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Abstract

Blockchain is a fairly new technology that emerged with the introduction of the famous CryptoCurrency BitCoin. But there are many uses of blockchain besides just CryptoCurrency, for example, Walmart has a blockchain that allows them to track their produce and the United States Postal Service has placed a patent to use blockchain as an identity verification measure. Blockchain is used for tasks as simple as securing databases to as complicated as monitoring carbon offsets. It can also be used to manage an auction and would be able to safely transfer money, keep identities of bidders secure, and keep an accurate ledger of the bids. This project builds a smart contract for a blockchain-based auction that uses components of a minimum bid auction merged with one component of a Vickrey auction. A widely used online IDE called Ethereum was used to run the blockchain code. In the auction, the seller sets the minimum bid, the bidders give their bids, and when the auctioneer closes the auction, the highest bidder pays the second-highest bid. The project met the criteria set for it, which was to set up a functioning auction and add the Vickrey auction component. Albeit most of the functions are manual, such as changing the bidder, the auction runs smoothly.