**SQL**

Day-1 Notes:

what is data?

==> Data means only values.

ex: 101,'ram',67000.00

what is information?

==> value with meaning.

ex: ram is a employee.His employee number is 101.

His salary is 67000.00

what is database?

==> A collection of related information is called a database.

101,'ram', 67000.00

102,'siva', 55000.00

103,'venkat',89000.00

Types of databases:

oracle

sql

Mysql

postgresql

db2

Mangodb

Nosql

Tsql

SQL

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phone book database

phone number contactname

945959994 ABC

534545345 jXYZ

984385743 TUF

student database:

htno name m1 m2 m3 total avg

101 xyz 77 88 99 88.00

102 abc 66 66 66 66.00

employee database:

empid ename salary

14354041 xyz 56000.50

15454502 abc 45939.38

A Brief History of SQL:

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1970 − Dr. Edgar F. "Ted" Codd of IBM is known

as the father of relational databases.

He described a relational model for databases.

1974 − Structured Query Language appeared.

1978 − IBM worked to develop Codd's ideas and

released a product named System/R.

1986 − IBM developed the first prototype of

relational database and standardized by ANSI.

The first relational database was released by

Relational Software which later came to be known

as Oracle.

What Can SQL do? or Why SQL:

SQL can execute queries against a database.

SQL can retrieve data from a database.

SQL can insert records in a database.

SQL can update records in a database.

SQL can delete records from a database.

SQL can create new databases.

SQL can create new tables in a database.

SQL can create stored procedures in a database

SQL can create views in a database

SQL can set permissions on tables, procedures, and views

1. What is SQL?

• SQL stands for Structured Query Language

• SQL was initially developed at IBM in the 1970s

• SQL is the standard language to communicate with

relational database management systems

like Oracle, MS Access, MS SQL Server, MySQL, DB2, Sybase Etc…

2. Purpose of SQL

• SQL is used to Create New Databases

• SQL is used to Create New Tables in a Database

• SQL is used to Insert records in a Database

• SQL is used to Update records in a Database

• SQL is used to Delete records in a Database

• SQL is used to Retrieve data from a Database

• SQL is used to execute queries against a Database

• SQL can set permissions on tables, procedures and views

• SQL is used to Create stored procedures in a Database

• SQL is used to Create views in a Database

3. Who should learn SQL?

i. Database Developers

• Design and deploy Database table structures, forms, reports and queries etc…

ii. Database Administrators (DBA)

• Keeping databases up to date and managing database access

• Writing Reports, documentation, and operating manuals

iii. Database Testers

• Verify Data Integrity

• Verify Data Manipulations (Add, Update, and Delete)

• Verify Data comparisons

Data Types in SQL

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==> Data type required to specify what type of value

stored into a particular column..

It is important for the overal optimization of your database.

==> The data types are 3 types:

1. numeric type.

2. string type

3. date & time type.

1. numeric type:

==> This data type represents numbers with decimal point.

This numeric type is divided into 4 types:

1. int

2. float

3. double

4. decimal

1. int:

It is used to store only numbers.

the range -2147483638 to 2147483637.

It occupies 4 bytes memory.

ex: 125,789,45,67,.....etc.

2. float:

It is used to store numbers with decimal point.

syntax:

float(size,d)

Here,

==> The 'size' parameter spcifies the total number of digits.

==> The 'd' parameter speicifies the maximum number of digits

to the right of the decimal point

==> It occupies 4 bytes memory.

ex: float(8,2) --> 456712.50

3. double():

It is used to store numbers with decimal point.

syntax:

double(size,d)

Here,

==> The 'size' parameter spcifies the total number of digits.

==> The 'd' parameter speicifies the maximum number of digits

to the right of the decimal point

==> It occupies 8 bytes memory.

4. decimal:

==> It is used to store numbers with decimal point.

syntax:

decimal(size,d)

Here,

==> The 'size' parameter spcifies the total number of digits.

==> The 'd' parameter speicifies the maximum number of digits

to the right of the decimal point

==> The memory size is varying from value to another value.

ex-1: decimal(4,2) --> 56.12

decimal(8,3) --> 23478.345

2. character data type:

==> It is used to store only characters.

==> It is divided into 3 types:

char

varchar

text

a). char:

==> It is used to Hold 255 characters and allows a fixed

lenth string.

b). varchar:

==> It is used to Hold 65535 characters and allows a fixed

lenth string.

c). text:

==> It is used to store the maximum number of characters.

3. date & time type:

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a). year

b). date

c). time

d). datetime

a). year datatype:

==> It represents only year number.

==> It allows 2 to 4 digits.

==> It occupies 1 byte.

ex: 2022,2021,2023,2000,2019,2018,...etc.

b). date :

==> It represents date type.

==> The date format is:

YYYY-MM-DD

ex-1: 2022-08-23

ex-2: 2022-11-16

==> It occupies 3 bytes memory.

c). time :

==> It represents only time.

==> The format is:

HH:MI:SS

ex: 16:52:45

==> It occupies 3 bytes memory.

d). datetime:

==> It is used to store date and time.

==> the format is :

YYYY-MM-DD HH:MI:SS

ex-1: 2022-08-23 16:53:23

ex-2: 2022-11-16 17:47:32

==> It occupies 8 bytes memory.

SQL

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==> TO store the data permanently.

File handling --> c/c++/java/python/

database handling:

Ms-Aceess

oracle

Mysql

sqlite3

postgresql

db2

mangodb

Tsql

Nosql



SQL COMMANDS

1. DDL

2. DML

3. DCL

4. TCL

5. DQL

1. DDL (Data Definition Language)

2. DML (Data Manipulation Language)

3. DCL (Data control Language)

4. TCL (Transaction control Language)

5. DQL (Data Query Language)

1. DDL (Data Definition Language)

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It is divided 3 parts:

1. CREATE

2. ALTER

3. DROP

1. CREATE command:

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==> This command is used for creating databases and tables.

==> syntax-1: This syntax is used to create database:

CREATE DATABASE databasename;

ex-1: CREATE DATABASE test;

ex-2: CREATE DATABASE sample;

ex-3: CREATE DATABASE hellodb;

ex-4: CREATE DATABASE sql4pm;

==> syntax-2: This syntax is used to create table structure.

CREATE TABLE tablename

(columnname-1 datatype,

columnname-2 datatype,

--

--

columnname-n datatype);

ex-1: To create employee table with 3 columns.

CREATE TABLE employee

(empid int,

ename char(20),

sal float);

ex-2: To create student table with 5 columns.

CREATE TABLE student

(htno int,

sname char(20),

m1 int,

m2 int,

m3 int);

ex-3: To create person table with 2 fields i.e. name and age.

CREATE TABLE person

(pname char(20),age int);

desc command:

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==> This command is used to display the structure of the table.

