

Knight Foundation School of Computing and Information Sciences

Fall 2022 Capstone II

FIU

Engineering
& Computing

Community Connect

Student: Zackary Santana

Mentor: *Giancarlo Perez*

Instructor/Faculty: *Shahin Vassigh, Biayna Bogosian(Designer)*, Florida International University

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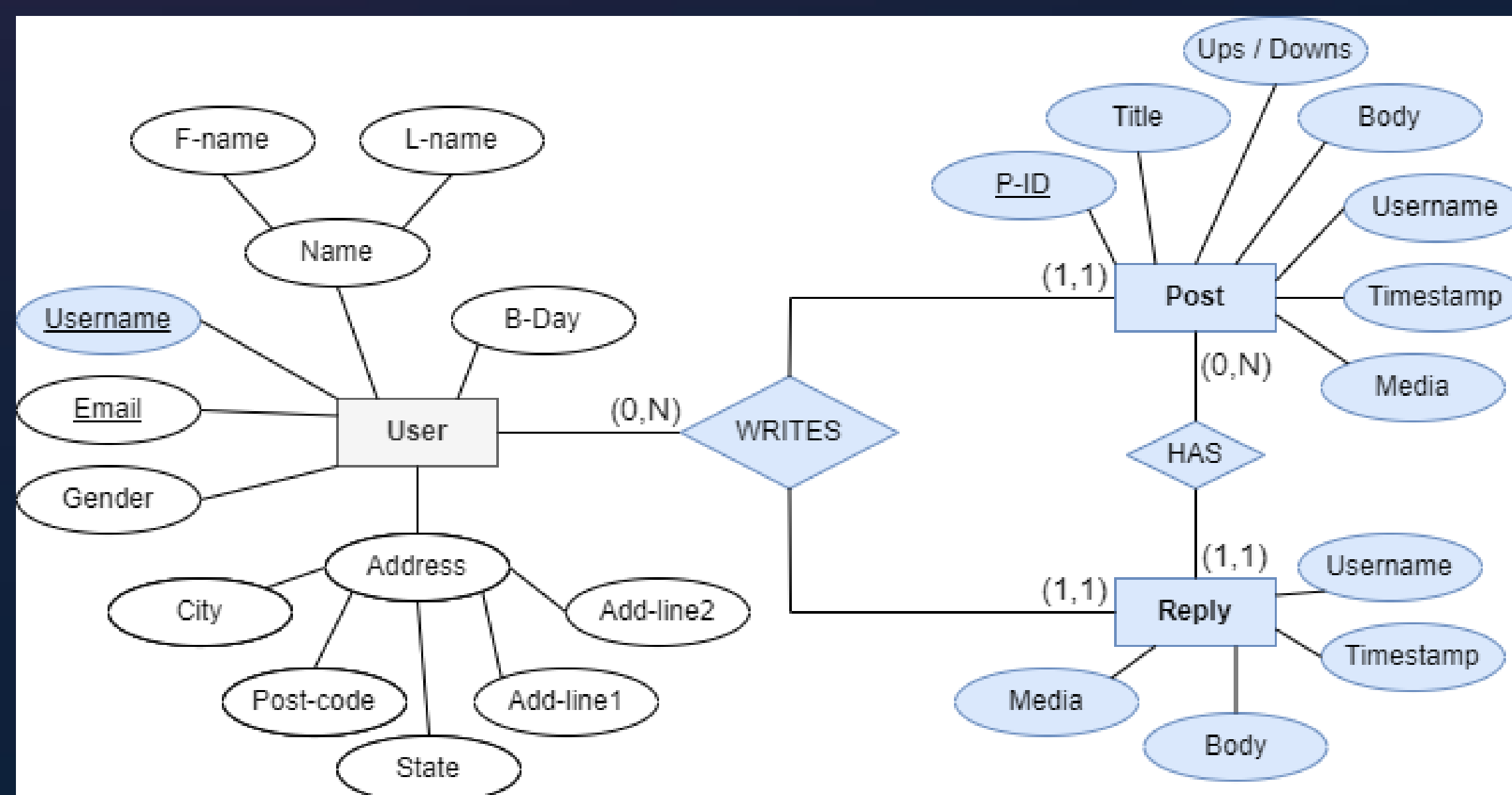
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PROBLEM

The objective of Community Connect is to bring together discussion, news posts, resources, and communication in the community around specific topics like the costal ecosystem, recycling, technology, community engagement, and more.

This semester, the project targeted being more deployable, connecting our data model, backend, and frontend to provide a cohesive user experience, and fine tuning the discussions section with capability to view real news, be able to comment on any discussion, and view other people's comments.

SYSTEM DESIGN



VERIFICATION

We opted to not use TTD to verify our application because the overhead of creating (since this is a previous existing project) and maintaining the infrastructure to support TTD would be too much.

