

Knight Foundation

School of Computing

and Information Sciences

Knight Foundation School of Computing and Information Sciences

Spring 2023 Capstone II Project

WebChain

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PROBLEM

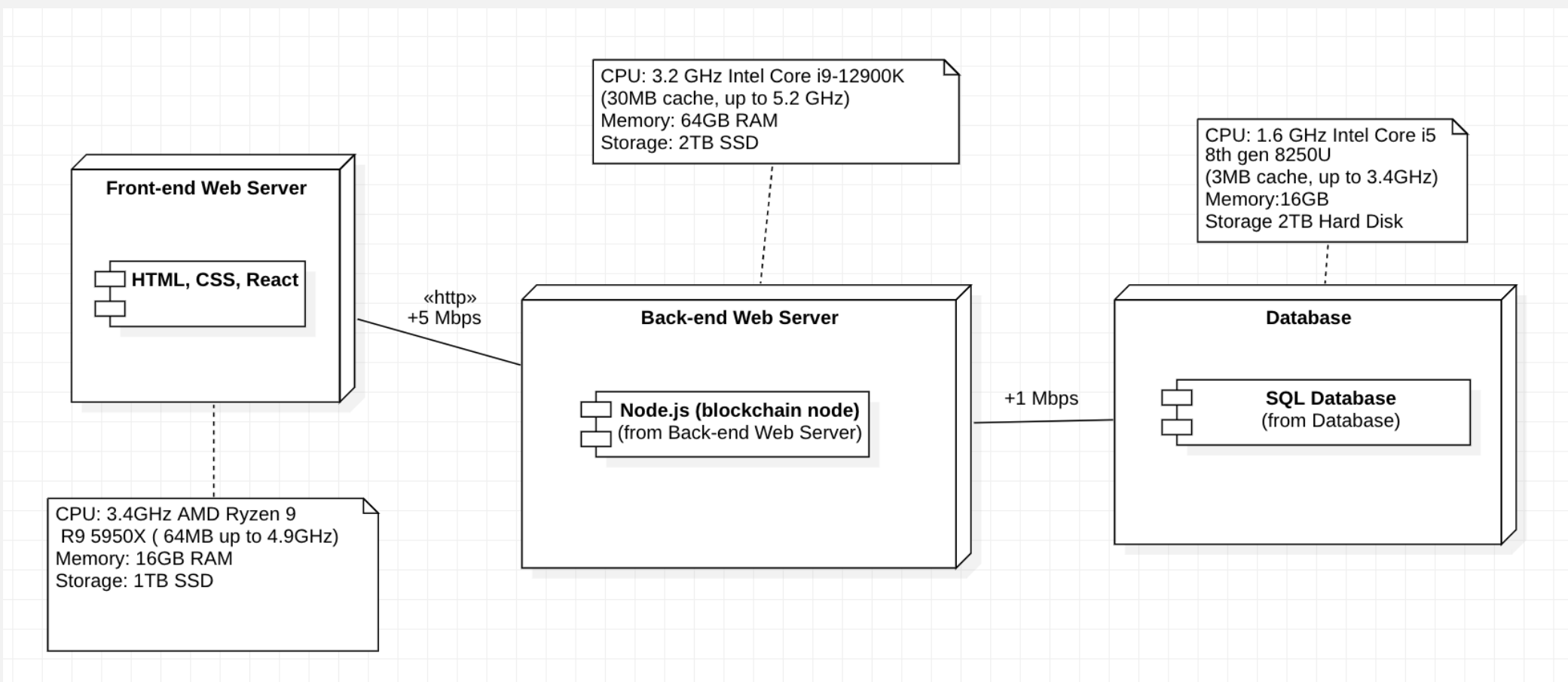
The purpose of this project is to create a website that is backed by blockchain technology. The team decided to create a voting system where a user can create a ballot and other users can vote on that ballot. The decentralized nature of blockchain is an appealing characteristic to these systems because it provides anonymity, privacy, verifiability, integrity, security, and fairness in voting^[1].

