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Secure and Transparent KYC for Banking System using IPFS and Block Chain Technology

Gurunatha N V[1] and Praveen K S[2]
Student, Master of Computer Applications[1]
Associate Professor, Master of Computer Applications[2]
East West Institute of Technology, Bangalore, Karnataka, India

Abstract: *KYC (Know your client) is a financial system standard for supporting a customer's identity appropriateness & risk assessment prior to establishing a banking relationship. KYC is a difficult & costly process to complete for a single customer especially given the drawn-out worry about security. In this paper we utilize the Inter Planetary Record Framework (IPFS) and block chain improvement to give a reasonable fast safe and direct stage for KYC report truly check in the money related structure out. The endorsed plan draws in a client to open a record with one bank complete the KYC structure there and produce a hash respect utilizing the IPFS affiliation which can then be shared utilizing the block chain technique. Any Bank/cash related foundation that gets the confidential key can safely get and store client information (i.e. KYC) utilizing the IPFS affiliation if the client decides to begin with another account with that Bank/financial organization.*

Keywords: This Project helps to customer easy to update KYC in one or more banks

I. INTRODUCTION

Digital technologies have transformed media content creation and dissipating in the general redirection and media industry all through continuous various years. Various difficulties remain in any case particularly communicating with how computerized content can be conveyed on the web and how euphoric partners are repaid when their materials are utilized or purchased through genuine channels. Possibly of the most recent evaluation in this particular industry consolidates the utilization of blockchain and high-level financial principles for micropayments parcels scarcely of cash to get to the unequivocal substance. Blockchain progression and electronic money related norms can give an ideal reasonable development for bits and saving security with low commission charges and second monetary exchanges without focus people.

II. METHODOLOGY USED

Technology stock selection:

IPFS

The Inter Planetary File System (IPFS) is a peer-to- peer(P2P) file-sharing protocol connecting computing devices for sharing/storing files/data. The content is uniquely recognized in the global namespace using the hash code of the file. If the hash code is altered, the data can not be verified which will be identified by IPFS. Besides, IPFS identifies duplication if files with the same content are stored.

KYC Verification

We considered a scenario in which, in the first phase, a customer went to Bank A to open an account. The customer submitted the account information along with KYC docs to the Bank. The bank the no observed the whole information, which, if found correct, will been crypte during the system's application(a popular encryption tool, gpg4win, and IPFS in our case) which will be available to all banks to share document without her bank and store a copy to a local database. Afterward, then crypted file will be stored in the private IPFS network by bank A. Later, the bank will upload the hash value from IPFS, a very small in-memory size, to the Blockchain network. Bank A also keeps a copy of the customer's KYC docs to the local database of it.

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Machine Learning Model Development:

Data Pre processing

- **Data Collection**: Gather customer data from various sources (e.g., online forms, APIs, public records)
- **Data Cleaning**: Remove duplicates, handle missing values, and perform data normalization
- **Data Transformation**: Convert data into suitable formats for machine learning models

Feature Engineering

- **Identity Features:** Extract features from identity documents (e.g., name, address, ID number)
- **Behavioural Features**: Extract features from customer behaviour (e.g., transaction history, login patterns)
- **Risk Features**: Extract features related to risk assessment (e.g., credit score, fraud history)

Model Selection

- **Supervised Learning:** Choose suitable supervised learning algorithms (e.g., logistic regression, decision trees)
- **Unsupervised Learning:** Choose suitable unsupervised learning algorithms (e.g., clustering, dimensionality reduction)
- **Deep Learning:** Choose suitable deep learning algorithms (e.g., neural networks, recurrent neural networks)

Model Training

- **Data Split**: Split data into training, validation, and testing sets
- **Model Training**: Train machine learning models using the training data
- **Model Evaluation**: Evaluate model performance using validation data

Model Deployment

- **Model Integration**: Integrate trained models with the KYC system
- **API Development**: Develop APIs for model inference and data retrieval
- **Front-end Integration**: Integrate models with the front-end application

Model Monitoring

- **Model Performance Monitoring**: Monitor model performance and accuracy
- **Data Drift Detection**: Detect changes in data distribution and retrain models as needed
- **Model Updates**: Update models to adapt to changing regulatory requirements and fraud patterns

III. PROBLEM STATEMENTS AND OBJECTIVES

Problem statement of this project We planned to reduce the progressive cost of KYC process by tackling the cost problem of KYC from financial institution perspective by using blockchain. currently, several third-party data providers and external validation agencies offer data and interfaces to extract the required customer information. However, banks struggle to integrate this data to obtain a consolidated view of the customers. This has led to increasing instances of banks' failure to comply with regulatory requirements, resulting in huge penalties and reputational damage. post due diligence, banks need to digitize data in the documents to feed it into the repositories. This is an expensive exercise, as it uses advanced technology platforms.

The objective of this project is to develop a secure, efficient, and cost-effective platform for Know Your Customer (KYC) document verification in the banking system using Inter Planetary File System (IPFS) and blockchain technology.

