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Oilfield Underground Injection Monitoring by Blockchain Technology

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Summary

The purpose of this project is to create an injection well website that utilizes a blockchain platform called Corda. This can help geologists and injection well companies to lease, view, and maintain their well data.

What is blockchain?

Blockchain is a system that utilizes blocks of data known as nodes. Nodes use a decentralized peer-to-peer network to communicate to one another and update their data. This makes it difficult to modify the data within nodes.

Functionality

The website allows a user to manage projects by creating a new project and checking existing ones. The main functionality lies in the well creation, which involves inputting various pieces of information curated by the geology department to make it as authentic as possible.

Introduction

Many businesses need to collect, store, and retrieve their data in some form or fashion. Typically, this comes in the form of databases. However, we decided to take a slightly different approach. We set out to make a website that would meet the needs of an injection well company by utilizing Corda.

UI/Frontend

The user interface will be composed of an HTML website that allows a user to manage their injection wells. They can create a well or well project by filling out a form with many sets of criteria.

Verification

Once a form is submitted, inspectors are able to verify if all the conditions needed for a viable well location are met. If the green light is given, regulators will be able to approve the well location. This decision will be based on various government regulations, such as the US Clean Water Act.

Form Submission

Once the form is submitted, a regulatory agency will be able to either accept or reject the well proposal submission. Their decision will be based on the regulations described previously and their general expertise.

Results

We managed to structure a webpage with a scalable backend, designed it around the geology department's needs, while also having a relatively simple user interface..

