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**Team Members:** Mallory Huston and Sory Diagouraga
**Date:** Monday, August 8th, 2022

# Project Step 5 (Portfolio Assignment)

## URL to the Clearwater Arena Website:

http://flip2.engr.oregonstate.edu:4200/

## Executive Summary

This project has been one tough ride, but we managed to finish it. After going through all of the feedback we received throughout this course, here are the most critical changes we made: first, we took out any relationship between the Employees and Artists to avoid any confusion. It is not how real life works and whichever employees would be helping the artists are the ones who are on staff that night. There cannot be more than one show per night either. We then made the artistID entity the same as the other entities that are unique, not NULL, auto_increment, etc. We decided to rename the entity “Customers” to “Fans” because that type of demographic makes more sense for a concert arena anyway and it’s less confusing.
We had to input CASCADE operations between two tables that were dependent on each other. We put ON DELETE CASCADE for the constraint `fk_Tickets_Concerts1`, ON UPDATE CASCADE for `fk_Tickets_Fans1`, and ON DELETE CASCADE for `fk_Fans_Concerts1`. We put in ON DELETE CASCADE for all the foreign keys in the intersection tables as well. We decided to remove “Concerts_concertID” and all other similar names from the intersection tables and other entities to avoid any further confusion. Then we removed the relationship between Fans and Concerts because Tickets is already an intersection table in between those two entities.

Earlier, we forgot to make artistID, concertID, fanID, ticketID, and employeeID all AUTO_INCREMENT, so we fixed that. We also updated the website to no longer have any of the IDs be filled out manually, since their values are all automatically generated. We also made all the PKs unique and made certain values in entities NULL that we deemed appropriate to avoid any issues with populating data. We got feedback about not setting up a nullable FK, so we made another table called “Categories” where its categoryID was NULL and set it up as an FK for the “Tickets” table. We then got rid of the “Concerts_Artists” table and just put artistID as an FK inside of “Concerts” instead because it was much easier and more logical to have only “Concerts_Employees” as an M:N table instead. Lastly, we finished putting in both UPDATE and DELETE operations for the “Concerts_Employees” table.

After receiving and carefully going through all our feedback from our classmates, I can confidently say that the design of our project is now much easier to implement. Especially with performing all the CRUD operations throughout each entity. We overcomplicated it way too much in the beginning and even forgot to do the most basic tasks such as setting up unique

indexes, foreign keys, and AUTO_INCREMENT. It was still all worth our hard work in the end, and we are extremely proud of how far we have gotten with this project. It will prepare us for not just future classes here at OSU, but also for the real world especially if we want to become database administrators. We both enjoyed this class a lot and look forward to learning more about SQL in the future.

# Project Outline

Clearwater Arena is a stadium near multiple small towns in the state of Wisconsin that provide world-class entertainment through their venues. It requires a database to store their ticket sales, artists, fan information, and price per ticket. It also keeps track of all of the employees at Clearwater Arena. These employees provide different services to fans such as bartenders, customer service reps, cashiers, and security. It maintains a record of which employees and artists are performing at which concert on a specific date. A database driven website will record all of the sales of Tickets for Fans, Artists, and Employees. Lastly, it categorizes each ticket sold for the purpose of managing ticket sales and quality correctly.

# Database Outline

- Fans: Records the details of the accounts of fans who attend concerts at the arena.
    - fanID: int(11), auto_increment, unique, not NULL, PK
    - firstName: varchar(45), not NULL
    - lastName: varchar(45), not NULL
    - email: varchar(45), not NULL
    - phoneNumber: varchar(50), NULL
    - address: varchar(145), NULL
    - city: varchar(45), NULL
    - state: varchar(45), NULL
    - zipCode: varchar(10), NULL
    - Relationships:
        - A 1:M relationship between Fans and Tickets is implemented with fan_ID as a foreign key inside of Tickets. One fan may buy a ticket and a ticket can be purchased by multiple fans.
- Employees: Records the details of the accounts of employees who work at the arena.
    - employeeID: int(11), auto_increment, unique, not NULL, PK
    - firstName: varchar(45), not NULL
    - lastName: varchar(45), not NULL
    - role: varchar(45), not NULL
    - email: varchar(45), not NULL
    - phoneNumber: varchar(50), not NULL
    - Relationships:
        - An M:M relationship between Employees and Concerts is implemented with an intersection table, since one Employee may be responsible for

