

University of Calgary

Final Report:

Museum and Artifacts Database

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CPSC 471 W25: Database Management Systems

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Abstract

MuseoTrack is a full stack web application designed to modernize museum artifact management and visitor engagement. The system provides distinct interfaces for visitors, supervisors, and employees, enabling artifact browsing, museum management, and employee oversight. Key features include: (1) user authentication, (2) dynamic data fetching, and (3) CRUD (create/read/update/delete) operations for artifacts and employee records. This report documents the project's design, implementation, and interface, highlighting its alignment with the original proposal to streamline museum operations and enhance accessibility.

Introduction

The MuseoTrack system addresses two core challenges identified in the proposal:

- Fragmented museum data: disjointed museum websites complicate artifact discovery.
- Administrative complexity: supervisors lack centralized tools to manage employees and exhibits.

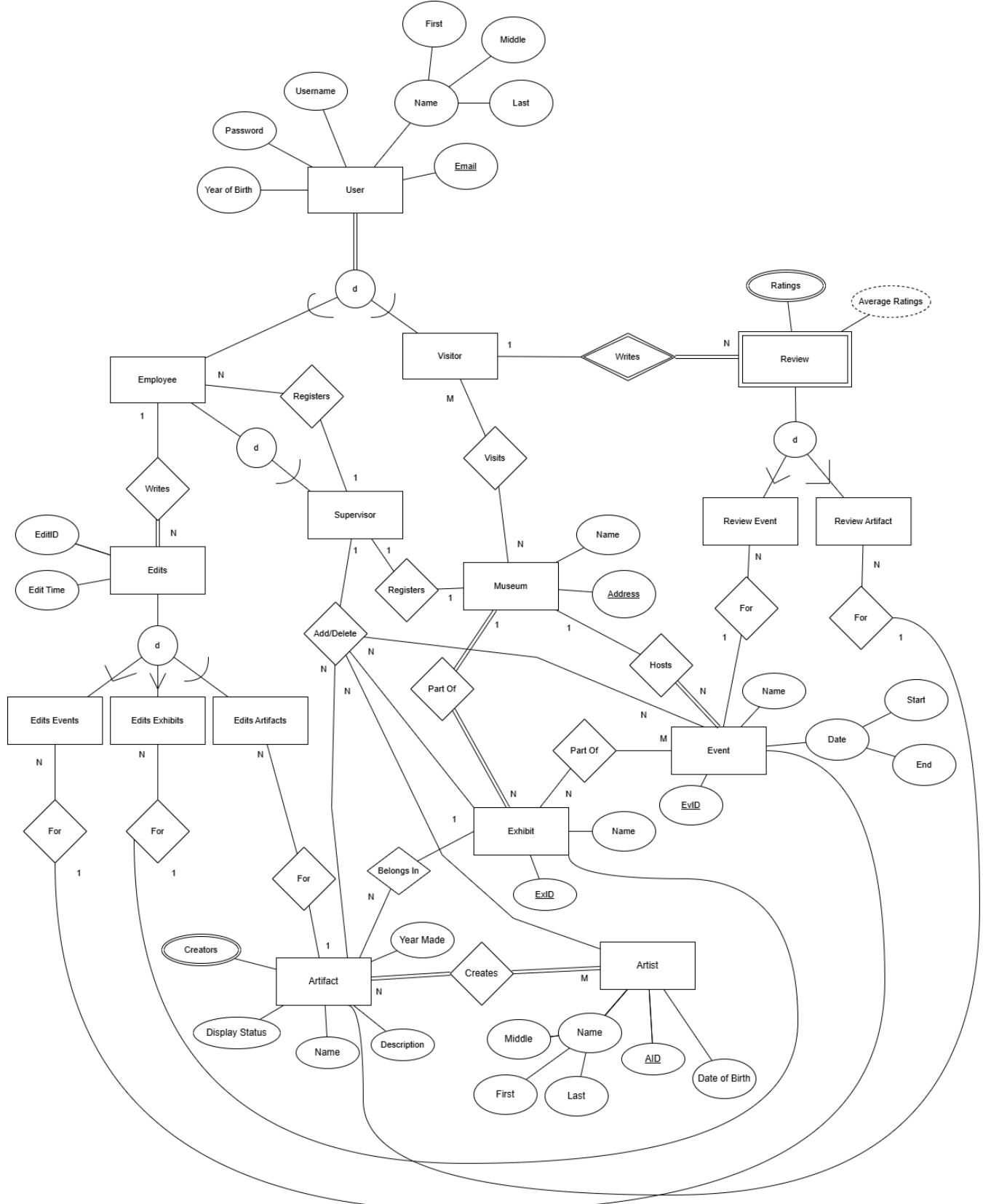
The system was constructed with a React frontend and paired with a Django framework and a MySQL database, the application offers:

