

A digital illustration of a blockchain network. It features a dark blue background with vertical columns of binary code (0s and 1s) in a light blue font. A network of nodes and blocks is depicted with glowing lines. Nodes are labeled 'NODE 01' through 'NODE 05' in various colored boxes (blue, red, green). Blocks are labeled 'BLOCK 01' in yellow boxes. A large, pixelated Bitcoin symbol (B with two vertical lines) is positioned in the center. The text 'Deep Dive on' is in yellow, 'BLOCKCHAIN' is in blue, and 'Journey' is in yellow.

Deep Dive on BLOCKCHAIN Journey

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Welcome to the Journey of Deep Dive on Blockchain

- Blockchain understanding baseline and reviewing the basics
- Why Blockchain?
- Cryptography and its association with Blockchain
- Where is Blockchain being used today?
- What is on a Blockchain?
 - Distributed Ledger
 - What is a Block?
 - Nonce
 - Genesis Block
 - Provenance
 - Consensus (Proof of Work/Proof of Stake)
- Types of Blockchain
- When not to use Blockchain
- The future of Blockchain
- DEMO: Learning Blockchain by Building one [Python example]

Why are we here?



- Why do I want to learn Blockchain?
- Do I Want to make Blockchain my career?
- What do I want by the time I leave this place?
- How deep I want to go for programming Blockchain?

Decentralization Technologies

- BlockChain [Bitcoin, Ethereum & other platforms]
- Tangle [IOTA platform]
- HashGraph [Hedera, no public implementations yet]

All these technologies will compete in the years to come.. , one of them will win

BlockChain – We saw a lot of links already but here are couple from one of the most renowned authors on BlockChain & Bitcoin

<https://www.youtube.com/watch?v=UIKZ83REIkA>

<https://www.youtube.com/watch?v=i9nUMvpT2rM>

Hashgraph - <https://www.forbes.com/sites/jeffkauflin/2018/03/13/hedera-hashgraph-thinks-it-can-one-up-bitcoin-and-ethereum-with-faster-transactions/#a36a340abcb2>

Tangle - <https://www.iota.org/>

Blockchain recommended resources

1. Blockchain Business Overview - TedTalk by Dan Tapscott on Blockchain.

https://www.ted.com/talks/dan_tapscott_how_the_blockchain_is_changing_money_and_businessBlockchain

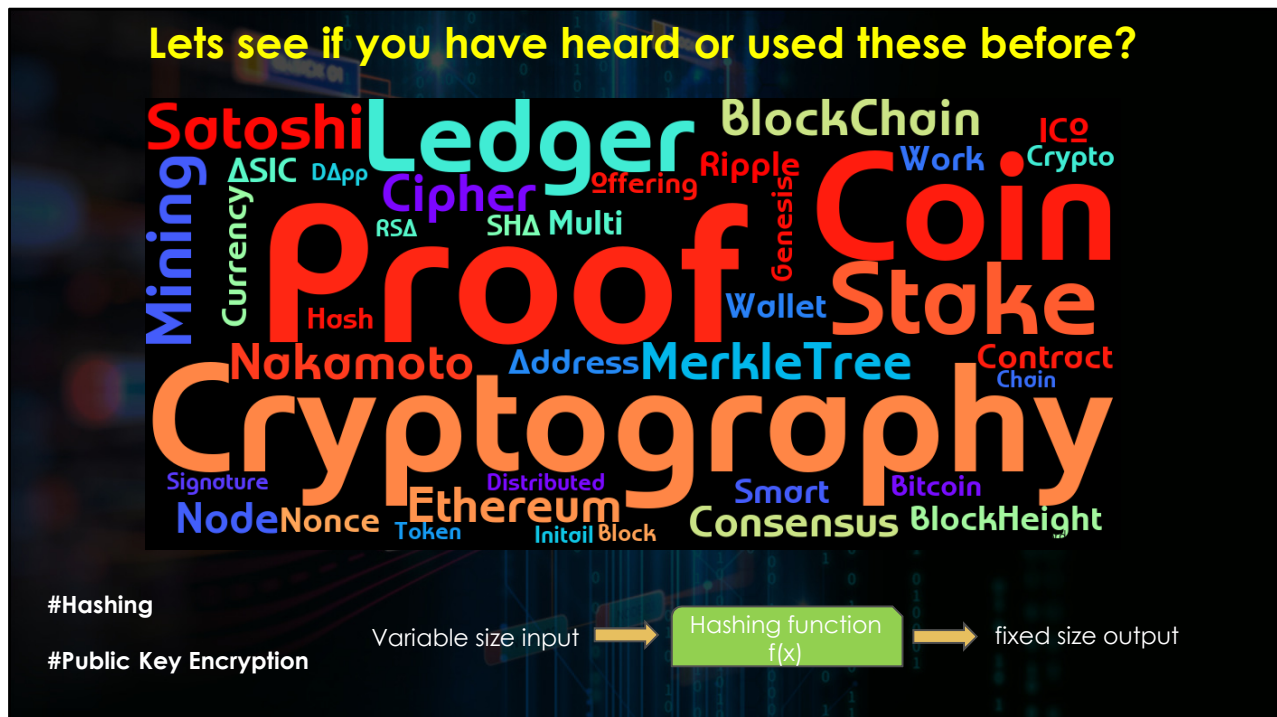
2. Blockchain Technology Foundation by Anders Brownworth , one of the most popular foundational understanding

https://www.youtube.com/watch?v=_160oMzblY8

3. This is a very lucid explanation that helps cover the basics from a user perspective and understand the high-level technology for Blockchain.

