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Mysql Day 4: 04-10-202

Lab Assignment:

Activity 1:

Create a table STUDENT with under mentioned structure by using SQL

Statement:

StdID Number Primary Key

StdName Character (30) NOT NULL

Sex Character(6) Male or Female

Percentage Number

SClass Number

Sec Character

Stream Character(10) Science or Commerce

DOB Date Date of Birth

- 1) CREATE TABLE Student (StdID INT(4) PRIMARY KEY, StdName VARCHAR(30) NOT NULL, Sex VARCHAR(1), Percentage DECIMAL(5,2), SClass INT ,Sec VARCHAR(1), Stream VARCHAR(10), DOB DATE);

```
mysql> CREATE TABLE Student (
  -> StdID INT(4) PRIMARY KEY, StdName VARCHAR(30) NOT NULL,
  -> Sex VARCHAR(1), Percentage DECIMAL(5,2), SClass INT ,
  -> Sec VARCHAR(1), Stream VARCHAR(10), DOB DATE );
Query OK, 0 rows affected, 1 warning (0.03 sec)
```

```
mysql> desc Student;
```

Field	Type	Null	Key	Default	Extra
StdID	int	NO	PRI	NULL	
StdName	varchar(30)	NO		NULL	
Sex	varchar(1)	YES		NULL	
Percentage	decimal(5,2)	YES		NULL	
SClass	int	YES		NULL	
Sec	varchar(1)	YES		NULL	
Stream	varchar(10)	YES		NULL	
DOB	date	YES		NULL	

8 rows in set (0.00 sec)

- 2) INSERT INTO Student VALUES (1001, "AKSHRA AGARWAL", "F", 70, 11, "A", "Science", '1996/10/11');

```
mysql> INSERT INTO Student VALUES (1001, "AKSHRA AGARWAL", "F", 70, 11, "A", "Science", '1996/10/11');
Query OK, 1 row affected, 1 warning (0.00 sec)

mysql> Select * from Student;
+-----+-----+-----+-----+-----+-----+-----+-----+
| StdID | StdName      | Sex | Percentage | SClass | Sec | Stream | DOB      |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 1001 | AKSHRA AGARWAL | F   | 70.00      | 11     | A   | Science | 1996-10-11 |
+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

- 3) Similarly Inserted the Five records:

```
mysql> INSERT INTO Student VALUES (1002, "NAVEEN RAJ", "M", 100, 12, "B", "Science", '2000/10/12');
Query OK, 1 row affected, 1 warning (0.00 sec)

mysql> INSERT INTO Student VALUES (1003, "GAYATHRI", "F", 80, 11, "A", "Commerce", '2001/12/14');
Query OK, 1 row affected, 1 warning (0.00 sec)

mysql> INSERT INTO Student VALUES (1003, "PRAVIN KUMAR", "M", 75, 12, "B", "Commerce", '2000/09/15');
ERROR 1062 (23000): Duplicate entry '1003' for key 'student.PRIMARY'
mysql> INSERT INTO Student VALUES (1004, "PRAVIN KUMAR", "M", 75, 12, "B", "Commerce", '2000/09/15');
Query OK, 1 row affected, 1 warning (0.00 sec)

mysql> INSERT INTO Student VALUES (1005, "JENISH", "M", 95, 12, "A", "SCIENCE", '2000/11/16');
Query OK, 1 row affected, 1 warning (0.00 sec)

mysql> Select * from Student;
+-----+-----+-----+-----+-----+-----+-----+-----+
| StdID | StdName      | Sex | Percentage | SClass | Sec | Stream | DOB      |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 1001 | AKSHRA AGARWAL | F   | 70.00      | 11     | A   | Science | 1996-10-11 |
| 1002 | NAVEEN RAJ     | M   | 100.00     | 12     | B   | Science | 2000-10-12 |
| 1003 | GAYATHRI       | F   | 80.00      | 11     | A   | Commerce | 2001-12-14 |
| 1004 | PRAVIN KUMAR   | M   | 75.00      | 12     | B   | Commerce | 2000-09-15 |
| 1005 | JENISH         | M   | 95.00      | 12     | A   | SCIENCE | 2000-11-16 |
+-----+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

ACTIVITY 2:

Open the school database, then select the student table and use the following SQL statements.