- Visitor portal: allows visitors to browse museums/artifacts and track visited locations.
- Supervisor dashboard: allows for the management of employees and museum data.
- Employee access: offers restricted views for assigned tasks (e.g. updating artifact statuses).

The website was designed with a mobile friendly interface in mind on the visitor side, while being more desktop oriented on the employee/supervisor side.

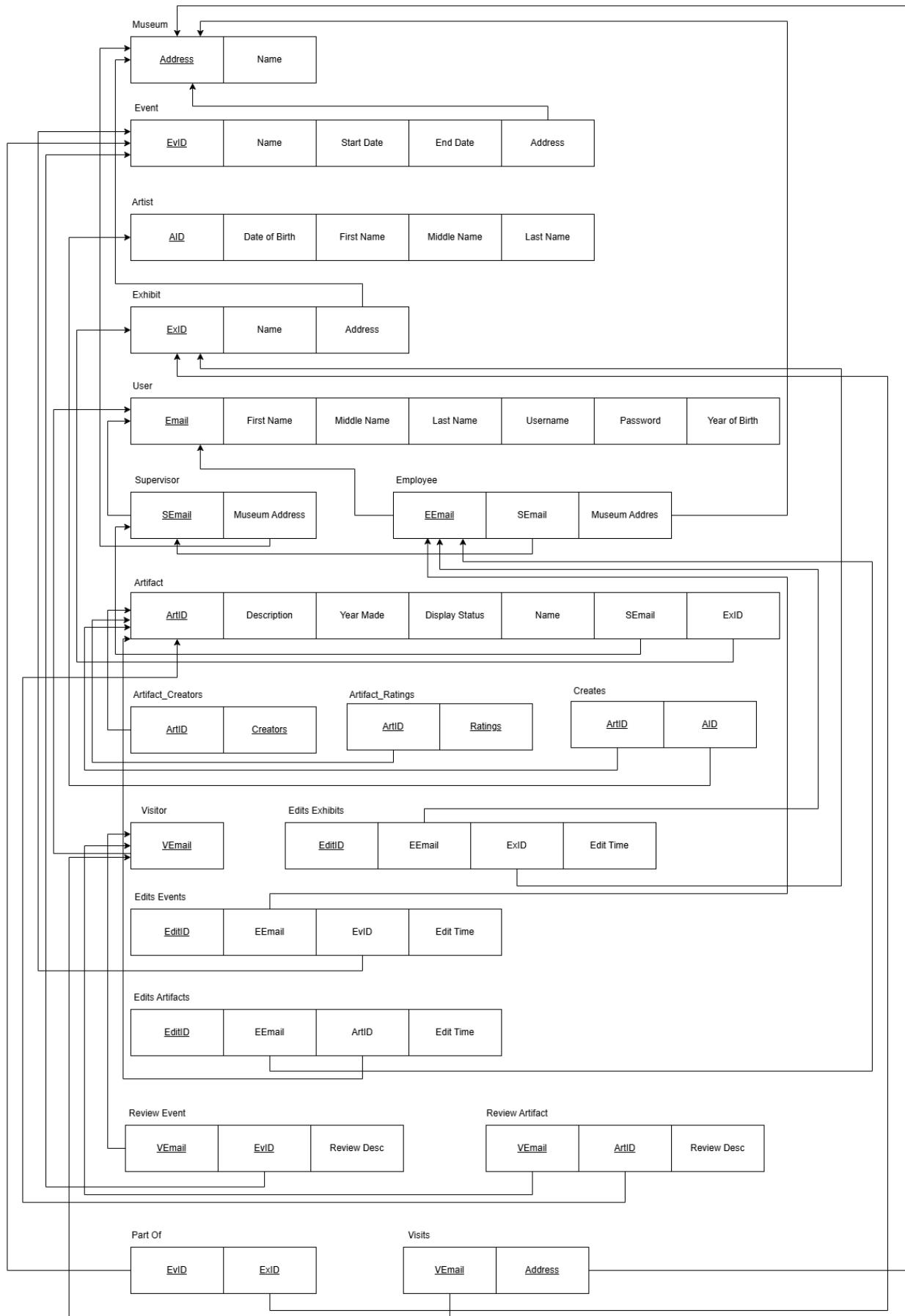
Project Design

We have updated our previous extended entity relational diagram.

