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EDUCATIONAL CERTIFICATE VERIFICATION SYSTEM USING BLOCKCHAIN

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ABSTRACT:

In the digital world, each and everything is digitalized in which the certificate of SSLC, HSC, and academic certificate are digitalized in the educational institution and provided to the students. Students are difficult to maintain their degree certificates. For the organization and institution, verification and validation of certificates are tedious and cumbersome. Our project will help to store the certificate in the blockchain system and provide security. First, the paper certificates are converted into digital certificates. The chaotic algorithm is used to generate the hash code value for the certificate. Then the certificates are store in blockchain. And these certificates are validated by using the mobile application. By using blockchain technology we can provide a more secure and efficient digital certificate validation.

Keywords: *Block chain, NLP, fake news.*

1. INTRODUCTION

Blockchain was introduced in the year 2008 by Satoshi Nakamoto. Blockchain is one of the online ledgers which provide decentralized and transparent data sharing. In this project, we design an android application used to provide secure verification of our certificates. In nowadays, all Graduation certificates and transcripts hold information that is easily tampered illegally by individuals and should not be easily accessible to outside entities. Hence, there is a high need for an efficient mechanism, that can guarantee the information in such certificates is original, which means the document has originated from a reliable and authorized source and is not forged. Various systems have been designed to secure e-

certificates for education institutions and to store them securely in cloud-based systems. Blockchain is the main tool to felicitate this need and when combined with different hashing techniques, this becomes a powerful method for protecting the data. It also helps in eliminating the need for constant verification of certificates. Blockchain technology is used to reduce the incidence of certificate forgeries and ensure that the security, validity, and confidentiality of graduation certificates would be improved. Technologies that exist in security domains include digital signatures, which are used in digital documents to provide authentication, integrity, and non-repudiation. Also with blockchain in play,

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the storage of certificates are more secure. With these technologies, an application created that facilitates the secure validation of digital certificates.

2. EXICITING SYSTEM:

Nowadays, counterfeit an educational record is a problem in the educational organizations. During interview process to show all records takes much of time so it's better to have Hash key of all records which are stored in the Blockchain easily available anytime anywhere. Therefore, Securicor provides a platform to store information on Blockchain using cryptographic solutions. There are three parts implemented Firstly, the student logs into the website with the credentials. Then the student requests for the Certificate. The Issuing authority verifies the credibility of the student and issues the certificate. Secondly, the issuing authority logs into the website and accepts the request by the student. After checking the trueness of the student the issuing authority creates a block using remix which an open-source platform to code solidity. Then a unique hash is generated for the block. The hash is generated in the background using cryptographic algorithms such as MD5 and SHA. Then the unique key can be shared to the

student to access the certificates. For implementation, REMIX is used which is an open source for creating solidity smart contracts pragma solidity $\zeta=0.4.22$;0.6.0 have been used, Metalmark which is open source which allows for executing Ethereum programs directly into the browser without any node. We are using Metamask for security which provides IDE to manage other websites and events on Blockchain.

PROPOSED SYSTEM:

In this proposed system the academic, sports certificates are converted into digital certificates using sampling and quantization. Then the certificates are added with the hash values generated for the digital certificate and store it into the blocks. The chaotic algorithm used for generating the hash value. Each block consists of the hash value, timestamp, and hash value of the previous block. These blocks are linked together in the form of blockchain. The institution registers the student details in our interface (application) by providing details like name, email id and these are stored in the database. The certificate issued by the registrar is stored in the application and they form a blockchain. The employer or verifier can

validate the certificate by entering the student details.



3. METHODOLOGY

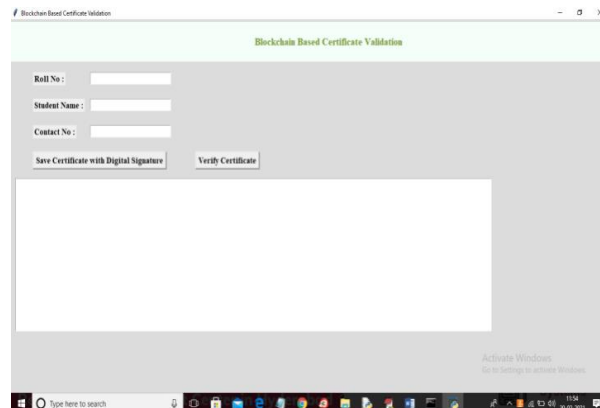
MODULES:

- 1) Save Certificate with Digital Signature: Using this module admin user can upload student details and student academic certificate and then application convert certificate into digital signature and then signature and other student details will be saved in Blockchain database.
- 2) Verify Certificate: In this module verifier or companies or admin will take certificate from student and then upload to application and then application will

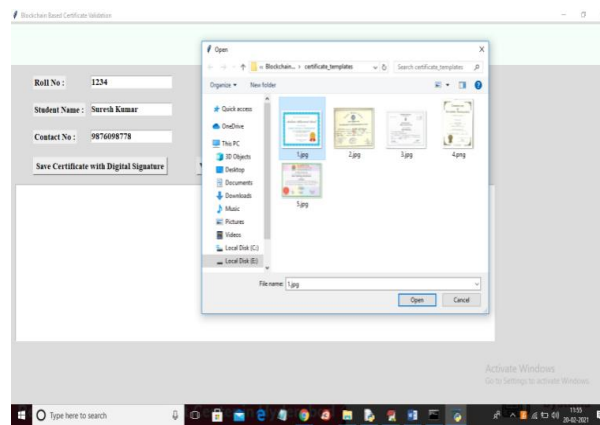
convert certificate into digital signature and this digital signature will get checked/verified at Blockchain database and if matched found then Blockchain will retrieve all student details and display to verifier and if match not found then this certificate will be consider as fake or forge.

