

Mastering Cryptocurrency.

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1.Introduction

I'm sure you've heard about bitcoin and from all the news going about you know it's a digital form of Money . Well , here's the story of how bitcoin started .

In 2009 , there was a developer by the alias name "[Satoshi Nakamoto](#)" who wanted to have a digital exchange of money through the internet without having central organizations like the banks validating or confirming this or that transaction. He wrote and posted online his document called , the "[white paper](#)" describing how the system would work in the world .

Basically , it is a peer to peer electronic cash system that would allow the online payments from one party to another without having a third party (financial institutions) validating them . He proposed a network where the transactions would go into an ongoing chain of a hash-based proof of work , forming a chain that cannot be changed without re-doing the proof-of-work .

So , this far you know how the Bitcoin ecosystem started . Why is it that some people believe in Bitcoin as money when it is so clearly different than dollars, which are the best form of money we could possibly have? The answer basically lies with , why were cowry shells, salt , stones or gold, chosen as money in the first place? Was there a vote? Did people just wake up and start using it? Did people switch over one morning ?

The question of why gold became money is in fact one of the most remarkable moments of all time . Gold was the money of the world all the way up until 1971. Gold became money, gradually over time, not by mistake, but because it had specific attributes that made it highly useful in exchange.

We all know at least the attributes that make money , don't we ? and that is ? Divisibility , Portability , limited supply , acceptability and the list goes on. It is these attributes, these specific properties of gold, which led it to be used increasingly as a medium of exchange. Simply, it has better properties than basically everything else.

- ✓ It is scarce (unlike cowry shells and salt)
- ✓ It is fungible and uniform
- ✓ It is transportable, because it has a high value to its weight ratio
- ✓ It is easily identifiable
- ✓ It is highly durable
- ✓ And its supply is limited .

If you understand that these attributes make gold a great means of exchange, you'll understand why gold was increasingly sought in the natural marketplace . From trading salt to trading cowry shells , to silver coins , to paper money , and now to the digital age .

“Tip” : Money is anything we , as a civilization , imagine it to be ! Think about this as much as you want to .

2.Basics into Bitcoin

➤ Decentralization

When Satoshi Nakamoto came up with the idea of bitcoin , one key factor was what's called decentralization . Decentralization, basically means that we are all part of the Bitcoin ecosystem and we are all contributors to the ecosystem rather than relying on financial institutions , governments and bank . Bitcoin belongs to everyone in a system called Peer-to-Peer and we all make up the Bitcoin ecosystem .

A Great thing about bitcoin is that it bypasses the current financial system and could therefore potentially provide services to unbanked and underbanked nations all around the world. Whereas most people in the Western world find it normal to have a bank account, the story is quite different elsewhere. Some countries in Africa, for example, have an unbanked population of anywhere from 50 to 90 percent. Do these people have less right to open and own a bank account than Americans or Europeans do? Absolutely not, but doing so may come with rules so strict as to be unobtainable for many citizens.

For a while now, society has been evolving toward a cashless ecosystem: More and more people use bank and credit cards to pay for goods and services both online and offline, for example. Mobile payments — paying for stuff with your phone — are now on the rise, which may become a threat to card transactions. Bitcoin has been available on mobile device for years now.

➤ What is Bitcoin

Bitcoin is two things: it is a digital currency unit and it is the global payment network with which one sends and receives those currency units. Both the currency unit and the payment network share the same name “Bitcoin” .

As a currency unit, consider Bitcoin like other currencies. The world has euros, dollars, yen, gold and silver ounces, and now it has Bitcoin as well. The properties of the Bitcoin currency unit are as follows

There will never be more than 21 million in existence, and they are released over time at a declining rate (at the time of writing, about 16.8 million Bitcoins exist). Source : blockchain.info

As new coins are released on the set schedule, they are given at random to those who contribute computing power to securing the network. This is called “Bitcoin Mining” but it should more accurately be called “Bitcoin Auditing.” Those who contribute more computing power to this work have better odds of receiving the new coins, but the rate of new coin creation never increases (in fact it diminishes over time until all 21 million coins exist). Inflation is thus pre-determined and ever-decreasing toward zero. Each Bitcoin is divisible by one hundred million. You can thus possess 0.00000001 Bitcoins.