1 To display all the records form STUDENT table.

SELECT * FROM student ;

```
mysql> Select * from Student;
```

StdID	StdName	Sex	Percentage	SClass	Sec	Stream	DOB
1001	AKSHRA AGARWAL	F	70.00	11	A	Science	1996-10-11
1002	NAVEEN RAJ	M	100.00	12	B	Science	2000-10-12
1003	GAYATHRI	F	80.00	11	A	Commerce	2001-12-14
1004	PRAVIN KUMAR	M	75.00	12	B	Commerce	2000-09-15
1005	JENISH	M	95.00	12	A	SCIENCE	2000-11-16

```
5 rows in set (0.00 sec)
```

2. To display only name and date of birth from the table STUDENT.

SELECT StdName, DOB FROM student ;

```
mysql> SELECT StdName, DOB FROM student ;
```

StdName	DOB
AKSHRA AGARWAL	1996-10-11
NAVEEN RAJ	2000-10-12
GAYATHRI	2001-12-14
PRAVIN KUMAR	2000-09-15
JENISH	2000-11-16

```
5 rows in set (0.00 sec)
```

3. To display all students record where percentage is greater of equal to 80 FROM student table.

SELECT * FROM student WHERE percentage >= 80;

```
mysql> SELECT * FROM student WHERE percentage >= 80;
```

StdID	StdName	Sex	Percentage	SClass	Sec	Stream	DOB
1002	NAVEEN RAJ	M	100.00	12	B	Science	2000-10-12
1003	GAYATHRI	F	80.00	11	A	Commerce	2001-12-14
1005	JENISH	M	95.00	12	A	SCIENCE	2000-11-16

```
3 rows in set (0.00 sec)
```

4. To display student name, stream and percentage where percentage of student is more than 80

SELECT StdName, Stream, Percentage from Student WHERE percentage > 80;

```
mysql> SELECT StdName, Stream, Percentage from Student WHERE percentage > 80;
```

StdName	Stream	Percentage
NAVEEN RAJ	Science	100.00
JENISH	SCIENCE	95.00

```
2 rows in set (0.00 sec)
```

5. To display all records of science students whose percentage is more than 75 form student table.

SELECT * FROM student WHERE stream = "Science" AND percentage > 75;

```
mysql> SELECT * FROM student WHERE stream = "Science" AND percentage > 75;
+-----+-----+-----+-----+-----+-----+-----+-----+
| StdID | StdName   | Sex | Percentage | SClass | Sec | Stream | DOB       |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 1002  | NAVEEN RAJ | M   | 100.00    | 12     | B   | Science | 2000-10-12 |
| 1005  | JENISH     | M   | 95.00     | 12     | A   | SCIENCE | 2000-11-16 |
+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

ACTIVITY 3:

1. To display the STUDENT table structure.

DESCRIBE Student;

```
mysql> DESCRIBE Student;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| StdID      | int           | NO   | PRI | NULL    |       |
| StdName    | varchar(30)   | NO   |     | NULL    |       |
| Sex        | varchar(1)    | YES  |     | NULL    |       |
| Percentage | decimal(5,2)  | YES  |     | NULL    |       |
| SClass     | int           | YES  |     | NULL    |       |
| Sec        | varchar(1)    | YES  |     | NULL    |       |
| Stream     | varchar(10)   | YES  |     | NULL    |       |
| DOB        | date          | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```

2,3. To add a column (FIELD)in the STUDENT table,for example TeacherID as VARCHAR(20);

ALTER TABLE Student ADD TeacherID VARCHAR(20);

DESCRIBE Student;

```
mysql> ALTER TABLE Student ADD TeacherID VARCHAR(20);
Query OK, 0 rows affected (0.01 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> DESCRIBE Student;
```

Field	Type	Null	Key	Default	Extra
StdID	int	NO	PRI	NULL	
StdName	varchar(30)	NO		NULL	
Sex	varchar(1)	YES		NULL	
Percentage	decimal(5,2)	YES		NULL	
SClass	int	YES		NULL	
Sec	varchar(1)	YES		NULL	
Stream	varchar(10)	YES		NULL	
DOB	date	YES		NULL	
TeacherID	varchar(20)	YES		NULL	

```
9 rows in set (0.00 sec)
```

4. Type the statement and press enter key, note the new field that you have added as TeacherID

SELECT * FROM student;

```
mysql> SELECT * FROM student;
```

StdID	StdName	Sex	Percentage	SClass	Sec	Stream	DOB	TeacherID
1001	AKSHRA AGARWAL	F	70.00	11	A	Science	1996-10-11	NULL
1002	NAVEEN RAJ	M	100.00	12	B	Science	2000-10-12	NULL
1003	GAYATHRI	F	80.00	11	A	Commerce	2001-12-14	NULL
1004	PRAVIN KUMAR	M	75.00	12	B	Commerce	2000-09-15	NULL
1005	JENISH	M	95.00	12	A	SCIENCE	2000-11-16	NULL

```
5 rows in set (0.00 sec)
```