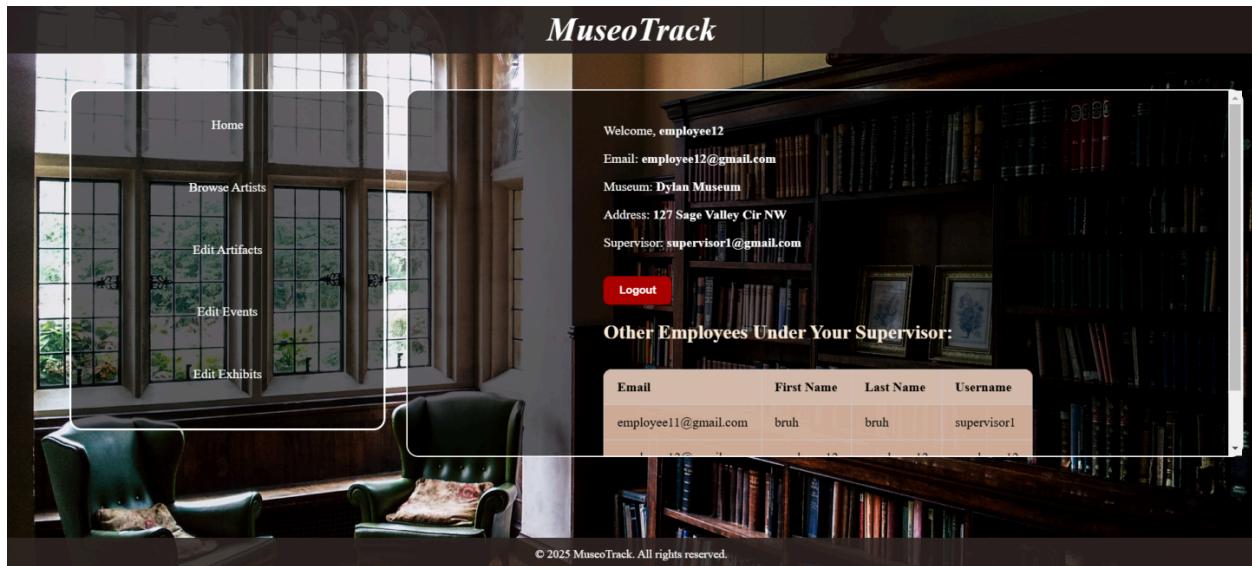


Implementation

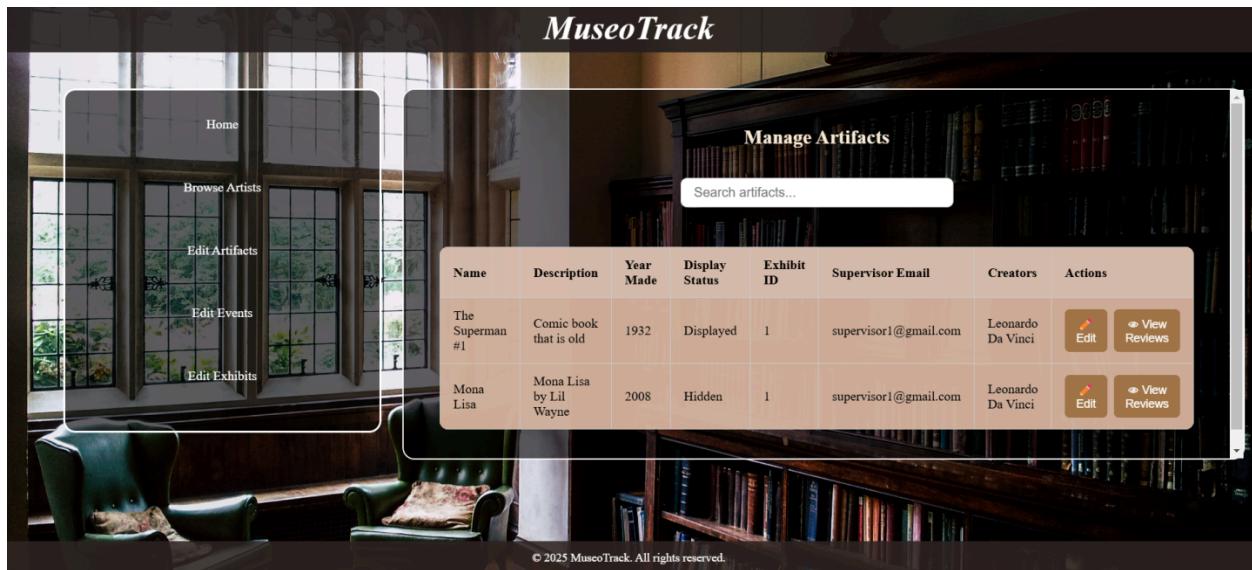
We made some changes to our previous relational model, our new model is shown below.



