Makeing Second Hand Selling Safer with Smart Contracts

My Stack

React

Express

Redux Toolkit

Styled Components

Prettier

Truffle

Ganache

Web3

MySQL

Legal Issues

Despite the name smart contracts are not legal contract.
New Zealand law is designed to protect the consumer from the retailer as the retailer is seen as having more resources.
As second hand sales tend to involve to smaller parties this may require addition planning.

Unlike tradional sales smart contract complete automatically meaning that if there is a problem with a transaction we can expect for a consumer to need to seek reconpences.

Design Considurations

When designing this website, it was important to create business rules which allowed for the website to meet both the legal requirement and the expectation of users.
User must have a way to alter sales once they have been confirmed, this includes being about to cancel.
User needed to be able to come to understandings.
All while not compromising the users trust in the website.
To deal these issues a list of business rules based on fringe cases were create and used to design the website.
As part of these rules the website was slightly bias to some users. I personally would not be surprised if other website has a similar system that is hidden from the user.

Redux vs Redux Toolkit

Redux allows for a website to have a single source of data that all of the other components can access.

By having a single source of data, a website can stay consistent and avoid having to parses information back and forth between components.

With the help of middleware redux can handing additional scenarios such as mutating data and dealing with side effects.

Redux is design to be no-opinionated meaning that it tries to give developers space on how to achieve certain goals. This is opposed to redux toolkit which is more specific about the way the developer uses it.

Redux toolkit is a library which builds off redux.

All of the original features of are present and can be used.

A common complain that is made about redux is that it requires too much middleware to work.

Redux toolkit comes pre bundled with some of the most popular middleware bundled. By bundling redux with its middleware redux toolkit looks tidier as there is no need to import and set up the default middleware.

Redux toolkit allows for large parts of its structure to be created at once. Redux requires the user to set up all of the different part of the store. While redux toolkit can create need components as part o creating the components which will use them.

Redux toolkit also has the middleware need to work with the redux browser extension, a helpful tool which lets a developer see all of the states and actions which have taken place.

Smart Contracts

A Smart Contract is code which is posted to a blockchain.

Similar to a vending machine a block chain receives a input and dispenses and output.

Like most thing on the block chain once the code is posted to the blockchain it cannot be changed.

Smart Contracts are written in the language Solidity.

Smart contracts require 'gas money' to function.

Each time a smart contract is posted or run the blockchain requires a small payment.

Although it is possible to create non transactional smart contracts but the gas cost can be preventative.

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MetaMask

MetaMask is a plugin for Google Chrome and Firefox which simplify the process of interacting with smart contracts.
Web3 can send API calls to MaskMask an receive confirmation.
Due to security reason a user must okay a website before MetaMask will let the website see its data.
MetaMask acts as a middleman between the blockchain and the website signing of on any transaction for the user, after then user has agreed to any charges.

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