SQL Part: 8

Constraints:

Constraints means restrictions.

We apply the constraints on column not on table.

When we can apply the constraints?

We can apply constraints at the time of table creation as well as after table creation

Why constrains are required?

To avoid wrong data storage.

To ensures the accuracy and reliability of the data in the database.

Types of constraints

- 1) Primary key
- 2) Foreign Key
- 3) Unique Key
- 4) Not null
- 5) Check
- 6) Default

Unique Key Constraints

- 1) We can apply unique key constraints on single column or group of columns
- 2) If we apply unique key on group of columns then it is known as Composite Unique Key.
- 3) If we apply unique key then that column does not allow duplicate values.
- 4) Unique key constraints can contain null values.
- 5) One table can have multiple unique key
- 6) We can apply unique key constraints at the time of table creation or after table creation.

Case 1: Applying UNIQUE constraints on single column at the time of table creation.

```
Create Table Employee101(

emp_id number unique,

emp name varchar(250)
);
```

Case 2: Applying UNIQUE constraints on two different columns at the time of table creation.

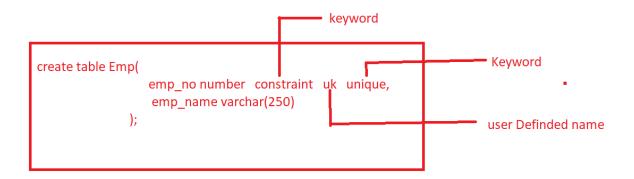
```
Create Table Employee101(

emp_id number unique,

emp_name varchar(250),

Emp_Pan_no varchar(100) unique
);
```

Case 3: Applying UNIQUE constraints using constraint keyword at the time of table creation.



Note: While defining the Column for any table below is sequence

Column_name data_type name_of_constraints

Case 4: we can apply unique constraints after defining all columns

create table Emp(emp_no number,emp_name varchar(250), constraint uk unique(emp_no))

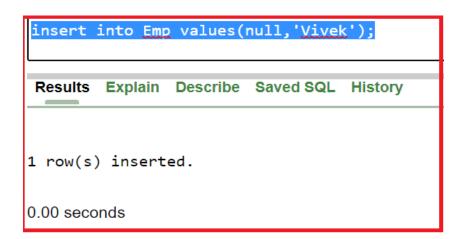
Case 5: Apply unique constraint by combination of two column

Important points about Unique Constraints

1) Duplicate values not allowed for Unique key constraints by mistake if we are trying to insert duplicate values then we will get error



2) Null values are allowed for Unique Constraints



Primary Key Constraints (Primary Key=Not Null+ Unique)

- 1) We can apply Primary Key constraints on single column or group of columns
- 2) If we apply Primary Key on group of columns then it is known as Composite Primary Key.
- 3) If we apply Primary Key then that column does not allow duplicate and null values.
- 4) One table can have only one Primary Key
- 5) We can apply Primary key constraints at the time of table creation or after table creation.

Case 1: Applying Primary Key constraints on single column at the time of table creation.

create table Emp(emp_no number Primary Key, emp_name varchar(250))

Case 2: Applying Primary Key constraints on two different columns at the time of table creation will give an error because there is only one primary key per table.

```
Create table Emp(emp_no_number Primary Key,emp_name_varchar(250) Primary key)

Results Explain Describe Saved SQL History

ORA-02260: table can have only one primary key
```

Case 3: But we can define Primary key by using combination of two columns

```
create table Emp(
emp_no number,
emp_name varchar(250),
constraint pk Primary key(emp_no,emp_name)
);
```

Case 4: Applying Primary Key constraints using constraint keyword at the time of table creation

create 	table	Emp(emp_no	number (constraint	<u>pk</u>	Primary	key,emp_name	varchar(250))
Results	Expla	in Describe	Saved SG	L History				
Table c	reated							

Case 5: we can apply Primary Key constraints after defining all columns

```
create table Emp(emp_no_number.emp_name_varchar(250), constraint pk Primary key(emp_no))

Results Explain Describe Saved SQL History

Table created.
```

Important points for the Primary key.

