

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

FACULTY OF TECHNOLOGY & ENGINEERING

DEVANG PATEL INSTITUTE OF ADVANCE TECHNOLOGY AND RESEARCH

Subject: CE471/CS473 Blockchain Technology

Semester: 7th [BTECH CE/CSE]

Academic year: July 2021-22

Practical List

| Sr No. | Practical Aim |
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| 1 | Install a Bitcoin/Ethereum wallet. Generate and secure your private key. Perform following tasks: <ul style="list-style-type: none">a. Create Account/Import Accountb. Add ether into accountc. Perform transaction to different account |
| 2 | Write a simple Smart Contract, compile, deploy it using Metamask Ropsten Test Network. <ul style="list-style-type: none">• Setting a Greeting — we should be able to set a greeting.• Displaying the Greeting — we should be able to retrieve the greeting and display it. |
| 3 | Write a smart contract of Election with following tasks: <ul style="list-style-type: none">a. Cast vote against two candidatesb. Vote should be cast only once.c. No voter can vote any third candidate. |
| 4 | Study and Configure Geth over windows or Ubuntu. Perform following tasks: <ul style="list-style-type: none">a. Build Your Own Private Ethereum Blockchain.b. Create Genesis Block:c. Initialize the Genesis block:d. Create Boot nodee. Start Private Networkf. Launch Ethereum Wallet:g. Create Address:h. Start Mining |

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| 5 | <p>Study and Implement Block structure and perform following tasks using Node js/Python/Java.</p> <ol style="list-style-type: none"> Create Genesis Block and display. Create three Blocks and link all of them with Genesis block in chronological order. Perform transactions by sending and receiving amount. Mine the transaction (Validation/Verification) and add into block. After adding Block into chain, try to modify or delete the block. View the transaction and Blocks creation over the network. |
| 6 | Install the development environment to set up the Hyperledger Composer Playground |
| 7 | Create simple application using Hyperledger playground. |
| 8 | Create Decentralized application “Voting” using Ethereum. Set up development environment using Truffle framework and Ganache, Metamask of chrome extension. |
| 9 | Build the private blockchain network using Geth. |
| 10. | Setup private parity Ethereum POA blockchain network. |
| Practice Programs | Write a smart contract to create your own ERC-20 Token using Ethereum mist wallet. |
| | Study real time case study of Blockchain based application in the areas of Supply chain, Medical Record Tracking, Vehicle data Tracking, Insurance, Identity management. Discuss the challenges and research issues. |