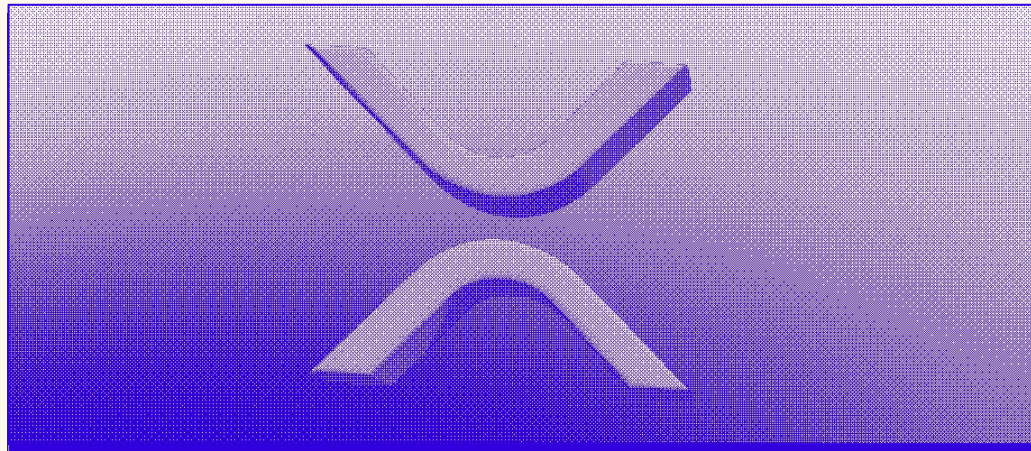


# INTRODUCTION TO BLOCKCHAIN

Online Builder Training



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# Who are you?

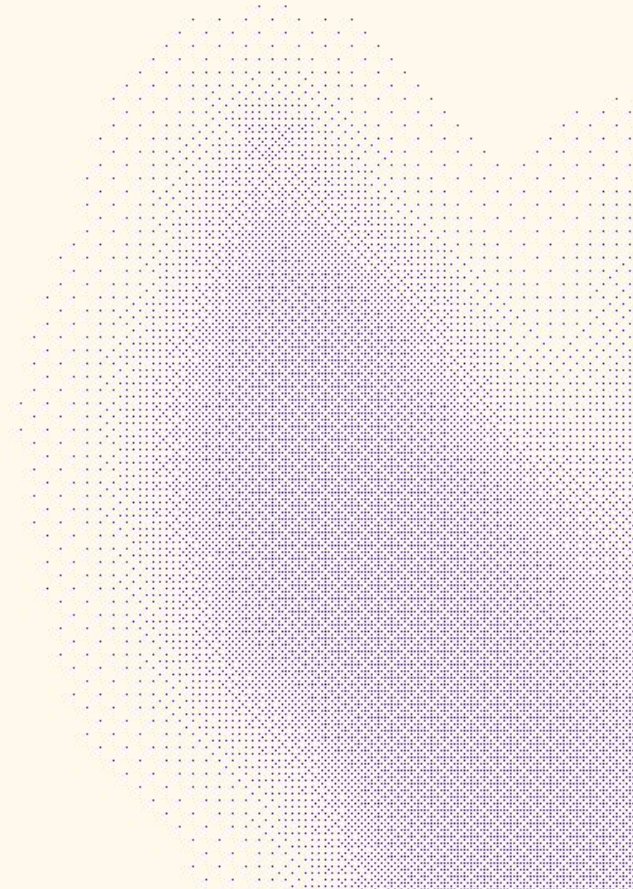
## Let's get to know each other.

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Join the XRPL Online Dev Training  
Introduce yourself



# WHAT IS A BLOCKCHAIN ?

# A SHARED DATABASE....



AN IMMUTABLE, DISTRIBUTED, and DECENTRALIZED  
DATABASE  
THAT COORDINATES DIVERSE ACTORS.