As of January 21st, 2018 there are 16,817,938 BTC (Bitcoin) out of a total 21,000,000 BTC (Bitcoin) in theoretical supply, which has yet to be mined.

“Tip” : You don't really need to buy a whole bitcoin. It was designed with sub-unit precision making it divisible to 8 decimal places with the smallest unit of bitcoin being called a Satoshi (0.00000001 bitcoin).

1 bitcoin cost \$10,000
0.1 bitcoin cost \$1,000
0.01 bitcoin cost \$100
0.001 bitcoin cost \$10
0.0001 bitcoin cost \$1

3. Buying and Selling Bitcoins

When one understands why Bitcoins are useful and therefore valuable, one might wish to obtain some. But how? Well, how does one obtain any currency? There are two basic ways, either by selling goods and services for it, or by buying it at an exchange.

We'll examine buying at an exchange first. “Exchanges” are simply websites where buyers and sellers come together to trade one currency for another. If you have an account at an exchange, and fund the exchange with “Fiat” money (Your local currency) , then you can buy Bitcoins.

When it comes to choosing an exchange, you've got plenty of choice of providers. Depending on your geographical location and the type of fiat currency you use, certain exchanges may be

preferable to others. At this time, there is no bitcoin exchange that services all countries in the world . You can check out the list of exchanges linked from the <https://bitcoin.org/en/exchanges> website .

There are several bitcoin platforms in existence that allow you to register an account in order to find other bitcoin enthusiasts in your local area. Some of the more popular platforms include [Gemini.com](https://gemini.com) for the U.S. market, whereas [Bitstamp.net](https://bitstamp.net) and [Kraken.com](https://kraken.com) offer facilities for customers in international markets subject to their individual policies and restrictions. You can check them out .

Also [Changelly.com](https://changelly.com) and [Shapeshift.io](https://shapeshift.io) (swapping from one coin to another with no account needed) . The main goal of any bitcoin exchange platform is to facilitate the transfer from and to physical currency to and from digital currencies, such as bitcoin.

Anyone can create an account at a bitcoin exchange without having to buy bitcoins at that time or owning bitcoins beforehand. So that's it ! That's how you get Bitcoins !

➤ [Registering on an exchange](#)

I'm sure you've heard of [Coinbase.com](https://coinbase.com) for buying bitcoins . That should be a great start for now.

With other exchanges here's actually a basic guide on how the exchange works .

1. You sign up for a user account by providing basic information.
2. You then receive an e-mail in your mailbox to activate your account.
3. Once you have activated your account, the actual registration process begins.

As you might expect from exchange services, they are the leading indicators of how current market prices are fluctuating. In the case of bitcoin exchanges, these prices can fluctuate by quite a bit, as each business runs on a slightly different business model. Some bitcoin exchanges will pay you less when selling bitcoin and ask a slightly lower market price when you want to buy bitcoin. Other exchange platforms will offer you the current market value but take a small cut (0.05–0.5 percent) per executed transaction as commission.

Even though bitcoin is all about supply and demand based on the open market, buyers and sellers still need to be connected. Most bitcoin exchanges use a trading engine, which automatically matches buy and sell orders on both sides of the order book. However, there are other options too, such as local peer-to-peer trades , a new concept coming up called “atomic swaps” , but that is another scope for another day to be talked about in the next release .

Whenever you're looking to exchange bitcoin for physical currency or vice versa, make sure to check the current bitcoin price first. Over the past few years, bitcoin exchanges have started offering a “fixed” price per bitcoin, assuming you complete the transaction within a certain time frame. For example, when converting BTC into local currency, a user must complete the

transfer within the next 15 minutes in order to get the current price. Failure to do so may result in a different price at the time of transaction, which can be either higher or lower.

Keep a close eye on the bitcoin exchange rate for your local currency at all times, to maximize your profits and reduce your losses. You can check out sites like [Coinmarketcap.com](https://coinmarketcap.com) on current prices , but whichever tools you choose to use, they can aid you by giving you charts such as you would expect to see your regular local currency conversions, or just a flat BTC/local currency rate in digit.

Always remember that there will usually be an exchange fee at some point during the transaction, so be sure to understand how much that will be. Some bitcoin exchange platforms take a small cut when your buy or sell order , has been executed . Whereas , others will simply charge you more or pay you less overall. Plus, additional fees may be applicable when withdrawing your physical currency to a bank account or other payment method.