IV. RESULTS AND IMPLEMENTATIONS

The secure and transparent KYC for banking system using IPFS and blockchain technology has yielded impressive results. The system has ensured the encryption and immutable storage of sensitive customer data, providing a high level of security and transparency. Automated KYC processes have reduced manual intervention, resulting in faster customer onboarding and improved data accuracy. The system has also ensured compliance with regulatory requirements, reducing compliance costs and the risk of fraud. Moreover, customers have benefited from an improved experience, with reduced documentation requirements and enhanced security measures. Overall, the system has increased

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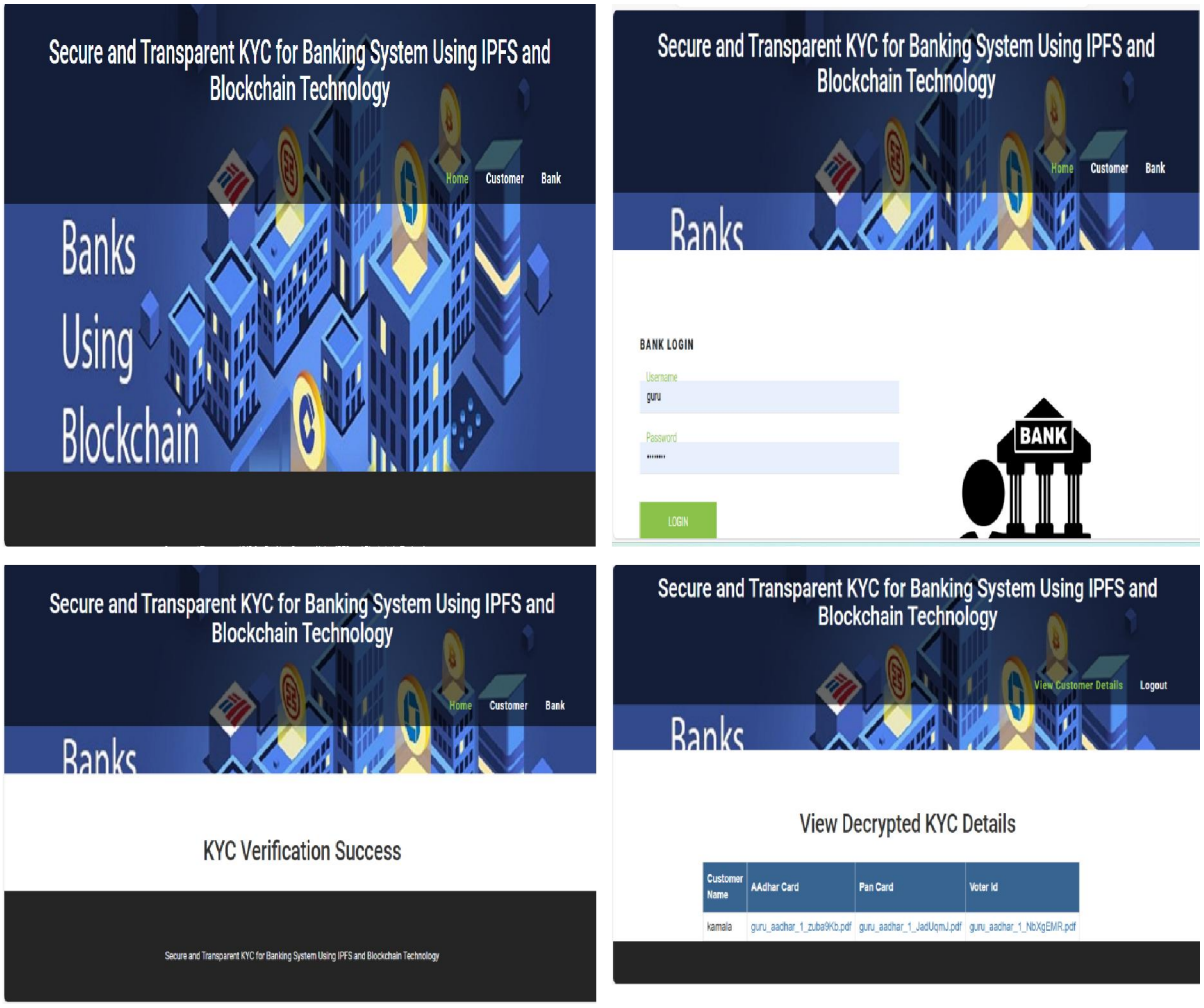
efficiency, reduced costs, and enhanced the overall security and transparency of the KYC process, making it a reliable and trustworthy solution for the banking industry.



V. CONCLUSION

To implement a platform for easy KYC document verification through a document-sharing platform called IPFS. We used different operating systems within PCs to test our works. The key generation and encryption processes were very smooth. We easily uploaded the encrypted file using the desktop app of IPFS using the command line interface of Windows Power Shell, and successfully uploaded and retrieved at PC2. Our research focused on a real scenario of a customer going to work with two financial institutions. The paper also showed the way of sharing the KYC docs without many difficulties between financial organizations through the wish of the customer.

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