OPERATION:

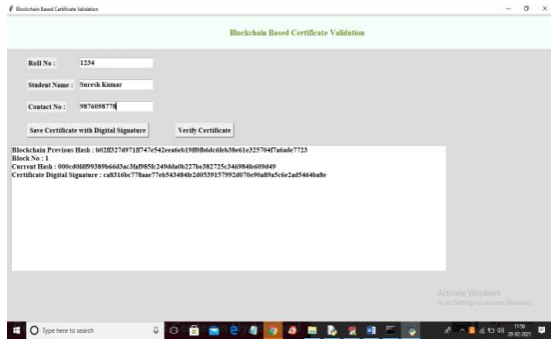
To run code double click on 'run.bat' file to get below screen



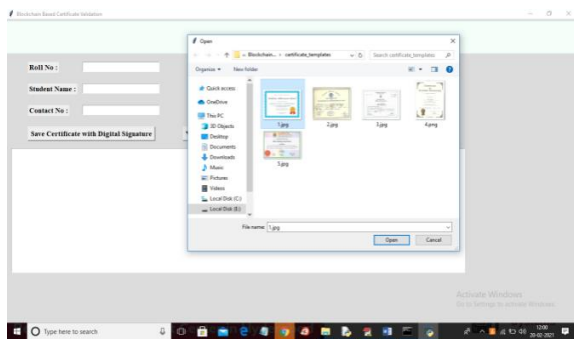
In above screen enter student details and then click on 'Save Certificate with Digital Signature' button to convert certificate into digital signature and then saved in Blockchain



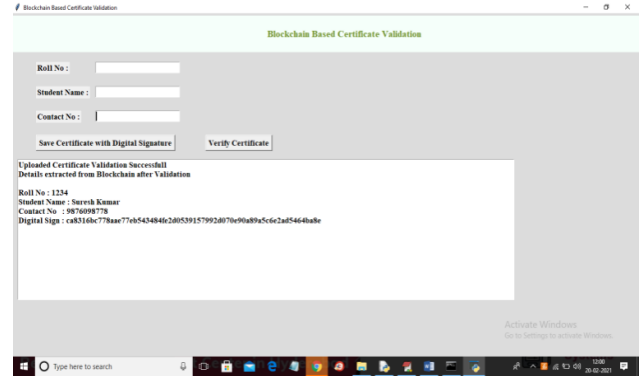
In above screen entered some student details and then click on ‘Save Certificate with Digital Signature’ button and then selecting and uploading ‘1.jpg’ file and then click on ‘Open’ button to get below screen



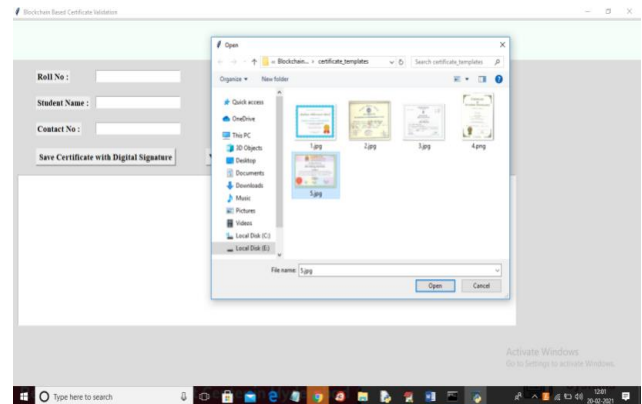
In above screen we can see Blockchain generated previous hash with block no 1 and its current hash and then keep on generating new blocks with each certificate upload and while running you can see that previous hash of new record will get matched with current hash of old record and this matched hash code proof that Blockchain verify old and new hash code before storing new block to confirm data is not altered. So above details stored at Blockchain and now verifier can click on ‘Verify Certificate’ button and upload same or other images to get below result



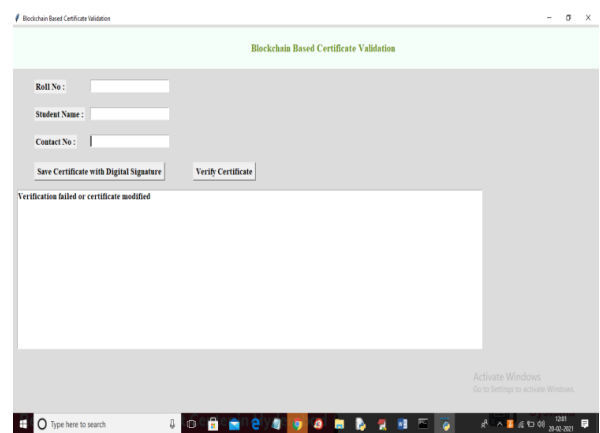
In above screen selecting and uploading ‘1.jpg’ file and then click on ‘Open’ button to get below result



In above screen we uploaded same and correct image so application matched digital signature and then retrieve details from Blockchain and now try with some other image



In above screen selecting and uploading ‘5.jpg’ file and then click on ‘Open’ button to get below result



In above screen verification got failed as uploaded certificate not matched with stored certificates in Blockchain.

Similarly you can upload any other certificate and convert them to digital signature

CONCLUSION

In this paper, we proposed a solution to the problem of certificate forgery based on blockchain technology. Providing security to the data is very important. By using the unchallengeable property of blockchain, we can provide more security for data and reduce the certificate forgery. The application can allow the user to view and validate the certificate. This system guarantees information accuracy and security and easy for people to manage digital certificates.

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