UNIT 2

Lecture 13
Integrity Constraints on SQL

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Integrity Constraints on SQL

- UNIQUE
- NOT NULL
- PRIMARY KEY
- CHECK
- DEFAULT
- FOREIGN KEY

DDL, CREATE STATEMENT

create table student
(rollno number(3),
sname varchar2(20),
sem number(1),
branch varchar2(20),
marks number(2),
pno number(3)
);

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	MOHAN	7	CSE	55	123
2	GOPAL	5	IT	65	121
1	RAM	3	CSE	40	121
100	PINKI	9	ETC	90	123
1000	DINESH	5	CSE	55	121
NULL	RAM	3	CSE	40	121
NULL	NULL	NULL	NULL	NULL	NULL

UNIQUE CONSTRAINT (Column level)

create table student
(rollno number(3) UNIQUE,
sname varchar2(20),
sem number(1),
branch varchar2(20),
marks number(2),
pno number(3)
);

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	MOHAN	7	CSE	55	123
2	GOPAL	5	IT	65	121
1	RAM	3	CSE	40	121
100	PINKI	9	ETC	90	123
1000	DINESH	5	CSE	55	121
NULL	RAM	3	CSE	40	121
NULL	NULL	NULL	NULL	NULL	NULL

UNIQUE CONSTRAINT (Table level)

create table student
(rollno number(3),
sname varchar2(20),
sem number(1),
branch varchar2(20),
marks number(2),
pno number(3),
Unique (rollno)
);

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	MOHAN	7	CSE	55	123
2	GOPAL	5	IT	65	121
1	RAM	3	CSE	40	121
100	PINKI	9	ETC	90	123
1000	DINESH	5	CSE	55	121
NULL	RAM	3	CSE	40	121
NULL	NULL	NULL	NULL	NULL	NULL

UNIQUE CONSTRAINT (Table level)

create table student
(rollno number(3),
sname varchar2(20),
sem number(1),
branch varchar2(20),
marks number(2),
pno number(3),
Constraint uni_con Unique (rollno)
);

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	MOHAN	7	CSE	55	123
2	GOPAL	5	IT	65	121
1	RAM	3	CSE	40	121
100	PINKI	9	ETC	90	123
1000	DINESH	5	CSE	55	121
NULL	RAM	3	CSE	40	121
NULL	NULL	NULL	NULL	NULL	NULL

NOT NULL CONSTRAINT

create table student
(rollno number(3) NOT NULL,
sname varchar2(20),
sem number(1),
branch varchar2(20),
marks number(2),
pno number(3)
);

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	MOHAN	7	CSE	55	123
2	GOPAL	5	IT	65	121
1	RAM	3	CSE	40	121
100	PINKI	9	ETC	90	123
1000	DINESH	5	CSE	55	121
NULL	RAM	3	CSE	40	121
NULL	NULL	NULL	NULL	NULL	NULL

NOT NULL & UNIQUE CONSTRAINT

create table student

(rollno number(3) NOT NULL UNIQUE,

sname varchar2(20),

sem number(1),

branch varchar2(20),

marks number(2),

pno number(3)

);

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	MOHAN	7	CSE	55	123
2	GOPAL	5	IT	65	121
1	RAM	3	CSE	40	121
100	PINKI	9	ETC	90	123
1000	DINESH	5	CSE	55	121
NULL	RAM	3	CSE	40	121
NULL	NULL	NULL	NULL	NULL	NULL

PRIMARY KEY CONSTRAINT

create table student

(rollno number(3) primary key,

sname varchar2(20),

sem number(1),

branch varchar2(20),

marks number(2),

pno number(3)

);

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	MOHAN	7	CSE	55	123
2	GOPAL	5	IT	65	121
1	RAM	3	CSE	40	121
100	PINKI	9	ETC	90	123
1000	DINESH	5	CSE	55	121
NULL	RAM	3	CSE	40	121
NULL	NULL	NULL	NULL	NULL	NULL

PRIMARY KEY CONSTRAINT

create table student

(rollno number(3),

sname varchar2(20),

sem number(1),

branch varchar2(20),

marks number(2),

pno number(3),

Constraint pkey Primary key (rollno)