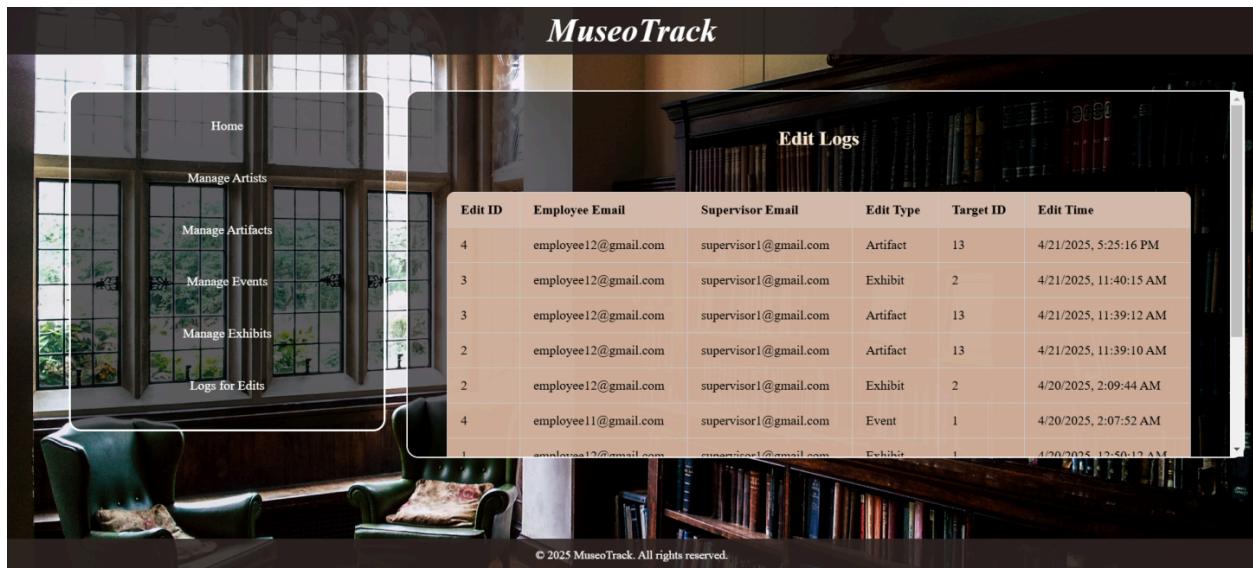
Visual Interface



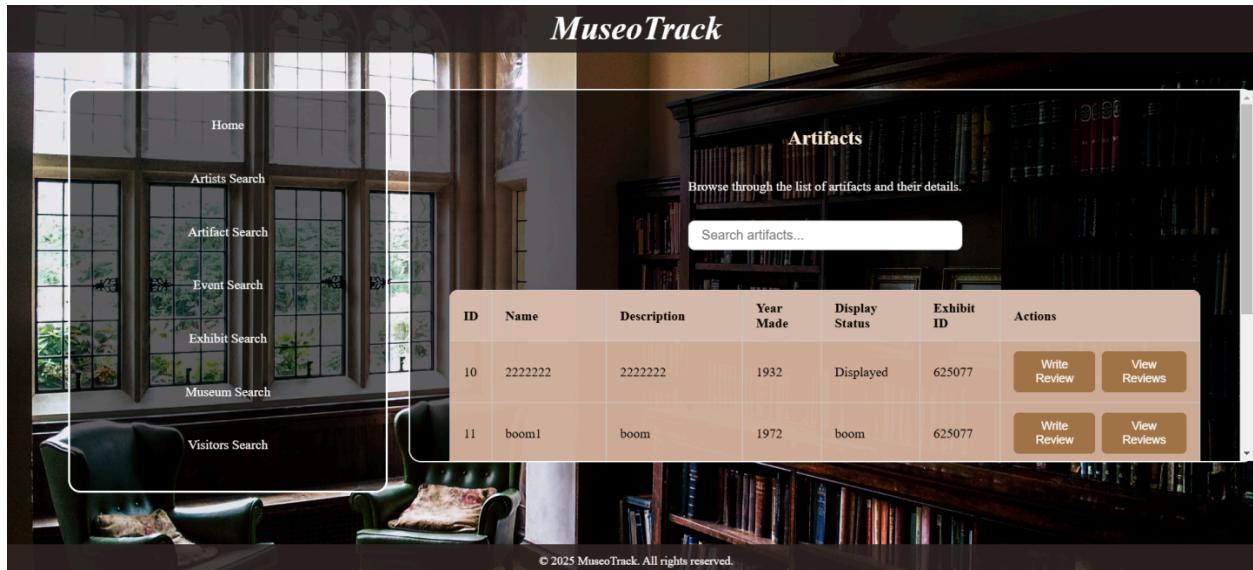
The above screenshot shows the general layout of the application, with different links on the side bar menu corresponding to various actions that an employee can use after signing in. The page is currently on the home page.



This screenshot shows one such page displaying the edit artifacts page in the employee view.



The supervisor would have this as their view, which is similar to the generic employee view but with the ability to see change logs and the ability to add or delete artists, artifacts, events, and exhibits as opposed to just editing their attributes.



Visitors on the other hand would have the above view, which offers only the ability to search through artists, artifacts, events, exhibits, museums, and other registered visitors.

As can be surmised from the various screenshots, the layouts for the different types of users are very similar with the primary interface in the middle, and a navigation menu off to the left.

User Guide

Step 1 (Finding correct directory):

- Navigate to or open the MuseoTrack folder within a command prompt.

Step 2 (Connecting to MySQL):

- Type the following commands in the prompt in order:
 - cd backend/backend/sql
 - CREATE DATABASE museotrack_db;
 - USE museotrack_db;
 - mysql -u root -p museotrack_db < museotrack_schema.sql
- If you want to see the tables in the command prompt and verify their existence in MySQL, type the following commands:
 - mysql -u user -p
 - USE museotrack_db;
 - SHOW TABLES;

Step 3 (Connecting to the backend):

- Navigate to the <MuseoTrack/backend> directory.
- Type the following command in the console prompt:
 - python manage.py runserver

Step 4 (Connecting to the frontend):

- Navigate back to the original MuseoTrack directory.
- Type the following commands in order in the command prompt:
 - cd frontend
 - npm start

The application is now open with full functionality.