

## Introduction to Blockchain

- What is Blockchain?
- History of Blockchain
- Explaining Distributed Ledger
- Blockchain ecosystem
- Explaining Distributed Ledger

## Types of Block chain

- Private/Consortium/Permission-less
- Public/Permissioned
- What Blockchain has to offer across Industry?
- Companies currently using Blockchain
- Overview of what we are going to study in this course.

## Blockchain Usages

- Payment systems
- Cryptocurrencies (Bitcons, Ethereum, Dash)
- Royalty collection
- Management of copyrights
- Insurance

## Development

- Private Ethereum Network
- Smart contracts (e.g. Ethereum)

- dApps
- Hyperledger(Hyperledger Fabric)

## How Bitcoin Works

### Crypto and Cryptocurrencies

- Cryptographic Hash Functions
- Hash Pointers and Data Structures
- Digital Signatures
- Public Keys as Identities
- A Simple Cryptocurrency

### Decentralization

- Introduction to cloud computing.
- Centralization vs. Decentralization
- Distributed Consensus
- Consensus without Identity: the Block Chain
- Incentives and Proof of Work

### Bitcoin Transactions

- Bitcoin Scripts
- Transaction Forms
- Constructing a Transaction
- Bitcoin Blocks
- Mining Transactions in Blocks
- Bitcoin Network
- Forking and SegWit

## **Bitcoin Wallets, Exchanges and Mining**

### **How to Store and Use Bitcoins**

- Hot and Cold Storage
- Splitting and Sharing Keys
- Online Wallets
- Bitcoin Exchanges
- Currency Exchange Markets
- The Task of Bitcoin Miners  
Mining Hardware
- Energy Consumption & Ecology
- Mining Incentives and Strategies

## **Ethereum and Hyperledger**

- What is Ethereum?
- What is Ether?
- Smart Contracts
- How to use Ethereum?
- The Ethereum ecosystem,  
DApps and DAOs
- How Ethereum mining works
- Learning Solidity
- Config Management with  
Puppet
- Contract classes, Functions and  
conditionals

- Inheritance & abstract contracts
- Libraries
- Types & Optimization
- Global Variables
- Debugging
- Future of Ethereum
- Hyperledger

## **Setting up private Blockchain using Ethereum**

## **Resume Preparation & Job oriented Training**