It is currently estimated that there are 1.8 million Syrian refugees in Jordan. With such a large number of refugees in this unstable environment, the distribution of necessary goods and services, especially food, is almost impossible. As an effort to maintain and even strengthen the local economy, the World Food Programme is taking a modern approach to address the food distribution and financial service problems.

So, what do computer science, food distribution services, and the refugee crisis have in common? Though your first thought is probably "nothing", the answer is more than you might think. I, too, did not think these topics were connected until I wrote a research paper for my AP Literature class in high school. I'm not sure how it caught my attention, but I decided to research a project being put on by the World Food Programme, where they were using something called blockchain technology to "deliver food assistance… to...Syrian refugees in Jordan". Blockchain is a digital record of transactions, composed of individual records linked together to form a chain. Ever since this high school research project it has been a topic of interest to me. I am going to discuss the multiple industries in which blockchain can be implemented, specifically focusing on healthcare, finance, and finally the entertainment industry.

Today, the Building Blocks Program has allowed for over 100,000 Syrian refugees living in refugee camps to use iris scanners to purchase the necessary food and services they require. So, how exactly does this work? Basically, every refugee's identity is put on a private node called a block. Whenever they make a transaction, it is linked to their other blocks, forming the blockchain, and keeping a private record of all purchases and money spent. The idea of a digital identity has also been adopted in westernized civilizations, where they are implementing similar ideas in the healthcare field.

In their 2016 book *The Blockchain Revolution,* authors Alex and Don Tapscott address

many modern implications of blockchain. Imagine a patient taking an electronic pill that can collect biometric data. Doctors can automatically access this data, and determine what time a patient took their medication, their current heart rate or temperature, and more. All of this data is linked to the patient's blockchain, and the data is automatically analyzed and sent to medical professionals. Since medical records on the blockchain are time stamped, can not be altered and are always readily available, you would never have to spend 30 minutes filling out a form of your medical history at the doctors office.

Since my initial interest in blockchain two years ago, I have since pursued a degree in computer science at the University of Georgia. I am interested in working in the financial technology field, where they are using blockchain technology to improve financial transactions. Most people have heard of Bitcoin, which was where blockchain originally became popular. Bitcoin and other cryptocurrencies use blockchain to make secure transactions, where both parties' identities are authenticated while still having the ability to remain anonymous. Security is improved, lowering the risk of fraudulent transactions. However, there are many other uses of blockchain in the financial industry other than Bitcoin.

Implementing blockchain into banks will increase the speed and reduce the cost of national and international bank transactions. In *The Blockchain Revolution,* it is stated that the Santander Bank found large banks could "eliminate an estimated $20 billion in back-office expenses without changing their underlying business model". Blockchain can also be used in collaboration with mobile banking. When considering apps such as Cashapp, PayPal, and Venmo, instead of taking days for a transaction to be approved, transactions through the blockchain are approved within ten minutes.

Someone who isn't interested in technology or finance still might not understand how

progressive the idea of blockchain actually is. This technology can be used in any situation where data has to be recorded, thinking of it like a global spreadsheet. Music business and the entertainment industry is a field you probably wouldn't expect blockchain to be used, but it is!

Record labels can create smart contracts, where artists can come to an agreement of their digital rights. This contract makes the relationship between a record label and third parties explicit, as a digital contract will cover the legal logistics of how music can be shared. When considering multiple artists collaborating on a song, the main producer can use a smart contract through blockchain to instantly pay the multiple artists involved. If these contracts are ever broken, the record label is automatically alerted.

Another use of blockchain in the music industry involves data usage within third parties. For example, all of the Spotify data about a certain artist exists on the blockchain. The record label can use this data to plan tours, based on where the majority of listeners are located. Data regarding similar artists listened to by users can help plan collaborations between artists or create lineups for music festivals, boosting revenue for everyone involved.

An article written in April of 2020 by Sam Daley of the tech news source, Built In, gives an interesting example regarding revenue distribution. An artist receiving one million streams on Spotify currently earns only $2100 of the $7000 total. Using blockchain as a solution to the problem of fair revenue distribution among artists means that artists can efficiently release their music without having to rely on expensive middlemen. While a blockchain-based music streaming service is not likely to replace Spotify and Pandora right now, smaller companies already exist and are starting to make these changes. Interestingly, Spotify acquired a company called "MediaChain in 2017 to help solve royalty payment and rights holders issues within the music industry". Though most people may not be aware of it happening, the versatile blockchain

technology is starting to become implemented into all types of industries.

Ultimately, whether in the healthcare, financial, or entertainment industry, or even in the face of a refugee crisis, there exists a problem that can be solved with blockchain. As you can see, there are countless problems that blockchain offers a solution to- many of these being problems you would never even think about! Learning about this progressive technology is important for all fields, as this is a global solution that can be manipulated in many ways to improve the modern world.

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