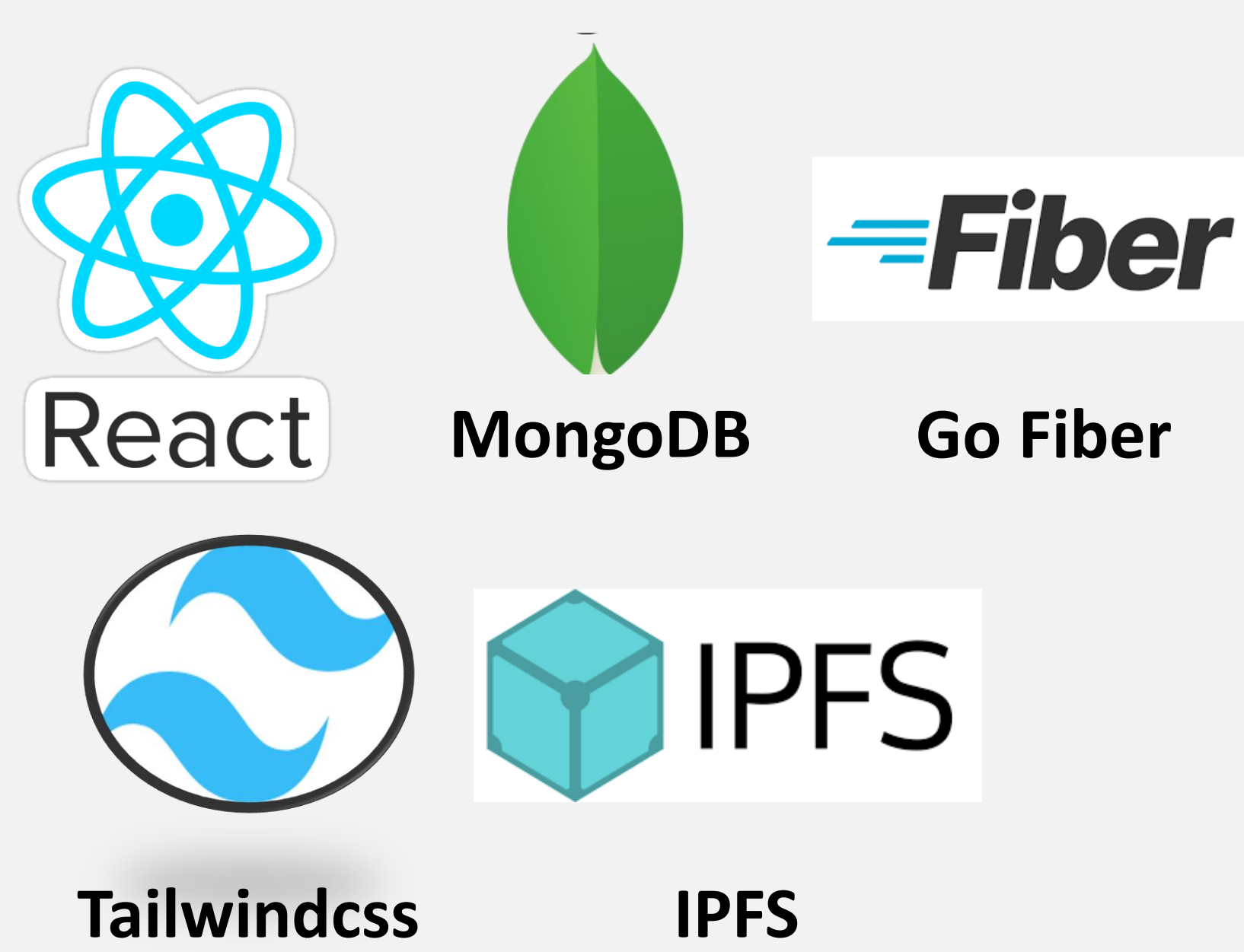




Knight Foundation School of Computing and Information Sciences

Fall 2022 Senior Design Project

P2P Drive

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PROBLEM

Our web application called P2P is made to link users to an IPFS-based decentralized file-sharing system (The Inter-Planetary File System) Our objective is to offer an efficient decentralized file sharing system that is also user-friendly.