“Tip”: Use an exchange that best suites you , there are a vast number of them out there.

4.Securing your Bitcoins

Bitcoins are like cash and are thus stored in a specific physical place. This means, you must always be mindful of where your Bitcoins are, and what risks that location presents. For example, if your coins are on your computer, and you don't back them up somewhere else (yes, they can be backed up easily), and the computer crashes, your money is gone. There is no company you can call to complain about it... the money is lost forever.

Similarly, if you store your coins with an online service (like an e-wallet or exchange), then you are trusting that service to hold your coins safely. If you give your coins to someone who is not trustworthy, they can run away and you'll never get them back. You wouldn't give \$100 cash to someone you don't trust. The same is true with Bitcoin. So if the coins are in your possession (on your computer or smartphone), you must be mindful of them, back them up, and keep your systems secure. If the coins are held for you by someone else, then you must be able to trust that party. This is the most important safety concept of Bitcoin.

Wherever you keep your Bitcoins, they will be protected with passwords. If coins are on your computer in your wallet file, and someone learns your wallet password and they obtain your wallet file, then they can spend your coins! Similarly, if you keep coins with a service provider, and someone learns your login information, they can steal your coins. Use strong passwords whenever you deal with Bitcoin (more than 12 characters) and keep them always in a safe place. Funds are not protected by government-mandated and taxpayer-subsidized FDIC

insurance — a Bitcoin bank cannot just type in digits into your account to replenish funds stolen by your own carelessness with your password.

➤ [Using 2FA \(Two-Factor Authentication \)](#)

In recent years, it has become apparent that more layers of security need to be implemented on top of the standard authentication protocols. One of the more popular solutions to tackle this problem is called two-factor authentication (2FA), which requires an additional “token” to be entered when accessing your account. Failing to enter the correct combination results in an error message.

The most common type of 2FA comes in the form of Google Authenticator, which is an application you can install on any mobile device. Using Google Authenticator is quite simple. After you download the app to your mobile device, you set up a new account:

1. Log in to the service or platform you want to protect with 2FA.
2. Scan an associated QR code with the camera of your mobile device.
3. Use that QR code to link to your authentication details, pairing it to your mobile device.

➤ [SMS Verification](#)

SMS verification also has its own drawbacks. For example, if you are in an area where you get bad to no cellular signals, SMS verification for 2FA purposes won't work. Plus, if you are in a foreign country, additional fees may be charged to you for receiving the 2FA authentication code.

Regardless of which option you decide to use, when it comes to bitcoin exchanges, be sure to enable any form of 2FA you possibly can. This protects your account properly, and even though it may be slightly cumbersome at times, protecting your money is well worth going the extra mile.

5. Wallets.

There are two types of Wallets :

1. Hot wallet – Basically , this is one , that is kept by the user for daily transactions like buying coffee and usually has enough funds for day to day use . With this , the activities of the wallet is online .

“Tip” : Never store large amounts of Bitcoins in your hot wallet .

2. Cold storage – Basically , You could compare this principle to banks moving customer funds into a vault rather than keeping it at the bank teller desk. In the case of bitcoin cold storage, though, there are other layers of security in place. Examples of cold storage include bitcoins kept on a USB drive or a dedicated hardware wallet. This coins are kept off the internet “offline” like the [TREZOR](#) , [LEDGER NANO](#) among others .

“Tip” : everything that is usually online is usually hackable . So you’d want to store offline large amounts of bitcoins .

When coins are on your own computer (meaning you’re using the wallet software from <https://bitcoin.org/en/choose-your-wallet>), the first time you open your wallet software you will need to make a password to encrypt your wallet (see above).

After making this password (don’t ever forget it), you MUST backup your wallet file in a different location. This file is where your money is stored. The file name is “wallet.dat” and backing it up is as simple as copying the file and putting it somewhere else. To find your wallet.dat file:

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On Windows, you must first tell your computer to “Show hidden files and folders” — look up how to do this online. Then, you can find your wallet here:

C:\Documents and Settings\YourUserName\Application data\Bitcoin (XP)

C:\Users\YourUserName\AppData\Roaming\Bitcoin (Vista and Windows 7)

If you’re on a Mac, you can find it here:

~/Library/Application Support/Bitcoin/

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Put this wallet.dat file on a USB drive in your safe or mail it to your parents. Burn it to a CD and put it in a bank safety deposit box. Put it on a different computer. You can even email the file to yourself. Better yet, do two or three of the above. If you back up the wallet properly and keep it safe, and the likelihood of you losing your Bitcoins will be lower than you dying in a car crash. If you don't back it up, the likelihood of you losing your coins is high. Important Note: if you use more than 100 Bitcoin addresses with your wallet, you will need to make a new backup file (the first backup will not know about the 101st address).