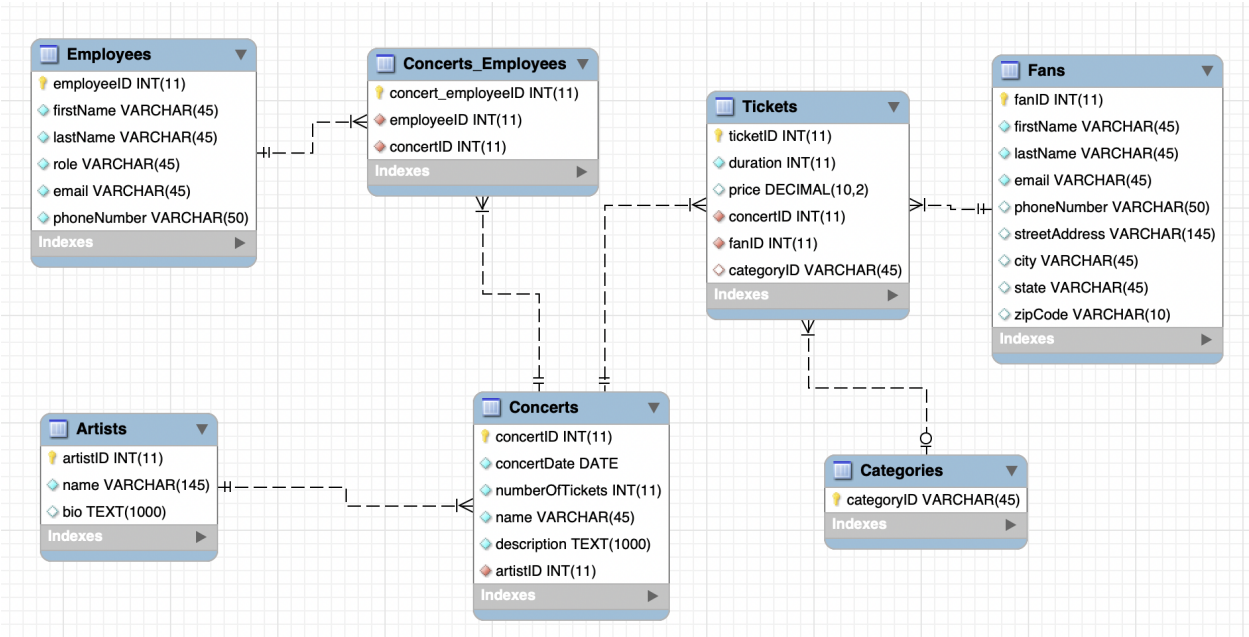
multiple Concerts, and one Concert may be served by multiple Employees.

- Concerts_Employees: An intersection table between Employees and Concerts which keeps track of the employees added to each concert.
    - concert_employeeID: int(11), auto_increment, unique, not NULL, PK
    - employeeID: int(11), FK
    - concertID: int(11), FK
    - Relationships:
        - An M:M relationship between Employees and Concerts is implemented with Concerts_Employees serving as the intersection table.
- Concerts: Records the details of all concerts at the arena.
    - concertID: int(11), auto_increment, unique, not NULL, PK
    - concertDate: date, not NULL
    - numberOfTickets: int(11), not NULL
    - name: varchar(45), not NULL
    - description: text(1000), not NULL
    - artistID: int(11), FK
    - Relationships:
        - An M:M relationship exists between Concerts and Employees. A concert can have many employees and an employee can work at multiple concerts.
        - A 1:M relationship between Concerts and Tickets is implemented with concert_ID as a foreign key inside of Tickets. A ticket may only be for one concert, while a concert may have many tickets.
        - A 1:M relationship exists between Concerts and Artists. A concert may contain only one artist, while an artist may have multiple concerts.

