CS353 Term Project

Project name: Eventica

Final Report

Group Members:

- Efe Beydoğan (21901548)

- Emir Melih Erdem (21903100)

- Eren Polat (21902615)

- Mehmet Berk Türkçapar (21902570)

Instructor: Özgür Ulusoy

TA: Zülal Bingöl

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1. System Description

Eventica is a local events application where different types of events (i.e concerts, sports, gatherings, art) are brought together for people to attend, and new ones can be created by users. The users are able to browse through the events in their city, filter them based on category, date, or name, and join them as long as the restrictions on age, quota, and schedule are met, adding the event to the user's upcoming events list. There, the users can purchase tickets for events that require tickets using their available balances on Eventica. On the other hand, they can also choose to cancel their participation at the touch of a button.

At Eventica, any user is capable of organizing an event. They can simply fill out the create event form with all the details, and the event is then available to all the others in the same city. The users also have the ability to find the created events in the "My Events" section and edit all the details depending on changes to the schedule, etc.

Distinctively, Eventica also has a feature promoting artists and making their events even more accessible. With a section devoted to artists, the users are able to browse through different artists and filter them based on genre and name. Furthermore, they can explore and view their chosen artist's events list by clicking the "See Events" button right next to each artist. That way, they can see when their favorite artist is coming to town.

Another user type besides the regular user is admin. The site admins can compile and publish special reports that present special insights from the Eventica data, including the most popular event categories and most and least attended events, for every user on the site to view.

2. Contributions

Efe Beydoğan:

Proposal Report:

- Wrote the introduction and the description
- Contributed to drawing the E/R diagram

Design Report:

- Contributed to revising the E/R diagram
- Prepared the Table Schemas with Eren Polat

Final Report:

Wrote the implementation details and advanced database components

Implementation:

- Setup the database connection
- Created the tables, triggers, views in the database
- Helped with implementing the events, upcoming events, edit event pages
- Implemented the admin reports and payment system
- Helped with writing the HTML for various pages on the website

Emir Melih Erdem:

Proposal Report:

- Wrote the functional requirements.
- Contributed to drawing the E/R diagram.

Design Report:

- Contributed to revising the E/R diagram.
- Prepared the UI Design and Related SQL Statements with Berk Türkçapar.

Final Report:

Wrote the description and list of tables.

Implementation:

- Implemented the events and my upcoming events pages.
- Added the filter (i.e title, date, type) functionality.
- Worked on the UI components and style.

Mehmet Berk Türkçapar:

Proposal Report:

- Wrote the Limitations.
- Contributed to drawing the E/R diagram.

Design Report:

- Contributed to revising the E/R diagram.
- Prepared the UI Design and Related SQL Statements with Emir Melih Erdem.

Final Report:

• Wrote User's Manual with Eren Polat.

Implementation:

- Implemented the Login and Sign-up pages.
- Implemented Artists page.
- Added *Add Funds* functionality.
- Added Logout functionality.
- Worked on the UI components and style.

Eren Polat:

Proposal Report:

- Contributed to drawing the E/R diagram.
- Wrote the functional requirements

Design Report:

Prepared the Table Schemas with Efe Beydoğan

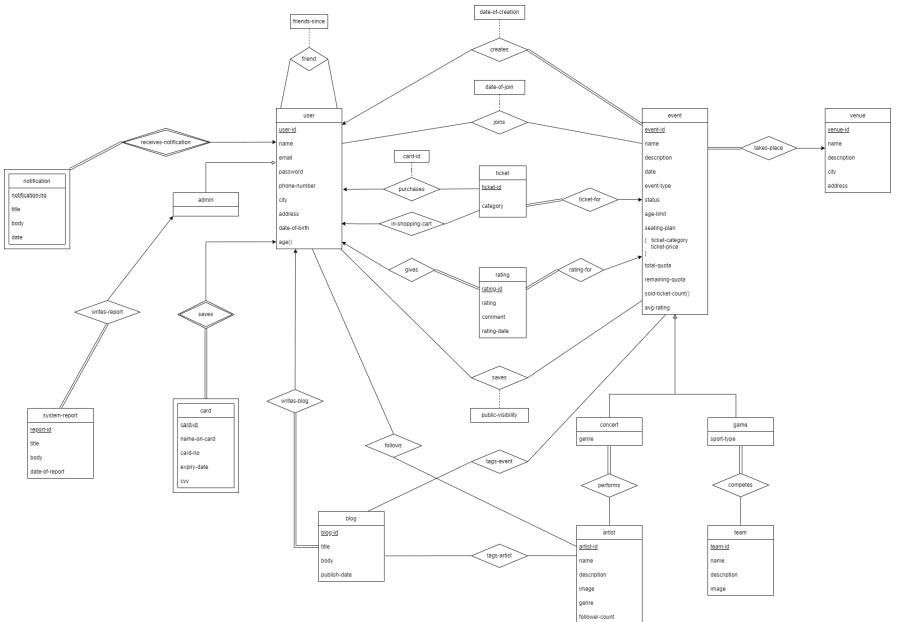
Final Report:

• Wrote User's Manual with Berk Türkçapar.

Implementation:

- Implemented the Create Event, My Events pages
- Helped with the Events page
- Implemented Edit Event page with Efe Beydoğan
- Worked on the UI components and style.

3. Final E/R Diagram



4. List of Tables

Note: Primary keys are underlined. FK stands for foreign key. user(user id, name, password, email, address, city, phone number, date of birth, balance, role) **friend**(<u>user id1</u>, <u>user id2</u>, <u>friends since</u>) user_id1: FK to user user_id2: FK to user **notification**(<u>user id, notification no, title, body, date</u>) user id: FK to user admin(user id) user id: FK to user **system_report**(<u>report_id</u>, user_id, title, body, date_of_report) user id: FK to user card(user id, card id, name on card, card no, expiry date, cvv) user id: FK to user **blog**(blog id, user id, title, body, publish date) user id: FK to user **venue**(<u>venue id</u>, name, description, city, address) event(event id, name, description, date, event type, status, age limit, total quota, remaining quota, seating plan, venue id, creator id, avg rating, price) venue id: FK to venue creator id: FK to user ticket(ticket id, event id, user id) event id: FK to event user id: FK to user purchases(ticket id, user_id, card_id) ticket id: FK to ticket

user_id: FK to user card id: FK to card

in_shopping_cart(ticket_id, user_id)

ticket_id: FK to ticket user_id: FK to user

rating(rating_id, user_id, rating, comment, rating_date, event_id)

user_id: FK to user event_id: FK to event

event_category(event id, ticket category, ticket_price)

event id: FK to event

joins(event_id, user_id)

event_id: FK to event user_id: FK to user

saves(user_id, event_id, public_visibility)

user_id. FK to user event id: FK to event

concert(event_id, genre)

event_id: FK to event

game(event id, sport type)

event id: FK to event

artist(artist_id_name, description, image, genre, follower_count)

performs(event_id, artist_id)

event_id: FK to concert artist id: FK to artist

team(<u>team_id</u>, name, description, image)

competes(team_id, event_id)

team_id: FK to team event_id: FK to event

follows(artist_id, user_id)

artist_id: FK to artist user_id: FK to user

tags_event(event id, blog id)

event_id: FK to event blog_id: FK to blog

tags_artist(blog_id, artist_id)

blog_id: FK to blog artist_id: FK to artist

5. Implementation Details

For our project, we have utilized the MySQL database. We have chosen MySQL as it is easy to set up, and also supports many advanced features such as triggers, views etc. To see the changes we made on the database and track problems on our system, we have made use of MySQL Workbench, as it is an easy to use visualization tool for the MySQL database. We have used MySQL in combination with the Python Django framework to develop our website. Both the front and backends of our project were implemented with Django. Django was chosen specifically as it allows for rapidly developing sites and DTL (Django Template Language) provides an easy and efficient way to implement the UI of a website. Together with DTL, we have made use of Bootstrap to create a more fluent, responsive and colorful UI. To connect to the MySQL database in Django, we had to install a few Python pip packages, namely: mysglclient, mysgl-connector and pymysgl. After installing these packages and entering the database information in the settings.py file provided by Django, we were able to create all of our tables, triggers and views in the init.py file, also provided by Django, and execute raw SQL queries to interact with our database. To execute a query, we first get the instance of the database connection, then write the query in a string and finally we run the guery by calling the related method of the connection object. Via this method, we receive the guery results as tuples, more specifically, every row is represented as a tuple in the result array. We have used a python virtual environment whilst developing the project to prevent any issues with package versions and utilized pip as the package manager.