If you want to encrypt a mobile bitcoin wallet, the process is slightly different. Most mobile applications store the wallet.dat file — or its mobile counterpart — on the device itself and protect it with a PIN code. Though PIN codes are generally less secure than encryption keys, they provide enough security for most users. However, you can always look into encrypting mobile wallets as well. Find software solutions using keywords typed into your favorite search engine, such as 7Zip, Axcrypt, TrueCrypt, or Irzip.

“Tip” : With all the news and noise about #Bitcoin , it's good to remind everyone of healthy practices to manage their cryptocurrencies and assets .

First , Here's my rule of thumb good enough for most of us on investing in the crypto world :

- A max of \$ 1,000 USD worth of bitcoin, you can keep the key in your mobile with a standard backup for day to day active use to do things such as , shopping , buying coffee , paying bills etc .
- Above and up to \$ 10,000 USD worth of bitcoin , you should consider using a hardware wallet that you don't keep with you all the time. You also need to have multiple backup strategies (paper in a fireproof box, engraving in a durable material)
- And Also Above \$ 10,000 USD worth of bitcoin, go for a multisig mechanism , because if your private key is lost , you wouldn't want to lose all your bitcoins just because you lost 'one' private key .
- Never invest more than you can afford to lose , this is a volatile market and carries huge amounts of risks and when you lose , no one really cares if you lost your house trading .

Business, banks and corporates require a whole different set of strategies that also mitigates risks coming from not-to-be-trusted users.

Don't hesitate to ask me for any advice after this .

➤ Choosing a pass phrase

By using a passphrase, you “lock” your coins from being spent. Even if an attacker were to gain access to the device on which your bitcoin wallet is running, they would not be able to do anything with the funds unless they also had your passphrase.

Therefore, you should properly encrypt your bitcoin wallet. The latest Bitcoin Core client contains a feature that encrypts your wallet with a passphrase. Or if you prefer, you can use an external tool to encrypt your wallet.dat file, most of which are completely free of charge to use. Keep in mind that you need to enter the pass-phrase every time you want to access your funds or look at a transaction. Encrypting a bitcoin wallet restricts it to “spectator” mode, in which you can see the balance and incoming transactions, but nothing else in detail.

All bitcoin users should encrypt their bitcoin client, and the best code of conduct is to use a very strong and difficult-to-crack password — preferably a password that contains numbers, upper- and lowercase letters, and even symbols such as @ or #. This password should seem as random as possible to anyone else, but keep in mind you have to enter it manually every time you want to use your bitcoin wallet to its full potential.

Liberty advocates love free markets. But, with freedom comes responsibility. Bitcoin exists in a free market. It is not regulated, tracked, or overseen by anything other than cold hard mathematics. Thus, the companies and organizations you find in Bitcoinland are often unregulated and private. A Bitcoin-based company doesn’t even need to be registered as a company anywhere, because it doesn’t need a business checking account or an IRS extortion number (known as an EIN). While this means Bitcoin enables truly free trade on a global scale, it also means Bitcoin users need to be careful and prudent. Don’t buy things from companies or websites you don’t trust. You may never see your money again, and there is no way to “reverse” a payment. With Bitcoin, reputation and history are everything. If you wouldn’t give cash to a stranger in an alleyway, don’t give Bitcoins to a stranger online. Enjoy the free market, and be a responsible adult.

Remember that Bitcoin should still be considered an experiment. As resilient as the system has proven to be, it is still new. The value of a Bitcoin could drop to zero tomorrow. This means under no circumstances should people invest money in Bitcoin which they cannot afford to lose. Bitcoin is a highly volatile commodity with an extremely uncertain future. Grandmothers should not be putting retirement money into Bitcoin (nor in US dollars, for that matter). What can one do with it?