==> syntax:

DESC tablename;

ex-1: DESC employee;

ex-2: DESC student;

ex-3 DESC person;

2. ALTER command:

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==> This command is used to alter the given table.

i.e. to add new columns to the existing table.

to modify the existing columns.

==> syntax:

ALTER TABLE tablename

ADD(columnname-1 datatype,

columnname-2 datatype,

columnname-3 datatype,

---

---

columnname-n datatype);

ex-1: To add new columns to the student table:

ALTER TABLE student

ADD(total int,

avg float,

addrss char(100)

phoneno int(10));

ex-2: To add new columns to the employee table:

ALTER TABLE employee

ADD(fname char(20),

surname char(20),

addrss char(100),

phoneno int(10),

email char(15));

ex-3: To add new columns to the person table:

ALTER TABLE person

ADD(fname char(20),

surname char(20),

addrss char(100),

phoneno int(10));

3. DROP command:

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==> This command is used to delete database or delete the table.

==> once the table is deleted , the entire data lost.

==> syntax-1: To delete the databas

DROP DATABASE databasename;

ex: DROP DATABASE test;

DROP DATABASE sample;

DROP DATABASE hellodb;

DROP DATABASE sql4pm;

==> syntax-2: This syntax is used to drop table from database.

DROP TABLE tablename;

ex-1: DROP TABLE employee;

ex-2: DROP TABLE student;

ex-3: DROP TABLE person;

1. Mysql shell prompt

2. Mysql workbench

DML Commands:

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==> DML stands for Data Manipulation Language.

1. INSERT

2. DELETE

3. UPDATE

1. INSERT command :

===> This command is used for inserting new records into a table.

===> syntax-1: To insert values into all columns

INSERT INTO tablename

VALUES(value-1,value-2,value-3,....value-n);

===> syntax-2: Insert values into specified columns

INSERT INTO tablename(colun-1,coumn-2,...column-n)

VALUES(value-1,value-2,value-3,....value-n)

ex-1: INSERT INTO emp

VALUES(101,"ram",56000);

ex-2: INSERT INTO emp

VALUES(102,"siva",99000);

ex-3: INSERT INTO emp

VALUES(103,"venkat",88000);

ex-4: INSERT INTO emp

VALUES(104,"sita",86000);

ex-5: INSERT INTO emp(empid)

VALUES(105)

mysql> create database sql4pm;

mysql> use sql4pm;

Database changed

mysql> create table student

-> (htno int,

-> name char(20),

-> m1 int,

-> m2 int,

-> m3 int);

Query OK, 0 rows affected (0.01 sec)

mysql> desc student;

+-------+----------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+-------+----------+------+-----+---------+-------+

| htno | int | YES | | NULL | |

| name | char(20) | YES | | NULL | |

| m1 | int | YES | | NULL | |

| m2 | int | YES | | NULL | |

| m3 | int | YES | | NULL | |

+-------+----------+------+-----+---------+-------+

5 rows in set (0.01 sec)

mysql> insert into student

-> values(1000001, 'ram',77,88,99);

Query OK, 1 row affected (0.00 sec)

mysql> insert into student

-> values(10002,'raju',77,77,77);

Query OK, 1 row affected (0.00 sec)

mysql> insert into student

-> values(9876,'balu',55,55,55);

Query OK, 1 row affected (0.00 sec)

mysql> select \* from student;

+---------+------+------+------+------+

| htno | name | m1 | m2 | m3 |

+---------+------+------+------+------+

| 1000001 | ram | 77 | 88 | 99 |

| 10002 | raju | 77 | 77 | 77 |

| 9876 | balu | 55 | 55 | 55 |

+---------+------+------+------+------+

3 rows in set (0.00 sec)

mysql> insert into student(htno,m2)

-> values(123456,99);

Query OK, 1 row affected (0.00 sec)

mysql> select \* from student;

+---------+------+------+------+------+

| htno | name | m1 | m2 | m3 |

+---------+------+------+------+------+

| 1000001 | ram | 77 | 88 | 99 |

| 10002 | raju | 77 | 77 | 77 |

| 9876 | balu | 55 | 55 | 55 |

| 123456 | NULL | NULL | 99 | NULL |

+---------+------+------+------+------+

4 rows in set (0.00 sec)

mysql> insert into student(htno,name)

-> values(12345667788,'xyzabc');

ERROR 1264 (22003): Out of range value for column 'htno' at row 1

mysql> insert into student(htno,name)

-> values(7788,'xyzabc');

Query OK, 1 row affected (0.00 sec)

mysql> select \* from student;

+---------+--------+------+------+------+

| htno | name | m1 | m2 | m3 |

+---------+--------+------+------+------+

| 1000001 | ram | 77 | 88 | 99 |

| 10002 | raju | 77 | 77 | 77 |

| 9876 | balu | 55 | 55 | 55 |

| 123456 | NULL | NULL | 99 | NULL |

| 7788 | xyzabc | NULL | NULL | NULL |

+---------+--------+------+------+------+

5 rows in set (0.00 sec)

mysql> alter table student

-> add(address char(20), phoneno int, aadharno int);

Query OK, 0 rows affected (0.01 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> select \* from student;

+---------+--------+------+------+------+---------+---------+----------+

| htno | name | m1 | m2 | m3 | address | phoneno | aadharno |

+---------+--------+------+------+------+---------+---------+----------+

| 1000001 | ram | 77 | 88 | 99 | NULL | NULL | NULL |

| 10002 | raju | 77 | 77 | 77 | NULL | NULL | NULL |

| 9876 | balu | 55 | 55 | 55 | NULL | NULL | NULL |

| 123456 | NULL | NULL | 99 | NULL | NULL | NULL | NULL |

| 7788 | xyzabc | NULL | NULL | NULL | NULL | NULL | NULL |

+---------+--------+------+------+------+---------+---------+----------+

5 rows in set (0.00 sec)

mysql> drop table student;

Query OK, 0 rows affected (0.01 sec)

mysql> drop database sql4pm;

Query OK, 0 rows affected (0.00 sec)

1. To create a customer table:

CREATE TABLE customer

(custid int,

custname char(20),

age int);

2. Inserting 5 customer records.

ex-1:

INSERT INTO customer

VALUES(1, 'ram',45);

ex-2:

INSERT INTO customer

VALUES(208, 'siva',23);

ex-3:

INSERT INTO customer

VALUES(567, 'venkat',33);

ex-4:

INSERT INTO customer

VALUES(789, 'balu',29);

ex-5:

INSERT INTO customer

VALUES(12345, 'chiru',66);

3. To display customer information:

select \* from customer;

UPDATE command:

===> This command is used for modify the existing data.

==> syntax:

UPDATE tablename

SET columnname-1=value,columnname-2=value ,....

WHERE condition;

ex-1: To modify custid 789 name is balaiah.

UPDATE customer

SET custname = "balaiah"

WHERE custid = 789;

select \* from customer

ex-2: To modify custid 208, age is 99.