Initially, we didn't know how to handle database exceptions when they occurred, so the web page would simply show a generic error screen. However, later we figured out how to display warnings when crashes due to triggers occurred, such as when the user tries joining an event that they already joined or they tried to join an event which collides with another event on their list etc. We have utilized the "messages" framework of Django for this purpose. We encountered another problem when implementing the functionality to let users edit events that they have created. We wanted to pre-populate the form with previous information the user had entered, so they could only alter input boxes that they wanted to change and wouldn't have to enter all of the information from scratch. We overcame this issue by using a functionality that would let us give initial values to form fields, and receive the values for these fields from the database. We enforce constraints with the use of triggers and check statements when creating the tables. One other limitation we faced was not being able to create assertions in MySQL, so we converted our assertion to a trigger instead.

6. Advanced Database Components

a) Admin Reports

• Event Categories Participation Report

This report lets an admin immediately see the number of people who have attended an event of each category. The categories on our system are: Concert, Sports, Gathering, Art and Other.

EVENT CATEGORIES PARTICIPATION REPORT

Concert

Attended: 1 times

Gathering

Attended: 1 times

SQL statement:

SELECT event_type, count(*) as cnt FROM event natural join joins GROUP BY event_type ORDER BY cnt desc

Report for most attended events in a year

By creating this report, an admin can see the information of the events that were attended by the most number of people in the current year.

THE MOST ATTENDED EVENT(S) IN 2022

Concert

Yalın Concert

Description: Yalın Şehrinize Geliyor!

Location: Bilkent Odeon

Attended: 2 times

SQL statement:

SELECT E.name as name, E.event_type, E.description, V.name as venue, E.date, (select count(*) from event E2 natural join joins where E2.event_id = E.event_id) as cnt

FROM (venue V join event E using(venue_id)) natural join joins

WHERE YEAR(date) = @this_year

GROUP BY event id

HAVING count(*) >= all (SELECT count(*)

FROM (venue join event using(venue_id)) natural join joins WHERE YEAR(date) = @this_year GROUP BY event id)

• Report for least attended events in a year

By creating this report, an admin can see the information of the events that were attended by the least number of people in the current year.

THE LEAST ATTENDED EVENT(S) IN 2022

Gathering

Emir Melih Erdem House Gathering

Description: mantı+sarma ikramımızdır

Location: Bilkent Odeon

Attended: 1 times

SQL statement:

SELECT E.name as name, E.event_type, E.description, V.name as venue, E.date, (select count(*) from event E2 natural join joins where E2.event_id = E.event_id) as cnt

FROM (venue V join event E using (venue id)) natural join joins

WHERE YEAR(date) = {this year}

GROUP BY event id

HAVING count(*) <= all (SELECT count(*)

FROM (venue join event using(venue_id)) natural join joins WHERE YEAR(date) = {this_year}
GROUP BY event id)

b) Views

• The user view for events

This view is used to display the information about all of the events in the database to the user

SQL statement:

```
CREATE VIEW event_view(event_id, event_name, description, date, event_type, status, age_limit, total_quota, seating_plan, avg_rating, venue_id, event_city, event_adress) AS (

SELECT event_id, event.name, event.description, date, event_type, status, age_limit, total_quota, seating_plan, avg_rating, venue.venue_id, venue.city, venue.address

FROM event JOIN venue USING (venue_id));
```

• View for artist information

This view is used to receive the artist information in order to display all of this information on the special page for artists.

SQL statement:

```
CREATE VIEW artist_view(artist_id, artist_name, artist_image, artist_genre)

AS (SELECT artist_id, name, image, genre FROM artist)
```

• User view for upcoming events

This view is used to gather the information for a specific user's upcoming events (the events that the user has joined).

SQL statement:

```
CREATE VIEW my_upcoming_events AS

SELECT *

FROM event_view

WHERE (event_id, @user_id) IN (SELECT * FROM joins);
```

c) Triggers

• After a user joins an event, the remaining quota for that event must be decremented by one.

SQL statement:

```
create trigger ticket_count_update
    after insert on joins
    for each row
    begin
    UPDATE event
    SET event.remaining_quota = event.remaining_quota - 1
    WHERE event.event_id = NEW.event_id;
    end;
```

 After a user decides not to attend an event, the remaining quota for that event must be incremented by one.

