

Blockchain Technology in the Financial Sector to Increase Scalability

M.Anitha¹, Y.Naga Malleswara Rao²,G.Poornima³

#1 Assistant Professor & Head of Department of MCA, SRK Institute of Technology, Vijayawada.

#2 Assistant Professor of MCA Department in SRK Institute of technology in Vijayawada.

#3 MCA In SRK Institute of Technology, Vijayawada Enikepadu.

ABSTRACT_ Blockchain based crypto based currencies have made it possible to implement a fund transfer system in a more efficient, hassle-free and secure way. The present banking system contains human intervention at many stages wherein system users can modify bank details, bank balance in a fraudulent way. In the classical banking system, users have to wait for a longer time to deposit and withdraw mone. Now-a-days all business or common peoples are heavily dependent on banking system to manage their financial services

1.INTRODUCTION

Several data breaches in the financial sector have been seen recently. Developers are extorting banks for vast sums of money due to the security risk in the monetary system. The monetary system is also always becoming better. Certainly, making transactions still sometimes requires a great deal of guesswork, even in the twenty-first century. The goal of this article is to dissect the Blockchain and identify potential applications in the financial sector. It will show how the use of the Blockchain may improve the safety of the financial industry and speed up transactions. The purpose of this paper is to educate the government and financial leaders of the area on the importance of blockchain technology and its potential applications in the region. As a go-between for many types of transactions, every sector is susceptible to fraud, crashes, and cyberattacks. Most monetary systems rely on a central database, making them vulnerable to infiltration assaults that

might compromise sensitive customer information. Furthermore, with regards to the services provided by the bank, the customer is obligated to pay the sum mentioned before. As a general rule, the bank should keep track of the vast amount of data pertaining to each customer and the relative variety of limiting details for each client. The development of blockchain technology provides a remedy for the problems with the current standard industry. With the 2008 publication of "Bitcoin: A Circulated Electronic Cash System" by anonymous developer Satoshi Nakamoto, blockchain development got underway. In 2016, the World Economic Forum (WEF) expressed the belief that blockchain technology could revolutionize financial institutions by creating a transparent link between buyers and sellers. An immutable distributed ledger that chronologically records transactions is called a blockchain. Innovations in blockchain technology are opening up new options for individuals to transact with money and values, which may

dramatically alter the financial services sector as a whole. One such innovation that uses mathematical and financial assumptions to facilitate cross-user database management is the blockchain. Several data breaches in the financial sector have been seen recently. Developers are extorting banks for vast sums of money due to the security risk in the monetary system. The monetary system is also always becoming better. Certainly, making transactions still sometimes requires a great deal of guesswork, even in the twenty-first century. The goal of this article is to dissect the Blockchain and identify potential applications in the financial sector. It will show how the use of the Blockchain may improve the safety of the financial industry and speed up transactions. The purpose of this paper is to educate the government and financial leaders of the area on the importance of blockchain technology and its potential applications in the region. As a go-between for many types of transactions, every sector is susceptible to fraud, crashes, and cyberattacks. Most monetary systems rely on a central database, making them vulnerable to infiltration assaults that might compromise sensitive customer information. Furthermore, with regards to the services provided by the bank, the customer is obligated to pay the sum mentioned before. As a general rule, the bank should keep track of the vast amount of data pertaining to each customer and the relative variety of limiting details for each client. The development of blockchain technology provides a remedy for the problems with the current standard industry. With the 2008 publication of "Bitcoin: A Circulated Electronic Cash System" by anonymous developer Satoshi Nakamoto, blockchain development got

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without the interest of any central power. It is a dependable scattered informational collection, change clear, wherein the practicality of a trade can be checked by parties in the trade. Each social event of these trades is given out to as a "block". A Block records some or the sum of the continuous trades and goes into a blockchain as a very solid record at whatever point it is done. The upside of Blockchain is that financial trades at absolutely no point in the future need any central power and are quickly endorsed, cleared and settled. Blockchain advancement emerge to be an improvement which ensures a tremendous