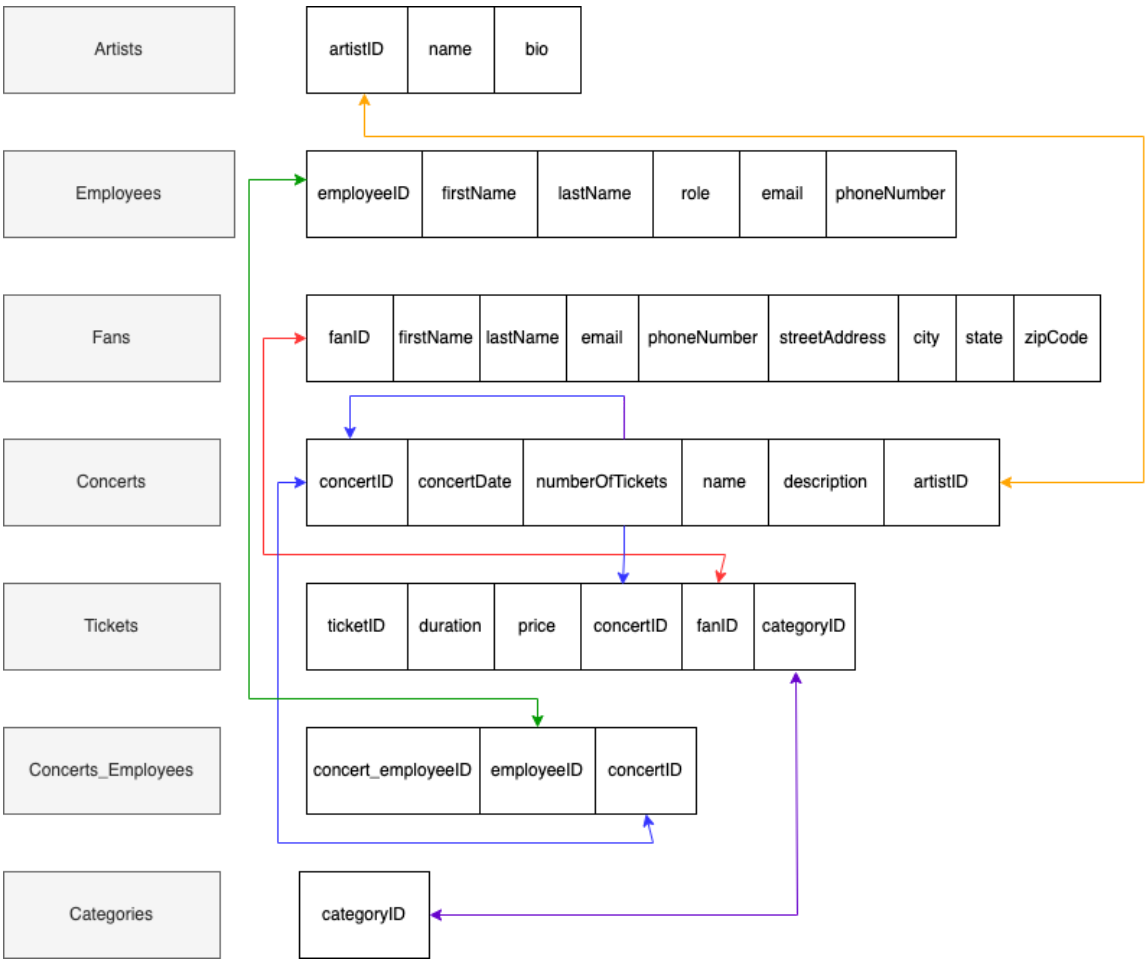
- Artists: Records the details of all artists who perform at the arena.
    - artistID: int(11), auto_increment, unique, not NULL, PK
    - name: varchar(145), not NULL
    - bio: text(1000), NULL
    - Relationships:
        - A 1:M relationship between Artists and Concerts is implemented with artist_ID as a foreign key inside of Concerts. A concert may have only one artist performing, while an artist may perform at multiple concerts.
- Tickets: Records the details for an individual ticket.
    - ticketID: int(11), auto_increment, unique, not NULL, PK
    - duration: int(11), not NULL
    - price: decimal(10, 2), NULL
    - concertID: int(11), FK
    - fanID: int(11), FK
    - categoryID: varchar(45), FK
    - Relationships:

        - A 1:M relationship exists between Tickets and Concerts. A ticket may only be for one concert, while a concert may have many tickets.
        - A 1:M relationship exists between Tickets and Fans. A ticket may only be bought by one fan, but a fan can buy multiple tickets.
        - A 1:M relationship exists between Tickets and Categories. A ticket may only be categorized as one type, while the categories may apply to multiple tickets.
- Categories: Category table for different types of tickets.
    - categoryID: varchar(45), unique, NULL, PK
    - Relationships:
        - A 1:M relationship between Categories and Tickets is implemented with categoryID as a foreign key inside of Tickets. A ticket may only be categorized as one type, while the categories may apply to multiple tickets.