SQL statement:

• After an event is rated, the average rating for that event must be updated.

SQL statement:

```
create trigger new_rating
    after insert on rating
    for each row
    begin
    UPDATE event
    SET event.avg_rating = (SELECT avg(rating)
    FROM rating
    WHERE event_id = NEW.event_id)
    WHERE event.event_id = NEW.event_id;
    end:
```

 After a user updates their rating for an event, the average rating of the event must be updated.

SQL statement:

```
create trigger rating_update
    after update on rating
    for each row
    begin
    UPDATE event
    SET event.avg_rating = (SELECT avg(rating)
    FROM rating
    WHERE event_id = NEW.event_id)
    WHERE event.event_id = NEW.event_id;
    end;
```

 After a user deletes their rating for an event, the average rating of the event must be updated.

SQL statement:

```
create trigger rating_delete

before delete on rating

for each row

begin

UPDATE event

SET event.avg_rating = (SELECT avg(rating))

FROM rating

WHERE event_id = OLD.event_id)

WHERE event.event_id = OLD.event_id;

end:
```

 After a user starts following an artist, the follower count of the artist must be updated.

SQL statement:

```
WHERE artist.artist_id = NEW.artist_id; end;
```

• Two users cannot register to the system with the same email address.

SQL statement:

```
create trigger email_check

before insert on user

for each row

begin

if exists (select * from user where email = NEW.email) then

signal sqlstate '45000'

SET MESSAGE_TEXT = 'Two users with the same email

cannot exist!';

end if;

end;
```

• When a user decides not to attend an event, their ticket must be deleted as well.

SQL statement:

```
create trigger ticket_check
    after delete on joins
    for each row
    begin
    DELETE FROM ticket
    where user_id = OLD.user_id and event_id = OLD.event_id;
    end;
```

d) Constraints

When a user is created, they are assigned a role of either user or admin, and it
must be checked if the role field fits into one of these roles. So we have the
following check condition for the user table:

```
CHECK (role in ('admin', 'user'))
```

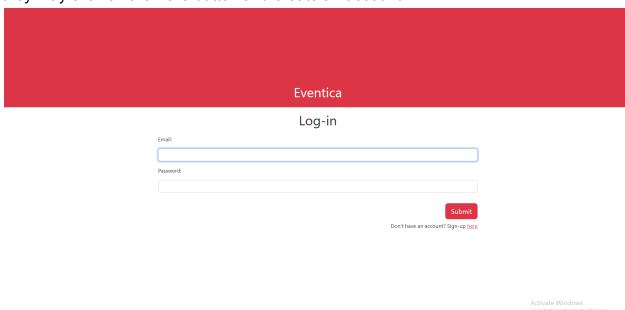
• We have a number of events on our system, and we have to check whether a newly created event is one of these event types, hence we have the following condition on our event table:

```
CHECK (event type in ('Concert', 'Sports', 'Gathering', 'Art', 'Other'))
```

7. User's Manual

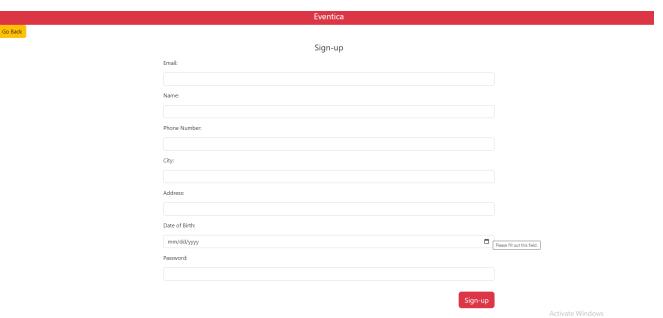
Login

Registered users can log in to their accounts on this page. If they haven't registered yet, they may click on the **here** button and create an account.