# An Immutable Data Store

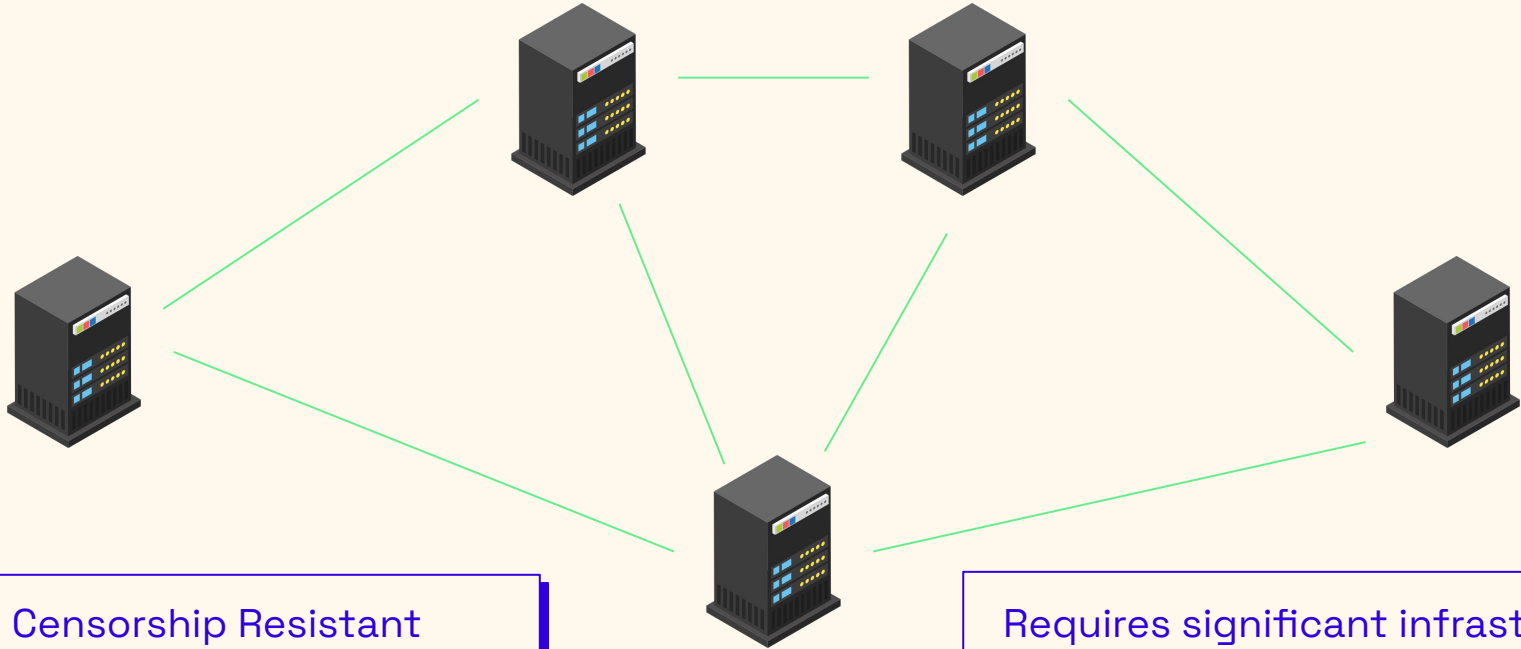
The ledger is immutable.

**Write Once**

**Read Forever**

**Data is tamper-proof**

# Distributed



Censorship Resistant

Requires significant infrastructure

# Decentralized

Users agree **beforehand** on the rules used to establish the truth via **the consensus mechanism**.

