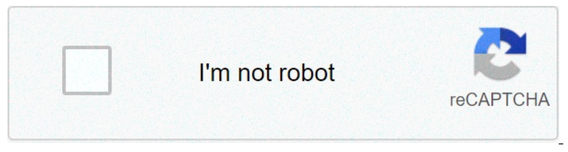

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Blockchain programming tutorial pdf

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A blockchain is a digital and public master that records online transactions. BlockChain is the main technology to encrypt themselves as Bitcoin. A blockchain is the integrity of a cryptography encryption, validation and permanently recording transactions. A blockchain is similar to a bond book of a bank, but opened and accessible to all those who use the encryptocurrency is supported. See definition when you slide your credit card to a store, the cost must go through an institution Financial as a bank, which confirms the transaction, charges the card holder account and sends the tariff to the retailer to complete the sale. This can be expensive Ã ¢ â,¬ "banks charge a service fee - and insecure for users, as they showed recent points of sale systems systems. There is also potential for fraud with fraud Credit card, which cost merchants in the United States hundreds of millions of dollars a year. Blockchain corrects these problems. As the name suggests, a blockchain is made up of a series of Ã ¢ â,¬ Â "Blocks.ã , Â,¬ The BlockChain_ Records software. Each transaction is in a block without the help of third parties as a bank or payment processor. The blockchain algorithm encrypts and automatically authenticates the transaction, which is immediately visible to all Users, minimizing fraud possibility. The terms of the transaction do not include any personal or identifier information. Blockchain technology has been invented to govern Bitcoin, the first and the most popular critage. Some more platforms P The recent ones, such as Ethereum, employ a blockcain to provide a digital ecosystem for distributed calculation, effectively using the encryptocurrency for oil works. In Ethereum, the blocks perform what has defined an intelligent contract to ensure that some conditions are met before a service is made. Each Blockchain user has the same copy of the entire blockchain as everyone else. This makes it practically impossible to manipulate: a hacker should take advantage of the largest calculation power than each user to change the blockchain in favor of her. Because of this security of Ironclad, the main traditional institutions such as Citigroup and the London Stock Exchange embraced BlockChain technology, hoping to use it, for example, to protect intellectual properties or archive investment records. Blockchains can also be used by artists and musicians to ensure their work and receive a fair compensation from fans. It may not be a long time before the artists license their work to a publisher, who takes a cut, when they can record it directly to a blockchain.Banks have been slow to adopt blockchain. Meanwhile, Bankrate can help you choose the right bank to deposit your money. Blockchain Exampleasgarcor, lead singer of Norwegian black band Metal band Heimskringla, saw his income decreases since the band label has increased their cut. Asgarori realizes that he can increase he enter him by selling directly to fans. He decides to use the Blockchain not only to record the texts of Grim Riffs and Nefarious of his band, but also to establish an intelligent contract that allows users to buy Heimskringla records and merciliation, paying a quantity set of a certain encryptocurrency . Both the recording of Heimskringla's intellectual property and each transaction for the purchase of bandwidths are recorded safely and definitively. If you're going to look at the news lately, you might have heard of something called Blockchain. EÃ ¢ s a concept that makes the data ultra-safe for specific uses. YouÃ ¢ probably In connection with Bitcoin, but it has the applications that go far beyond the EveryoneÃ ¢ Cryptocurrencies favorite ,. HereÃÃ ¢ s A rapid explanation of how it works. Everything starts with relative encryption: what is Bitcoin, and how does it work? To understand Blockchains, it is necessary to understand encryption. The idea of cryptography is much older than computer: it is limited to saying information thus reordering one that you need a specific key in order order understand it. The Toy Simplea Ring Decoder You found in your Kix cereal box is a form of more cryptography ¢ Base creating a key (also known as the figure) that replaces a letter with a number, run the message through the key, and then give the Key for someone else. Who finds the message without the key t key to read it, unless I do it s ¢ cracked.Ã ¢ The military used more complex encryption a long time before the computers (Thea enigma machinea coded and decoded messages during the Second World War, For instance). Modern encryption, though, it's entirely digital. Today's computers are using encryption methods that are so complex and so sure that it would have been impossible to break them as a simple math made by humans. Computer cryptography Isna T technology perfect, though; It can still be cracked ¢ Ã ¢ if people smart enough to stick algorithm, and data is still vulnerable if someone apart from the owner finds the key. But encryption also at consumer level, such as 128-bit AES encryption thatÃ ¢ S series time on iPhone and Android, is enough to keep data blocked by the FBI. Blockchain is a collaboration, Secure Data Encryption Ledger is normally used to block files so that they can only be accessible from specific people. But what happens if you have information that must be seen by EveryoneÃ ¢ How, for example, accounting information for a government agency that must be public Lawa and still needs to be sure? There, you have a problem: more people who can see and change information, the less sure it is. Blockchains have been developed to meet the security needs of these specific situations. In a BlockChain, every time the information is updated, the change is recorded and verified, then sealed by encryption, able to be changed again. The set of changes are then saved and added to the total record. The next time someone makes changes, start again, retaining information in a new Ã ¢ Blocka thatÃ ¢ s encrypted and attached to the previous block (from here lock chain Ã ¢). This process of repeating connects the very first version of the information set with the latest, so everyone can see all the changes ever done, but it can't help and change the latest version. This idea is a sort of metaphors resistant, but imagine youÃ ¢ king in a group of ten people assembly a lego set. You can only add one piece at a time, and can never remove any pieces to all. Every member of the group must arrange in particular where the next piece goes. In this way, you can see all the pieces in any back right TIMEA in the first piece in the Projecta but you can only change the last piece. For something a little more relevant, imagine a collaboration document, like a spreadsheet on the Google Docs or Office 365. Anyone who has access to the document can modify