UPDATE customer

SET custage = 99

WHERE custid = 208;

select \* from customer

ex-3: To modify ram , id is 121 and age is 65.

UPDATE customer

SET custid=121,custage=65

WHERE custname = "ram";

select \* from customer;

ex-4: To change all customers information.

UPDATE customer

SET custid=121,custage=65;

select \* from customer;

ex-5: To change all customers age is 21.

UPDATE customer

SET age = 21;

select \* from customer;

DDL commands:

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CREATE

ALTER

DROP

DML commands:

-----------------------

INSERT

UPDATE

DELETE

mysql> use sql4pm;

Database changed

mysql> create table employee

-> (empno int,

-> ename char(20)

-> ,sal float,

-> cityname char(20));

Query OK, 0 rows affected (0.03 sec)

mysql> insert into employee

-> values(101,'venkat',56000,'hyd');

Query OK, 1 row affected (0.01 sec)

mysql> insert into employee

-> values(102,'chandu',67000,'wgl');

Query OK, 1 row affected (0.00 sec)

mysql> insert into employee

-> values(103,'balu',99000,'guntur');

Query OK, 1 row affected (0.00 sec)

mysql> select \* from employee;

+-------+--------+-------+----------+

| empno | ename | sal | cityname |

+-------+--------+-------+----------+

| 101 | venkat | 56000 | hyd |

| 102 | chandu | 67000 | wgl |

| 103 | balu | 99000 | guntur |

+-------+--------+-------+----------+

3 rows in set (0.00 sec)

mysql> desc employee;

+----------+----------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+----------+----------+------+-----+---------+-------+

| empno | int | YES | | NULL | |

| ename | char(20) | YES | | NULL | |

| sal | float | YES | | NULL | |

| cityname | char(20) | YES | | NULL | |

+----------+----------+------+-----+---------+-------+

4 rows in set (0.01 sec)

mysql> update employee

-> set cityname='khammam'

-> where empno=102;

Query OK, 1 row affected (0.00 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> select \* from employee;

+-------+--------+-------+----------+

| empno | ename | sal | cityname |

+-------+--------+-------+----------+

| 101 | venkat | 56000 | hyd |

| 102 | chandu | 67000 | khammam |

| 103 | balu | 99000 | guntur |

+-------+--------+-------+----------+

3 rows in set (0.00 sec)

mysql> insert into employee

-> values(104,'laxman',45000,'vijayawada');

Query OK, 1 row affected (0.00 sec)

mysql> insert into employee

-> values(105,'sita',34000,'hyderabad');

Query OK, 1 row affected (0.00 sec)

mysql> select \* from employee;

+-------+--------+-------+------------+

| empno | ename | sal | cityname |

+-------+--------+-------+------------+

| 101 | venkat | 56000 | hyd |

| 102 | chandu | 67000 | khammam |

| 103 | balu | 99000 | guntur |

| 104 | laxman | 45000 | vijayawada |

| 105 | sita | 34000 | hyderabad |

+-------+--------+-------+------------+

5 rows in set (0.00 sec)

mysql> DELETE FROM employee

-> WHERE empno = 104;

Query OK, 1 row affected (0.01 sec)

mysql> DELETE FROM employee

-> WHERE empno = 104;

Query OK, 0 rows affected (0.00 sec)

mysql> DELETE FROM employee

-> WHERE cityname = 'guntur';

Query OK, 1 row affected (0.00 sec)

mysql> select \* from employee;

+-------+--------+-------+-----------+

| empno | ename | sal | cityname |

+-------+--------+-------+-----------+

| 101 | venkat | 56000 | hyd |

| 102 | chandu | 67000 | khammam |

| 105 | sita | 34000 | hyderabad |

+-------+--------+-------+-----------+

3 rows in set (0.00 sec)

mysql> DELETE FROM employee;

Query OK, 3 rows affected (0.00 sec)

DELETE command:

-----------------

==> This command is used to delete records(rows) from a table.

==> syntax:

DELETE FROM tablename

WHERE condition;

ex-1: To delete empno number is 104 from employee table.

DELETE FROM employee

WHERE empno = 104;

ex-2: To delete records whose cityname is guntur.

DELETE FROM employee

WHERE cityname = 'guntur';

ex-3: To delete all records.

DELETE FROM employee;

Assignment-1:

1. To create a student table:

with 5 columns htno,sname,m1,m2,m3.

2. To insert 5 records

3. To display all records

4. To modify hall ticket number 103 marks

m1 is 88, m2 is 77 m3 is 99.

5. To display all records

6. To delete records whose m1<35.

mysql> create table student;

ERROR 4028 (HY000): A table must have at least one visible column.

mysql> create table student

-> (htno int,sname char(20),m1 int,m2 int,m3 int);

Query OK, 0 rows affected (0.04 sec)

mysql> insert into student

-> values(101,'ram',33,44,55);

Query OK, 1 row affected (0.01 sec)

mysql> insert into student

-> values(102,'vinay',44,55,66);

Query OK, 1 row affected (0.00 sec)

mysql> insert into student

-> values(103,'prem',55,66,77);

Query OK, 1 row affected (0.00 sec)

mysql> insert into student

-> values(104,'nani',55,77,88);

Query OK, 1 row affected (0.01 sec)

mysql> insert into student

-> values(105,'bunny',99,88,77);

Query OK, 1 row affected (0.01 sec)

mysql> select \* from student;

+------+-------+------+------+------+

| htno | sname | m1 | m2 | m3 |

+------+-------+------+------+------+

| 101 | ram | 33 | 44 | 55 |

| 102 | vinay | 44 | 55 | 66 |

| 103 | prem | 55 | 66 | 77 |

| 104 | nani | 55 | 77 | 88 |

| 105 | bunny | 99 | 88 | 77 |

+------+-------+------+------+------+

5 rows in set (0.00 sec)

mysql> update student

-> set m1=88,m2=77,m3=99

-> where htno=103;

Query OK, 1 row affected (0.01 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> select \* from student;

+------+-------+------+------+------+

| htno | sname | m1 | m2 | m3 |

+------+-------+------+------+------+

| 101 | ram | 33 | 44 | 55 |

| 102 | vinay | 44 | 55 | 66 |

| 103 | prem | 88 | 77 | 99 |

| 104 | nani | 55 | 77 | 88 |

| 105 | bunny | 99 | 88 | 77 |

+------+-------+------+------+------+

5 rows in set (0.00 sec)

mysql> delete from student

-> where m1<35;

Query OK, 1 row affected (0.01 sec)

mysql> select \* from student;

+------+-------+------+------+------+

| htno | sname | m1 | m2 | m3 |

+------+-------+------+------+------+

| 102 | vinay | 44 | 55 | 66 |

| 103 | prem | 88 | 77 | 99 |

| 104 | nani | 55 | 77 | 88 |

| 105 | bunny | 99 | 88 | 77 |

+------+-------+------+------+------+

4 rows in set (0.00 sec)

mysql>

DDL

CREATE --> To create a table.