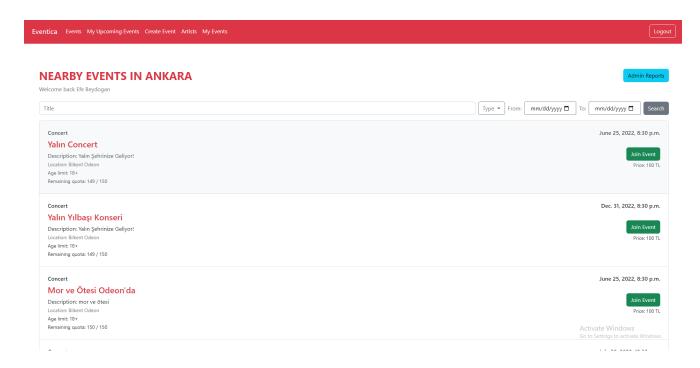
Signup

They have to give the following information to sign-up, and they can login with their credentials afterwards. The "admin" or "user" status is assigned by the system.

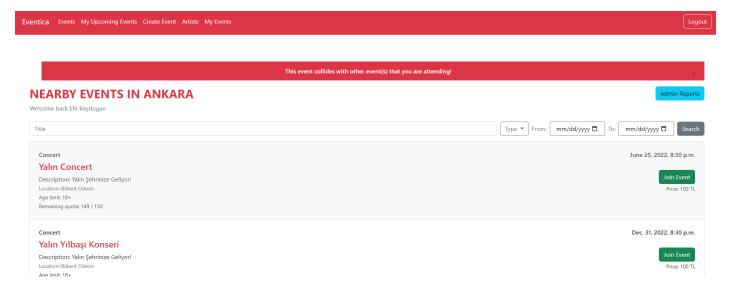


Events

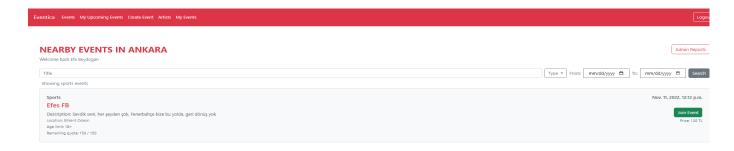
After they login, the users are redirected to the home page, showing nearby events depending on their location. They may join the events by clicking the join event button.



If the event is colliding with one of the events the user is attending or the age requirements are not met, an error message is displayed and the user cannot join the event.

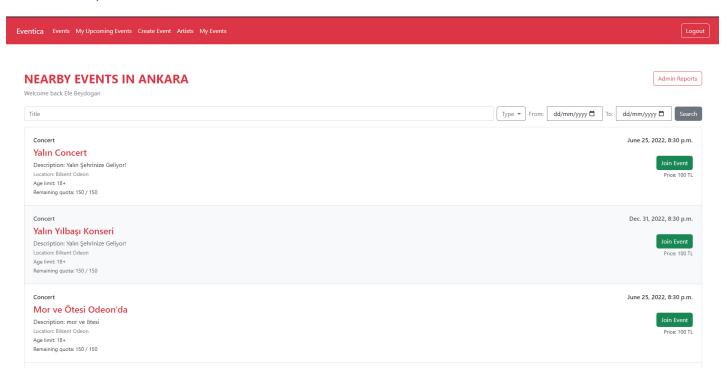


It is possible to filter out events with event type and date. Below you'll see the sports events when we filter out with **sports**. "Showing sports events" text is displayed.



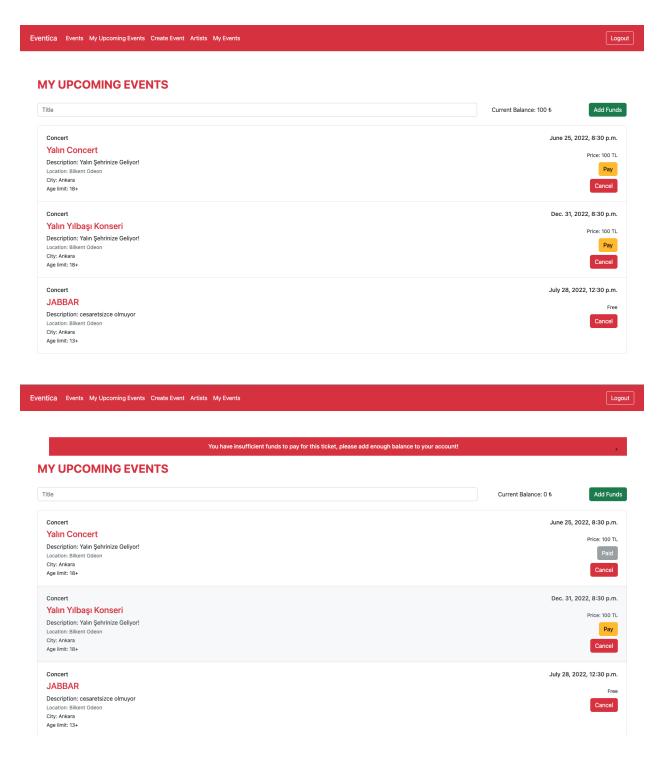
Admin Reports

Admins can click the admin reports button on the top right to see various statistics about events (screenshots for reports were given in the advanced database components section).