# Entity Relationship Diagram



# Schema


Artists
artistID
name
bio
Employees
employeeID
firstName
lastName
role
email
phoneNumber
Fans
fanID
firstName
lastName
email
phoneNumber
streetAddress
city
state
zipCode
Concerts
concertID
concertDate
numberOfTickets
name
description
artistID
Tickets
ticketID
duration
price
concertID
fanID
categoryID
Concerts_Employees
concert_employeeID
employeeID
concertID
Categories
categoryID

# Sample Data

## Fans:

| | fanID | firstName | lastName | email | phoneNumber | streetAddress | city | state | zipCode |
|---|---|---|---|---|---|---|---|---|---|
| Edit Copy Delete | 1 | Ryan | Reynolds | theryanreynolds@gmail.com | (553)167-4577 | 310 Gosling Way | Madison | WI | 53558 |
| Edit Copy Delete | 2 | Vanessa | Hudgens | vhudgens2005@yahoo.com | (614)697-1403 | 80 Pomegranate Street | Madison | WI | 53701 |
| Edit Copy Delete | 3 | Danny | DeVito | dannymyman@hotmail.com | (612)778-5977 | 2006 Sunshine Avenue | Green Bay | WI | 54229 |
| Edit Copy Delete | 4 | Betty | White | goldengirl1922@outlook.com | (860)870-1880 | 12 Rodgers Road | Green Bay | WI | 54301 |

## Employees:

| | employeeID | firstName | lastName | role | email | phoneNumber |
|---|---|---|---|---|---|---|
| Edit Copy Delete | 1 | Mike | Bailey | Security Officer | mbailey475@gmail.com | (487)231-0842 |
| Edit Copy Delete | 2 | Wanda | Sykes | Sound Engineer | wsykes1964@hotmail.com | (333)377-5592 |
| Edit Copy Delete | 3 | Harry | Styles | Ticket Vendor | hstyles1d@yahoo.com | (774)002-0251 |
| Edit Copy Delete | 4 | Lisa | Kudrow | Event Planner | lkudrow1994@outlook.com | (251)812-8883 |