5. To modify the TeacherID data type form character to integer.

ALTER TABLE Student MODIFY TeacherID INTEGER ;

DESC Student;

SELECT * FROM student;

```
mysql> ALTER TABLE Student MODIFY TeacherID INT;
Query OK, 5 rows affected (0.04 sec)
Records: 5 Duplicates: 0 Warnings: 0

mysql> DESC Student;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| StdID      | int           | NO   | PRI | NULL    |       |
| StdName    | varchar(30)   | NO   |     | NULL    |       |
| Sex        | varchar(1)    | YES  |     | NULL    |       |
| Percentage | decimal(5,2)  | YES  |     | NULL    |       |
| SClass     | int           | YES  |     | NULL    |       |
| Sec        | varchar(1)    | YES  |     | NULL    |       |
| Stream     | varchar(10)   | YES  |     | NULL    |       |
| DOB        | date          | YES  |     | NULL    |       |
| TeacherID  | int           | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+
9 rows in set (0.00 sec)

mysql> SELECT * FROM student;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| StdID | StdName    | Sex | Percentage | SClass | Sec | Stream | DOB       | TeacherID |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1001  | AKSHRA AGARWAL | F   | 70.00      | 11     | A   | Science | 1996-10-11 | NULL      |
| 1002  | NAVEEN RAJ    | M   | 100.00     | 12     | B   | Science | 2000-10-12 | NULL      |
| 1003  | GAYATHRI      | F   | 80.00      | 11     | A   | Commerce | 2001-12-14 | NULL      |
| 1004  | PRAVIN KUMAR  | M   | 75.00      | 12     | B   | Commerce | 2000-09-15 | NULL      |
| 1005  | JENISH        | M   | 95.00      | 12     | A   | SCIENCE | 2000-11-16 | NULL      |
+-----+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

Activity 4:

1. To Drop (Delete) a field from a table. For e.g you want to delete TeacherID field.

ALTER TABLE Student DROP TeacherID;

```
mysql> ALTER TABLE Student DROP TeacherID;
Query OK, 0 rows affected (0.01 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

2. To subtract 5 from all students percentage and display name and percentage.

SELECT StdName, percentage - 5 FROM Student;

```
mysql> SELECT name, percentage - 5 FROM Student;
ERROR 1054 (42S22): Unknown column 'name' in 'field list'
mysql> SELECT StdName, percentage - 5 FROM Student;
+-----+-----+
| StdName    | percentage - 5 |
+-----+-----+
| AKSHRA AGARWAL | 65.00         |
| NAVEEN RAJ    | 95.00         |
| GAYATHRI      | 75.00         |
| PRAVIN KUMAR  | 70.00         |
| JENISH        | 90.00         |
+-----+-----+
5 rows in set (0.00 sec)
```

3. Using column alias for example we want to display StdName as Student Name and DOB as Date of Birth then the statement will be.

SELECT StdName AS "Student Name", DOB As "Date of Birth" FROM Student;

```
mysql> SELECT StdName AS "Student Name", DOB As "Date of Birth" FROM Student;
+-----+-----+
| Student Name | Date of Birth |
+-----+-----+
| AKSHRA AGARWAL | 1996-10-11 |
| NAVEEN RAJ | 2000-10-12 |
| GAYATHRI | 2001-12-14 |
| PRAVIN KUMAR | 2000-09-15 |
| JENISH | 2000-11-16 |
+-----+-----+
5 rows in set (0.00 sec)
```

4. Display the name of all students whose stream is not Science

SELECT StdName FROM student WHERE Stream <> 'Science';

```
mysql> SELECT StdName FROM student WHERE Stream <> "Science";
+-----+
| StdName |
+-----+
| GAYATHRI |
| PRAVIN KUMAR |
+-----+
2 rows in set (0.00 sec)
```

5. Display all name and percentage where percentage is between 60 and 80

SELECT StdName, percentage FROM student WHERE percentage >=60 AND percentage <=80 ;

```
mysql> SELECT StdName, percentage FROM student WHERE percentage >=60 AND
-> percentage <=80 ;
+-----+-----+
| StdName | percentage |
+-----+-----+
| AKSHRA AGARWAL | 70.00 |
| GAYATHRI | 80.00 |
| PRAVIN KUMAR | 75.00 |
+-----+-----+
3 rows in set (0.00 sec)
```

