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Building your Decentralised Web Application

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Agenda

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Session – 1: Short Tour on dApp
– What are dApps ?
– What is Ganache
– Truffle Framework
– Truffle Commands

Session – 2: Creating your First dApp
– Problem Statement
– Work Flow
– Hands-On

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Requirements

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To create the smart contract and deploy it using some front-end logic on ethereum blockchain, we need few pre-requisites:

Pre-Requisites:

1. node.js
2. npm (Node Package Manager)
3. Truffle Framework
4. Ganache personal Blockchain
5. light-server
6. metamask – Crypto Wallet

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Session – 1: Short Tour on dApp

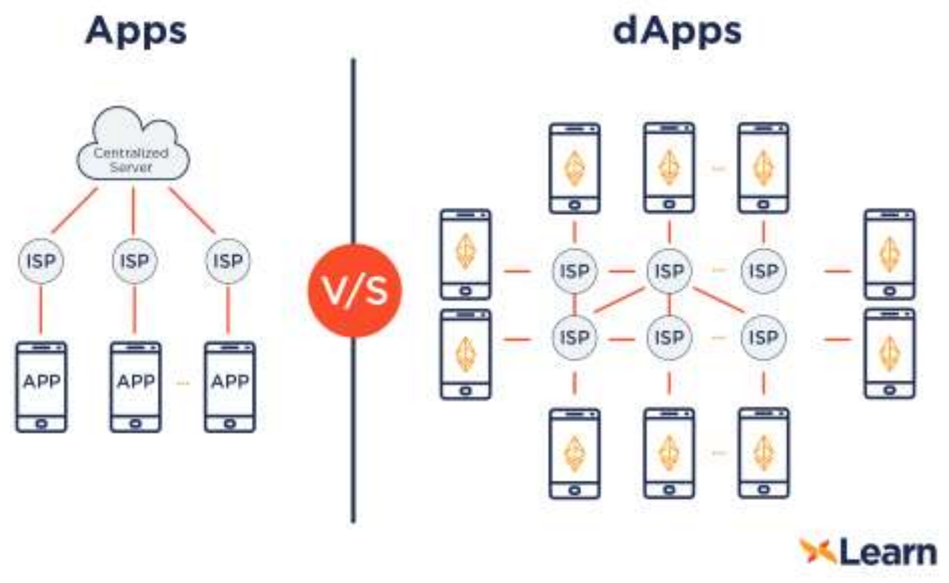
What are dApps?

What are dApps?

– dApps are software applications that communicate with ethereum blockchain network.

– dApps also looks like a generic centralized application either a mobile app or web app.

– the front end remains same, where as back end differs from centralized to de-centralized.



What is Ganache?

What is Ganache?

– Ganache is a personal blockchain for rapid ethereum distributed application development.

– You can use Ganache across the entire development cycle of building dApp applications.

– It is used to develop, deploy and test your dApps.

Truffle Framework

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Truffle Framework

– A world-class development environment, testing framework and asset pipeline for blockchains using Ethereum Virtual Machine, for developers life become easier for developing dApps.

– Built-in smart contract compilation, linking, deployment and binary management.

– Interactive console for direct contract communication.

TRUFFLE

Truffle Commands

Install Truffle – npm install truffle

Steps:

1. Creating a Project

– mkdir project_folder

– cd project_folder

Truffle Commands

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Install Truffle – npm install truffle

Steps:

1. Creating a Project

2. Exploring the Project

– truffle init

contracts/: Directory for Smart Contracts

migrations/: Directory for Scriptable Deployment Files

test/: Directory for test files to check Smart Contracts

truffle.js: Truffle Configuration file

Truffle Commands

Install Truffle – npm install truffle

Steps:

1. Creating a Project

2. Exploring the Project

3. Testing the Project

– **truffle test test_script_path**

Truffle Commands

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Install Truffle – npm install truffle

Steps:

1. Creating a Project

2. Exploring the Project

3. Testing the Project

4. Compiling the Project

– **truffle compile**

Truffle Commands

Install Truffle – npm install truffle

Steps:

1. Creating a Project

2. Exploring the Project

3. Testing the Project

4. Compiling the Project

5. Migrating the Project

– **truffle migrate**

Truffle Commands

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Install Truffle – npm install truffle

Steps:

1. Creating a Project

2. Exploring the Project

3. Testing the Project

4. Compiling the Project

5. Migrating the Project

6. Interacting with Smart Contract

– **migrate**
– **truffle console**

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Summary

Pack-Up!

– We gone through the commands of truffle for creating a decentralised web application.

– dApps works similar to normal apps where in the place of database server, blockchain comes in.

– dApps are the applications connected to Blockchain Network.

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Session – 2: Creating your first dApp

Problem Statement

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To understand how to create a decentalised web application, here I want to demonstrate with a simple basic election voting dapp.

There will be 3 people who acts as contestants and the voters has to vote for their favourite contestant for only once.

Usage:

This voting dapp should display their images, names and have to display their respective button on the front-end.

The UI elements should interact with the back-end and stores the data on the blockchain network.

Work Flow

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Back-End: Smart Contract

Front-End: HTML Page

Middleware: web3.js

Work Flow

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Back-End: Smart Contract

Front-End: HTML Page

Middleware: web3.js

Step – 1: Create a Smart Contract

Step – 2: Deploy the Contract

Step – 3: Create a HTML Page

Step – 4: Configure the app.js to connect front-end and back-end

Step – 5: Launch the Server

Step – 6: Voting Process Starts

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Let’s start the process…….

Summary

Pack-Up!

– We gone through the creation of a basic decentralised web application.

– We have used Truffle framework for creating the decntralised app.

– Front-End (HTML), Back-End (Blockchain), Middleware (Javascript Ethereum API - web3js).

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