

**Program: -**

//SPDX-License-Identifier: MIT

pragma solidity ^0.8.0;

contract StudentData

```
{
    struct Student
    {
        int ID;
        string fName;
        string lName;
        int[2] marks;
    }

    address owner;
    int public stdCount = 0;
    mapping(int => Student) public stdRecords;

    modifier onlyOwner
    {
        require(owner == msg.sender);
        _;
    }
    constructor()
    {
        owner=msg.sender;
    }

    function addNewRecords(int _ID,string memory _fName,string
memory _lName,int[2] memory _marks) public onlyOwner
    {
        stdCount = stdCount + 1;
        stdRecords[stdCount] = Student(_ID, _fName,_lName,
_marks);
    }
}
```

Output:

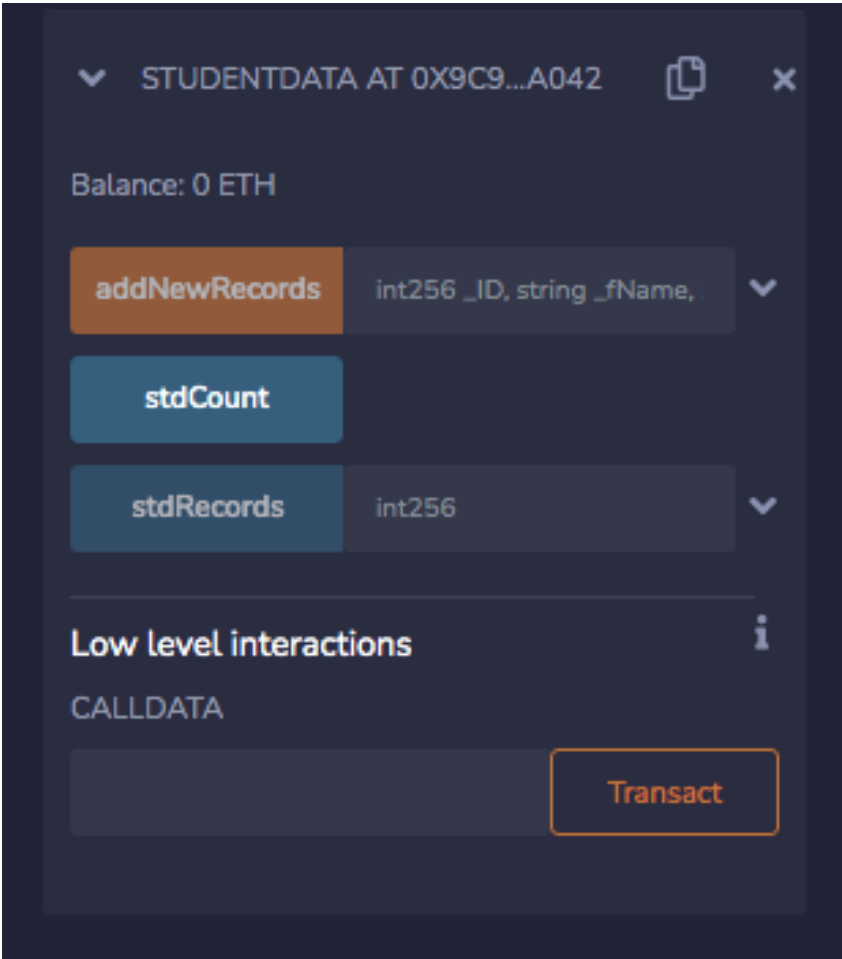





Fig : 1 Deployed Instance

block hash	0xeda8a86fbb3bf34a88b414b9644d40edb9748a2a50daf0b195f47a1249a97a17
block number	16
contract address	0x1482717Eb2eA8Ecd81d2d8C403CaCF87AcF04927
from	0xAb8483F64d9C6d1EcF9b849Ae677dD3315835cb2
to	StudentData.(constructor)
gas	778669 gas
transaction cost	677283 gas
execution cost	580359 gas
input	0x608...20033
decoded input	{}
decoded output	-

Fig : 2 Initial Transaction and execution costs and gas after deploying contract

STUDENTDATA AT 0X148...0492:  

Balance: 0 ETH



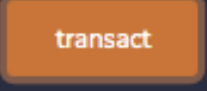
**addNewRecords** 

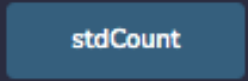
**\_ID:**

**\_fName:**

**\_lName:**

**\_marks:**

 Calldata  Parameters 









  


Fig : 3 Entering Input Data


```


from          0xAb8483F64d9C6d1EcF9b849Ae677dD3315835cb2 
to            StudentData.addNewRecords(int256,string,string,int256[2])
              0x1482717Eb2eA8Ecd81d2d8C403CaCF87AcF04927 

gas           186487 gas 

transaction cost 162162 gas 

execution cost  139742 gas 

input         0x7f6...00000 

decoded input
{
    "int256 _ID": "100",
    "string _fName": "Susan",
    "string _lName": "Smith",
    "int256[2] _marks": [
        "97",
        "56"
    ]
} 

```

Fig : 4 Transaction and execution costs and gas after passing input

Balance: 0 ETH



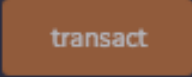
### addNewRecords

**\_ID:**

**\_fName:**


**\_lName:**

**\_marks:**

 Calldata  Parameters 

**stdCount**

0: int256: 1

**stdRecords**  

0: int256: ID 100  
1: string: fName Susan  
2: string: lName Smith

Fig : 5 Calling stdCount and stdRecords









```
from          0xAb8483F64d9C6d1EcF9b849Ae677dD3315835cb2   
to            StudentData.stdCount() 0x1482717Eb2eA8Ecd81d2d8C403CaCF87AcF04927   
execution cost 2451 gas (Cost only applies when called by a contract)   
input         0xfe6...15f2a   
decoded input  {}   
decoded output {  
               "0": "int256: 1"  
             }   
logs          []  
```

Fig : 6 Execution costs and gas after calling stdCount