ALTER --> To modify the table structure.

DROP --> To delete table from a database

DML:

INSERT --> Inserting new records into a table.

UPDATE --> To modify the exsiting data

DELETE --> To delete rows(records from a table.

SELECT command:

-----------------

==> It is a DQL.

==> DQL --> Data Query Language

==> This command is used to, retrieve all records from a table.

==> syntax:

SELECT columnname-1,columnname-2,...columnname-n

FROM tablename

[WHERE condition]

[ORDER BY asce/desc];

ex-1: To display all records and all columns from student table:

SELECT \*

FROM student;

ex-2: To display all records and only 2 columns. ie. htno and name from student table:

SELECT htno,name

FROM student;

ex-3: To display all records and only 2 columns. ie. htno and m1 from student table:

SELECT htno,m1

FROM student;

ex-4: To display all records and 4 columns.

ie. htno and m1,m2,m3 from student table:

SELECT htno,m1,m2,m3

FROM student;

ex-5: To display all records and to find total marks.

SELECT htno,name,m1,m2,m3,m1+m2+m3

FROM student;

ex-6: To display all records and to find total marks.

SELECT htno,name,m1,m2,m3,m1+m2+m3 AS total

FROM student;

ex-7: To display records whose m1 marks is greater than 80.

SELECT \*

FROM student;

WHERE m1>=80;

ex-8: To display records whose average marks is greater than 70.

SELECT \*

FROM student;

WHERE avg>=70;

ex-9: To display recored order by name

SELECT \*

FROM student;

ORDER BY NAME;

NOTE: By default sorting order is ascending order.

ex-10: To display recored order by name with descending order

SELECT \*

FROM student;

ORDER BY NAME DESC;

mysql> use sql4pm;

Database changed

mysql> select \* FROM STUDENT;

ERROR 1146 (42S02): Table 'sql4pm.student' doesn't exist

mysql> create table student

-> (htno int,

-> name char(20),

-> m1 int, m2 int , m3 int);

Query OK, 0 rows affected (0.01 sec)

mysql> insert into student

-> values(1911,'xyz',66,77,88);

Query OK, 1 row affected (0.00 sec)

mysql> insert into student

-> values(1912,'abc',66,66,66);

Query OK, 1 row affected (0.00 sec)

mysql> insert into student

-> -> values(1912,'abc',66,66,66);

ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '-> values(1912,'abc',66,66,66)' at line 2

mysql>

mysql> insert into student

-> -> values(1912,'abc',66,66,66);

ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '-> values(1912,'abc',66,66,66)' at line 2

mysql> insert into student

-> values(1913,'cde',99,99,99);

Query OK, 1 row affected (0.00 sec)

mysql> desc student;

+-------+----------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+-------+----------+------+-----+---------+-------+

| htno | int | YES | | NULL | |

| name | char(20) | YES | | NULL | |

| m1 | int | YES | | NULL | |

| m2 | int | YES | | NULL | |

| m3 | int | YES | | NULL | |

+-------+----------+------+-----+---------+-------+

5 rows in set (0.01 sec)

mysql> select \* from student;

+------+------+------+------+------+

| htno | name | m1 | m2 | m3 |

+------+------+------+------+------+

| 1911 | xyz | 66 | 77 | 88 |

| 1912 | abc | 66 | 66 | 66 |

| 1913 | cde | 99 | 99 | 99 |

+------+------+------+------+------+

3 rows in set (0.00 sec)

mysql> SELECT htno,name

-> FROM student;

+------+------+

| htno | name |

+------+------+

| 1911 | xyz |

| 1912 | abc |

| 1913 | cde |

+------+------+

3 rows in set (0.00 sec)

mysql> SELECT htno,m1

-> FROM student;

+------+------+

| htno | m1 |

+------+------+

| 1911 | 66 |

| 1912 | 66 |

| 1913 | 99 |

+------+------+

3 rows in set (0.00 sec)

mysql> SELECT htno,m1,m2,m3

-> FROM student;

+------+------+------+------+

| htno | m1 | m2 | m3 |

+------+------+------+------+

| 1911 | 66 | 77 | 88 |

| 1912 | 66 | 66 | 66 |

| 1913 | 99 | 99 | 99 |

+------+------+------+------+

3 rows in set (0.00 sec)

mysql> select htno,name,m1,m2,m3, m1+m2+m3

-> from student;

+------+------+------+------+------+----------+

| htno | name | m1 | m2 | m3 | m1+m2+m3 |

+------+------+------+------+------+----------+

| 1911 | xyz | 66 | 77 | 88 | 231 |

| 1912 | abc | 66 | 66 | 66 | 198 |

| 1913 | cde | 99 | 99 | 99 | 297 |

+------+------+------+------+------+----------+

3 rows in set (0.00 sec)

mysql> select htno,name,m1,m2,m3, m1+m2+m3 total

-> from student;

+------+------+------+------+------+-------+

| htno | name | m1 | m2 | m3 | total |

+------+------+------+------+------+-------+

| 1911 | xyz | 66 | 77 | 88 | 231 |

| 1912 | abc | 66 | 66 | 66 | 198 |

| 1913 | cde | 99 | 99 | 99 | 297 |

+------+------+------+------+------+-------+

3 rows in set (0.00 sec)

mysql> SELECT htno,m1,m2,m3,m1+m2,m3 Total,(m1+m2+m3)/3 Average

-> from student;

+------+------+------+------+-------+-------+---------+

| htno | m1 | m2 | m3 | m1+m2 | Total | Average |

+------+------+------+------+-------+-------+---------+

| 1911 | 66 | 77 | 88 | 143 | 88 | 77.0000 |

| 1912 | 66 | 66 | 66 | 132 | 66 | 66.0000 |

| 1913 | 99 | 99 | 99 | 198 | 99 | 99.0000 |

+------+------+------+------+-------+-------+---------+

3 rows in set (0.00 sec)

mysql> alter table student

-> add(total int, avg int);

Query OK, 0 rows affected (0.01 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> select \* from student;

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1911 | xyz | 66 | 77 | 88 | NULL | NULL |

| 1912 | abc | 66 | 66 | 66 | NULL | NULL |

| 1913 | cde | 99 | 99 | 99 | NULL | NULL |

+------+------+------+------+------+-------+------+

3 rows in set (0.00 sec)

mysql> update student

-> set total=m1+m2+m3 avg=total/3

-> ;

mysql> update student

-> set total=m1+m2+m3, avg=total/3;

Query OK, 3 rows affected (0.00 sec)

Rows matched: 3 Changed: 3 Warnings: 0

mysql> select \* from student;

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1911 | xyz | 66 | 77 | 88 | 231 | 77 |

| 1912 | abc | 66 | 66 | 66 | 198 | 66 |

| 1913 | cde | 99 | 99 | 99 | 297 | 99 |

+------+------+------+------+------+-------+------+

3 rows in set (0.00 sec)

mysql> SELECT \* from student

-> where m1>=80;