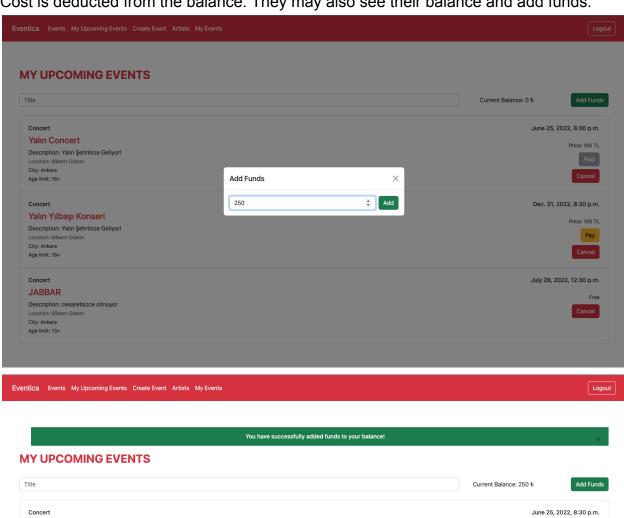


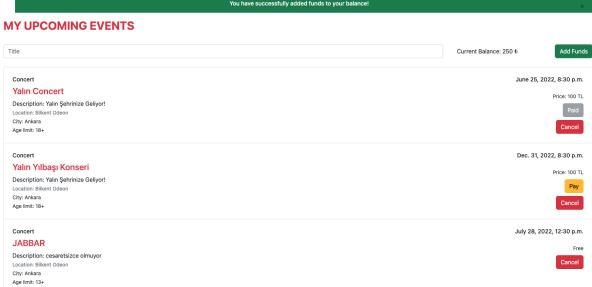
My Upcoming Events

A user can see their upcoming events that they will attend on this page. The user can pay for these events via the "Pay" button that can be found next to the events.

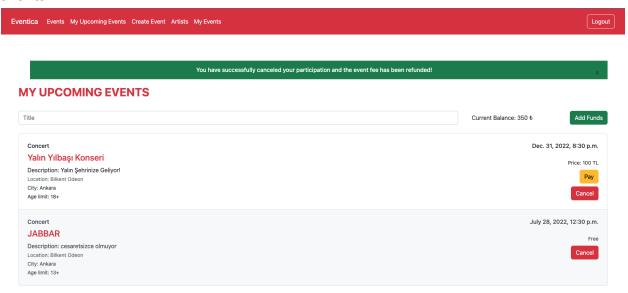


Cost is deducted from the balance. They may also see their balance and add funds.





Users may cancel the events they will not attend by clicking the "Cancel" button next to events.



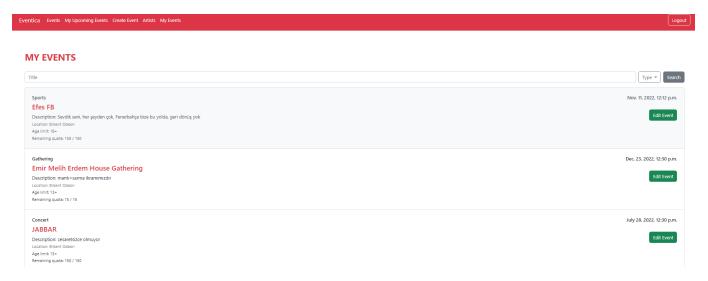
Create Event

Any user can create an event by navigating to the page from the navbar. The following information should be entered.



My Events and Edit Event

My events page displays the events created by the user, the user may edit the events he has created by clicking the edit button next to the event.



When "edit event" is clicked, the current information that can be changed is displayed.



Artist Page

There is an artist page that shows all artists in the database. "Show Events" button directs to a page where all events of the artist are displayed.