SYSTEM DESIGN

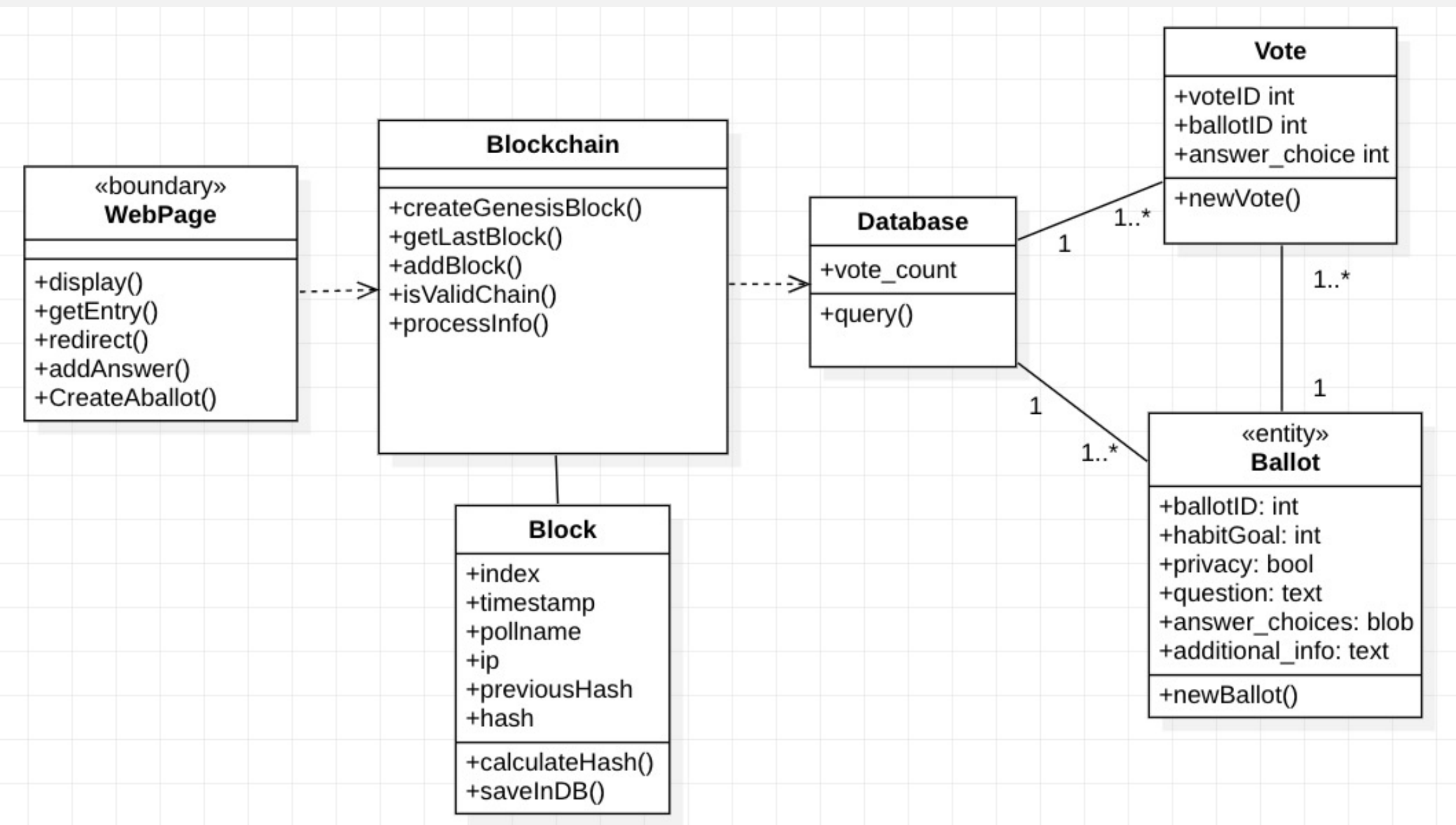
- The front-end of the website uses HTML, CSS, Javascript and React.
- The back-end’s blockchain component was created with JavaScript and database with SQL.