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1913 | cde | 99 | 99 | 99 | 297 | 99 |

+------+------+------+------+------+-------+------+

1 row in set (0.00 sec)

mysql> select \* from student

-> where avg>=70;

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1911 | xyz | 66 | 77 | 88 | 231 | 77 |

| 1913 | cde | 99 | 99 | 99 | 297 | 99 |

+------+------+------+------+------+-------+------+

2 rows in set (0.00 sec)

mysql> select \* from student;

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1911 | xyz | 66 | 77 | 88 | 231 | 77 |

| 1912 | abc | 66 | 66 | 66 | 198 | 66 |

| 1913 | cde | 99 | 99 | 99 | 297 | 99 |

+------+------+------+------+------+-------+------+

3 rows in set (0.00 sec)

mysql> select \* from student

-> order by name;

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1912 | abc | 66 | 66 | 66 | 198 | 66 |

| 1913 | cde | 99 | 99 | 99 | 297 | 99 |

| 1911 | xyz | 66 | 77 | 88 | 231 | 77 |

+------+------+------+------+------+-------+------+

3 rows in set (0.00 sec)

mysql> select \* from student

-> order by name DESC;

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1911 | xyz | 66 | 77 | 88 | 231 | 77 |

| 1913 | cde | 99 | 99 | 99 | 297 | 99 |

| 1912 | abc | 66 | 66 | 66 | 198 | 66 |

+------+------+------+------+------+-------+------+

3 rows in set (0.00 sec)

To display all tables in your database :

mysql> show full tables;

+------------------+------------+

| Tables\_in\_sql4pm | Table\_type |

+------------------+------------+

| customer | BASE TABLE |

| employee | BASE TABLE |

| student | BASE TABLE |

+------------------+------------+

3 rows in set (0.01 sec)

Aggregage functions in SQL

-------------------------------

min() : It returns lowest salary

max() : It returns highest salary

count(): No. of records in a given table.

sum(): It returns sum of the given column

avg(): It returns average of the given column.

ex-1:

select min(sal),max(sal),sum(sal),avg(sal),count(sal)

from employee;

ex-2:

select min(sal) as MINIMUMSAL ,max(sal) AS MAXIMUMSAL,

sum(sal) AS TOTALSALARY,avg(sal) AS AVERAGESALARY,

count(sal) NOOFEMPLOYEES

from employee;

mysql> use sql4pm;

Database changed

mysql> create table empdetails

-> (EmpId int,

-> EmpName char(20),

-> EmpAddress char(20),

-> EmpSalary float,

-> EmpDept char(20));

Query OK, 0 rows affected (0.03 sec)

mysql> desc empdetails;

+------------+----------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+------------+----------+------+-----+---------+-------+

| EmpId | int | YES | | NULL | |

| EmpName | char(20) | YES | | NULL | |

| EmpAddress | char(20) | YES | | NULL | |

| EmpSalary | float | YES | | NULL | |

| EmpDept | char(20) | YES | | NULL | |

+------------+----------+------+-----+---------+-------+

5 rows in set (0.00 sec)

mysql> insert into empdetails

-> values( 1, "Rambo", "Kolkata" ,30000,"ADMIN");

Query OK, 1 row affected (0.00 sec)

mysql> insert into empdetails

-> values(2 ,"Inza","Bihar",31000,"SALES");

Query OK, 1 row affected (0.00 sec)

mysql> insert into empdetails

-> values(3,"Samser","Kolkata",32000 ,"IT");

Query OK, 1 row affected (0.00 sec)

mysql> insert into empdetails

-> values(4,"Kamran","Hydrabad",33000, "ITIS");

Query OK, 1 row affected (0.00 sec)

mysql> insert into empdetails

-> values(5,"Azam","Kolkata",33000 ,"ITIS");

Query OK, 1 row affected (0.00 sec)

mysql> SELECT \* FROM EMPDETAILES;

ERROR 1146 (42S02): Table 'sql4pm.empdetailes' doesn't exist

mysql> SELECT \* FROM empdetails;

+-------+---------+------------+-----------+---------+

| EmpId | EmpName | EmpAddress | EmpSalary | EmpDept |

+-------+---------+------------+-----------+---------+

| 1 | Rambo | Kolkata | 30000 | ADMIN |

| 2 | Inza | Bihar | 31000 | SALES |

| 3 | Samser | Kolkata | 32000 | IT |

| 4 | Kamran | Hydrabad | 33000 | ITIS |

| 5 | Azam | Kolkata | 33000 | ITIS |

+-------+---------+------------+-----------+---------+

5 rows in set (0.00 sec)

mysql> SELECT MIN(EMPSALARY) FROM empdetails;

+----------------+

| MIN(EMPSALARY) |

+----------------+

| 30000 |

+----------------+

1 row in set (0.00 sec)

mysql> select max(empsalary) from empdetails;

+----------------+

| max(empsalary) |

+----------------+

| 33000 |

+----------------+

1 row in set (0.00 sec)

mysql> select count(empid) from empdetails;

+--------------+

| count(empid) |

+--------------+

| 5 |

+--------------+

1 row in set (0.00 sec)

mysql> select min(sal),max(sal),sum(sal),avg(sal),count(sal)

-> from employee;

+----------+----------+----------+----------+------------+

| min(sal) | max(sal) | sum(sal) | avg(sal) | count(sal) |

+----------+----------+----------+----------+------------+

| NULL | NULL | NULL | NULL | 0 |

+----------+----------+----------+----------+------------+

1 row in set (0.00 sec)

mysql> select \* from empdetails

-> where empsalary=(select min(empsalary) from empdetails);

+-------+---------+------------+-----------+---------+

| EmpId | EmpName | EmpAddress | EmpSalary | EmpDept |

+-------+---------+------------+-----------+---------+

| 1 | Rambo | Kolkata | 30000 | ADMIN |

+-------+---------+------------+-----------+---------+

1 row in set (0.00 sec)

mysql> SHOW DATABASES;

AN

---------------------------

The WHERE clause can be combined with AND, OR, and NOT operators.

The AND and OR operators are:

The AND operator displays a record if all the conditions separated by AND are TRUE.

The OR operator displays a record if any of the conditions separated by OR is TRUE.

The NOT operator displays a record if the condition(s) is NOT TRUE.

