Foreign Key:

+ ----- +

| |

+ ----- +

| create table Listens (userName varchar(50), songName varchar(50), numListens int, Primary Key (userName, songName), Foreign Key (songName) references Song(name)) ; |

+ ----- +

1 rows

+ ----- +

| |

+ ----- +

| update Listens set songName='Kiss of Life2600' where songName='Kiss of Life26'; |

+ ----- +

1 rows

162 13:01:44 update Listens set songName='Kiss of Life2600' where songName='Kiss of Life26'   Error Code: 1452. Cannot add or update a child row: a foreign key constraint fails ('musicappdb'.'listens', CONS... 0.734 sec

Procedure:

 drop procedure if exists times_listened;

/*

Procedure times_listened(userName, songName) takes in a user's name and a song name and returns the number of times that

the specific user has listened to the specified song

*/

delimiter //

create procedure times_listened(uname varchar(50), sname varchar(50))
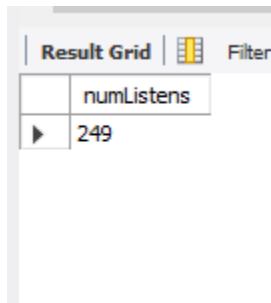
begin

        select L.numListens from Listens L where L.userName=uname and L.songName=sname;

end //

delimiter ;

call times_listened('Oscar835', 'One Beer6');

	numListens
▶	249

Index:

✓	166	13:01:46	create table ArtistNoIndex (name varchar(50), age int, city varchar(20), state varchar(50), Primary Key (name))	0 row(s) affected	5.297 sec
✓	167	13:01:51	create table ArtistWIndex (name varchar(50), age int, city varchar(20), state varchar(50), index(state), Primary K...	0 row(s) affected	2.781 sec
✓	168	13:01:54	load data local infile 'C:\\Users\\lilos\\Documents\\java\\data_artists' into table ArtistNoIndex fields terminate...	1000 row(s) affected Records: 1000 Deleted: 0 Skipped: 0 Warnings: 0	0.688 sec
✓	169	13:01:55	load data local infile 'C:\\Users\\lilos\\Documents\\java\\data_artists' into table ArtistWIndex fields terminated...	1000 row(s) affected Records: 1000 Deleted: 0 Skipped: 0 Warnings: 0	0.969 sec
✓	170	13:01:56	select * from ArtistNoIndex A where A.state='GA' LIMIT 0, 1000	300 row(s) returned	0.000 sec / 0.000 sec
✓	171	13:01:56	select * from ArtistWIndex A where A.state='GA' LIMIT 0, 1000	300 row(s) returned	0.000 sec / 0.000 sec
✓	172	13:01:56	select * from ArtistNoIndex A, Song S, Performs P where A.state='GA' LIMIT 0, 1000	1000 row(s) returned	0.062 sec / 0.000 sec
✓	173	13:01:57	select * from ArtistWIndex A, Song S, Performs P where A.state='GA' LIMIT 0, 1000	1000 row(s) returned	0.000 sec / 0.016 sec