it, and whenever they do it, the change is saved and recorded as a New spreadsheet, then blocked in the history of the document. So you can go back, step by step, through the changes made, but you can only add the information to the most recent version, do not change the previous versions of the spreadsheet that have already been blocked. As you probably heard, this idea of one, LedgerÃ ¢ Ã ¢ constantly updated and secure is mostly applied to financial data, where it makes more sense. Distributed digital currencies such as Bitcoin are the most common use of BlockChainsÃ ¢ in fact, the first ever was done for Bitcoin and the idea widespread outside there. The technical material: step by step, block for blocking that way all this actually play out on a EÃ ¢ s a combination of encryption and peer-to-peer. Related: How does BitTorrent work? You might have familiarized peer-to-peer file sharing: services such as BitTorrent that allow users to upload and download digital files from multiple positions more efficient than a single connection. Imagine the file ¢ to as fundamental data in a blockchain, and the download process like encryption that keeps continuous continuous updating Safe. Or, to return to our example of Google Docs above: imagine - that the collaborative document you're working on is not stored on a server. Instead, it is on each individual computer, which constantly monitors and update one another to make sure that no one has modified the previous record. This makes it Ã ¢ â,¬Å Decentralized. "This is the main idea behind the Blockchain: cryptographic data is continually accessed and set at the same time, with no centralized server or storage, with a record of changes that incorporates in each new version of the data. So we have three elements to be considered in this report. One, the network of peer-to-peer users that all store copies of BlockChain record. Two, the data that these users add the newest Ã ¢ â € œ â ¬ ¢ blocka of information, allowing you to be updated and added to the total record. Three, the criptologiche sequences that users create to agree on the last block to lock in place in the sequence of data that make up the record. the last part is the secret sauce in the sandwich blockchain. by using digital encryption, each user contributes to the power of your computer to help solve some of those super complex math problems c h and keep the records safe. These highly complex solutions "known as a Ã ¢ â,¬Å Hash - solving key parts of the data in the record, such as accounts added or subtracted money in accounting, and where it comes from or coming from a money. The more dense the data encryption and more elaborate power is more complex needed to solve it. (This is where the idea of Ã ¢ â,¬Å MiningÃ ¢ â ¬ Bitcoin comes into play, by the way.) So, to sum up, we can think of a Blockchain is a piece of data that is: constantly updated. the Blockchain users can access the data at any time and add information to the new block. Distribuiti.Ã copies of the data are stored blockchain and secured by each user and all must agree on new additions. Verified. Both changes to the new blocks and blocks of old copies must be agreed by all users through the cryptographic verification. Sure. Tampering with the old data and alters tion of the new data attachment method is prevented by both the cryptographic method by which non-centralized storage of the same data. And believe me or not, it gets even more complicated than this | but the basic idea. The blockchain in action: show me the money (digital)! So we consider an example of how it applies to a criptoCurrency as Bitcoin. DÃ¬ you have a Bitcoin and want to spend it on a new machine. (Or a bicycle, or a house, or an island nation of small to medium in size - however much a Bitcoin worth this week.) Are you connecting to the Bitcoin decentralized Blockchain with your software and send your request to transfer your bitcoins to the seller of the car. Your transaction is then transmitted to the system. Each person on the system can see it, but your identity and the identity of the seller are only temporary signatures, tiny elements of the huge math problems that form the heart of digital encryption. These values are linked Blockchain equation and the problem is the same - Ã ¢ â,¬Å solvedÃ ¢ â ¬ by members on peer-to-peer network that generates cryptographic hash. Once verified the transaction, a bitcoin is moved by you to the seller and recorded over the last block in the chain. The block is finished, sealed and protected with encryption. Start the next set of transactions, and Blockchain grows longer, containing a complete record of all transactions each time it is updated. Now, when you think of a blockchain as Ã ¢ â,¬Å Secure, Ã ¢ ¬ "It is important to understand the context. The individual transactions are secure and the total record is safe, provided that the methods To fix encryption remains - Â ¢ â,¬ Â "uncracked.Ã ¢ â,¬ (and remember, this stuff is really difficult to break - even the FBI can" tick it with simple calculation resources calculation But the weakest link in the blockchain is, well, you "the user. If you allow someone else to use your personal key to access the chain, or they simply find hacking on your computer, they can do added to the blockchain with Your information, and there is no way to stop them. This is the way Bitcoin arrives Ã ¢ â,¬ Â "StolenÃ ¢ â,¬ in highly advertised attacks on the main markets: it is the companies that operated i Markets, not the bitcoin blockchain itself, who have been compromised. And since the stolen bitcoins are transferred to anonymous users, through a process that has been verified from the blockchain and recorded forever, there is no way to find the striker. Or retrieve bitcoin. What else can block? Blockchain technology has begun with Bitcoin, but it is a so important idea that has not been left longer. A system that is constantly updated, accessible to Anyone, verified by a non-centralized and incredibly network Safe, it has many different applications. Financial institutions such as JP Morgan Chase and the Australian stock exchange are developing blockchain systems to guarantee and distribute financial data (for conventional money, not encryptocurrency as bitcoin). The Bill & Melinda Gates Foundation hopes to use Blockchain systems to provide free and distributed banking services to billions of people who cannot afford a regular bank account. Open source tools like HyperLedger are trying to make blockchain techniques available for a wider range of people, in some cases it does, without the need for monstrous quantities of processing power needed to guarantee other designs. Collaborative work systems can be verified and recorded with BlockChain techniques. Practically everything that must be constantly registered, accessible and updated can be used in the same way. Credit image: Posteriorie / Shutterstock, Lewis Tse Pui Lung / Shutterstock, Ã ¢ Zack Copley Copley