Fake Product Identification System

**Description:** I am attempting to create a web application that utilizes the blockchain to store data of the authentic products that consumers can use to verify the authenticity of their purchase. My proposed solution would be to have Shoe companies print out a small QR code somewhere on the shoes. These QR codes could be linked to the blockchain data store and could trace the shoe back to the source and determine authenticity. This will allow users to then just scan the QR code and be taken to the web application that will show all the details for that shoe if it is authentic. This will be a very secure method of verifying authenticity of products because everything on the blockchain ledger is completely transparent. I believe that this would be a significant contribution towards fighting against the fake shoe market and can later be applied to all sorts of products to track source and verify authenticity.

**Status of the Project:** Thus far, I have researched past attempts at solving the existing problem of buying fake shoes. I have discovered that basically the only way to verify the authenticity is to put the shoe under a microscope and look at the stitching and quality of the materials up until very recently. I did find similar solutions as mine that were discussed, and I even found that many companies are implementing some form of my proposed idea to utilize blockchain technologies to verify the authenticity of shoes. Nike is one example of having tried this idea on a small scale in Australia using a blockchain tool called VeChain. After much researching, I have chosen to move forward on this project by choosing to use Ganache as my environment to create and manage my blockchain. This is essentially a virtual blockchain application that is perfect for simulating and testing blockchain applications that are not market ready yet. I will use a browser extension called MetaMask to interact with my local blockchain server. I have chosen MetaMask because there is a low learning curve, and it will allow me to perform all the operations to the blockchain that I need for this project. I will also be using Truffle, which is a framework for handling smart contracts in order to handle the lifecycle of my contracts. This will also help me define the architecture of how the blockchain operates. I have chosen Ganache and Truffle mainly due to their open-source nature. This allows me to easily view examples of how the code works behind the scenes and will give me a better understanding of how to interact with the blockchain properly. I have not quite finished set up the environment for testing, although all the frameworks and libraries have been downloaded and researched extensively.

**Milestones yet to be accomplished:** My proposed deliverable for Milestone 2(2A and 2B combined) is to have the entire back end of this application working with the blockchain storage containing a ledger of the authentic shoe database. I will attempt to also have a simple working version of the front-end user interface at milestone 2. This goal is still attainable as I have completed all my goals for Milestone 1 other than completely setting up the environment.

**Proposed time line to accomplish the remaining milestones:** Milestone 2A will take the longest portion of this project and I still believe I could accomplish this in three to four weeks. Although this could take longer depending on the problems that I encounter and thus milestone 2B might not be completed until after the milestone 2 due date of November 14th.