All of code:

```
set global local_infile=1;

show databases;

drop database if exists musicAppDB;

create database musicAppDB;

show databases;

use musicAppDB;

drop table if exists Song;

drop table if exists Users;

drop table if exists Artist;

drop table if exists Producer;

drop table if exists Engineer;

drop table if exists MusicLabel;

drop table if exists Listens;

drop table if exists Performs;

drop table if exists Makes;

drop table if exists MixesAndMasters;

drop table if exists Sources;

create table Users (name varchar(50), age int, city varchar(50), state varchar(50), dateJoined date,
Primary Key (name) ) ;

create table Song (name varchar(50), genre varchar(50), dateReleased date, isExplicit boolean,
numListens long, Primary Key (name) ) ;

create table Artist (name varchar(50), age int, city varchar(20), state varchar(50), Primary Key (name) ) ;

create table Producer (name varchar(50), age int, city varchar(50), state varchar(50), Primary Key (name)
) ;

create table Engineer (name varchar(50), age int, city varchar(50), state varchar(50), Primary Key (name)
) ;

create table MusicLabel (name varchar(50), city varchar(50), state varchar(50), Primary Key (name) ) ;

select 'create table Listens (userName varchar(50), songName varchar(50), numListens int, Primary Key
(userName, songName), Foreign Key (songName) references Song(name) ) ;' as '';
```

```sql
create table Listens (userName varchar(50), songName varchar(50), numListens int, Primary Key (userName, songName), Foreign Key (songName) references Song(name) ) ;

create table Performs (artistName varchar(50), songName varchar(50), numArtists int, Primary Key (artistName, songName), Foreign Key (songName) references Song(name)) ;

create table Makes (producerName varchar(50), songName varchar(50), numProducers int, Primary Key (producerName, songName), Foreign Key (songName) references Song(name) ) ;

create table MixesAndMasters (engineerName varchar(50), songName varchar(50), numEngineers int, Primary Key (engineerName, songName), Foreign Key (songName) references Song(name) ) ;

create table Sources (labelName varchar(50), songName varchar(50), Primary Key (labelName, songName), Foreign Key (songName) references Song(name) ) ;

load data local infile 'O:\\School work\\comp sci\\databases\\data_users' into table Users fields terminated by ',' lines terminated by '\n';

load data local infile 'O:\\School work\\comp sci\\databases\\data_songs' into table Song fields terminated by ',' lines terminated by '\n';

load data local infile 'O:\\School work\\comp sci\\databases\\data_artists' into table Artist fields terminated by ',' lines terminated by '\n';

load data local infile 'O:\\School work\\comp sci\\databases\\data_producers' into table Producer fields terminated by ',' lines terminated by '\n';

load data local infile 'O:\\School work\\comp sci\\databases\\data_producers' into table Engineer fields terminated by ',' lines terminated by '\n';

load data local infile 'O:\\School work\\comp sci\\databases\\data_labels' into table MusicLabel fields terminated by ',' lines terminated by '\n';

load data local infile 'O:\\School work\\comp sci\\databases\\data_listens' into table Listens fields terminated by ',' lines terminated by '\n';

load data local infile 'O:\\School work\\comp sci\\databases\\data_performs' into table Performs fields terminated by ',' lines terminated by '\n';

load data local infile 'O:\\School work\\comp sci\\databases\\data_makes' into table Makes fields terminated by ',' lines terminated by '\n';

load data local infile 'O:\\School work\\comp sci\\databases\\data_mixes_and_masters' into table MixesAndMasters fields terminated by ',' lines terminated by '\n';

load data local infile 'O:\\School work\\comp sci\\databases\\data_sources' into table Sources fields terminated by ',' lines terminated by '\n';

select 'update Listens set songName=''Kiss of Life2600'' where songName=''Kiss of Life26'';' as '';

update Listens set songName='Kiss of Life2600' where songName='Kiss of Life26';
```

```sql
drop procedure if exists times_listened;

/*

Procedure times_listened(userName, songName) takes in a user's name and a song name and returns
the number of times that

the specific user has listened to the specified song

*/

delimiter //

create procedure times_listened(uname varchar(50), sname varchar(50))

begin

        select L.numListens from Listens L where L.userName=uname and L.songName=sname;

end //

delimiter ;

call times_listened('Oscar835', 'One Beer6');


create table ArtistNoIndex (name varchar(50), age int, city varchar(20), state varchar(50), Primary Key
(name) ) ;

create table ArtistWIndex (name varchar(50), age int, city varchar(20), state varchar(50), index(state),
Primary Key (name) ) ;

load data local infile 'O:\\School work\\comp sci\\databases\\data_artists' into table ArtistNoIndex
fields terminated by ',' lines terminated by '\n';

load data local infile 'O:\\School work\\comp sci\\databases\\data_artists' into table ArtistWIndex fields
terminated by ',' lines terminated by '\n';

select * from ArtistNoIndex A where A.state='GA';

select * from ArtistWIndex A where A.state='GA';

select * from ArtistNoIndex A, Song S, Performs P where A.state='GA';

select * from ArtistWIndex A, Song S, Performs P where A.state='GA';
```