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**Web 3 (Blockchain)**

# YouTube Tutorial:

* <https://youtu.be/aVQJGr2J8io>

# Difference Between Web 1, 2 & 3:

## Web 1:

* Decentralized web
* Initial stage of web
* Only static web pages include hyperlinks to different pages
* Read-Only Data web (Consume only)
* There is no authentication, comments and analytics
* One way communication tool

## Web 2:

* Centralized Web
* Still improving
* Read and Write Data (About interactions)
* Interactivity, social connectivity and user-generated content was added in web 2
* User can send and get data through web
* Data was owned by companies
* Our data is used by centralized companies (like google and meta etc.) they collect our data to server as best. They act as middle man in web.
* Controlled by big companies like google and meta

## Web 3:

* Decentralized Web
* Read, Write and Own Data
* Build on peer-to-peer network of computer that interact with each other without middle man or company
* Everything is visible and connected to public
* Data is shared rather than owned

# What is Centralized Web:

In centralized web our data on web is collected by middle man like google and meta companies etc. They own our data and information.

# What is Decentralized Web:

In decentralized web no company or single person own any data and information of anyone or anything

# Why Web 3 and why it is Better:

As we ln know our data is collected by middle man centralized companied like google, meta etc. The purpose of web 3 is to make our data secure as data is more important for any user. In web 3 data is shared rather than owned. Everything is visible and connected to the public.

Web 2 is hosted on servers than can be crashed and can be hacked but web 3 is relies on peer-to-peer network build by community of users their interconnected devices host the internet rather than servers

# Learning Web 3:

## Languages Used:

* Web3.js
* Ethers.js
* Solidity
* Web 2 skills (JavaScript recommended)

## Step 1 (Learn Fundamentals of Web 2):

* You should have web 2 skills
* Blockchain technologies are build top of web technologies

## Step 2 (Learn Fundamental of Blockchain):

### What is Blockchain:

* Network of computer connected in some way and they collectively run “blockchain client”
* Blockchain is chain of blocks these blocks are connected together using cryptography
* Each block contains “hash of previous block”, “timestamp” and “transaction data”
* Not only related to crypto coins

### Which Type of Blockchain to Use:

* There are many types of blockchain
* Ethereum blockchain is recommended because its community provide great support

## Step 3 (Learn about Smart Contracts):

### What is Smart Contract:

* A smart contract is a software stored on a blockchain-based platform that automatically execute an agreement
* Smart contracts enable to exchange anything of value while also eliminating the middle-man
* They are self-verifying, self-executing and tamper-resistant.
* There code cannot be changed
* They are immutable
* They are robust can be use for NFT’s Crypto Currency and handling backend of Decentralized Applications
* Smart Contracts are simply programs stored on a blockchain that run when predetermined conditions are met. They are typically used to automate an agreement execution so that all participants can be immediately sure of the outcome without any intermediary’s involvement or time loss.

### Learn about Smart Contract:

* Basics of Smart Contract
* Life Cycle of Smart Contract
* Interaction with Smart Contract using Web3.js

## Step 4 (Learn Solidity):

### Why Solidity:

* It is primary programming language to write smart contracts in Ethereum blockchain
* It is combination of few languages like JavaScript, java, C++ and Ruby etc.

## Step 5 (Compiling, Testing & Deploying Smart Contracts):

* Once smart contract is deployed, they are immutable
* Testing them is very important

### Libraries for Testing Smart Contracts:

* Mocha
* Chai
* Ganache

### For Development Smart Contracts

* Hardhat
* Truffle
* Infura

## Step 6 (Learn more about Decentralize Applications)

* They are dApps
* Free from the control and interference of a single authority

## Step 7 (Learn about any Crypto Wallet)

* Metalmark is highly used crypto wallet these days
* Crypto wallet allows people to exchange funds quickly
* Transactions are incredibly secure
* Wallet is used to interact with blockchain