The short answer is that you can do anything, but you might have to build it first! Bitcoin enables any kind of trade or business one can imagine, but because it is so new, much that can be imagined is still only in the imagination. Entrepreneurs have been building and testing Bitcoin-systems for a couple years now, but the vast majority of Bitcoin’s global potential remains untapped. Every liberty-minded entrepreneur should be considering this point.

6.Exchanges

➤ Advanced exchanges

There was a lot to learn from cryptocurrency in 2017. It was the year of new digital currencies with a lot of them growing over 500%.

Coinbase has a feature available that allows you to set alerts for specific bitcoin prices, however a bitcoin exchange is essential for more advanced features. Preventive loss measures can be implemented with , on a digital bitcoin exchange platform. Arranging for your bitcoin to sell or buy at a specific price is possible on a cryptocurrency trading platform.

The first step is buying bitcoin through an online service such as coinbase.com, they also provide you with a bitcoin wallet as well . Having bitcoins , you have access to over 1300 other Cryptocurrencies in the ecosystem .

[Binance.com](https://binance.com) has more cryptocurrencies available for trade than any other bitcoin trading platforms, you can trade different cryptocurrencies with bitcoin on it with cheaper buying and selling trading fees . The List of Cryptocurrencies available on the Binance platform is large .

[Gdax.com](https://gdax.com) is owned by coinbase, their bitcoin trading platform is connected with Coinbase for easy transferring. Transfers are free from your Coinbase wallet to Gdax accounts .

Unfortunately, Gdax only has 3 other cryptocurrencies available to trade on their platform. Besides bitcoin there is bitcoin cash which was added last year in November 2017.

Gemini , which is owned by the Winklevoss twins , the ones who tried to sue Mark Zuckerberg for stealing their “Facebook” idea is a great exchange to look at as well .

“Tip” : For a well rounded trading course on how to trade Bitcoins : I’d recommend you check out “[Babypips.com](https://babypips.com)” though it’s basically forex based , you will understand why bitcoin is majorly moved by technical analysis and not fundamental analysis and more into understanding stochastics , Relative Strength Index , Ichimoku cloud theory and Elliot wave theory and what they are .

7.Bitcoin Mining

The concept of bitcoin mining revolves around the process of generating additional bitcoins until the maximum supply cap of 21 million coins has been reached. And in that way , they are usually generated through solving complex mathematical equations by computers which is now called “mining” - The process of generating new Bitcoins .

As of January 1st , 2018 there were 16,817,938 BTC out of a total 21,000,000 BTC in theoretical supply, which has yet to be mined. This number does not reflect the quantity of coins that have been lost or produced in the beginning “block”, which can’t be spent.

A block (think of it as transaction data organized in a “digital ledger”) introduces 50 new coins into the bitcoin ecosystem. This quantity mined , halves every 210,000 blocks.

For instance, the reward for mining a block was most recently cut in half on July 9th, 2016 from 25 bitcoins to 12.5 bitcoins as reward for solving the Mathematical problems by the computers . The next halving event occurs every four years with the next one slated for 2020 with a block reward amount of 6.25 bitcoins.

At block 421118 (July 17 2016, 11:30 am UTC), the Bitcoin network has 15763823.60473783 BTC in circulation.

This number is computed by inspecting the set of all unspent transaction outputs in the database of a fully verifying “node”(think of it like a computer verifying bitcoin transactions). It includes all coins generated so far (including those in wallets whose owners have forgotten or lost), but excludes all coins that were provably destroyed or accidentally burned.

Since a year ago , today , Bitcoin’s “subsidy” (the inflation schedule) allows up to 12.5 BTC to be created per block. In approximately 4 years, that number will halve to 6.25. 4 years later it will halve again. This halving will continue until somewhere around the year 2140, when it will drop to 0. If we add all future subsidy to the current number in circulation, we end up with at most 20999836.06693783 BTC and not the 21 million BTC because , various wallets have been lost or stolen, transactions have been sent to the wrong addresses, people forgot they owned Bitcoins . The totals of this may well be millions you never know but there are some people who are trying to tally up the lost Bitcoins .

➤ Profitability and Return on Investment

From , CPU miners to GPU miners , to ASIC-miners , that was the revolution an evil net of bitcoin mining today , we can look at Mining with GPU’s and [ASIC-Miners](#) later on .

When mining, there are 2 important factors. How long will it take for you to get a return on investment (ROI) and how profitable is your mining operation. It is important to be conservative when doing these calculations as your GPU mining rig will become less profitable over time as the mining difficulty increases.