Syntax: AND

SELECT column1, column2, ..., columnN

FROM table\_name

WHERE condition1 AND condition2 AND condition3 ..., AND columnmN;

Syntax: OR operator

SELECT column1, column2, ..., columnN

FROM table\_name

WHERE condition1 OR condition2 OR condition3 ..., OR columnN;

Syntax: NOT operator

SELECT column1, column2, ..., columnN

FROM table\_name

WHERE NOT condition;

USE batch4pm;

Create this below Employee table

DROP TABLE Employee

CREATE TABLE Employee(

EmpId INT,

EmpName VARCHAR(25),

EmpAddress VARCHAR(100),

EmpDept VARCHAR(25)

)

D, OR, NO

desc employee;

Insert data inside table

INSERT INTO Employee VALUES

(1, 'Rambo', 'Kolkata', 'IT'),

(2, 'Rohit', 'Kolkata', 'IT'),

(3, 'Rohon', 'Kolkata', 'ITIS'),

(4, 'Ronok', 'Kolkata', 'ITIS'),

(5, 'Rubin', 'Kolkata', 'ITIS'),

(6, 'Sorif', 'Kolkata', 'ADMIN'),

(7, 'Soriful', 'Kolkata', 'ADMIN'),

(8, 'Sofik', 'Kolkata', 'ADMIN')

SELECT \* FROM Employee

Ex: AND

SELECT \* FROM Employee

WHERE EmpDept = 'ADMIN' AND EmpName = 'Sofik'

ex:

select \* from employee

where empname='rubin' and empdept='admin';

Ex : OR Example

SELECT \* FROM Employee

WHERE EmpDept = 'ADMIN' OR EmpName = 'Rubin'

Ex : NOT operator

SELECT \* FROM Employee

WHERE NOT EmpDept='IT'

ex:

SELECT \* FROM Employee

WHERE NOT EmpDept='IT'

Ex: Combining AND, OR and NOT

SELECT \* FROM Employee

WHERE EmpDept='ADMIN' AND

(EmpAddress='Kolkata' OR EmpName='Sofik')

-----------------------

SQL IN Operator in SQL

-----------------------

The IN operator allows you to specify multiple values

in a WHERE clause.

==> The IN operator is a shorthand for multiple OR conditions.

Syntax-1:

SELECT column\_name(s)

FROM table\_name

WHERE column\_name IN (value1, value2, ... valuen);

Syntax-2:

SELECT column\_name(s)

FROM table\_name

WHERE column\_name IN (SELECT STATEMENT);

Ex 1:

SELECT \* FROM Employee

WHERE EmpDept IN ('IT', 'ADMIN');

or

select \* from employee

where empdept='IT' or empdept='ADMIN';

Ex-2:

SELECT \* FROM Employee

WHERE EmpDept NOT IN ('IT', 'ADMIN')

Ex-3: SELECT \* FROM Employee

WHERE EmpDept IN (

SELECT EmpDept FROM Employee WHERE EmpName = 'Rambo'

OR EmpName = 'Sorif')

ex-4: SELECT \* FROM Employee

WHERE EmpDept IN it ,admin

ex-5:

---------------------------

SQL Between Operator in SQL

--------------------------

==> The BETWEEN operator selects values within a given range.

==> The values can be numbers, text, or dates.

==> The BETWEEN operator is inclusive: begin and end values are included.

Syntax:

SELECT column\_name(s)

FROM table\_name

WHERE column\_name BETWEEN value1 AND value2;

Ex : BETWEEN

SELECT \* FROM Employee

WHERE EmpId BETWEEN 2 AND 4

Ex-2: NOT BETWEEN

SELECT \* FROM Employee

WHERE EmpId NOT BETWEEN 2 AND 4

Ex-3: BETWEEN with IN

SELECT \* FROM Employee

WHERE EmpId BETWEEN 2 AND 7 AND EmpDept NOT IN ('IT', 'ITIS')

T OPERATORS IN SQL

Commands:

1 . DDL commands

CREATE --> To create a database / table

DROP --> To delete the database /table

ALTER --> To modify structure of the table.

2. DML commands:

INSERT --> To add new records to the table.

DELETE --> To delete the records/rows

UPDATE --> To modify the values within the row.

3. SELECT command:

To retrieve the rows(records) from a table.

help. Type '\c' to clear the current input statement.

mysql> select 2+3;

+-----+

| 2+3 |

+-----+

| 5 |

+-----+

1 row in set (0.00 sec)

mysql> select 11+22,11-22,11\*5,60/4;

+-------+-------+------+---------+

| 11+22 | 11-22 | 11\*5 | 60/4 |

+-------+-------+------+---------+

| 33 | -11 | 55 | 15.0000 |

+-------+-------+------+---------+

1 row in set (0.00 sec)

mysql> select htno from student;

+------+

| htno |

+------+

| 1911 |

| 1912 |

| 1913 |

+------+

3 rows in set (0.00 sec)

mysql> select 11+22 ;

+-------+

| 11+22 |

+-------+

| 33 |

+-------+

1 row in set (0.00 sec)

mysql> select 11+22 'add';

+-----+

| add |

+-----+

| 33 |

+-----+

1 row in set (0.00 sec)

mysql> select 11+22 "add";

+-----+

| add |

+-----+

| 33 |

+-----+

1 row in set (0.00 sec)

mysql> select htno,name from student;

+------+------+

| htno | name |

+------+------+

| 1911 | xyz |

| 1912 | abc |

| 1913 | cde |

+------+------+

3 rows in set (0.00 sec)

mysql> select htno "hall ticket number",name "student name" , m1 "marks-1"

-> from student;

+--------------------+--------------+---------+

| hall ticket number | student name | marks-1 |

+--------------------+--------------+---------+

| 1911 | xyz | 66 |

| 1912 | abc | 66 |

| 1913 | cde | 99 |

+--------------------+--------------+---------+

3 rows in set (0.00 sec)

mysql> select 11+22 "addition" , 11-22 "minus",11\*22 "multipication"

->

-> ;

+----------+-------+---------------+

| addition | minus | multipication |

+----------+-------+---------------+

| 33 | -11 | 242 |

+----------+-------+---------------+

1 row in set (0.00 sec)

mysql> select 11<22 , 11>22,11<=22,11>=22;

+-------+-------+--------+--------+

| 11<22 | 11>22 | 11<=22 | 11>=22 |

+-------+-------+--------+--------+

| 1 | 0 | 1 | 0 |

+-------+-------+--------+--------+

1 row in set (0.00 sec)

mysql> select \* from student;

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1911 | xyz | 66 | 77 | 88 | 231 | 77 |

| 1912 | abc | 66 | 66 | 66 | 198 | 66 |

| 1913 | cde | 99 | 99 | 99 | 297 | 99 |

+------+------+------+------+------+-------+------+

3 rows in set (0.00 sec)

mysql> select \* from student

-> where m1=66 and m2=77;

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1911 | xyz | 66 | 77 | 88 | 231 | 77 |

+------+------+------+------+------+-------+------+

1 row in set (0.00 sec)

mysql> select \* from student

-> where m1=66 or m2=77;

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1911 | xyz | 66 | 77 | 88 | 231 | 77 |

| 1912 | abc | 66 | 66 | 66 | 198 | 66 |

+------+------+------+------+------+-------+------+

2 rows in set (0.00 sec)

mysql> select \* from student

-> where m1>=80;

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1913 | cde | 99 | 99 | 99 | 297 | 99 |