Activity 5:

1. To Change a student name from Gayathri to G3 whose stdid is 1003 and also change percentage 86.

UPDATE Student SET StdName = "G3", percentage = 86 WHERE StdId = 1003;

```
mysql> UPDATE Student SET StdName = "G3", percentage = 86 WHERE StdId = 1003;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> SELECT * FROM student;
```

StdID	StdName	Sex	Percentage	SClass	Sec	Stream	DOB
1001	AKSHRA AGARWAL	F	70.00	11	A	Science	1996-10-11
1002	NAVEEN RAJ	M	100.00	12	B	Science	2000-10-12
1003	G3	F	86.00	11	A	Commerce	2001-12-14
1004	PRAVIN KUMAR	M	75.00	12	B	Commerce	2000-09-15
1005	JENISH	M	95.00	12	A	SCIENCE	2000-11-16

5 rows in set (0.00 sec)

2. To delete the records form student table where StdId is 1005.

DELETE FROM Student WHERE StdID = 1005;

```
mysql> DELETE FROM Student WHERE StdID = 1005;
Query OK, 1 row affected (0.01 sec)
```

```
mysql> SELECT * FROM student;
```

StdID	StdName	Sex	Percentage	SClass	Sec	Stream	DOB
1001	AKSHRA AGARWAL	F	70.00	11	A	Science	1996-10-11
1002	NAVEEN RAJ	M	100.00	12	B	Science	2000-10-12
1003	G3	F	86.00	11	A	Commerce	2001-12-14
1004	PRAVIN KUMAR	M	75.00	12	B	Commerce	2000-09-15

4 rows in set (0.00 sec)

3. Type the following SQL statement and note the output.

SELECT * FROM Student WHERE StdName LIKE 'G_';

SELECT * FROM Student WHERE StdName='G';

SELECT * FROM Student WHERE StdName LIKE 'G%';

SELECT * WHERE Student WHERE StdName='%G%';


```
mysql> SELECT * FROM Student WHERE StdName LIKE 'G_' ;
+-----+-----+-----+-----+-----+-----+-----+-----+
| StdID | StdName | Sex | Percentage | SClass | Sec | Stream | DOB |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 1003 | G3      | F   | 86.00      | 11     | A   | Commerce | 2001-12-14 |
+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> SELECT * FROM Student WHERE StdName='G';
Empty set (0.00 sec)

mysql> SELECT * FROM Student WHERE StdName LIKE 'G%' ;
+-----+-----+-----+-----+-----+-----+-----+-----+
| StdID | StdName | Sex | Percentage | SClass | Sec | Stream | DOB |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 1003 | G3      | F   | 86.00      | 11     | A   | Commerce | 2001-12-14 |
+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> SELECT * WHERE Student WHERE StdName='%G%' ;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds
RE StdName='%G%' at line 1
mysql>
```

4. Display all the streams in student table.

SELECT DISTINCT Stream FROM Student;

```
mysql> SELECT DISTINCT Stream FROM Student;
+-----+
| Stream |
+-----+
| Science |
| Commerce |
+-----+
2 rows in set (0.00 sec)
```

5. Note the output of the following statement.

SELECT StdName, Sex, Stream FROM Student WHERE percentage BETWEEN 70 AND 80;

```
mysql> SELECT StdName, Sex, Stream FROM Student WHERE percentage BETWEEN 70 AND 80;
+-----+-----+-----+
| StdName | Sex | Stream |
+-----+-----+-----+
| AKSHRA AGARWAL | F   | Science |
| PRAVIN KUMAR   | M   | Commerce |
+-----+-----+-----+
2 rows in set (0.00 sec)
```

Do it yourself:

