



Blog Website

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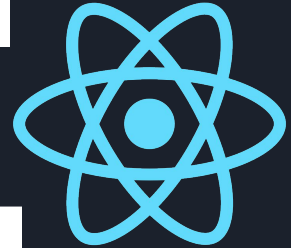
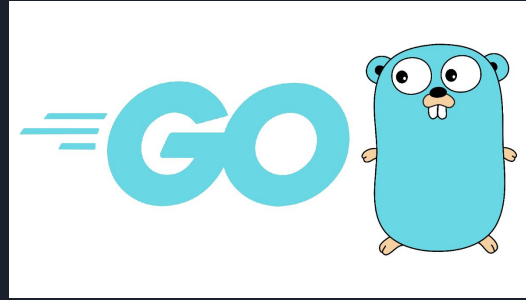


Motivation

- Was going to be my next project regardless of class
- Allowed for many learning opportunities
- A single blog page takes many queries to a database
- Gain experience using both Frontend and Backend solutions

Technologies

- Backend
 - API written in Go.
 - MariaDB database
- Frontend
 - NodeJS
 - ReactJS
 - React-Router-Dom
 - React-Bootstrap
- Run Through Docker

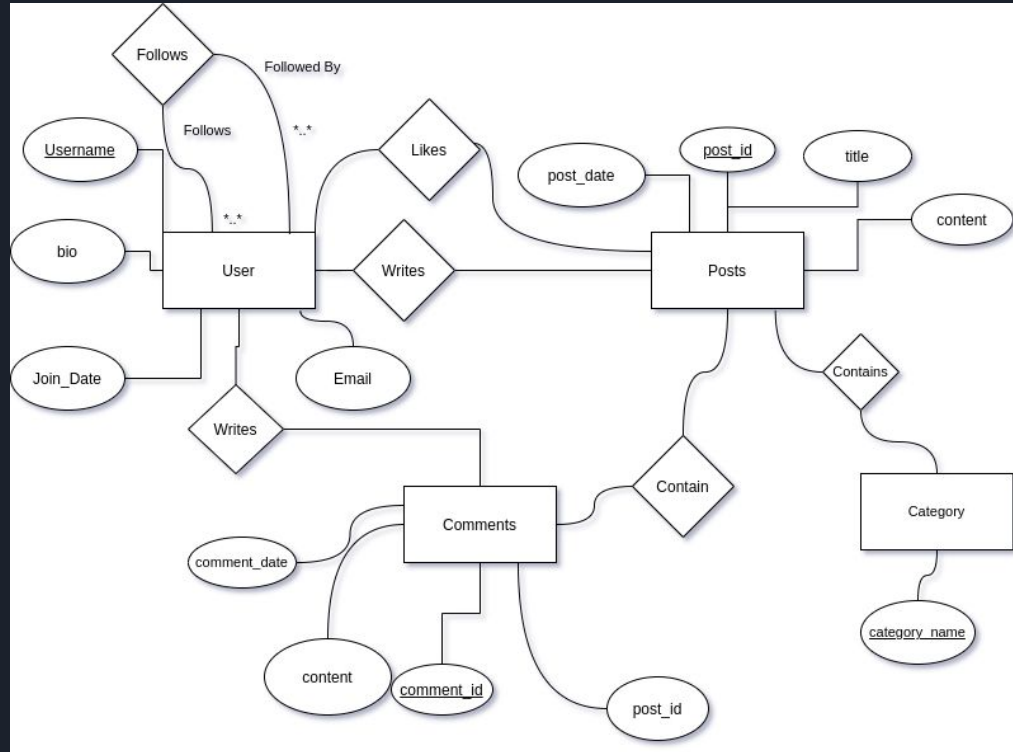




Development

- Used Visual Studio Code as IDE
 - Developed inside of VSCode Development Containers
 - Used docker-compose and Docker
 - With VIM key mappings
- Postman For API Requests
 - Makes testing easier
 - Allows for setting up requests

ER Diagram





OLTP Features

- Creating New Users
- “Authentication”
 - Not password protected
- Creating User Posts
 - Selectable categories
- Liking posts
- Viewing posts



OLAP Features

- View all posts from a specific category ordered by number of likes

```
SELECT category_name, COUNT(*), likes
FROM Posts p
      JOIN Post_Categories pc USING (post_id)
      JOIN Categories c USING (category_name)
      JOIN (SELECT (COUNT(*)) AS likes, category_name
            FROM Users_Likes
              JOIN Post_Categories USING (post_id)
              GROUP BY category_name) q1 USING (category_name)
GROUP BY category_name
ORDER BY COUNT(*) DESC
```



Olap Features Cont.

- Count users who liked a post and follow the author

```
SELECT COUNT(*)  
FROM Users_Follows uf  
      JOIN Users_Likes ul on uf.`following` = ul.username  
      JOIN Posts p on ul.post_id = p.post_id  
WHERE ul.post_id = 1
```




OLAP Features Cont.

- Users who joined since 2021-06-01 who have more than 1 comment or post

```
SELECT username, posts, comments
FROM Users u
  JOIN (SELECT username, COUNT(*) AS posts
        FROM Users_Posts up
        GROUP BY username) q1 USING (username)
  JOIN (SELECT username, COUNT(*) AS comments
        FROM Users_Comments uc
        GROUP BY username) q2 USING (username)
WHERE u.join_date > "2021-06-01" OR posts > 1 OR comments > 1
ORDER BY posts desc, comments desc
```



Needed Improvements

- Add a way for users to like posts
- Add a way for users to follow users
- Add analytics dashboard to user profile
 - This will be where OLAP queries will be shown (Current only API Request)



Demo Time



Summary

- Created a blog using a ReactJS Frontend
 - Users
 - Posts
 - Categories
- Created a backend API to interface with SQL
 - OLAP queries
 - Handles all dialogue between SQL and ReactJS