

EXPERIMENT-9

AIM : Write SQL queries to perform KEY CONSTRAINTS (i.e. PRIMARY KEY, FOREIGN KEY, UNIQUE NOT NULL, CHECK, DEFAULT).

Types of SQL Constraints.

1. NOT NULL - Ensures that a column cannot have a NULL value
2. UNIQUE - Ensures that all values in a column are different
3. PRIMARY KEY - A combination of a NOT NULL and UNIQUE. Uniquely identifies each row in a table
4. FOREIGN KEY - Uniquely identifies a row/record in another table
5. CHECK - Ensures that all values in a column satisfies a specific condition
6. DEFAULT - Sets a default value for a column when no value is specified

1.NOT NULL Constraint Example:

```
SQL-CSE530>CREATE TABLE order1(  
2 id NUMBER PRIMARY KEY,  
3 product_name VARCHAR2(50) NOT NULL,  
4 quantity NUMBER  
5 );
```

Table created.

```
SQL-CSE530>INSERT INTO order1 VALUES(1,'AGARBATHI',30);
```

1 row created.

```
SQL-CSE530>INSERT INTO order1 VALUES(4,'',30);  
INSERT INTO order1 VALUES(4,'',30)
```

*

ERROR at line 1:

ORA-01400: cannot insert NULL into ("CSE530"."ORDER1"."PRODUCT_NAME")

2.UNIQUE CONSTRAINT Example:

```
SQL-CSE530>CREATE TABLE employees (  
2 id NUMBER PRIMARY KEY,  
3 name VARCHAR(50) NOT NULL,  
4 e_mail VARCHAR2(50) UNIQUE  
5 );
```

Table created.

```
SQL-CSE530>INSERT INTO employees VALUES(530,'Jagadeesh','jagadeesh8897@gmail.com');
```

1 row created.

3.PRIMARY KEY CONSTRAINT Example:

```
SQL-CSE530>CREATE TABLE stud (  
2 ID NUMBER PRIMARY KEY,  
3 first_name VARCHAR(20) NOT NULL,  
4 last_name VARCHAR(20) NOT NULL  
5 );
```

Table created.

```
SQL-CSE530>INSERT INTO stud VALUES(530,'HARRY','POTTER');
```

1 row created.

4.FORIEGN KEY CONSTRAINTS Example:

```
SQL-CSE530>CREATE TABLE orders(  
  2  id NUMBER PRIMARY KEY,  
  3  order_num NUMBER NOT NULL,  
  4  stud_id NUMBER REFERENCES stud(id)  
  5  );  
  
Table created.  
  
SQL-CSE530>INSERT INTO orders VALUES(11,2,111);  
INSERT INTO orders VALUES(11,2,111)  
*  
ERROR at line 1:  
ORA-02291: integrity constraint (CSE530.SYS_C007076) violated - parent key not found
```

5.CHECK CONSTRAINTS Example:

```
SQL-CSE530>CREATE TABLE parts1(  
  2  part_id NUMBER PRIMARY KEY,  
  3  part_name VARCHAR2(50) NOT NULL,  
  4  buy_price NUMBER(9,2) CHECK(buy_price>0)  
  5  );  
  
Table created.  
  
SQL-CSE530>INSERT INTO parts1 VALUES(1,'AGARBATHI',897);  
  
1 row created.  
  
SQL-CSE530>INSERT INTO parts1 VALUES(1,'AGARBATHI',-897);  
INSERT INTO parts1 VALUES(1,'AGARBATHI',-897)  
*  
ERROR at line 1:  
ORA-02290: check constraint (CSE530.SYS_C007083) violated
```

6.DEFAULT CONSTRAINTS Example:

```
SQL-CSE530>CREATE TABLE customers1 (  
  2  name VARCHAR2(50) NOT NULL,  
  3  id NUMBER PRIMARY KEY,  
  4  country VARCHAR2(20) DEFAULT 'IND'  
  5  );
```

Table created.

```
SQL-CSE530>INSERT INTO customers1 VALUES('ARJUN',1,'AUS');
```

1 row created.

```
SQL-CSE530>INSERT INTO customers1(name,id) VALUES('allu',2);
```

1 row created.

```
SQL-CSE530>SELECT * FROM customers1;
```

NAME	ID
ARJUN	1
AUS	
allu	2
IND	