

## Author

Somya Dipayan Majhi

21f1001048

21f1001048@ds.study.iitm.ac.in

Student, Data Scientist Aspirant

## Description

A Show Management Web Application where Theatres and Shows can be created. And Tickets can be booked and Shows can be rated

## Technologies Used:

- Flask: Provides the core web framework for building and managing the application.
- Flask-CORS: Allows to control and handle cross-origin requests from different domains.
- Flask-JWT-Extended: Ensures secure authentication and authorization for users.
- Flask-Caching: Improves performance by caching frequently used data.
- Flask-RESTful: Simplifies the creation of RESTful APIs and resource management.
- Flask-SQLAlchemy: Integrates SQLAlchemy for working with databases and data models.
- Celery: Manages asynchronous tasks to improve user experience and handle background operations.
- Redis: Provides caching and task management capabilities.
- Matplotlib: Enables data visualisation to present information graphically.

## API Design:

User Management API: Login, Logout, IsAdmin Feature

Theatre Management API: CRUD implementation of Theatres

Show Management API: CRUD implementation of Shows

Ticket Bookings API: Book Tickets, Booking history, Update User Rating

Data Visualization and Reporting API: Generate Charts & CSV File for Admin

Cache Management and Clearing API

Celery and Asynchronous Task API

## DB Schema Design

There are 4 tables, User, Shows, Theatre, Transactions. The whole schema can be seen [here](#) (Click on the Link)

## Architecture and Features

`\backend:` models.py app.py, `requirements.txt`, YAML for API, and configuration files

`\backend\tools:` task.py, mailer.py, worker.py

`\backend\templates:` HTML Templates for Mailing

`backend\instances:` Contains the database.

`\frontend:` Contains Vue templates and JavaScript files.

`\frontend\public:` index.html, logo.png  
`\frontend\src:` App.vue, main.js, routers.js  
`\frontend\src\components:` Vue Components  
`\frontend\src\mixins:` UserMixin.js  
`\frontend\src\styles:` global.css

### **Features Implemented:**

The project boasts a range of essential and advanced features to enhance user experience and functionality. Default features include user registration, login/logout, and profile management. Seamless theatre and show management are facilitated through APIs for creating, updating, and retrieving theatre and show details. The ticket booking system ensures availability checks and sends booking confirmations via email. Users can view their booking history and rate shows. Additional features encompass data visualisation through dynamic charts depicting ticket statistics and revenue. Automated tasks, such as daily reminders and monthly reports, are efficiently handled using Celery for asynchronous processing. The project's caching mechanism optimises performance by storing frequently accessed data in memory, contributing to an overall smooth and responsive user interface.

### **Video**

<https://drive.google.com/file/d/1t8O4b5w4Ov5WlQ9drgfCY-jWytLwzP18/view?usp=sharing>