



## **2CSDE93 - Blockchain Technology**

### **Practical 5**

**Aim:** Implementing Smart Contract

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To perform thorough study and installation of Remix IDE and Truffle IDE for deploying Smart Contracts and Decentralized Applications (dapps) and create and deploy a Smart Contract for any application such as finance, healthcare etc.

Code:

```
pragma solidity >=0.4.22 <0.7.0;
/**
 * @title Hospital Registration
 * @dev Store & retrieve Hospital details
 */

contract Hospital {

    mapping(uint256 => hospital) hospitallist;

    struct hospital{
        string hospital_name;
        string hospital_address;
        string hospital_spec;
    }
    hospital h;

    address owner;

    constructor() public {
        owner = msg.sender;
    }

    // modifier to give access only to hospital
    modifier isOwner() {

        require(msg.sender == owner, "Access is not allowed");
    }
}
```

```

        _;
    }

    /**
     * @dev Store hospital details
     * @param hospital_id hospital registration id
     * @param _hospital_name name of hospital
     * @param _hospital_spec hospital specialisation
     * @param _hospital_address hospital address
     * */
    function store_doctor_details(uint256 hospital_id,string memory
_hospital_name,string memory _hospital_address,string memory
_hospital_spec)public isOwner {

        h.hospital_name = _hospital_name;
        h.hospital_address = _hospital_address;
        h.hospital_spec = _hospital_spec;

        hospitallist[hospital_id] = h;

    }

    /**
     * @dev Retreive hospital details
     * @param hospital_id hospital registration id
     * */
    function retreive_hospital_details(uint256 hospital_id) public
view returns (string memory,string memory,string memory){

        hospital memory h = hospitallist[hospital_id];

        return (h.hospital_name,h.hospital_address,h.hospital_spec);
    }

```

```
}
}
```

## Output:

Deployed Contracts

HOSPITAL AT 0XD91...39138 (MEM)

Balance: 0 ETH

store\_doctor\_details

hospital\_id: 1

\_hospital\_name: Nirma

\_hospital\_address: Ahmedabad

\_hospital\_spec: ENT

CalldataParameterstransact

retreive\_hospital\_details

hospital\_id: "1"

CalldataParameterscall

0: string: Nirma  
1: string: Ahmedabad  
2: string: ENT

Low level interactions

CALLDATA

Transact

**Conclusion :** This practical gives an overview about remix IDE, how to write smart contracts using solidity and how to deploy it. Smart contracts are essentially programmes that run when certain criteria are satisfied and are maintained on a blockchain.