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Running an Auction Using Blockchain

**Research Plan**

**Rationale:**

Blockchain has been used for decentralized currency, but it still has a vast array of untapped potential. I am making a blockchain-based auction to show how blockchain can be used other than cryptocurrency.

**Engineering Goal:**

I would like to make a blockchain program that will successfully hold an auction.

**Procedures:**

First I will learn a little bit of solidity (programming language). Then I will complete the basic auction code and attempt to add in some extra features or tricks. I will then test the program and try to figure out if there can be a crash due to any human error.

**Risk and Safety:**

There is no inherent risk in this project. Everything can be done on a personal computer.

**Data Analysis:**

I want to make sure the program runs smoothly without any obstacles and learn how to use it so I don’t make any human error on my part. I also want to make the program to where the winning bidder gets to pay the runner-up price instead of the price they bid.

**Bibliography:**

Gupta, Manav. Blockchain for Dummies. 3rd ed., John Wiley & Sons, Inc., 2018.

This book describes blockchain is basically a "shared ledger" that can be used to record any transactions and also makes it nearly impossible to change past transactions. As data is sent or received, it is synchronized across the blockchain, which is cost-effective and saves time. All of the transactions are also very secure and authenticated.

Iansiti, Marco, and Karim R Lakhani. “The Truth About Blockchain.” *Harvard Business Review*, Harvard Business Publishing, 21 Aug. 2019, https://hbr.org/2017/01/the-truth-about-blockchain.

This review talks about the advances made and that can be made due to blockchain. It also points at a major problem in the blockchain community: the over-hype of blockchain could possibly lead to disorganization because people will be rushing into it, without “understanding” how it will take hold.

Xu, Min, et al. “A Systematic Review of Blockchain.” *SpringerLink*, Springer Berlin Heidelberg, 4 July 2019, https://link.springer.com/article/10.1186/s40854-019-0147-z.

This review talks about the importance of blockchain and discusses the research done in blockchain and research done with blockchain. It analyzes top-cited reviews regarding blockchain and discusses potential applications of blockchain.