FAST – NUCES

Blockchain Implementation in Healthcare System

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Problem Statement

One of the biggest problems in healthcare today is that organizations hold multiple and fragmented health records about patients.Medical chain solves this problem by putting medical record transactions on the blockchain to create a smart healthcare system. With the medical chain,a smart contract is launched to give customized access to a patient's electronic health record.The patient gives such an access to their insurer for verification of treatment and payment settlement. It enables the doctors to remotely review medical cases and provide advice or second opinions. Our prime goal is that we can build a better healthcare system using blockchains.

Basic Formalities

❖ **Basic formalities that our project covers are mentioned below:**

- Sign up/Login of patient,Doctor and Insurer.
- Storing personal and medical details of patients in the form of a hash table.
- Use of CNIC as a unique key to generate hash.
- The patients will be able to update their details conveniently.
- Can share medical data with their chosen doctor.
- Can share medical data with their chosen Insurer.
- Can choose to view any information.
- Can also update health charges.
- Confidentiality is maintained of the patient's details with the help of a unique key.
- Users can choose their preferred method to resolve collisions on runtime.

Techniques

• Hash Table	Each patient is assigned its own block in the hash table, assigned to it using CNIC as a key.
• Hash functions	Insert function -> To insert new patient's data. Search function-> To search for a specific block/patient. Remove function ->To remove the record of a patient.
• Array of objects	objects of doctors/Insurers.
• Collision	In case of collision, The user will be able to choose on runtime the method to resolve collision;i.e Linear Probing or Separate chaining.
• Linear probing	In case, The user chose this, each key will have its own slot in the table.
• Separate chaining	Otherwise, the keys with the same hashes will be stored on the same indexes with the help of a linked list.
• Linked lists	Used to store data in case of separate chaining.
• Concepts of OOP	Use of classes,constructors,objects.

Libraries

- #include <iostream>
- #include <string>
- #include <iomanip>
- #include <ctime>
- #include <windows.h>
- #include <stdlib.h>
- #include <fstream>
- #include <conio.h>