Modern Education Society's Wadia College of Engineering Pune-01

Department of Computer Engineering

Name of Student:	**Class:**
Semester/Year:	**Roll No:**
Date of Performance:	**Date of Submission:**
Examined By:	**Assignment No: 4**

Laboratory Practice – III (Blockchain Technology)

ASSIGNMENT NO: 04

AIM:

Write a program in solidity to create Student data. Use the following constructs:

- Structures
- Arrays
- Fallback

Deploy this as smart contract on Ethereum and Observe the transaction fee and Gas values.

OBJECTIVES: To help students understand the basic constructs of solidity like structure, arrays and fallback

THEORY:

Solidity is an object-oriented programming language for implementing smart contracts on various blockchain platforms. Smart contracts are programs which govern the behaviour of accounts within the Ethereum state. Solidity is a curly-bracket language designed to target the Ethereum Virtual Machine (EVM). It is influenced by C++, Python and JavaScript. To build new complicated datatype structure is used. Structure contents data with multiple properties.

Structure

It is useful for grouping together related data. Structs can be declared outside of contract. Struct can be included in another contract. To define structure "struct" keyword is used.

Syntax:-

```
struct strcut_name {
type_1 type_1_name;
type_2 type2_name;
.
.
type_n type_n_name;
}
```

Arrays :-

Array is a data structure, which stores a fixed-size sequential collection of elements of the same type. n array is used to store a collection of data, but it is often more useful to think of an array as a collection of variables of the same type.

Syntax:-

```
type name_of_array[size_of_array];
```

Fallback:-

The solidity fallback function is executed if none of the other functions match the function identifier or no data was provided with the function call. Only one unnamed function can be assigned to a contract and it is executed whenever the contract receives plain Ether without any data. To receive Ether and add it to the total balance of the contract, the fallback function must be marked payable. If no such function exists, the contract cannot receive Ether through regular transactions and will throw an exception. It can be declared as follows;

```
function() scope payable
{

}
```

CONCLUSION:

Student will understand structure, arrays and fallback from solidity and also understand how to deploy it on Ethereum.

QUESTIONS:

1. What is structure? Explain with example.
2. Explain use of Arrya with example.
3. What is use of fallback function?