 | 1 |
| 100 | 2016-02-23 | 2 |
| 102 | 2016-02-23 | 1 |
| 102 | null | null |
| 104 | 2016-02-23 | 1 |
| 106 | 2016-02-23 | 2 |

* Example 1: give matching record from both the tables where Ename , dept & attendance should be displayed.

Ans- SELECT employee.Ename, employee.dept, attendance.Attd\_date from employee INNER JOIN attendance ON employee.empid= attendance.empid ;

* Example 2: give me empid, employee name , department ,location, attendance date and class only if records are common between 2 tables?

Ans- select employee.empid, employee.Ename, employee.dept, employee.location, attendance.Attd\_date, attendance.class from employee INNER JOIN attendance ON employee.empid= attendance.empid ;

* Note: Here we are getting only matching records between 2 tables.
* Note: JOIN+ON -> ASCII format SQL QUERY.

DAY 9:

1. LEFT-JOIN: Gives all the records from the left table and only matching records from the left table.

* Example 1: give me the employee’s name, dept and attendance-date such that, all the records are displayed from the left table and only matching records are displayed from right table?

Ans- SELECT employee.Ename, employee.dept, attendance.Attd\_date from employee LEFT JOIN attendance ON employee.empid= attendance.empid ;

NOTE: here 102 displayed twice, 100 is also printed twice.

1. RIGHT-JOIN: Gives all the records from the Right table and only matching records from the left table.

* Example1: give me attendance date , class and employee name such that all the details of attendance should be taken into consideration, but then only matching records of employee should be picked up?

Ans- SELECT attendance.Attd\_date, attendance.class, employee.ename, employee.dept from employee RIGHT JOIN attendance ON employee.empid= attendance.empid ;

1. CARTISIAN-JOIN: it means every single record of table1 will be multiplied with table2.

* NOTE: here syntax is changed.
* Example 1: give me cartisian of employee name , empid and class?

Ans- SELECT employe.empid, employee.Ename, attendance.class from employee , attendance;

Ex-

100 smith 1

100 smith 2

100 smith 1

100 smith null

100 smith 1

100 smith 2

Same will be repeated \*5 times.

DAY 10:

Oracle

1. What is rollback & commit?
2. What is normalization and explain 1NF , 2NF, 3NF forms?
3. Give me the name of employee whose birthday comes in the year 2000?

Ans- SELECT Ename from employee WHERE year(DOB)==2000;

Note: year(now())-> present year.

1. Give me the name of employee whose birthday comes in the month 7?

Ans- SELECT Ename from employee WHERE month(MM)==07;

Note: month(now())-> present month.

1. Give me the name of employee whose birthday comes in the day 7?

Ans- SELECT Ename from employee WHERE day(DD)==07;

Note: day(now())-> present day.

1. HOUR: hour(now());
2. Minutes:
3. Seconds:
4. Between 2 tables give me the result by performing intersect between 2 table?

Ans: in SQL there is no Intersect support, so instead it is same as using IN or INNER JOINS operation.

1. Give me the union of 2 tables?
2. Give me the minus between 2 tables?
3. Replace letter “A” with all the names with letter “T”?

Ans: special method-> REPLACE();

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* THE END \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/