SPIT HACKATHON

Team Code- RISHAB.GARG100669

College:

Thapar Institute Of Engineering And Technology, Patiala, Punjab

Team Members:

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BE-COE UnderGraduate 3rd year

Team Skills:

Machine Learning, Deep Learning, Web Development, Android Development, Data Structure and Algorithm, Artificial Intelligence, Automation and Scripting, Design and Implementation.

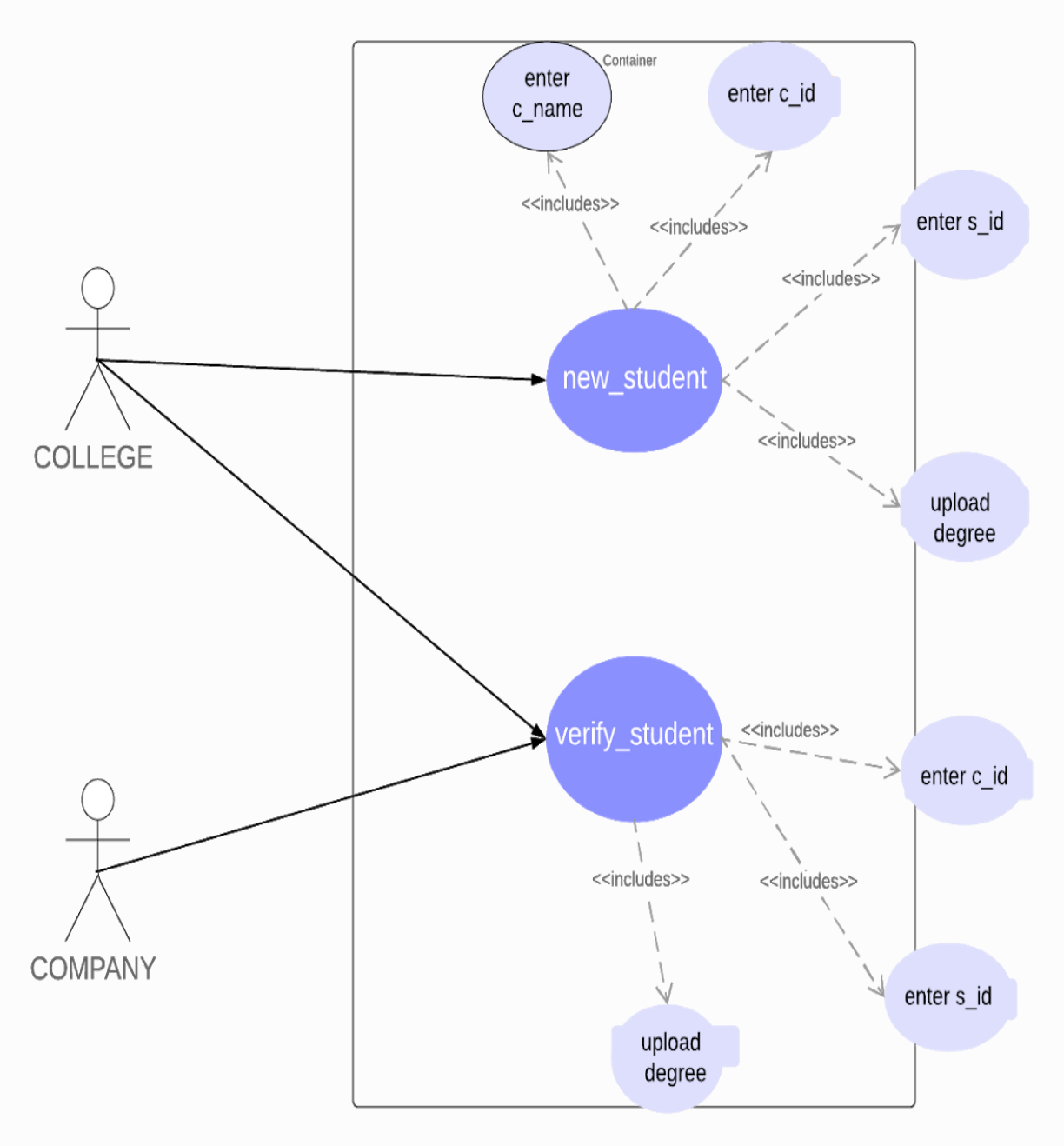
College Degrees security using BlockChain

Problem Statement:

CERTIFICATION USING BLOCKCHAINS

In today's world, there are many people who deliberately modify college degrees to their benefit and there are many to help them in exchange for money. Modifying the degree in order to get better jobs is a common issue. If this trend is not stopped, it can decrease the quality of the students as well as the quality of employees. Also modification of the college degrees can be a serious concern for the college when it comes to its reputation. We present a website as well as android app to solve the problem through blockchains and smart contracts. The college will be given access to the applications. All the user has to do is upload the document in any application and the application will add data in blockchain through smart contracts. The company wishing to verify the degree(s), verifies it through any application. The process of verifying the document in the backend takes place through smart contracts. They give us the fruitful advantages of autonomy, trust, backup, safety, speed, savings, accuracy.

Use Case Diagram



Technology Stack:

For making Web application.

FrontEnd designing- HTML, CSS, Bootstrap
BackEnd - Javascript, NodeJS
To interact with blockchain network - Web3.JS

For making Android application.

Android Studio
FrontEnd designing- XML
BackEnd - Java
To interact with blockchain network - Web3.J

BlockChain network

Blockchain development - Ganache

Ganache is used to deploy contracts, develop applications, and run tests.It is available as both a desktop application as well as a command-line tool.

Smart Contracts - Solidity

Solidity is a contract-oriented, high-level language and we used it for implementing smart contracts.

Metamask

MetaMask lets the user create and manage their own identities, so when a Dapp wants to perform a transaction and write to the blockchain. It is an extension for accessing Ethereum enabled distributed applications.

Infura

It provides support to generate API to interact with smart contracts.

Hashing Function to convert docx to string data

SHA-256 cryptographic hash algorithm

SHA-256 generates an almost-unique 256-bit (32-byte) signature for a text. We are using this algorithm since in blockchain we store small size data. We cannot store docx since large size. So we convert it into string that can be easily store in database.

Limitation

Currently it can verify only the final college degrees since we are storing the hash string for final college degrees in blockchain. It can only check the final credentials of the student but not his/her full portfolio. It cannot verify the transcripts per semester since we are not storing any data about it. There is also limitation of number of transactions a college can do, since every node in the network has to verify the transaction. We are using APIs like metamask and Infura which contain many errors right now and are still in developing mode. Some change(s) or new addition(s) can stop the application from running. The version of solidity greatly affects the working of smart contract code, slight change affects the working of project.

Future Aspects

Our project can greatly help to avoid fraud and tempering of college degrees. The project can be further extended to verify the full portfolio of the student. We can also extend this project to verify government documents and minimising any kind of ill practices undertaken in public voting. It can also be used to create online contests, judging platform for various social issues and T.V shows. We can also use this project to accomplish online business or trading between 2 or more parties. Basically, we can exploit the power of blockchain and use our project to solve any problem which requires credibility, assurance and transparency.

Github project link

Web Application

https://github.com/DemonDaddy22/SPIT

Android Application

https://github.com/RobCop28/DegreeChecker

Contact-Info

Team - DOSADI

Team Members:

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