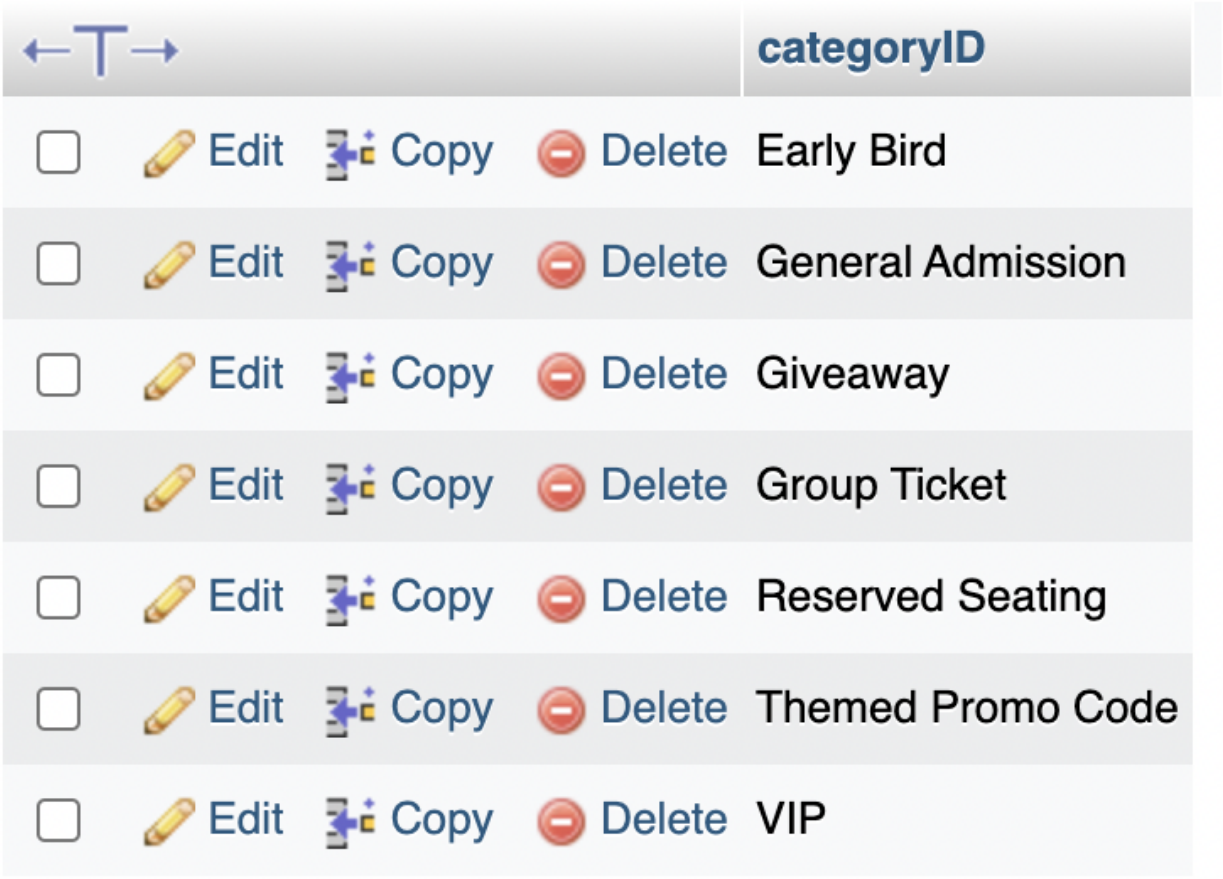
## Artists:

| | artistID | name | bio |
|---|---|---|---|
| Edit Copy Delete | 1 | Taylor Swift | American singer-songwriter of multiple genres who ... |
| Edit Copy Delete | 2 | Justin Bieber | Canadian pop singer discovered on YouTube with ten... |
| Edit Copy Delete | 3 | BTS | A seven-member boy band formed in 2013 in Seoul, S... |
| Edit Copy Delete | 4 | Miley Cyrus | American singer and actress who began her career a... |

## Concerts:

| | concertID | concertDate | numberOfTickets | name | description | artistID |
|---|---|---|---|---|---|---|
| Edit Copy Delete | 1 | 2022-07-01 | 5000 | Folklore: Live in Concert | A live performance of all tracks from the Folklore... | 1 |
| Edit Copy Delete | 2 | 2022-06-17 | 3891 | Where Are You Now | A live performance of all the greatest JB hits. | 2 |
| Edit Copy Delete | 3 | 2022-05-13 | 4276 | BTS - Dynamite LIVE | The best k-pop concert in the world. | 3 |
| Edit Copy Delete | 4 | 2022-04-29 | 4891 | Farewell Hannah Montana | Say hello to the new Miley Cyrus. | 4 |

## Categories:



## Tickets:

| ticketID | duration | price | concertID | fanID | categoryID |
|---|---|---|---|---|---|
| Edit Copy Delete | 1 | 120 | 750.20 | 2 | 1 Reserved Seating |
| Edit Copy Delete | 2 | 180 | *NULL* | 4 | 3 Giveaway |
| Edit Copy Delete | 3 | 200 | 999.00 | 1 | 4 Group Ticket |
| Edit Copy Delete | 4 | 150 | 400.30 | 3 | 2 Themed Promo Code |
| Edit Copy Delete | 5 | 150 | 250.00 | 3 | 3 General Admission |
| Edit Copy Delete | 6 | 230 | *NULL* | 1 | 1 Giveaway |
| Edit Copy Delete | 7 | 135 | 775.00 | 2 | 2 Reserved Seating |
| Edit Copy Delete | 8 | 170 | 500.50 | 2 | 3 Early Bird |
| Edit Copy Delete | 9 | 210 | 1500.00 | 1 | 2 VIP |
| Edit Copy Delete | 10 | 195 | 1250.00 | 3 | 4 VIP |