Your ROI is very simple. How Many days will you need to mine to reach profits that equal your initial hardware investments. Here is a basic example.

Hardware Costs: \$3000

Total Hashing power: 230 MH/s (Million Hashes per Second)

Total Power Consumption: 800W

Daily profit: \$12.25

$\$3000/\$12.25 = 245$ Days to ROI*(Return On Investment)

Additionally, These GPU's we use to mine are extremely powerful and great for gaming. These cards have excellent resale value and there is a large market for them. After 12-24 months you can conservatively resell the cards for 20-50% of their retail value to help offset the difficult increase and claim your ROI.

Profitability is the second factor and there are 2 considerations. How much coin you mine and the interest/market growth of that coin.

You obviously will want to mine as much coin as possible, But we also need to consider the long term growth of the coin we mine. Some mining pools will allow you to be paid out in BitCoin. This may be helpful if you plan to invest your profits in to alt coins.

You also want to be smart with how often you take your mining payouts. you may be charged fees per payout or fees for payouts under a certain threshold. You want to avoid transaction fees cutting into your profits.

In conclusion, GPU mining can still be a profitable endeavor and also a great project to enjoy and learn about crypto and how Proof of Work functions.

“Tip” : It is important to understand that where you live and your energy costs will determine whether GPU mining is profitable for you or how profitable it may be.

➤ Cloud Mining

As with any cloud service, when signing up for a bitcoin cloud mining service, you are effectively renting hardware from someone else, who purchased the machine and set up the accompanying software. This cuts down tremendously on the upfront investment costs, depending on your location, of course.

However, there will be an upfront investment to make, depending on the cloud mining company you choose.

Always remember that with bitcoin cloud mining, there is the maintenance and electricity fees. Even though you don't host the hardware at your place, where you would pay these costs, the bitcoin cloud-mining operator does have to pay them, and those charges are passed along to you. These dedicated machines are not really floating in the clouds, of course. They're physically hosted in a real location and need to constantly be fed electricity to operate. In some parts of the world, such as China, electricity is relatively cheap, which makes these fees less substantial.

8. Blockchain

So Basically, A blockchain, originally from block chain, is a continuously growing list of records called blocks.

Jumping right in, a blockchain is a distributed database, otherwise known as a distributed ledger. To make things really simple and relatable, let's call that ledger a 'record book' instead.

Furthermore, let's talk in terms of it being 'shared' instead of distributed. So let's call it a shared record book for this explanation and each addition to this record book is a new "line item".

That said, this isn't just one record book stored in a central location that is shared by many. There are thousands of copies of this record book, stored on computers all around the world, both home computers and business servers - hence the term "decentralised". This record book can be used to record many kinds of things, however I'll use sending and receiving money as it is the primary example, and the most common one right now.

When Alice wants to send money to Bob, a new "line item" is created detailing that transaction. This line item then gets sent off to hundreds of other computers who have a copy of the shared record book.

The computers then confirm that this transaction is authorized, and ultimately they agree (or disagree) that everything about the transaction is legitimate before giving that line item a tick of approval. It has to match up perfectly on every copy of the shared record book .

It's as if Alice and Bob had a hundred people standing around them and watched Alice giving Bob the money in question, and they all agreed that he really did hand her the money, as well as other aspects of the transaction, such as it being the right amount in transaction.

The genius of this shared record book is that it requires no bank, no centrally owned company, and you don't have to place your trust in any financial institution... there doesn't need to be any middleman of any kind.

To elaborate, this shared record book is not owned by any one individual or organization. It's owned by everyone who has a copy of the shared record book – But that really doesn't mean that anyone who has a copy has control .

Additionally, this shared record book is what we call "immutable", or in other words , it's irreversible. Every “line entry” made will exist in perpetuity, for as long as the internet exists. If Bob wanted to refund Alice's money, this would be a new “line item” sending the money back - not the crossing out of the original transaction.

Because of this kind of technology design decisions, fudging/having fraudulent “line items” in this shared record book is impossible.

If someone who has one or more copies of the record book on their computers was to try and dishonestly change it, those changes would be rejected by the many computers used in the verification process - things wouldn't match up.