Build Basic Blockchain from Groundup using Python -

<https://hackernoon.com/learn-blockchains-by-building-one-117428612f46>



Public & Private key encryption simplified for cryptos:

<https://www.youtube.com/watch?v=csXb8Qu5NQo>

Why? BLOCKCHAIN

- Let us ask ourselves where the journey has started in 2009 with Bitcoin
- Address Trust
- Be Open
- Provide Integrity in transactions



REDUCES COST
by eliminating manual processes (ex. reconciliation between multiple isolated ledgers, administrative processes, etc.)



INCREASED SPEED
of transactions and settlements through immediate distribution



INCREASED SECURITY
through use of cryptography



REDUCED FRAUD
by time-stamping entries and sharing a common, immutable ledger across the network



REDUCED RISK
of single points of failure & attack through distributed network nodes

Bitcoin Block time – ~ 8 to 20 min

<https://bitinfocharts.com/comparison/bitcoin-confirmationtime.html#6m>

Ethereum Block time - ~15 seconds

<https://etherscan.io/chart/blocktime>

Recommended movies & documentaries:

Big Short [Movie] & Banking on Bitcoin [Documentary]

Block: # 4

Nonce: 116608

Tx:

\$ 62.15	From: Rick	->	Ilsa
\$ 867.5	From: Captu	->	Stras
\$ 276.1	From: Victor	->	Ilsa
\$ 7.13	From: Rick	->	Sam
\$ 119.6	From: Captu	->	Jan Br

Prev: 0000a9d50de891b2de8601c6d933c856152

Hash: f89526817d4cf7a43a26a2b6e6c2ec7cdc86f

Mine

Block: # 5

Nonce: 147675

Tx:

\$ 14.12	From: Denis	->	Edmu
\$ 2,760	From: Lord	->	John I
\$ 413.7	From: Kathie	->	Miss

Prev: f89526817d4cf7a43a26a2b6e6c2ec7cdc86f

Hash: a7cf03ebf82cfa46731c6598a039a4a361604

Mine

Different types of BLOCKCHAIN?

- ❑ Who has the ability to run the node?
- ❑ Level of importance on anonymity, immutability, efficiency, and transparency

❑ Public

- ❑ anyone can be a user or run a node
- ❑ value anonymity, immutability, and transparency over efficiency
- ❑ Identity is safe
- ❑ Eg: Crypto currencies like Bitcoin

❑ Permissioned

- ❑ who can be a user to run a node is permissioned by an authority
- ❑ value immutability and efficiency over anonymity and transparency
- ❑ Eg: Industry bodies like Banks to settle international transactions

❑ Private

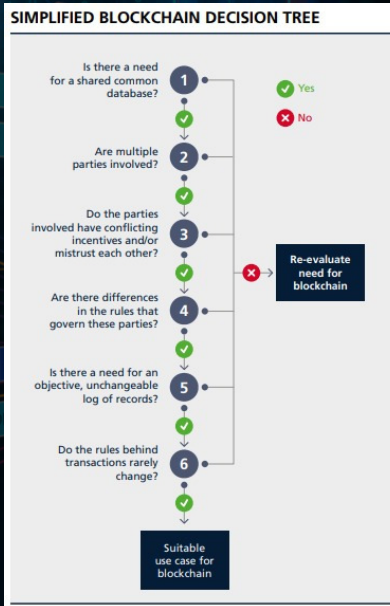
- ❑ operated by one entity
- ❑ value efficiency over anonymity, immutability and transparency
- ❑ Eg: Limited usecases , can be used with in an Organization



BLOCKCHAIN Use cases

- ❑ Australian Securities Exchange
 - ❑ Near real time settlement of equity transactions
- ❑ Overstock.com
 - ❑ Transparency, Efficiency, Accessibility
- ❑ Smart Properties – Land Records Management
 - ❑ Bridge gaps between physical and digital
 - ❑ Zero down time, fault tolerant
- ❑ Digital Democracy – Voting
 - ❑ Trustless voting

When? **NOT** to use **BLOCKCHAIN**



<https://www.forbes.com/sites/groupthink/2017/11/28/to-blockchain-or-not-to-blockchain-its-a-valid-question/>



BLOCKCHAIN Frameworks & Resources

- ☐ Bitcoin Core
- ☐ Ethereum
 - ☐ ICOs
 - ☐ Smart Contracts
- ☐ Hyperledger
- ☐ and many others... like R3, CORDA etc

- ☐ Bitcoin White Paper
- ☐ Ethereum Platform
- ☐ Hyperledger White Paper
- ☐ Building your own Blockchain using Python

Journey of Deep Dive on BlockChain

Month	Goal
Month#1(April '18)	Exploring the basics Learn about BlockChain by building one
Month#2(May '18)	The Ethereum BlockChain Deploying your HelloWorld Contract Ethereum & Solidity Basics
Month#3(June '18)	Advanced Smart Contracts Building a Decentralized App
Month#4(July '18)	End to End testing of a BlockChain Application



BLOCKCHAIN

Thank you

Nagarro, CoderPlex & BlockChain4All community

Questions?