## Concerts_Employees (Intersection Table):

| concert_employeeID | employeeID | concertID |
|---|---|---|
| Edit Copy Delete | 1 | 4 | 1 |
| Edit Copy Delete | 2 | 3 | 1 |
| Edit Copy Delete | 3 | 1 | 2 |
| Edit Copy Delete | 4 | 2 | 2 |
| Edit Copy Delete | 5 | 3 | 3 |
| Edit Copy Delete | 6 | 1 | 3 |
| Edit Copy Delete | 7 | 4 | 4 |
| Edit Copy Delete | 8 | 2 | 4 |

# UI Screenshots

## READ/CREATE/UPDATE Artists page

# Artists

[ Artists | Concerts | Tickets | Employees | Fans | Ticket Categories ]

| artistID | name | bio |
|---|---|---|
| 1 | Taylor Swift | American singer-songwriter of multiple genres who sold over 200 million records worldwide. |
| 2 | Justin Bieber | Canadian pop singer discovered on YouTube with ten number #1 hits. |
| 3 | BTS | A seven-member boy band formed in 2013 in Seoul, South Korea. |
| 4 | Miley Cyrus | American singer and actress who began her career as Hannah Montana. |
| 5 | Skrillex | Dubstep guy with weird hair. |

## Add an Artist

To add a new artist, please enter their information below and click 'Submit'!

Name: Bio: Submit

## Update an Artist

To update an artist, select their ID from the dropdown and change the parameters.

artistID: Select an Artist name: bio: Submit

## READ/CREATE/DELETE/SEARCH Concerts page

### Concerts

[ Artists | Concerts | Tickets | Employees | Fans | Ticket Categories ]

| concertID | concert date | number of tickets sold | concert name | concert description | employee last name | remove employee |
|---|---|---|---|---|---|---|
| | mm/dd/yyyy | | | | | |
| 1 | Fri Jul 01 2022 00:00:00 GMT-0700 (Pacific Daylight Time) | 5000 | Folklore: Live in Concert | A live performance of all tracks from the Folklore album. | Kudrow | X |
| 1 | Fri Jul 01 2022 00:00:00 GMT-0700 (Pacific Daylight Time) | 5000 | Folklore: Live in Concert | A live performance of all tracks from the Folklore album. | Styles | X |
| 2 | Fri Jun 17 2022 00:00:00 GMT-0700 (Pacific Daylight Time) | 3891 | Where Are You Now | A live performance of all the greatest JB hits. | Bailey | X |
| 2 | Fri Jun 17 2022 00:00:00 GMT-0700 (Pacific Daylight Time) | 3891 | Where Are You Now | A live performance of all the greatest JB hits. | Sykes | X |
| 3 | Fri May 13 2022 00:00:00 GMT-0700 (Pacific Daylight Time) | 4276 | BTS - Dynamite LIVE | The best k-pop concert in the world. | Styles | X |
| 3 | Fri May 13 2022 00:00:00 GMT-0700 (Pacific Daylight Time) | 4276 | BTS - Dynamite LIVE | The best k-pop concert in the world. | Bailey | X |
| 4 | Fri Apr 29 2022 00:00:00 GMT-0700 (Pacific Daylight Time) | 4891 | Farewell Hannah Montana | Say hello to the new Miley Cyrus. | Kudrow | X |
| 4 | Fri Apr 29 2022 00:00:00 GMT-0700 (Pacific Daylight Time) | 4891 | Farewell Hannah Montana | Say hello to the new Miley Cyrus. | Sykes | X |
| 3 | Fri May 13 2022 00:00:00 GMT-0700 (Pacific Daylight Time) | 4276 | BTS - Dynamite LIVE | The best k-pop concert in the world. | Kudrow | X |

#### Adding Data using an HTML form

To add a new concert please enter its date, number of tickets sold, its name, a short description (optional), and the artist associated with the concert below and click `Submit`!

Concert Date: mm/dd/yyyy Number of Tickets Sold: Concert Name: Description: Artist: Select an Artist Submit

To add an employee to an existing concert, please select the concert and employee below and click `Submit`!