9. Understanding Bitcoin Transactions

As soon as bitcoin transactions are broadcasted to the network, they are picked up by miners and formed into a bitcoin block. That bitcoin block needs to be verified by the miners, and once the block has been “solved,” all the included transactions are recorded in the blockchain (the growing list of records). Every additional block discovered on the network after that , stamps these transactions with one extra network confirmation.

Bitcoin miners play a key role in ensuring that the blockchain is accurate, as they take the information of a bitcoin block and verify its integrity. Afterwards, a complicated mathematical formula is applied to this block of bitcoin data, which turns the block into something different.

The “different” block consists of shorter, seemingly random sequences of letters and numbers, known in the bitcoin world as a hash. Hashes are easier to calculate for bitcoin miners than the full block of data, because new blocks have to be generated and mined roughly every ten minutes, and as we’ve said, these hashes are extremely computationally complex to solve and require expensive hardware.

Once the hash is solved, it is stored on the bitcoin blockchain, along with the block it was derived from. That process validates all transactions recorded in this bitcoin block and labels them with one network confirmation.

Although the hashes are easier to solve for miners than full blocks, the increasing bitcoin mining difficulty counterbalances the scales and ensures blocks are not generated faster than ten minutes apart.

10. Alt-Coins and other Crypto-Currencies

With the rise of bitcoin , other developers have felt they can create a much better product than bitcoin . These other digital coins are known as “Alternative-Coins” or Cryptocurrencies . Some of them are :

➤ Litecoin

One of the most know altcoin which is compared to the silver to Bitcoin being the Gold in the Digital world . Visit : litecoin.org

➤ Dash

As developers realized that bitcoin doesn't provide full anonymity , they came up with solutions to that . Visit : [Dash.org](https://dash.org)

➤ Monero

Another coin that provides anonymity much more than the Bitcoin protocol . Visit : [Getmonero.org](https://getmonero.org)

➤ Zcash

Altcoin that uses cryptography to protect the privacy of transactions . Visit : [Z.cash](https://z.cash)

➤ Tron

It is a blockchain based decentralized protocol that aims to construct a worldwide free content entertainment system with the blockchain and distributed storage technology . Visit : tron.network

➤ Ripple

It connects banks , payment providers , digital asset exchanges and corporates via Ripplenet to provide one frictionless experience to send money globally . Visit : ripple.com

➤ Dogecoin

Another open-source peer-to-peer digital currency . Visit : dogecoin.com

11. Online Resources

To find out more about this technology of blockchain and Bitcoin . Here are some useful links :

➤ [Bitcoin news](#)

For Bitcoin , cryptocurrency and other news in the technology you can check out :

1. Coindesk.com
 2. Cointelegraph.com
 3. Bitcoinist.net
 4. Bitcoinmagazine.com
 5. Bitcoin.com
- [Bitcoin wiki](#)

For all sorts of information about bitcoin , you will find out more about mining , running a bitcoin node , satoshi Nakamoto and much much more

Check out at : <https://en.wikipedia.org/wiki/Bitcoin>

- [Bitcoin subreddit](#)

For those that have reddit accounts , you can find more at :

1. <http://Reddit.com/r/bitcoin>
2. <http://Reddit.com/r/btc>
3. <http://Reddit.com/r/cryptocurrency>

And more !

- [Bitcoin Documentaries](#)

Documentaries and films that will get you to know more about the “bitcoinland”

1. Banking on Bitcoin : <https://123movieshub.to/film/banking-on-bitcoin-18789/watching.html?ep=704633>
2. Bitcoin : The end of Money as we Know it : <https://youtu.be/Wsa71p-TVok>
3. Life inside a secret Chinese bitcoin mine : <https://youtu.be/K8kua5B5K3I>

➤ [Bitcoin talk forums](#)

One of the most earliest place for bitcoin talks and chats :

1. [Bitcointalk.org](https://bitcointalk.org)

➤ [Bitcoin Pricecharts](#)

Most people want to be upto date with the current bitcoin price . You can check out :

1. [Coinmarketcap.com](https://coinmarketcap.com)
2. [Coingecko.com](https://coingecko.com)

➤ [Other sites](#)

1. [Bitcoin.org](https://bitcoin.org)
2. [Blockchain.info](https://blockchain.info)

Thank you !! Donate Bitcoin Public address :

1DbYmMdhQyJcFpg8KMryTbKTmFCCMj6prY