

# CSC343: Introduction to Databases

Winter 2019

## Group By and Having worksheet

```
SELECT surname, sid  
FROM Student, Took  
WHERE Student.sid = Took.sid  
GROUP BY sid;
```

## 1. Which of the following table definitions is valid?

```
create table Stuff1 (  
    name text primary key,  
    number int,  
    rating float not null  
);
```

## 1. Which of the following table definitions is valid?

```
create table Stuff1 (  
    name text primary key,  
    number int,  
    rating float not null  
);
```

Runs

## 1. Which of the following table definitions is valid?

```
create table Stuff2 (  
    name varchar(25) primary key,  
    number int primary key,  
    rating float  
);
```

# 1. Which of the following table definitions is valid?

```
create table Stuff2 (  
    name varchar(25) primary key,  
    number int primary key,  
    rating float  
);
```

```
ERROR: multiple primary keys for table "stuff2" are not allowed  
LINE 3: number int primary key,  
                        ^
```

## 1. Which of the following table definitions is valid?

```
create table Stuff3 (  
    name text primary key,  
    number int unique default 0,  
    rating float  
);
```

## 1. Which of the following table definitions is valid?

```
create table Stuff3 (  
    name text primary key,  
    number int unique default 0,  
    rating float  
);
```

Runs



## 1. Which of the following table definitions is valid?

```
create table Stuff4 (  
    name char(30) unique,  
    number int unique,  
    rating real  
);
```

## 1. Which of the following table definitions is valid?

```
create table Stuff4 (  
    name char(30) unique,  
    number int unique,  
    rating real  
);
```

Runs

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (1, 2, 'my'), (1, 2, 'night');
```

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (1, 2, 'my'), (1, 2, 'night');
```

```
ERROR:  duplicate key value violates unique constraint "fluff_pkey"  
DETAIL:  Key (this, that)=(1, 2) already exists.
```

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (11, 22, 'twinkle'), (33, 44, 'twinkle');
```

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (11, 22, 'twinkle'), (33, 44, 'twinkle');
```

```
ERROR:  duplicate key value violates unique constraint "fluff_other_key"  
DETAIL:  Key (other)=(twinkle) already exists.
```

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (100, 5, 'night'), (100, 10, 'my');
```

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (100, 5, 'night'), (100, 10, 'my');
```

**Runs**



## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (null, null, 'oh');
```

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (null, null, 'oh');
```

```
ERROR:  null value in column "this" violates not-null constraint  
DETAIL:  Failing row contains (null, null, oh).
```

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (5, null, 'uh');
```

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (5, null, 'uh');
```

```
ERROR:  null value in column "that" violates not-null constraint  
DETAIL:  Failing row contains (5, null, uh).
```

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (null, 20, 'a'), (null, 21, 'b');
```

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (null, 20, 'a'), (null, 21, 'b');
```

```
ERROR:  null value in column "this" violates not-null constraint  
DETAIL:  Failing row contains (null, 20, a).
```

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (80, 81, null);
```

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (80, 81, null);
```

**Runs**



## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (90, 91, null), (92, 93, null);
```

## 2. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
insert into Fluff values (90, 91, null), (92, 93, null);
```

**Runs**

### 3. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
create table Nonsense1 (  
    a int,  
    b int,  
    foreign key (b) references Fluff(this)  
);
```

### 3. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
create table Nonsense1 (  
    a int,  
    b int,  
    foreign key (b) references Fluff(this)  
);
```

```
ERROR:  there is no unique constraint matching given keys for referenced table "fluff"
```

### 3. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
create table Nonsense2 (  
    a int,  
    b text references Fluff(other)  
);
```

### 3. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
create table Nonsense2 (  
    a int,  
    b text references Fluff(other)  
);
```

**Runs**

### 3. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
create table Nonsense3 (  
    a int,  
    b int,  
    c int,  
    foreign key (b, c) references Fluff  
);
```

### 3. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
create table Nonsense3 (  
    a int,  
    b int,  
    c int,  
    foreign key (b, c) references Fluff  
);
```

Runs



### 3. Which of the following is valid?

```
create table Fluff (  
    this int,  
    that int,  
    other text unique,  
    primary key (this, that)  
);
```

```
create table Nonsense4 (  
    a int references Fluff(blah),  
    b int  
);
```

```
ERROR: column "blah" referenced in foreign key constraint does not exist
```

## 4. Reasons why a foreign key constraint might fail

- Foreign key references columns that are not a primary key/form a unique constraint
- Referencing a non-existent column
- Number/type of the constrained columns doesn't match that of the referenced columns
- ....

Bring your laptop for next  
tutorial