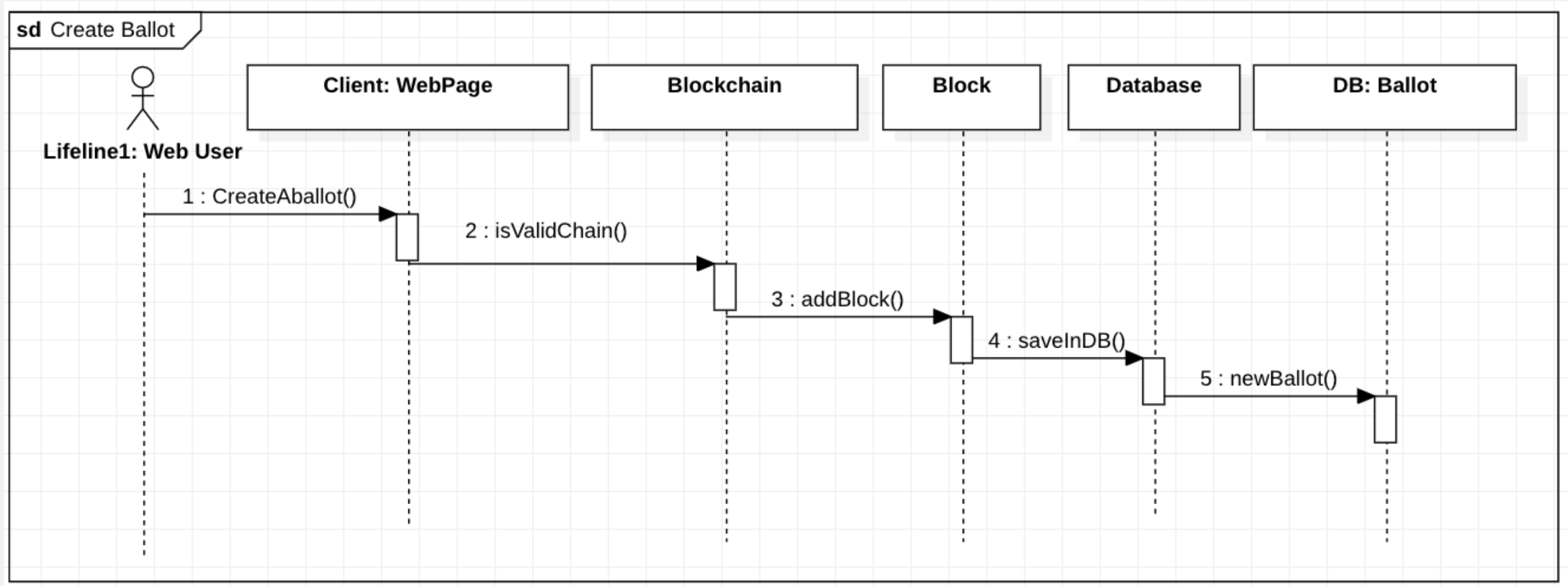
Deployment Diagram



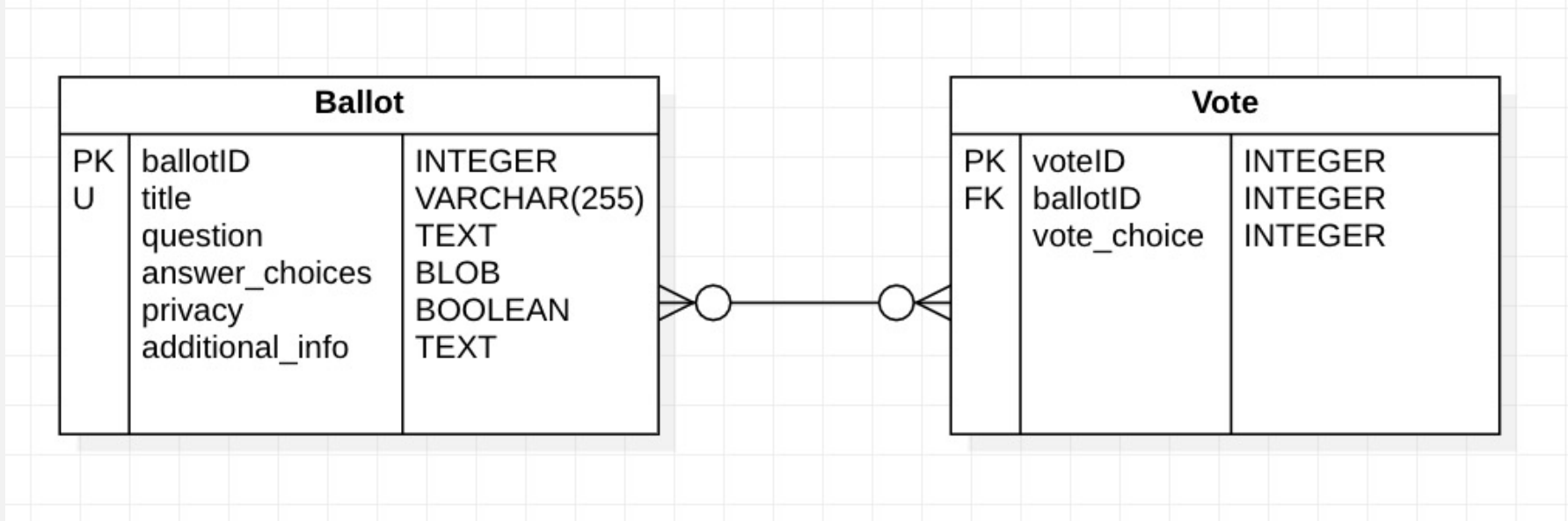
Class Diagram



Sequence Diagram: Create a Ballot



ER Diagram



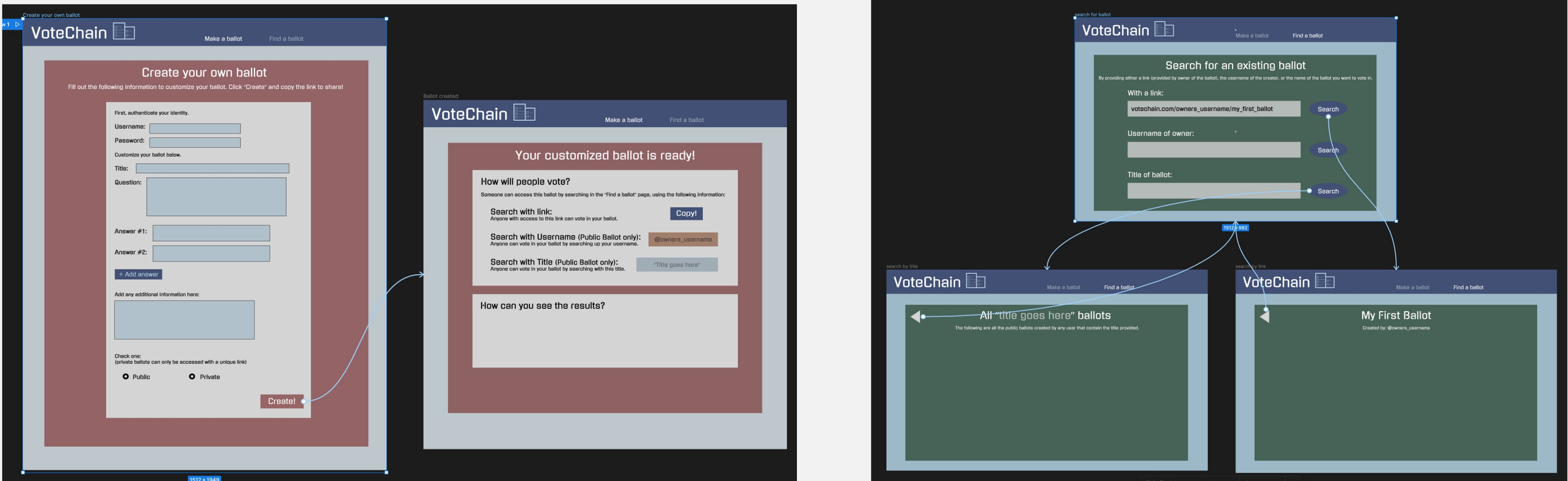
REFERENCES

[1] Alvi, S. T., Uddin, M. N., Islam, L., & Ahamed, S. (2022, July 1). *DVTChain: A blockchain-based decentralized mechanism to ensure the security of Digital Voting System Voting System*. Journal of King Saud University - Computer and Information Sciences. Retrieved April 16, 2023, from <https://www.sciencedirect.com/science/article/pii/S1319157822002221#section-cited-by>