);

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	MOHAN	7	CSE	55	123
2	GOPAL	5	IT	65	121
1	RAM	3	CSE	40	121
100	PINKI	9	ETC	90	123
1000	DINESH	5	CSE	55	121
NULL	RAM	3	CSE	40	121
NULL	NULL	NULL	NULL	NULL	NULL

COMPOSITE PRIMARY KEY CONSTRAINT

create table student

(rollno number(3) PRIMARY KEY,

sname varchar2(20) PRIMARY KEY,

sem number(1),

branch varchar2(20),

marks number(2),

pno number(3)

);

INVALID QUERY

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	MOHAN	7	CSE	55	123
2	GOPAL	5	IT	65	121
1	RAM	3	CSE	40	121
100	PINKI	9	ETC	90	123
1000	DINESH	5	CSE	55	121

COMPOSITE PRIMARY KEY CONSTRAINT

create table student

(rollno number(3),

sname varchar2(20),

sem number(1),

branch varchar2(20),

marks number(2),

pno number(3),

PRIMARY KEY (rollno, sname)

);

VALID QUERY

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	SHYAM	7	CSE	55	123
2	RAM	5	IT	65	121
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
NULL	NULL	NULL	NULL	NULL	NULL
NULL	PINKI	9	ETC	90	123
100	NULL	5	CSE	55	121
3	GOPAL	7	CSE	55	123

CHECK CONSTRAINT

create table student

(rollno number(3),

sname varchar2(20),

sem number(1) CHECK (SEM >= 1 AND SEM <=8),

branch varchar2(20),

marks number(2),

pno number(3)

);

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	MOHAN	7	CSE	55	123
2	GOPAL	5	IT	65	121
1	RAM	3	CSE	40	121
100	PINKI	9	ETC	90	123
1000	DINESH	5	CSE	55	121
NULL	RAM	3	CSE	40	121
NULL	NULL	NULL	NULL	NULL	NULL

CHECK CONSTRAINT

create table student

(rollno number(3),

sname varchar2(20),

sem number(1),

branch varchar2(20),

marks number(2),

pno number(3),

CHECK (SEM >= 1 AND SEM <=8)

);

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	MOHAN	7	CSE	55	123
2	GOPAL	5	IT	65	121
1	RAM	3	CSE	40	121
100	PINKI	9	ETC	90	123
1000	DINESH	5	CSE	55	121
NULL	RAM	3	CSE	40	121
NULL	NULL	NULL	NULL	NULL	NULL

CHECK CONSTRAINT

create table student

(rollno number(3),

sname varchar2(20),

sem number(1) CHECK SEM between 1 AND 8,

branch varchar2(20),

marks number(2),

pno number(3)

);

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	MOHAN	7	CSE	55	123
2	GOPAL	5	IT	65	121
1	RAM	3	CSE	40	121
100	PINKI	9	ETC	90	123
1000	DINESH	5	CSE	55	121
NULL	RAM	3	CSE	40	121
NULL	NULL	NULL	NULL	NULL	NULL

DEFAULT CONSTRAINT

create table student

(rollno number(3),

sname varchar2(20),

sem number(1),

branch varchar2(20) DEFAULT 'CSE',

marks number(2),

pno number(3)

);

STUDENT

Rollno	Sname	Sem	Branch	Marks	Pno
1	RAM	3	CSE	40	121
2	SHYAM	5	CSE	50	122
1	MOHAN	7	CSE	55	123
2	GOPAL	5	IT	65	121
1	RAM	3	CSE	40	121
100	PINKI	9	ETC	90	123
1000	DINESH	5	CSE	55	121
NULL	RAM	3	CSE	40	121
NULL	NULL	NULL	NULL	NULL	NULL

insert into student (rollno, sname, sem, marks, pno) values (1, 'RAM', 3, 40, 121);

For Video lecture on this topic please subscribe to my youtube channel.

The link for my youtube channel is

https://www.youtube.com/channel/UCRWGtE76JlTp1iim6aOTRuw?sub_confirmation=1