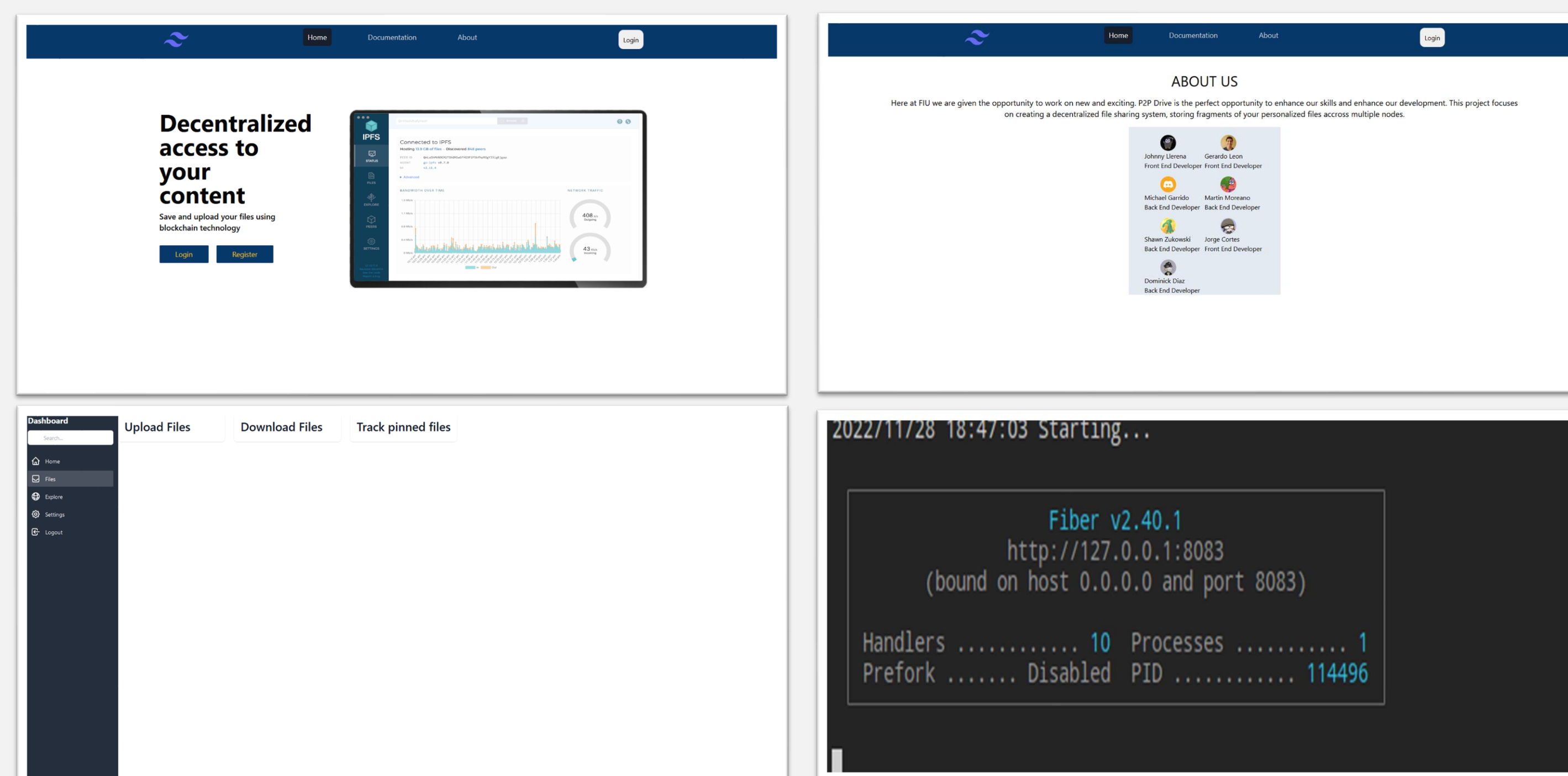
CURRENT SYSTEM

we provide users with file pinning services and maintain track of their data; the P2P web application currently allows users to register an account using MongoDB as our database. To avoid data loss, our API enables users to re-connect to previously connected nodes.

