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I am a final year computer engineering student with a strong interest in data science and machine learning, working towards becoming a data scientist.

Description :

This project is a platform for sharing images where users can register, login, create and manage posts, like and comment on other users' posts, follow and unfollow other users, and search for other users using their usernames.

Technologies used :

1. Flask - for API
2. VueJS CLI - for UI.
3. Jinja2 templates - sending mails
4. Bootstrap
5. SQLite and SQLAlchemy for data storage.
6. Redis and Celery for Batch jobs

DB schema design :

a. The database has several models/tables created: **User, Post, Comment, and Follow**. Each table has different attributes and helper functions.

b. The database is designed to store user information, post details and their images, like, comments and followers details and relationships between them for the smooth functioning of the application.

c. Structure and details of the columns :

1. **User:** This table stores information about the users of the application, including their unique id, username, password_hash, profile_image, followers, following, follower_count, following_count.
2. **Post:** This table stores information about the posts created by users, including the post id, title, timestamp, status, caption, image, user_id, user, likes, comments.
3. **Comment:** This table stores information about the comments given by the users on the post, it includes the comment id, timestamp, content, user_id, post_id.
4. **Follow:** This table stores the relationship between the followers and the following, it includes the id, follower_id, followed_id, timestamp and a unique constraint is added to this table to make sure that a user can follow another user only once.

API design :

The API design for this project follows a RESTful architecture, which means that it uses HTTP requests to access and manipulate resources identified by URLs. The endpoints are grouped into several categories, each corresponding to a specific feature of the application.

Authentication Endpoints:

- POST /api/register: Create a new user account
- POST /api/login: Authenticate and log in a user
- POST /api/token/refresh: Get a new access token using a refresh token

Post Endpoints:

- GET /api/post: Retrieve a list of posts
- POST /api/post: Create a new post
- GET /api/post/<post_id>: Retrieve a specific post by ID
- PUT /api/post/<post_id>: Update a specific post by ID
- DELETE /api/post/<post_id>: Delete a specific post by ID

Feed Endpoints:

- GET /api/feed: Retrieve a list of posts from users that the authenticated user follows.

User Endpoints:

- GET /api/user: Retrieve information about the authenticated user

Profile Endpoints:

- GET /api/profile/<username>: Retrieve information about a specific user's profile

Comment Endpoints.

- GET /api/post/<post_id>/comment: Retrieve a list of comments for a specific post.
- POST /api/post/<post_id>/comment: Create a new comment for a specific post.
- PUT /api/post/<post_id>/comment/<comment_id>: Update a specific comment by ID.
- DELETE /api/post/<post_id>/comment/<comment_id>: Delete a specific comment by ID.

Follow Endpoints:

- POST /api/follow/<username>: Follow a specific user by username.
- POST /api/unfollow/<username>: Unfollow a specific user by username.
- GET /api/followers/<username>: Retrieve a list of followers for a specific user by username.
- GET /api/following/<username>: Retrieve a list of users that a specific user follows by username

Architecture and Features :

a. Features implemented include :

1. User registration and login (using username and password) - implemented using JWT (token-based authentication)
2. User's profile :
 - ☒ Basic profile view of the user
 - ☒ Ability to view the total number of pots created
 - ☒ Ability to view the number of followers and people you follow.
 - ☒ Ability to view the list of posts created.
3. Post creation and management (blog/post management)
 - ☒ Create a new post
 - ☒ Update / Edit a post
 - ☒ Delete / Remove a post
4. Searching other users using usernames.
5. Following / unfollowing users
6. User's Feed
 - ☒ Show the posts created by other users
 - ☒ Navigate to the user's profile on clicking the username on the blog or post.
7. Daily Reminder Jobs
 - ☒ Reminders using email.
8. Scheduled Job - Monthly Engagement Report
 - ☒ Send monthly progress report using mail
9. User Triggered Async Job
 - ☒ Export blog details as CSV
 - ☒ Send an alert when done.
10. Performance and Caching
 - ☒ Add cache to increase performance
 - ☒ Add cache expiry

Additional features :

1. Commenting posts :
 - ☒ Add comments to posts
 - ☒ Update / edit existing comments
 - ☒ Delete/ remove existing comments.
2. Handling images :
 - ☒ Post image
 - ☒ Profile image
3. Well designed PDF reports
 - ☐ HTML or PDF reports
4. Styling and Aesthetics - done

Video :

Drive link →

https://drive.google.com/file/d/12NINseNWFQIATevIGLihLImm1e5Gh_YF/view?usp=sharing