SE 575 – Final Project Deliverable

The Blockchain Simulator

**Project Team Members:**

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**Video Demo Link:** <Insert Link>

**Description:**

The project demonstrates a stand-alone blockchain simulator and is not intended to be a comprehensive blockchain. Rather, the simulator aims to showcase and introduce several novel features in order to demonstrate good design and architectural practices when building real world applications.

Some of the features of the simulator are:

1. Standalone modern front-end application built using Vue's reactive framework showcasing modern web design decisions.
2. Simple Hashcash Proof-of-Work implemented into the back-end
3. Java API based solver implemented for hashing, double spending prevention, and tamper prevention.
4. Blockchain simulator packaged and deployed via Docker services that utilize a virtual operating system to run the blockchain software without the need to worry about conflicting software versions on the host machine (front-end and back-end packaged into two separate Docker containers).

**Project Code Location:** <<https://www.github.com/ameerj/SE575-Blockchain-Project>>

**Project Build Information:**

To setup and run the project, please clone the repository linked above, and have [Docker](https://www.docker.com/products/docker-desktop) installed.

Afterwards, navigate to the Blockchain-Backend directory and execute the following commands to build and run the backend service:

docker build --tag bc-backend .

docker run -p 8080:8080 bc-backend

Then, in a separate terminal instance, navigate to the frontend directory and execute the following commands:

docker build --tag bc-app .

docker run -p 3000:80 bc-app

Once the two services are running, navigate to <http://localhost:3000> in your favorite web browser and you’ll be greeted with the blockchain application frontend!

If not using Docker, please see the "README" sections for each respective service from the GitHub repository for locally building and running the services: <<https://github.com/ameerj/SE575-Blockchain-Project>>

Front-End "readme": <<https://github.com/ameerj/SE575-Blockchain-Project/tree/main/frontend>>

Back-End "readme": <<https://github.com/ameerj/SE575-Blockchain-Project/tree/main/Blockchain-Backend>>

**High Level Design Overview:**