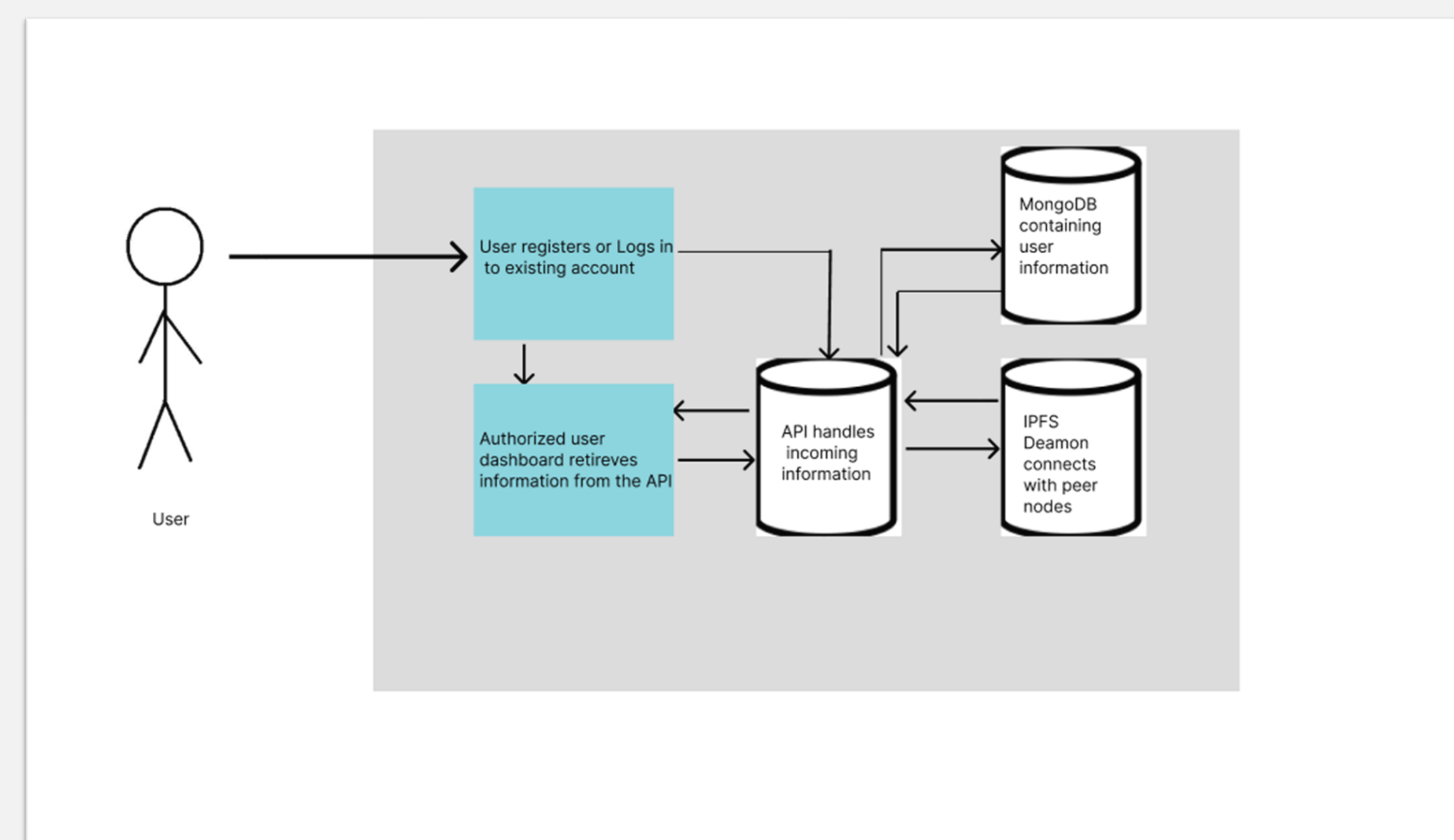
REQUIREMENTS

- Development of the back-end for a safe connection to IPFS services
- Responsive mobile web application
- Implementation of IPFS foundations
- Includes models and routes using custom API
- Storing user information using a database(MongoDB)
- Responsive, user-friendly web application

SYSTEM DESIGN



OBJECT DESIGN



IMPLEMENTATION

- Encryption of user sensitive information
- Database for user information (MongoDB)
- Routes and models contained in custom API running as middleware for our database, web application, and IPFS daemon coded in Golang Fiber
- React.js application styled with Tailwindcss
- Documentation made simple using Swagger UI API
- Information transfer using Axios and Forms for API calls

VERIFICATION

Verification of our API is primarily run through Postman and then verified a second time using local testing of the web application

SUMMARY

- Designed custom Golang API that works as middleware for our web application, database, and IPFS Daemon
- Added encryption for user sensitive information
- Implemented database to store user information
- Setup models and routes allowing access to our IPFS daemon and database

REFERENCES

- <https://ipfs.io/>
- <https://docs.ipfs.tech/>
- <https://github.com/mmoreano/P2P-Drive/tree/main>
- <https://docs.ipfs.tech/reference/kubo/rpc/>
- <https://proto.school/tutorials>
- https://github.com/PenguinAmbush/P2P_Drive_Web/main

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