

## “Exp 6: Demonstrate integrity constraints: PRIMARY KEY, FOREIGN KEY, CHECK, NOT NULL, DEFAULT.”

1] Creating a table with aforementioned integrity constraints & inserting values while obeying the enforced rules.

```
mysql> CREATE TABLE emp (  
-> EmpNo int PRIMARY KEY,  
-> EName varchar(20) NOT NULL,  
-> Salary int CHECK(Salary > 0),  
-> Loc varchar(20) DEFAULT 'Mumbai',  
-> DeptNo int REFERENCES Dept(DeptNo));  
Query OK, 0 rows affected (0.03 sec)  
  
mysql> INSERT INTO emp (EmpNo, EName, Salary, Loc, DeptNo)  
-> VALUES (512, 'Krishna', 80000, 'Jalgaon', 22),  
-> (412, 'Bhuvan', 70000, 'Jalgaon', 33);  
Query OK, 2 rows affected (0.01 sec)  
Records: 2 Duplicates: 0 Warnings: 0  
  
mysql>
```

2] Trying to insert value while violating enforced constraints/rules.

a] NOT NULL error :-

```
mysql> INSERT INTO emp (EmpNo, EName, Salary, Loc, DeptNo)  
-> VALUES (512, NULL, 0, 'Mumbai', 11);  
ERROR 1048 (23000): Column 'EName' cannot be null
```

b] PRIMARY KEY error :-

```
mysql> INSERT INTO emp (EmpNo, EName, Salary, Loc, DeptNo)  
-> VALUES (512, 'Tushar', 68000, 'Mumbai', 11);  
ERROR 1062 (23000): Duplicate entry '512' for key 'emp.PRIMARY'
```

c] CHECK error :-

```
mysql> INSERT INTO emp (EmpNo, EName, Salary, Loc, DeptNo)  
-> VALUES (522, 'Tushar', 0, 'Mumbai', 11);  
ERROR 3819 (HY000): Check constraint 'emp_chk_1' is violated.
```

3] Successful insertion (as constraints/rules are obeyed).

```
mysql> INSERT INTO emp (EmpNo, EName, Salary, Loc, DeptNo)  
-> VALUES (522, 'Tushar', 68000, 'Mumbai', 22);  
Query OK, 1 row affected (0.02 sec)  
  
mysql> select * from emp;  
+-----+-----+-----+-----+-----+  
| EmpNo | EName  | Salary | Loc    | DeptNo |  
+-----+-----+-----+-----+-----+  
| 412   | Bhuvan | 70000  | Jalgaon | 33     |  
| 512   | Krishna | 80000  | Jalgaon | 22     |  
| 522   | Tushar | 68000  | Mumbai  | 22     |  
+-----+-----+-----+-----+-----+  
3 rows in set (0.00 sec)
```

#### 4] DEFAULT constraint.

```
mysql> INSERT INTO emp (EmpNo, EName, Salary, DeptNo) VALUES (1, 'John', 50000, 22);  
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from emp;
```

EmpNo	EName	Salary	Loc	DeptNo
1	John	50000	Mumbai	22
412	Bhuvan	70000	Jalgaon	33
512	Krishna	80000	Jalgaon	22
522	Tushar	68000	Mumbai	22

```
4 rows in set (0.01 sec)
```

#### 5] FOREIGN KEY error.

A] dept Table from where foreign key is referenced :-

```
mysql> select * from dept;  
+-----+-----+  
| DeptNo | DeptName |  
+-----+-----+  
| 22 | Teaching |  
| 33 | Non-Teaching |  
+-----+-----+  
2 rows in set (0.00 sec)
```

B] Trying to insert DeptNo in Foreign Key column of “emp” table which is not referenced in the Primary Key column of “dept” table generates following error :-

```
mysql> insert into emp values (420, 'Nishant', 69000, 'Jalgaon', 11);  
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails (`manual`.`emp`, CONSTRAINT `fk_emp_deptno` FOREIGN KEY (`DeptNo`) REFERENCES `dept` (`DeptNo`))
```