Pune Institute of Computer Technology

Department of Computer Engineering

(2022- 2023)

"Develop a Blockchain based Application for Health-related Medical Records"

Submitted to the

Savitribai Phule Pune University

In partial fulfilment for the award of the Degree of

Bachelor of Engineering

in

Computer Engineering

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Under the guidance of

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Academic Year: 2022-2023

PUNE INSTITUTE OF COMPUTER TECHNOLOGY,
DHANKAWADI, PUNE – 43

CERTIFICATE

This is to certify that _____

student of B.E. (Computer Engineering Department) Batch 2022-2023, have satisfactorily completed a report on "**Develop a Blockchain based Application for Health-related Medical Records**" towards the partial fulfilment of the fourth year Computer Engineering Semester VII of SPPU.

Dr. G. V. Kale
Head of Department,
Computer

Date: 09/11/2022
Place: Pune

Problem Statement

Develop a Blockchain based application for health-related medical records.

Objective

To develop a Blockchain based application for health-related medical records.

Theory

A blockchain is a distributed system that generates and stores data records. It maintains a digital ledger of connected “blocks” of information that represent how data is shared, changed, or accessed on its peer-to-peer network.

Blockchain is an emerging technology useful to provide innovative solutions in various sectors, including healthcare.

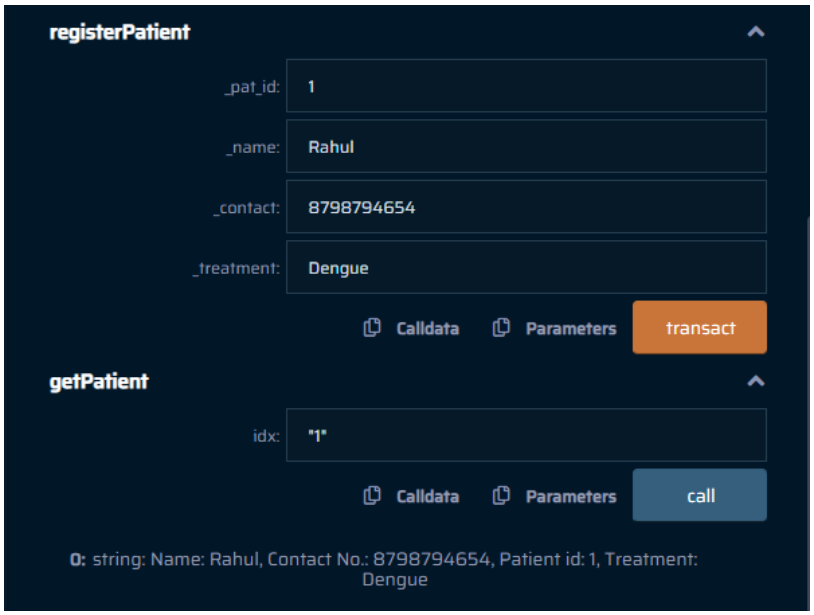
A Blockchain network is used in the healthcare system to preserve and exchange patient data through hospitals, diagnostic laboratories, pharmacy firms, and physicians. Blockchain applications can accurately identify severe mistakes and even dangerous ones in the medical field. Thus, it can improve the performance, security, and transparency of sharing medical data in the health care system. This technology is helpful to medical institutions to gain insight and enhance the analysis of medical records.

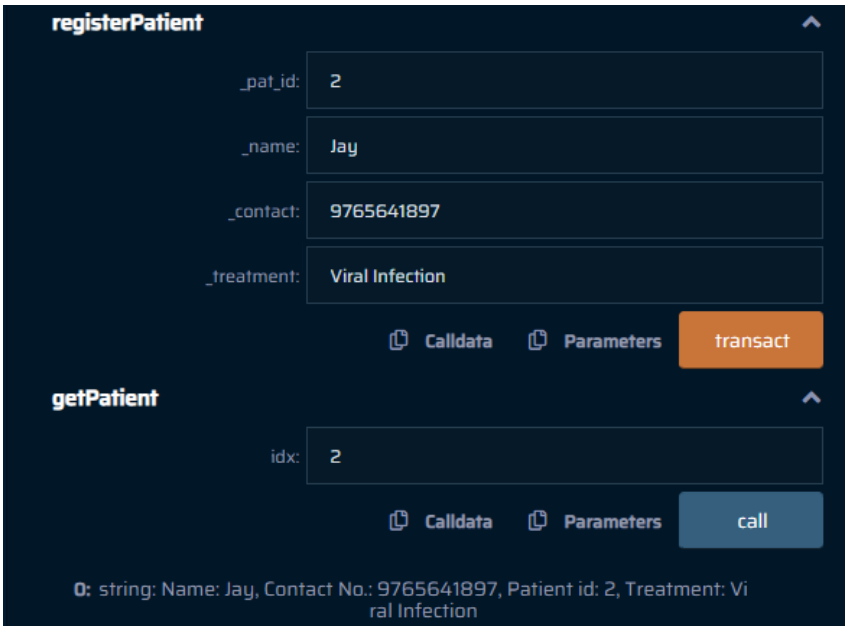
The medical industry has suffered greatly from the inability to securely share and access sensitive patient data. Blockchain, however, will facilitate finely customizable openness while upholding only the best security standards for true interoperability. In turn, this will allow health information systems to work together within and across organizational boundaries to advance the effective delivery of healthcare for individuals and communities.