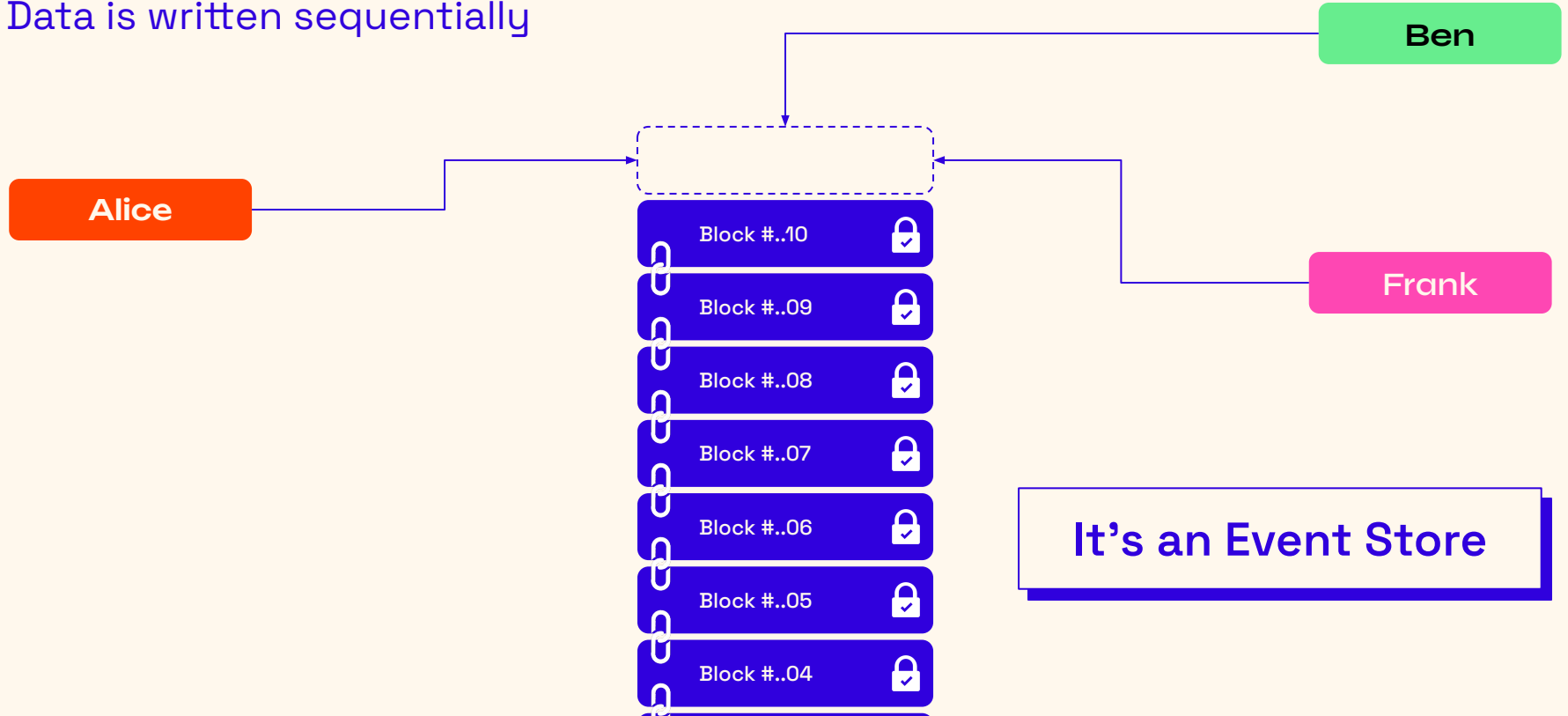


## Types of consensus mechanisms

- Proof of Work (PoW)
- Proof of Stake (PoS)
- Delegated Proof of Stake (DPoS)
- Proof of Importance (PoI)
- Proof of Capacity (PoC)
- The Proof of Elapsed Time (PoET)
- Hybrid Proof of Activity (PoA)
- Proof of Authority (PoA)
- Proof of Association (PoA)

# A Database

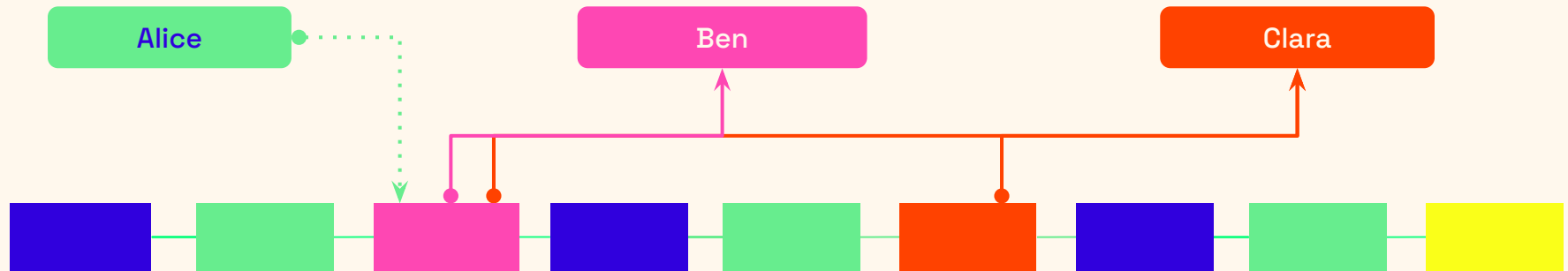
Data is written sequentially



# Coordinating Diverse Actors

Different profiles, outside your circle of trust or outside your control

- Clients
- Competitors
- Suppliers
- Etc...
- Everyone is one hop away to read or write to the blockchain making it easy for all to sync
- Coordination happens in the open



