

## Foreign Key

- Foreign key is used to establish relationship between tables.
- Foreign key is a referential integrity constraint.

### Case#1

#### Master Table

```
create table course(  
    course_name varchar(30) primary key,  
    course_fee int not null  
);
```

#### Child Table

```
create table student(  
    regdno int primary key,  
    name varchar(30) not null,  
    course_name varchar(30),  
    foreign key(course_name) references course(course_name)  
);
```

#### Conclusion

- One table foreign key must belong to another table primary key.

### Case#2

```
create table course(  
    course_name varchar(30) primary key,  
    course_fee int  
);  
create table student(  
    regdno int primary key,  
    name varchar(30) not null,  
    course_fee int,  
    foreign key(course_fee) references course2(course_fee)  
);
```

#### Conclusion

- One table foreign key must belong to another table primary key or unique key.

```
create table course2(  
    course_name varchar(30) primary key,  
    course_fee int not null  
);
```

```
        course_name varchar(30) primary key,  
        course_fee int unique  
    );
```

### Case#3

```
create table course(  
    course_name int primary key,  
    course_fee int  
);
```

```
create table student(  
    regdno int primary key,  
    name varchar(30) not null,  
    course_name varchar(20),  
    foreign key(course_name) references course3(course_name)  
);
```

### Conclusion

- Primary key and foreign key must belongs to same data type.

### Case#4

```
insert into student values(101,'Alok','alok','CTC',9090,'java');
```

### Conclusion

- We are not allowed to insert values in child table other than primary key value in master table.

### Case#5

```
insert into student values(101,'Ram','java');
```

```
insert into student values(102,'Raj','java');
```

### Conclusion

- Foreign accept duplicate value.

### Case#6

```
insert into student values(103,'Raj',null);
```

### Conclusion

- Foreign accept null value.

### Deleting Records from Parent Table

DELETE FROM course WHERE course\_name='mysql';

### Conclusion

- We can't able delete record from parent table directly, without deleting child record.

### **Solutions**

#### **Approach1**

- First delete record from child table and after that delete record from parent table.

#### **Approach2**

- Set related foreign key value to null and then delete record from parent table.

#### **Approach3 - on delete cascade**

- Whenever we are using this clause in child table, if you are deleting a master table record automatically related child table records are deleted.

```
create table course(
    course_name varchar(30) primary key,
    course_fee int not null
);

create table student(
    regdno int primary key,
    name varchar(30) not null,
    course_name varchar(30),
    foreign key(course_name) references course(course_name) on delete cascade
);
```

DELETE FROM course WHERE course\_name='mysql';

#### **Approach4 – on delete set null**

- Whenever we are using this clause in child table, if you are deleting a master table record automatically related child table records are set to null.

```
create table course(  
    course_name varchar(30) primary key,  
    course_fee int not null  
);
```

```
create table student(  
    regdno int primary key,  
    name varchar(30) not null,  
    course_name varchar(30),  
    foreign key(course_name) references course(course_name) on delete set null  
);  
DELETE FROM course WHERE course_name='mysql';
```