+------+------+------+------+------+-------+------+

1 row in set (0.00 sec)

mysql> select \* from student

-> where not m1>=80;

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1911 | xyz | 66 | 77 | 88 | 231 | 77 |

| 1912 | abc | 66 | 66 | 66 | 198 | 66 |

+------+------+------+------+------+-------+------+

2 rows in set (0.00 sec)

mysql> select 1 and 1;

+---------+

| 1 and 1 |

+---------+

| 1 |

+---------+

1 row in set (0.00 sec)

mysql> select 1 and 1 , 1 and 0, 0 and 1 , 0 and 0;

+---------+---------+---------+---------+

| 1 and 1 | 1 and 0 | 0 and 1 | 0 and 0 |

+---------+---------+---------+---------+

| 1 | 0 | 0 | 0 |

+---------+---------+---------+---------+

1 row in set (0.00 sec)

mysql> select 1 and 1 , 1 and 0, 0 and 1 , 0 and 0;

+---------+---------+---------+---------+

| 1 and 1 | 1 and 0 | 0 and 1 | 0 and 0 |

+---------+---------+---------+---------+

| 1 | 0 | 0 | 0 |

+---------+---------+---------+---------+

1 row in set (0.00 sec)

mysql> +---------+---------+---------+---------+

-> | 1 and 1 | 1 and 0 | 0 and 1 | 0 and 0 |

-> +---------+---------+---------+---------+

-> | 1 | 0 | 0 | 0 |

-> +---------+---------+---------+---------+

mysql> select 1 or 1, 1 or 0, 0 or 1 , 0 or 0 ;

+--------+--------+--------+--------+

| 1 or 1 | 1 or 0 | 0 or 1 | 0 or 0 |

+--------+--------+--------+--------+

| 1 | 1 | 1 | 0 |

+--------+--------+--------+--------+

1 row in set (0.00 sec)

mysql> select not 1;

+-------+

| not 1 |

+-------+

| 0 |

+-------+

1 row in set (0.00 sec)

mysql> select not 0;

+-------+

| not 0 |

+-------+

| 1 |

+-------+

1 row in set (0.00 sec)

mysql> select \* from student

-> where m1 in (55,66,77,88,99,22);

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1911 | xyz | 66 | 77 | 88 | 231 | 77 |

| 1912 | abc | 66 | 66 | 66 | 198 | 66 |

| 1913 | cde | 99 | 99 | 99 | 297 | 99 |

+------+------+------+------+------+-------+------+

3 rows in set (0.00 sec)

mysql> select \* from student

-> where m3 in (11,22,33,44,55,767,88);

+------+------+------+------+------+-------+------+

| htno | name | m1 | m2 | m3 | total | avg |

+------+------+------+------+------+-------+------+

| 1911 | xyz | 66 | 77 | 88 | 231 | 77 |

+------+------+------+------+------+-------+------+

1 row in set (0.00 sec)

mysql>

SQL Between Operator in SQL

--------------------------

==> The BETWEEN operator selects values within a given range.

==> The values can be eithter numbers, text, or dates.

==> The BETWEEN operator is inclusive: begin and end values are included.

Syntax:

SELECT column\_name(s)

FROM table\_name

WHERE column\_name BETWEEN value1 AND value2;

Ex : BETWEEN

SELECT \* FROM Employee

WHERE EmpId BETWEEN 2 AND 4

Ex-2: NOT BETWEEN

SELECT \* FROM Employee

WHERE EmpId NOT BETWEEN 2 AND 4;

Ex-3: BETWEEN with IN

SELECT \* FROM Employee

WHERE EmpId BETWEEN 2 AND 7 AND EmpDept NOT IN ('IT', 'ITIS')

Ex-4: BETWEEN with IN

SELECT \* FROM student

WHERE htno BETWEEN 12 AND 20 AND course NOT IN ('CSE', 'IT')

-----------------

Order By in SQL

------------

The ORDER BY keyword is used to sort the result-set in

ascending or descending order.

The ORDER BY keyword sorts the records in ascending order by default. To sort the records in descending order, use the DESC keyword.

Syntax:

SELECT column1, column2, ..., columnN

FROM table\_name

ORDER BY column1, column2, ... ASC|DESC;

Ex-1: ORDER BY

SELECT \* FROM Employee

ORDER BY EmpDept

Ex-2: ORDER BY DESC

SELECT \* FROM Employee

ORDER BY EmpDept DESC

Ex-3: ORDER BY Several Columns

SELECT \* FROM Employee

ORDER BY EmpDept, EmpName

Ex-4: ORDER BY Several Columns

SELECT \* FROM Employee

ORDER BY EmpDept DESC, EmpName ASC

-----------------

Group By in SQL

------------------

The GROUP BY statement is often used with

aggregate functions (COUNT, MAX, MIN, SUM, AVG) to group the result-set by one or more columns.

Syntax:

SELECT column\_name(s)

FROM table\_name

WHERE condition

GROUP BY column\_name(s)

ORDER BY column\_name(s);

Ex-1: SQL GROUP BY

SELECT EmpDept, COUNT(EmpDept) AS DeptCount

FROM Employee

GROUP BY EmpDept

Ex-2:

SELECT EmpDept, COUNT(EmpDept) AS DeptCount

FROM Employee

GROUP BY EmpDept

ORDER BY EmpDept DESC

ex-3:

empno ename sal deptno

101 xx 56000 10

102 yy 45000 20

103 zz 96000 10

104 xx 99000 10

105 xx 34000 10

106 xx 16000 20

107 xx 63000 10

select deptno , count(deptno),min(sal),max(sal) from emp

group by deptno;

output:

depto count min max

10 5 34000 99000

20 2 16000 45000

mysql> use sql4pm;

Database changed

mysql> drop table student;

Query OK, 0 rows affected (0.03 sec)

mysql> create table student

-> (htno int NOT NULL UNIQUE,

-> name char(20) NOT NULL,

-> M1 INT NOT NULL,M2 INT NOT NULL ,M3 INT NOT NULL);

Query OK, 0 rows affected (0.01 sec)

mysql> DESC STUDENT;

+-------+----------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+-------+----------+------+-----+---------+-------+

| htno | int | NO | PRI | NULL | |

| name | char(20) | NO | | NULL | |

| M1 | int | NO | | NULL | |

| M2 | int | NO | | NULL | |

| M3 | int | NO | | NULL | |

+-------+----------+------+-----+---------+-------+

5 rows in set (0.00 sec)

mysql> INSERT INTO student

-> values(101,'ram',77,88,99);

Query OK, 1 row affected (0.00 sec)

mysql> insert into student

-> values(102,'siva',88,55,99);

Query OK, 1 row affected (0.00 sec)

mysql> select \* from student;

+------+------+----+----+----+

| htno | name | M1 | M2 | M3 |

+------+------+----+----+----+

| 101 | ram | 77 | 88 | 99 |

| 102 | siva | 88 | 55 | 99 |

+------+------+----+----+----+

2 rows in set (0.00 sec)

mysql> insert into student

-> values(101,'balu',44,55,66);

