

Title: Create table and Apply constraints such as NOT NULL, UNIQUE, Check, Default, Primary key ,Foreign key, on the table.

Theory:

- Creating Table:- Tables can be created inside Database which is under use.

```
CREATE TABLE table_name (  
    column1 datatype,  
    column2 datatype,  
    column3 datatype,  
    ....  
);
```

Eg.

```
CREATE TABLE firstYear(  
    firstName varchar(20),  
    lastName varchar(20),  
    enrolmentNo varchar(9),  
    birthDate DATE,  
    CoursesEnrolled int  
);
```

- Constraints possible for columns of table:
 - NOT NULL: States that column with this constraint cannot be null.
 - DEFAULT: Sets a default value for column if value not specified.
 - CHECK: Gives a condition which must be satisfied by the value to be placed.
 - UNIQUE: Ensures that all values in a column are different.
 - PRIMARY KEY: Ensures that value is Unique and NOT NULL, It is used to uniquely identify the row
 - FOREIGN KEY: Refers to PRIMARY KEY of another table i.e. uniquely identify a row in other table.

Eg.

```
CREATE TABLE firstYear(  
    firstName varchar(20) NOT NULL,  
    lastName varchar(20),  
    enrolmentNo varchar(9) PRIMARY KEY,  
    age INT NOT NULL,  
    coursesEnrolled INT DEFAULT 0,  
    libraryID INT UNIQUE,  
    favCourse VARCHAR(20),  
    CHECK (age>=15)  
);
```

Example of queries:

- `INSERT INTO firstyear VALUES("Omkar", "Phansopkar", "FS19C0042", 15, 5, 2042, "Java");`
-- This query is valid
- `INSERT INTO firstyear VALUES("Sam", "Johnson", "FS19C0067", 13, 8, 2067, "Python");`
-- This query is not valid, since the age is 13 i.e. less than 15
- `INSERT INTO firstyear(firstName, enrolmentNo, age, libraryID, favCourse)`
`VALUES("Lokey", "FS19C0070", 20, 9, "DBMS")`
-- This query is valid
- `INSERT INTO firstyear(firstName, lastName, enrolmentNo, age, libraryID, favCourse)`
`VALUES("Josh", "Hazlewood", "FS19C0070", 15, 15, "JS");`
-- This query is not valid since the enrolmentNo which is primary key, has been given a duplicate value same as that of Lokey
- `INSERT INTO firstyear(firstName, lastName, enrolmentNo, age, libraryID, favCourse)`
`VALUES("Sam", "Curran", "FS19C0080", 20, 15, "MP");`
-- This query is valid

Exported CSV form of table:

firstName,	lastName,	enrolmentNo,	age,	coursesEnrolled,	libraryID,	favCourse
Omkar,	Phansopkar,	FS19C0042,	15,	5,	2042,	Java
Lokey,	,	FS19C0070,	20,	0,	9,	DBMS
Sam,	Curran,	FS19C0080,	20,	0,	15,	MP

Queries:

```
3 CREATE TABLE firstyear(
4     firstName VARCHAR(20) NOT NULL,
5     lastName VARCHAR(20),
6     enrolmentNo VARCHAR(9) PRIMARY KEY,
7     age INT NOT NULL,
8     coursesEnrolled INT DEFAULT 0,
9     libraryID INT UNIQUE,
10    favCourse VARCHAR(20) DEFAULT "NONE",
11    CHECK (age>=15)
12 );
13
14 DESC TABLE firstyear;
15
16 INSERT INTO firstyear VALUES("Omkar", "Phansopkar", "FS19C0042", 15, 5, 2042, "Java");
17
18 INSERT INTO firstyear VALUES("Sam", "Johnson", "FS19C0067", 13, 8, 2067, "Python");
19
20 INSERT INTO firstyear(firstName, enrolmentNo, age, libraryID, favCourse)
21     VALUES("Lokey", "FS19C0070", 20, 9, "DBMS");
22
23 INSERT INTO firstyear(firstName, lastName, enrolmentNo, age, libraryID, favCourse)
24     VALUES("Josh", "Hazlewood", "FS19C0070", 15, 15, "JS");
25
26 INSERT INTO firstyear(firstName, lastName, enrolmentNo, age, libraryID, favCourse)
27     VALUES("Sam", "Curran", "FS19C0080", 20, 15, "MP");
28
29
30 SELECT * FROM firstyear;
31
```

Output:

Success

1:03 PM
2.08 seconds

Explore

SQL

Data

Chart

Export

Activate Windows

Go to Settings to activate Windows.

Rows affected: 0

Success

1 rows

1:03 PM
0.688 seconds

Explore

SQL

Data

Chart

Export

id

select_type

table

partitions

type

possible_keys

key

key_len

ref

1

SIMPLE

firstyear

NULL

ALL

NULL

NULL

NULL

NULL

Success

1:03 PM
1.403 seconds

Explore

SQL

Data

Chart

Export

Rows affected: 1

Failed

1:03 PM

Explore SQL Data Chart Export ▾ 🔗

UNKNOWN_CODE_PLEASE_REPORT: Check constraint 'firstyear_chk_1' is violated.

Success

1:03 PM
1.403 seconds

Explore SQL Data Chart Export ▾ 🔗

Rows affected: 1

Failed

1:04 PM

Explore SQL Data Chart Export ▾ 🔗

ER_DUP_ENTRY: Duplicate entry 'FS19C0070' for key 'firstyear.PRIMARY'

Success

1:03 PM
1.403 seconds

Explore SQL Data Chart Export ▾ 🔗

Rows affected: 1

Success

3 rows

1:04 PM
0.717 seconds

Explore SQL Data Chart Export ▾ 🔗

	firstName	lastName	enrolmentNo	age	coursesEnrolled	libraryID	favCourse
	Omkar	Phansopkar	FS19C0042	15	5	2042	Java
	Lokey	NULL	FS19C0070	20	0	9	DBMS
	Sam	Curran	FS19C0080	20	0	15	MP