An  
**IMMUTABLE, DISTRIBUTED**  
**DECENTRALIZED**  
**DATABASE**  
**COORDINATING**  
**DIVERSE ACTORS**

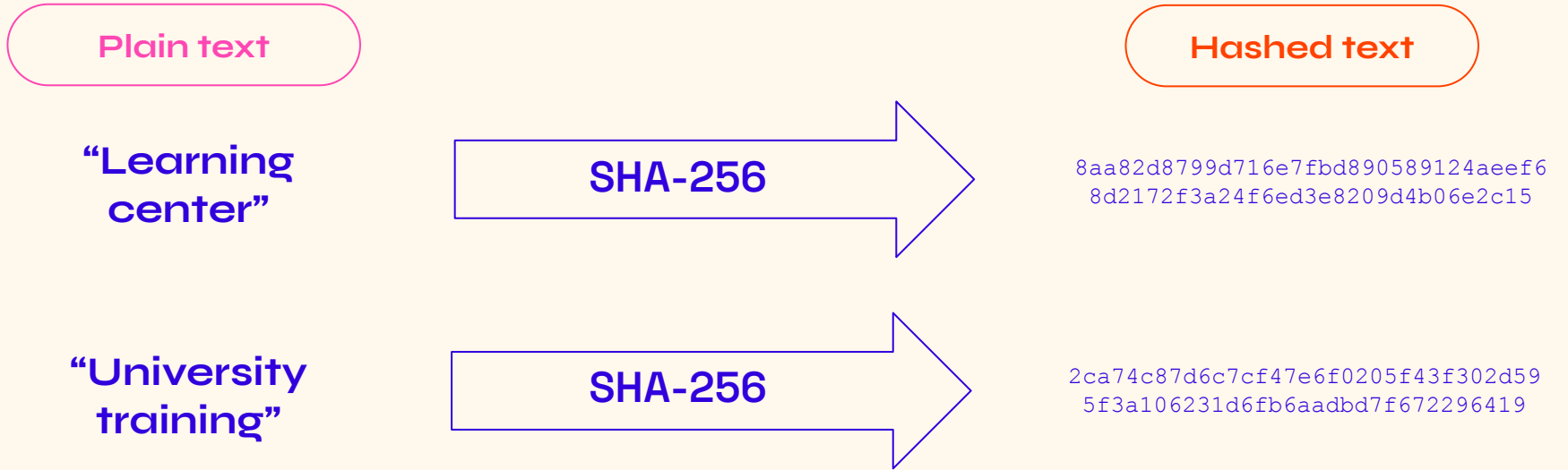
# PRIVATE

- Invitation only
- Companies and consortiums

# PUBLIC

- Anyone can join
- Public services, governance, audits, proof of authenticity

# A hash is a function that gives a unique fixed size output for any input

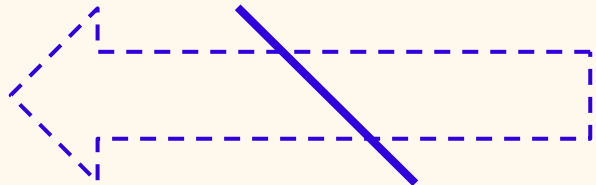


# Hashing is deterministic and only one-way

Plain text

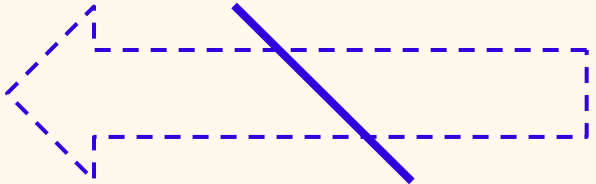
Hashed text

“Learning center”



8aa82d8799d716e7fbd890589124aee6  
8d2172f3a24f6ed3e8209d4b06e2c15

“University training”



2ca74c87d6c7cf47e6f0205f43f302d59  
5f3a106231d6fb6aadbd7f672296419

# Blocks are ledgers that contain information from the previous block

Block 1

Block 2 contains the hash of Block 1



## The chain of blocks is called a blockchain



## How to write on the blockchain

Public Key Cryptography (PKC) leverages **public keys** & **private keys** which are the cornerstones of the **digital identity** and the **proof system**



### Public key (the address)

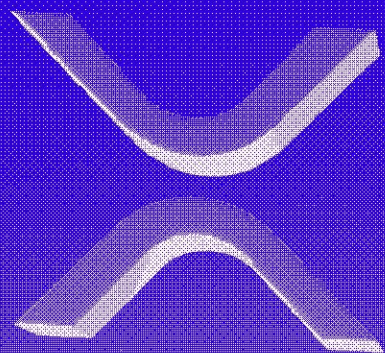
Used to encrypt information destined to the holder & to verify signatures



### Private key (the password)

Used to decrypt messages encoded with the public key and to sign transactions

Digital signatures are unique to each transaction  
and are proofs of who created them



**XRP LEDGER**