ACKNOWLEDGEMENT

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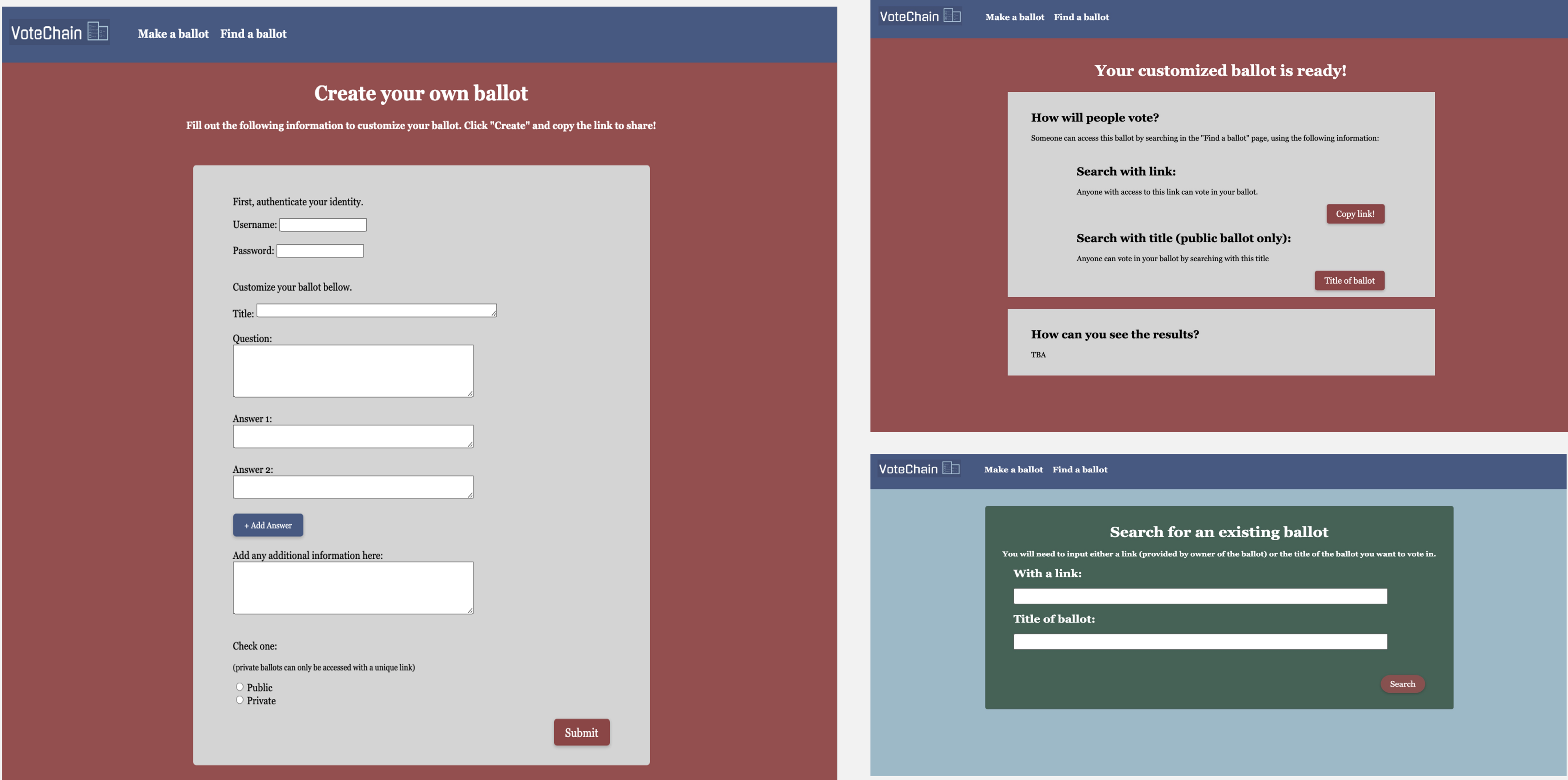
DESIGN



IMPLEMENTATION

WebChain is a place where users can create their own ballot and share it via a link or the title of the ballot. Once they share it, anyone with access to the link or the title can vote on the ballot. The website is not fully functional, but the goal is for the ballots and votes to be stored in the blockchain. The blockchain is a linked list containing Block objects. Each Block object has an index, timestamp, poll name, IP address, and hash. The SQL database is necessary for larger scale implementations, possibly using CovenantSQL.

CURRENT SYSTEM



REQUIREMENTS

- Visual Studio Code
- GitHub
- JavaScript
- MySQL
- Any PC is sufficient