ERROR 1062 (23000): Duplicate entry '101' for key 'student.htno'

mysql> insert into student

-> (name,m1) values('venkat',88);

ERROR 1364 (HY000): Field 'htno' doesn't have a default value

mysql> insert into student

-> values(109,'venkat',99,88,99);

Query OK, 1 row affected (0.00 sec)

mysql> insert into student

-> values(109,'venkat',99,88,99);

ERROR 1062 (23000): Duplicate entry '109' for key 'student.htno'

mysql> insert into student

-> values(109,'venkat',-67,-45,-23);

ERROR 1062 (23000): Duplicate entry '109' for key 'student.htno'

mysql> insert into student

-> values(139,'venkat',-67,-45,-23);

Query OK, 1 row affected (0.00 sec)

mysql> delete from student where hnto = 139;

ERROR 1054 (42S22): Unknown column 'hnto' in 'where clause'

mysql> delete from student where htno = 139;

Query OK, 1 row affected (0.00 sec)

mysql> select \* from student;

+------+--------+----+----+----+

| htno | name | M1 | M2 | M3 |

+------+--------+----+----+----+

| 101 | ram | 77 | 88 | 99 |

| 102 | siva | 88 | 55 | 99 |

| 109 | venkat | 99 | 88 | 99 |

+------+--------+----+----+----+

3 rows in set (0.00 sec)

mysql> ALTER table Student ADD CHECK(m1>0);

Query OK, 3 rows affected (0.04 sec)

Records: 3 Duplicates: 0 Warnings: 0

mysql> insert into student

-> values(139,'venkat',-67,-45,-23);

ERROR 3819 (HY000): Check constraint 'student\_chk\_1' is violated.

mysql> ALTER table Student ADD CHECK(m2>0);

Query OK, 3 rows affected (0.04 sec)

Records: 3 Duplicates: 0 Warnings: 0

mysql> ^C

mysql> ALTER table Student ADD CHECK(m3>0);

Query OK, 3 rows affected (0.02 sec)

Records: 3 Duplicates: 0 Warnings: 0

mysql> select \* from student;

+------+--------+----+----+----+

| htno | name | M1 | M2 | M3 |

+------+--------+----+----+----+

| 101 | ram | 77 | 88 | 99 |

| 102 | siva | 88 | 55 | 99 |

| 109 | venkat | 99 | 88 | 99 |

+------+--------+----+----+----+

3 rows in set (0.00 sec)

mysql> insert into student

-> values(125,'xx',78,-99,88)

-> ;

ERROR 3819 (HY000): Check constraint 'student\_chk\_2' is violated.

mysql> drop table student;

Query OK, 0 rows affected (0.01 sec)

mysql> create table student

-> (htno int not null check(htno > 0),

-> name char(20),

-> m1 int check(m1>0 and m1<100),

-> m2 int check(m2>0 and m2<100),

-> m3 int check(m3>0 and m3<100));

Query OK, 0 rows affected (0.01 sec)

mysql> desc student;

+-------+----------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+-------+----------+------+-----+---------+-------+

| htno | int | NO | | NULL | |

| name | char(20) | YES | | NULL | |

| m1 | int | YES | | NULL | |

| m2 | int | YES | | NULL | |

| m3 | int | YES | | NULL | |

+-------+----------+------+-----+---------+-------+

5 rows in set (0.00 sec)

mysql> insert into student

-> values(109,'siva',562,66,88);

ERROR 3819 (HY000): Check constraint 'student\_chk\_2' is violated.

mysql> drop table employee;

Query OK, 0 rows affected (0.01 sec)

mysql> select \* from employee;

ERROR 1146 (42S02): Table 'sql4pm.employee' doesn't exist

mysql> create table employee

-> (empid int,ename char(20),sal DECIMAL (18, 2) DEFAULT 56000.00;

ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '' at line 2

mysql> create table employee

-> (empid int,ename char(20),sal DECIMAL (18, 2) DEFAULT 56000.00);

Query OK, 0 rows affected (0.01 sec)

mysql> desc employee;

+-------+---------------+------+-----+----------+-------+

| Field | Type | Null | Key | Default | Extra |

+-------+---------------+------+-----+----------+-------+

| empid | int | YES | | NULL | |

| ename | char(20) | YES | | NULL | |

| sal | decimal(18,2) | YES | | 56000.00 | |

+-------+---------------+------+-----+----------+-------+

3 rows in set (0.00 sec)

mysql> insert into employee

-> values(101,'siva',120000);

Query OK, 1 row affected (0.00 sec)

mysql> insert into employee

-> values(102,'ram');

ERROR 1136 (21S01): Column count doesn't match value count at row 1

mysql> insert into employee

-> (empid, ename) values(102,'ram');

Query OK, 1 row affected (0.00 sec)

mysql> select \* from employee;

+-------+-------+-----------+

| empid | ename | sal |

+-------+-------+-----------+

| 101 | siva | 120000.00 |

| 102 | ram | 56000.00 |

+-------+-------+-----------+

2 rows in set (0.00 sec)

mysql> drop table student;

Query OK, 0 rows affected (0.01 sec)

mysql> create table student

-> (htno int, name char(20),

-> m1 int default 0,m2 int default 0, m3 int default 0);

Query OK, 0 rows affected (0.01 sec)

mysql> insert into student

-> (htno,name) values(101,'ram');

Query OK, 1 row affected (0.00 sec)

mysql> insert into student

-> values(102,'siva',77,88,99);

Query OK, 1 row affected (0.00 sec)

mysql> insert into student

-> (htno,name,m3) values(103,'balu',89);

Query OK, 1 row affected (0.00 sec)

mysql> select \* from student;

+------+------+------+------+------+

| htno | name | m1 | m2 | m3 |

+------+------+------+------+------+

| 101 | ram | 0 | 0 | 0 |

| 102 | siva | 77 | 88 | 99 |

| 103 | balu | 0 | 0 | 89 |

+------+------+------+------+------+

3 rows in set (0.00 sec)

mysql> drop table student;

Query OK, 0 rows affected (0.01 sec)

mysql> create table student

-> (htno int ,name char(20), m1 char(3) default "AB");

Query OK, 0 rows affected (0.02 sec)

mysql> insert into student

-> values(101,'rajesh',88);

Query OK, 1 row affected (0.00 sec)

mysql> insert into student

-> values(102,'srinivas');

ERROR 1136 (21S01): Column count doesn't match value count at row 1

mysql> insert into student

-> (htno,name) values(102,'srinivas');

Query OK, 1 row affected (0.00 sec)

mysql> select \* from student;

+------+----------+------+

| htno | name | m1 |

+------+----------+------+

| 101 | rajesh | 88 |

| 102 | srinivas | AB |

+------+----------+------+

2 rows in set (0.00 sec)