- 1) Duplicate values are not allowed for primary key. By mistake if we are trying to insert duplicate values in Primary key Column then we will get Error
- 2) Null values not allowed for Primary key column. By mistake if we are trying to insert null values then we will get error.
- 3) There is only one Primary key per table. By mistake if we are trying to apply multiple primary keys for single table then we will get Error.

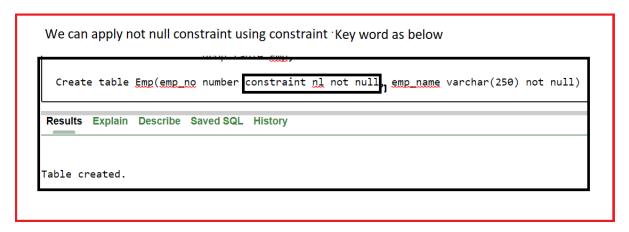
Not Null Constraint

Not null constraint ensure that null values are not allowed for the column

Example: 1 How to apply not null constraint?

Create table Emp(Emp_no number not null, emp_name varchar(250) not null)

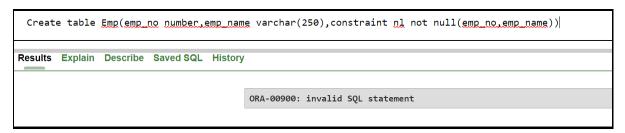
Example 2: We apply not null using constraint key word as below



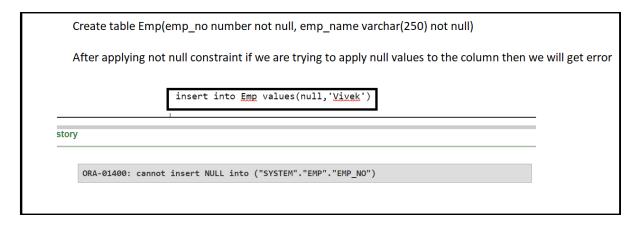
Example 3: we can apply not null constraint after defining all the columns as below

```
Create Table Emp(
emp_no number,
emp_name varchar(250),
constraint NL Not Null(emp_no)
);
```

Example 4: we can't apply not null constraint on combination of two column. By mistake if we are trying to apply not null constraint on combination of two column then we will get error



Example 5: After applying not null constraint if we are trying to insert null values then we will get error



Important points:

1. Can we apply not null and unique constraint on same column at time?

Ans: yes, we can apply not null and unique constraint on same column at a time.

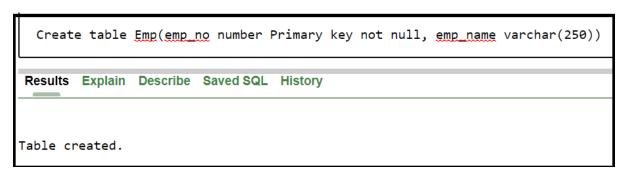
```
Create table Emp(emp no number Unique not null, emp name varchar(250))

Results Explain Describe Saved SQL History

Table created.
```

2. Can we apply not null and Primary key constraint on same column at a time?

Ans: yes, we can apply not null and Primary key constraint on same column at a time.



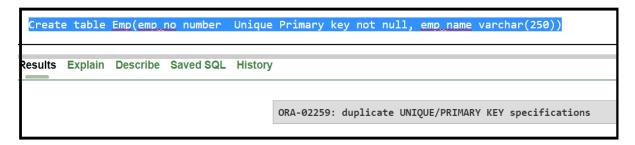
3. Can we apply Primary key constraint and Unique key constraint on same column at a time?

Ans: No, we cannot apply primary key constraint and Unique key constraint on same column at a time. By mistake if we are trying to apply then we will get error.



4. Can we apply primary key constraints, Unique key constraint and Not null constraint on same column at a time?

Ans: No, we cannot apply primary key constraints, Unique key constraint and not null constraint on same column at a time



Check Constraint

Create table Emp(emp_no number check(emp_no>100), emp_name varchar(250))

Applying check constraint using constraint keyword

Create table Emp(emp_no number constraint ck check(emp_no>100), emp_name varchar(250))