Concert: Select a Concert Employee: Select an Employee Submit

# READ/CREATE/UPDATE Tickets page

## Tickets

[ Artists | Concerts | Tickets | Employees | Fans | Ticket Categories ]

| ticketID | duration | price | concert | fan | category |
|---|---|---|---|---|---|
| 1 | 120 | 750.2 | Where Are You Now | theryanreynolds@gmail.com | Reserved Seating |
| 2 | 180 | | Farewell Hannah Montana | dannymyman@hotmail.com | Giveaway |
| 3 | 200 | 999 | Folklore: Live in Concert | goldengirl1922@outlook.com | Group Ticket |
| 4 | 150 | 400.3 | BTS - Dynamite LIVE | vhudgens2005@yahoo.com | Themed Promo Code |
| 5 | 150 | 250 | BTS - Dynamite LIVE | dannymyman@hotmail.com | General Admission |
| 6 | 230 | | Folklore: Live in Concert | theryanreynolds@gmail.com | Giveaway |
| 7 | 135 | 775 | Where Are You Now | vhudgens2005@yahoo.com | Reserved Seating |
| 8 | 170 | 500.5 | Where Are You Now | dannymyman@hotmail.com | Early Bird |
| 9 | 210 | 1500 | Folklore: Live in Concert | vhudgens2005@yahoo.com | VIP |
| 10 | 195 | 1250 | BTS - Dynamite LIVE | goldengirl1922@outlook.com | VIP |

### Add a Ticket

To add a new ticket, please enter their information below and click `Submit`!

Duration: Price: Concert: Select a Concert Fan: Select a Fan Ticket Category: Select a Ticket Category Submit

### Set a Ticket Category to be Null

Select the ticket to remove category of.

ticketFan: Select the Ticket Submit

# READ/CREATE Employees page

## Employees

[ Artists | Concerts | Tickets | Employees | Fans | Ticket Categories ]

| employeeID | firstName | lastName | role | email | phoneNumber |
|---|---|---|---|---|---|
| 1 | Mike | Bailey | Security Officer | mbailey475@gmail.com | (487)231-0842 |
| 2 | Wanda | Sykes | Sound Engineer | wsykes1964@hotmail.com | (333)377-5592 |
| 3 | Harry | Styles | Ticket Vendor | hstyles1d@yahoo.com | (774)002-0251 |
| 4 | Lisa | Kudrow | Event Planner | lkudrow1994@outlook.com | (251)812-8883 |

### Add an Employee

To add a new employee, please enter their information below and click 'Submit'!

First Name: Last Name: Role: Email: Phone Number: Submit

## READ/CREATE Fans page

### Fans

[ Artists | Concerts | Tickets | Employees | Fans | Ticket Categories ]

| fanID | firstName | lastName | email | phoneNumber | streetAddress | city | state | zipCode |
|---|---|---|---|---|---|---|---|---|
| 1 | Ryan | Reynolds | theryanreynolds@gmail.com | (553)167-4577 | 310 Gosling Way | Madison | WI | 53558 |
| 2 | Vanessa | Hudgens | vhudgens2005@yahoo.com | (614)697-1403 | 80 Pomegranate Street | Madison | WI | 53701 |
| 3 | Danny | DeVito | dannymyman@hotmail.com | (612)778-5977 | 2006 Sunshine Avenue | Green Bay | WI | 54229 |
| 4 | Betty | White | goldengirl1922@outlook.com | (860)870-1880 | 12 Rodgers Road | Green Bay | WI | 54301 |

#### Add a Fan

To add a new fan, please enter all their following info and click 'Submit'!

First Name: Last Name: Email: Phone Number: Street Address: City: State: Zip Code: Submit

## READ/CREATE Ticket Categories page

# Types of Tickets

[ Artists | Concerts | Tickets | Employees | Fans | Ticket Categories ]

| categoryID |
|---|
| Backstage Pass |
| Early Bird |
| General Admission |
| Giveaway |
| Group Ticket |
| Reserved Seating |
| Themed Promo Code |
| VIP |

## Add a Ticket Category

To add a new ticket category, please enter its name (also known as its categoryID) below and click `Submit`!

Type of Ticket: Submit