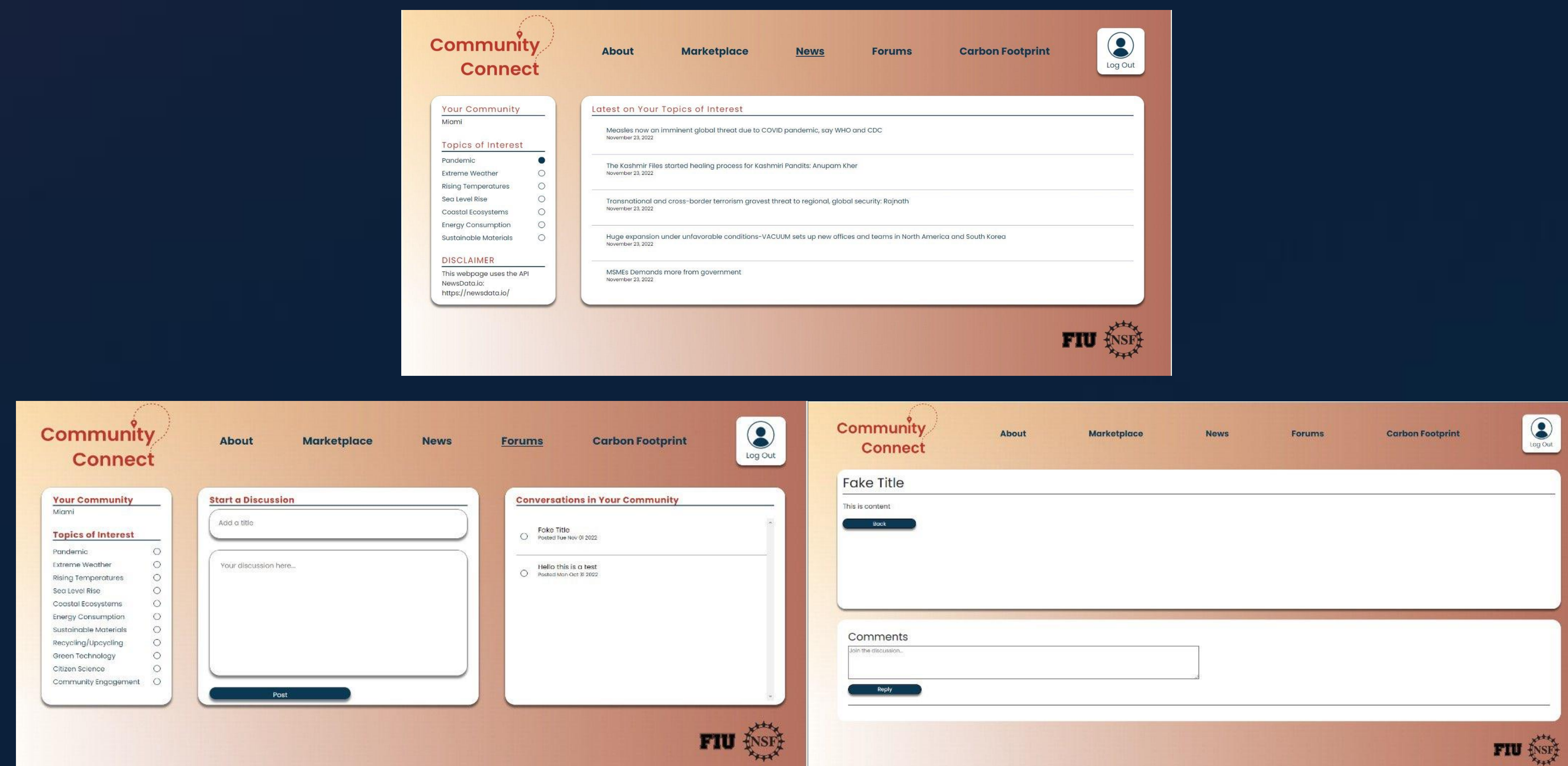
Each member would have to approve every PR that was submitted. We noticed that the code quality of the project was suffering by a high velocity from before and left a lot of technical debt, so we ensured our changes benefited the project and propelled our project to its final product.

CURRENT SYSTEM

The project uses Next.js (JavaScript framework) for the frontend for its ability to provide more velocity. It uses a Django (Python framework) backend for any access to our local Postgres (Database).

For deployment, each section of the project is containerized and put on Docker's internal networks to ensure secure connections only to any sensitive aspect of our project (Only the backend application can make a request to the database, and only the frontend application can make a request to the backend).

WEBSITE DESIGN



The top page is the previous version, the bottom two are the new versions. The previous version had no functionality only the MVP UI.

SUMMARY

Over the semester, we implemented the connections between the database, backend, and frontend. We increased the number of useable pages by 160% (including new pages and taking some pages out of under construction status). We discovered and changed our models to use a different news API that supported our use case more. We kept a consistent and maintainable pace that overall improved the code quality in the repository and documented additional points in the repository for future maintainers.

REQUIREMENTS/TECH USED

- Frontend
 - Next.js v11.1
 - React.js/JSX (built in Next.js)
 - Bootstrap v5.1
 - Reactstrap v8.10
 - Axios v0.26
 - SASS v1.43
 - Node v16.13- Backend
 - Python v3
 - Django v3.2
 - Numpy v1.22
 - Pandas v1.4- Database
 - PostgreSQL v13
 - Postman (Website Version)- Misc
 - Git
 - Visual Studio Code- Deployment
 - Docker / Docker Desktop
 - Linux (SSH, usage of tools, etc)

IMPLEMENTATION

Next.js (frontend) handles sending SSR JSX to the client.

The code that is split and ran on the client (browser) handles sending requests to the backend for everything database related (logging in, signing out, registering, creating comments, registering a discussion, etc). The frontend also handles fetching from the news API and displaying up to date information based on the request.

Django (backend) handles receiving requests from the frontend on authentication, adding/removing posts and discussions, and updating the database accordingly.

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ACKNOWLEDGEMENT

The material presented in this poster is based upon the work supported by Shahin Vassigh. I thank Shahin Vassigh, Biayna Bogosian, and Giancarlo Perez for their assistance and mentorship that I received throughout this process.

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