1. Consider the Empl table and write SQL command to get the following.

```
mysql> create table empl(empno int primary key, ename varchar(20), job varchar(20), mgr int, hiredate date, sal decimal(5,2), comm decimal(5,2),deptno int);
Query OK, 0 rows affected (0.02 sec)

mysql> desc empl;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| empno | int | NO | PRI | NULL | |
| ename | varchar(20) | YES | | NULL | |
| job | varchar(20) | YES | | NULL | |
| mgr | int | YES | | NULL | |
| hiredate | date | YES | | NULL | |
| sal | decimal(5,2) | YES | | NULL | |
| comm | decimal(5,2) | YES | | NULL | |
| deptno | int | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM empl;
+-----+-----+-----+-----+-----+-----+-----+-----+
| empno | ename | job | mgr | hiredate | sal | comm | deptno |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 8369 | SMITH | CLERK | 8902 | 1990-12-18 | 800 | NULL | 20 |
| 8499 | ANYA | SALESMAN | 8698 | 1991-02-20 | 1600 | 300 | 30 |
| 8521 | SETH | SALESMAN | 8698 | 1991-02-22 | 1250 | 500 | 30 |
| 8566 | MAHADEVAN | MANAGER | 8839 | 1991-04-02 | 2985 | NULL | 20 |
| 8654 | MOMIN | SALESMAN | 8698 | 1991-09-28 | 1250 | 1400 | 30 |
| 8698 | BINA | MANAGER | 8839 | 1991-05-01 | 2850 | NULL | 30 |
| 8839 | AMIR | PRESIDENT | NULL | 1991-11-18 | 5000 | NULL | 10 |
| 8844 | KULDEEP | SALESMAN | 8698 | 1991-09-08 | 1500 | 0 | 30 |
| 8882 | SHIVANSH | MANAGER | 8839 | 1991-06-09 | 2450 | NULL | 10 |
| 8888 | SCOTT | ANALYST | 8566 | 1992-12-09 | 3000 | NULL | 20 |
+-----+-----+-----+-----+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

a. Write a query to display EName and Sal of employees whose salary are greater than or equal to 2200?

SELECT ename , sal FROM empl where sal >= 2200;

```
mysql> select ename , sal from empl where sal >= 2200;
+-----+-----+
| ename | sal |
+-----+-----+
| MAHADEVAN | 2985 |
| BINA | 2850 |
| AMIR | 5000 |
| SHIVANSH | 2450 |
| SCOTT | 3000 |
+-----+-----+
5 rows in set (0.00 sec)
```

b. Write a query to display details of employs who are not getting commission?

SELECT * FROM EMPL WHERE COMM IS NULL;

```
mysql> SELECT * FROM EMPL WHERE COMM IS NULL;
```

empno	ename	job	mgr	hiredate	sal	comm	deptno
8369	SMITH	CLERK	8902	1990-12-18	800	NULL	20
8566	MAHADEVAN	MANAGER	8839	1991-04-02	2985	NULL	20
8698	BINA	MANAGER	8839	1991-05-01	2850	NULL	30
8839	AMIR	PRESIDENT	NULL	1991-11-18	5000	NULL	10
8882	SHIVANSH	MANAGER	8839	1991-06-09	2450	NULL	10
8888	SCOTT	ANALYST	8566	1992-12-09	3000	NULL	20

```
6 rows in set (0.00 sec)
```

c. Write a query to display employee name and salary of those employees who don't have their salary in range of 2500 to 4000?

SELECT ENAME, SAL FROM EMPL WHERE SAL NOT BETWEEN 2500 AND 4000;

```
mysql> SELECT ENAME, SAL FROM EMPL WHERE SAL NOT BETWEEN 2500 AND 4000;
```

ENAME	SAL
SMITH	800
ANYA	1600
SETH	1250
MOMIN	1250
AMIR	5000
KULDEEP	1500
SHIVANSH	2450

```
7 rows in set (0.00 sec)
```

d. Write a query to display the name, job title and salary of employees who don't have a manager?

select ename, job, sal from empl where mgr is null;

```
mysql> select ename, job, sal from empl where mgr is null;
```

ename	job	sal
AMIR	PRESIDENT	5000

```
1 row in set (0.00 sec)
```

e. Write a query to display the name of employee whose name contains "A" as third alphabet?

```
mysql> select * from empl where ename like "__A%";  
Empty set (0.00 sec)
```

f. Write a query to display the name of employee whose name contains "T" as last alphabet?

```
mysql> select * from empl where ename like "%T";  
+-----+-----+-----+-----+-----+-----+-----+-----+  
| empno | ename | job      | mgr  | hiredate | sal  | comm | deptno |  
+-----+-----+-----+-----+-----+-----+-----+-----+  
| 8888  | SCOTT | ANALYST  | 8566 | 1992-12-09 | 3000 | NULL | 20     |  
+-----+-----+-----+-----+-----+-----+-----+-----+  
1 row in set (0.00 sec)
```

g. Write a query to display the name of employee whose name contains "M" as First and "L" as third alphabet?

```
mysql> select * from empl where ename like "M_L%";  
Empty set (0.00 sec)
```

h. Write a query to display details of employees with the text "Not given", if commission is null?

```
mysql> SELECT * FROM empl WHERE comm IS NULL AND job = 'Not given';  
Empty set (0.00 sec)
```