Experiment No: 2

Aim: Create Smart contract using Solidity and Remix IDE.

Theory:

- Solidity is a brand-new programming language created by Ethereum which is the second-largest market of cryptocurrency by capitalization.
- Solidity is a high-level programming language designed for implementing smart contracts.
- It is a statically typed object-oriented language.
- Solidity is high influenced by Python, C++, and JavaScript which run on the Ethereum Virtual machine (EVM).
- Solidity supports complex user-defined programming, libraries, and inheritance.
- Solidity is the primary language for blockchains running platform.
- Solidity can be used to create contracts like voting, blind auctions, crowdfunding, multi-signatures, wallets, etc.

1. **Smart Contract:**

- Smart contracts are high-level programs codes that are compiled to EVM byte code and deployed to the ethereum blockchain for

further execution.
- It allows us to perform credible transaction without any interference of the third party, these transactions are trackable and irreversible.
- Languages used to write smart contracts are Solidity, Serpent, LLL and Mutan.

- **The contract Keyword:**

⇒ The contract keyword declares a contract under which is the code encapsulated.

```
contract Test
{
// Functions and Data
}
```

- **State Variable**

⇒ State variables are permanently stored in contract storage that they are written in Ethereum Blockchain.
- The line uint public var1 declares a state variable called var1 of type uint.
- Similarly, goes with the declaration uint public var2 and uint public sum.

```
uint public setData;
```

- A function declaration

⇒ This is a function named set of access modifier type public which takes a variable x of datatype uint as a parameter.

- It's syntax is :-

```
function set (uint x) public

function get() public view returns (uint)
```

- This is an example of a simple smart contract which updates the value of setData.
- Anyone can call the function set and overwrite this value of setData which is stored in Ethereum blockchain and there is possibly no way for anyone to stop someone from using this function.

- Smart Contracts

⇒ Smart contracts are the block of instruction that are not dependent on any third party or centralized database.

- They are executable in decentralized environment.
- The benefits of smart contracts are as follows :-

1) It removes centralized issues.
2) It is safe and more secure.

3) The terms and conditions are visible for the relevant parties. No way to change them.

4) Makes the system more accurate.

3/10/24