

Report on MAD 2 PROJECT

Library Management System V2

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My details:

Hello I am Urjaswi Banerjee and this is my fourth term in diploma. My roll number is 22f3000877@ds.study.iitm.ac.in. Last term I took Mad2 theory and this term I took the project and the statement I am working on is Library Management System V2.

Project details:

The question statement I am working on is Library Management System V2. When the statement first got released, I went over it for a while then started learning the required frameworks. A post on discourse helped me a lot which had all the resources and how to start the project. I watched a few youtube videos on it and then I started working on the project itself.

Frameworks and libraries used:

- ❖ **Vue 3(Javascript)**: main framework for frontend. It is also used to connect to backend to render data.
- ❖ **Flask(Python)**: for backend development. Flask is used as the main web framework to create the web application. It handles routing and request processing.
- ❖ **Flask_restful**: for api
- ❖ **flask_caching**: To implement cache and improve performance.
- ❖ **Werkzeug.security**: to handle the login and password.
- ❖ **Celery and Beat**: Celery is used for background task processing, such as sending email notifications, generating reports, and exporting data to CSV. Beat is used to schedule tasks to run and send them to the workers.
- ❖ **Redis**: As a backend host to run celery and caching.

SibApiV3Sdk (Sendinblue API):

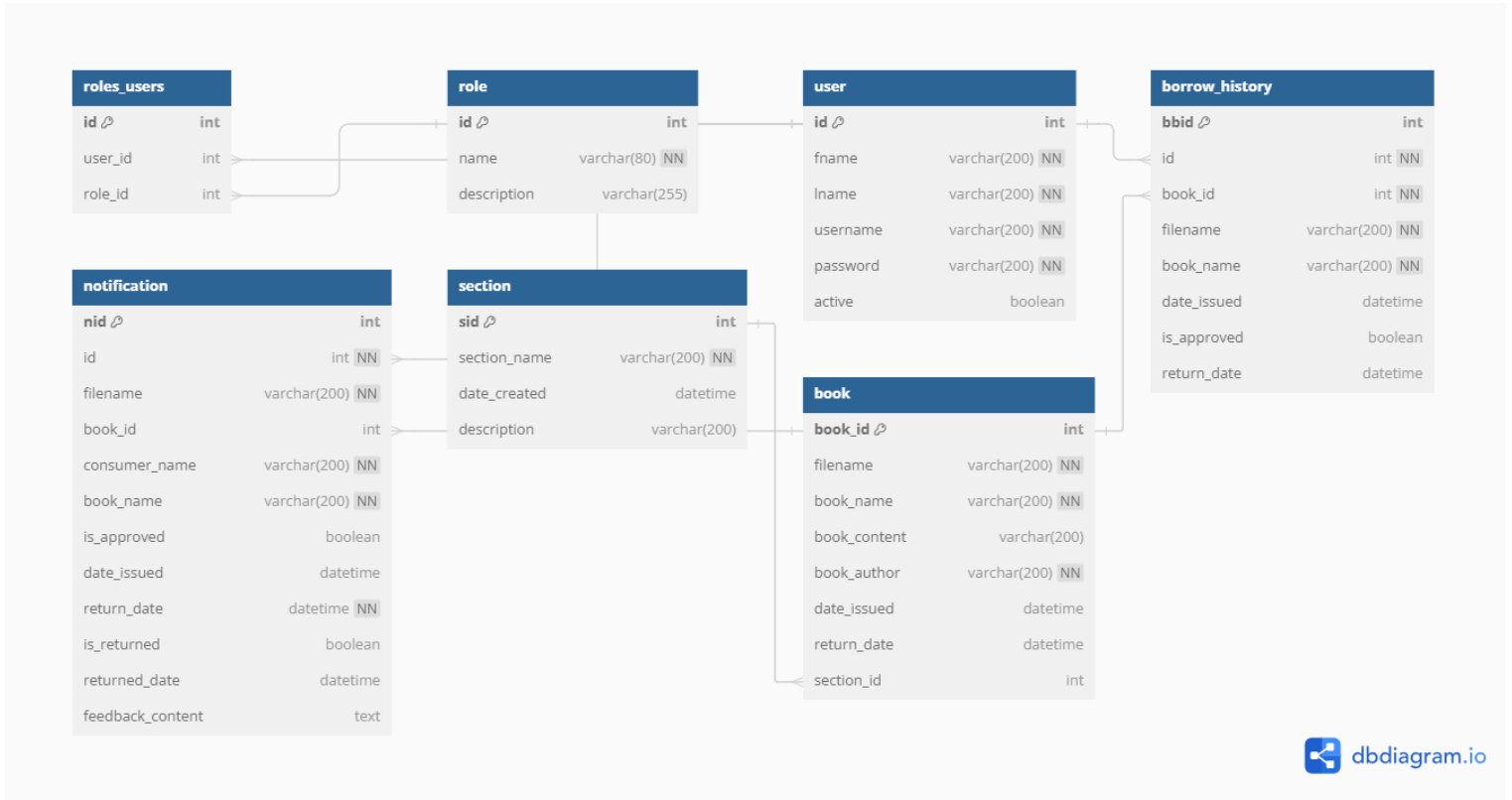
- ❖ **Email Sending**: The Sendinblue SDK is used to send transactional emails with or without attachments. It is configured with an API key and used to create and send emails using the `send_transac_email` method.
- ❖ **Attachments**: Attachments are handled by converting binary data to base64 strings and including them in the email payload.
- ❖ **PDFKit**: to generate pdf of the reports

Python Standard Libraries

- **Logging**: The `logging` library is configured to log messages to the console, which helps with debugging and monitoring the application.
- **CSV**: The `csv` library is used to export data from the application to CSV files.

- **io:** The **io** library is used to handle in-memory file objects, which are useful for creating attachments for emails without saving them to disk.
- **datetime:** The **datetime** library is used to handle dates and times, such as scheduling reminders based on return dates.
- ❖ **SQLAlchemy:** It is used for creating and maintaining the database.

Database ER Diagram:



Api endpoints:

- For Users: `"/usersapi", "/usersapi/<int:id>"`
- For Books: `"/api/books"`
- For Sections: `"/api/sections"`

Drive link for presentation video: **final vid mad 2.mp4**

Link:

<https://drive.google.com/file/d/1xKTTdfIPMI4QIi8eKLuVCsZreeo1V6ZA/view?usp=sharing>

Thank you