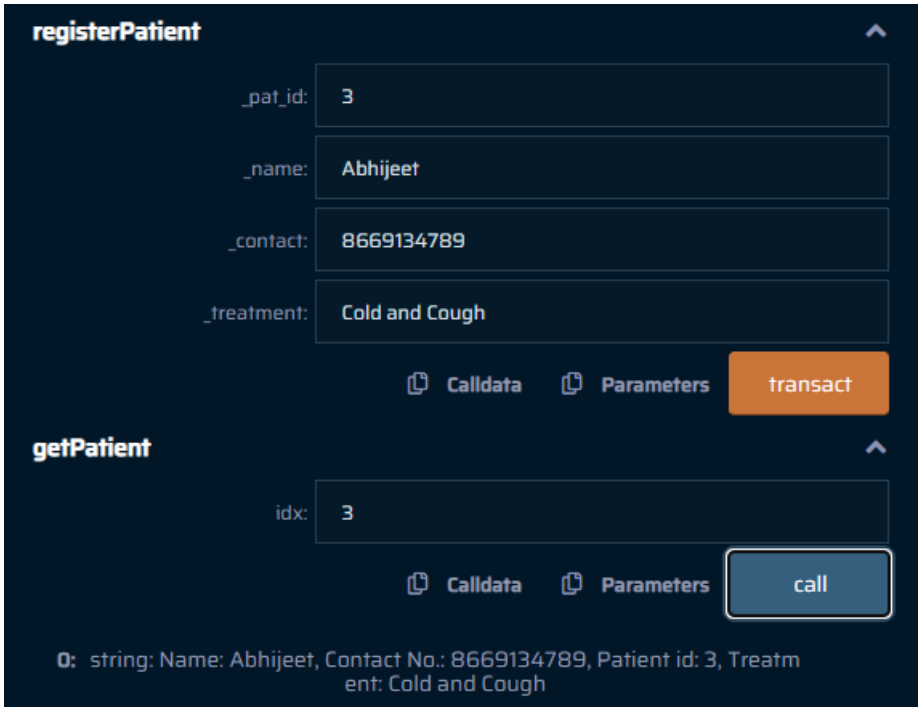
CODE :

```
pragma solidity 0.8.11;
// SPDX-License-Identifier: UNLICENSED

contract PatientInfo {
    struct Patient {
        string id;
        string name;
        string contactNo;
        string treatment;
    }
    Patient[20] PatientInfoArray;
    uint i=0;
    function registerPatient(string memory _pat_id, string
memory _name, string memory _contact, string memory _treatment)
public returns(string memory) {
        Patient memory patient = Patient(_pat_id, _name,
_contact, _treatment);

        if(i > 20) {
            return "Memory limit exhausted";
        }
        else {
            PatientInfoArray[i] = patient;
            i += 1;
            return "Patient registered successfully!";
        }
    }

    function getPatient(uint idx) public view returns(string
memory){
        Patient memory patient = PatientInfoArray[idx];
        return string(bytes.concat("Name: ",
bytes(patient.name), ", Contact No.: ",
bytes(patient.contactNo), ", Patient id: ", bytes(patient.id),
", Treatment: ", bytes(patient.treatment)));
    }
}
```

Output:


registerPatient
_pat_id:
1
_name:
Rahul
_contact:
8798794654
_treatment:
Dengue
Calldata
Parameters
transact
getPatient
idx:
"1"
Calldata
Parameters
call
0: string: Name: Rahul, Contact No.: 8798794654, Patient id: 1, Treatment: Dengue


registerPatient
_pat_id:
2
_name:
Jay
_contact:
9765641897
_treatment:
Viral Infection
Calldata
Parameters
transact
getPatient
idx:
2
Calldata
Parameters
call
0: string: Name: Jay, Contact No.: 9765641897, Patient id: 2, Treatment: Viral Infection



Conclusion

We have developed a Blockchain based application for health-related records and deployed it on Ethereum.