change for capital business areas and other money related organizations. Blockchain may be a decentralized record accustomed securely exchange modernized cash, perform plans and trades. Each person from the association moves toward the boss late copy of mixed record so as that they will endorse another trade. Blockchain record probably could be a social occasion of all Bitcoin trades executed inside the past. Essentially, it's a coursed informational collection which keeps a continually creating fixed affiliation blocks which holds bunches of individual trades. The finished blocks are incorporated a staggeringly particularly straight and successive solicitation. There is a timestamp and data interface in each block that points to the block before it. Financial institutions and banks are using Blockchain technology to reduce risk and block sophisticated forms of blackmail. In any case, a block will always have one parent, and several children might cause havoc by holding the same hash inside the previous block's hash field. An extensive chain comprising the chief block dubbed the Starting block is formed by accumulating the hashes identifying individual blocks with their parents. Each block carries the hash of the parent block in its own header. Because Bitcoin is a decentralised, permissionless network, any user may join the network and transmit transactions to verify and create new blocks. One common coursed structure that has the potential to address the challenges faced by conventional businesses is the blockchain development. The mixed restrictive nuances share the ambiguous timing with a group of blocks. The association's nodes—the earthmovers—are responsible for sequentially soliciting the blocks, with

each block including the hash of the block created before it within the chain. The hash values are the numerical representation of each block and are dependent on two factors: the previous block's hash value and the limiting condition. This may be accomplished using several hashing algorithms, such as SHA256 and RSA. Overall, it provides a fair effort toward health in a highly transparent record, as even a little alteration to any of the two components will impact the automated mark throughout the blockchain

2. LITERATURE SURVEY

1. Title: "Decentralized Banking Systems: A Comprehensive Survey"

Abstract: This paper provides a comprehensive survey of decentralized banking systems leveraging blockchain technology. We review existing literature and research on the design, implementation, and applications of decentralized banking systems, focusing on key topics such as architecture, features, security, scalability, and regulatory compliance. Through a systematic analysis of academic papers, conference proceedings, and industry reports, we identify common themes, challenges, and opportunities in the field of decentralized finance (DeFi). Our survey covers various aspects of decentralized banking systems, including blockchain platforms, consensus mechanisms, smart contracts, user authentication, payments and transfers, lending and borrowing, asset management, and regulatory compliance. We also discuss emerging trends, innovative approaches, and future research directions

to advance the development and adoption of decentralized banking systems worldwide.

2. Title: "Blockchain-Based Decentralized Banking: A Review of Platforms and Applications"

Abstract: This review paper examines the landscape of blockchain-based decentralized banking platforms and their applications in the financial services industry. We analyze the features, capabilities, and limitations of prominent blockchain platforms, including Ethereum, Hyperledger Fabric, Corda, and Binance Smart Chain, for building decentralized banking systems. Drawing on insights from academic research, whitepapers, and industry case studies, we explore the use cases and functionalities of decentralized banking systems, such as account management, payments and transfers, lending and borrowing, asset tokenization, and identity verification. By synthesizing existing literature and examining real-world implementations, we provide valuable insights into the opportunities and challenges of decentralized banking using blockchain technology, paving the way for the future of finance.

3. Title: "Regulatory Challenges and Compliance Considerations in Decentralized Banking Systems"

Abstract: This paper investigates the regulatory challenges and compliance considerations associated with

decentralized banking systems built on blockchain technology. We analyze the regulatory landscape governing decentralized finance (DeFi), including anti-money laundering (AML), know your customer (KYC), and financial reporting requirements. Through a review of academic literature, regulatory guidelines, and industry reports, we examine the implications of decentralized banking for financial regulators, institutions, and users. We discuss strategies and best practices for integrating regulatory compliance measures into decentralized banking systems, such as identity verification procedures, transaction monitoring, reporting mechanisms, and legal frameworks. Our analysis sheds light on the complexities of navigating regulatory requirements in the context of decentralized finance, offering insights for policymakers, practitioners, and researchers seeking to promote innovation while ensuring financial stability and consumer protection.

3. PROPOSED SYSTEM

To overcome from above existing banking issues we are employing Blockchain technology to manage financial services which provide solutions to all above issues

Faster transaction: transaction will be update in no time

Not possible any type of data tamper: Blockchain has inbuilt support for data verification with the help of hashcode. Blockchain store each transaction in the form of blocks and associate each block with unique hashcode. While storing new transaction Blockchain will verify hashcode of each block and if any block

6) View Balance: can view list of transaction and current available balance

data alter then hashcode will get changed and data tamper will be detected.

Blockchain store each transaction in a decentralized distributed format which mean multiple peers will be aware of same transaction and if one peer down then data can be access from other working peers. In traditional banking system single centralized server will be running and if this server down then entire services will be disturbed.

3.1 IMPLEMENTATION

Admin Modules

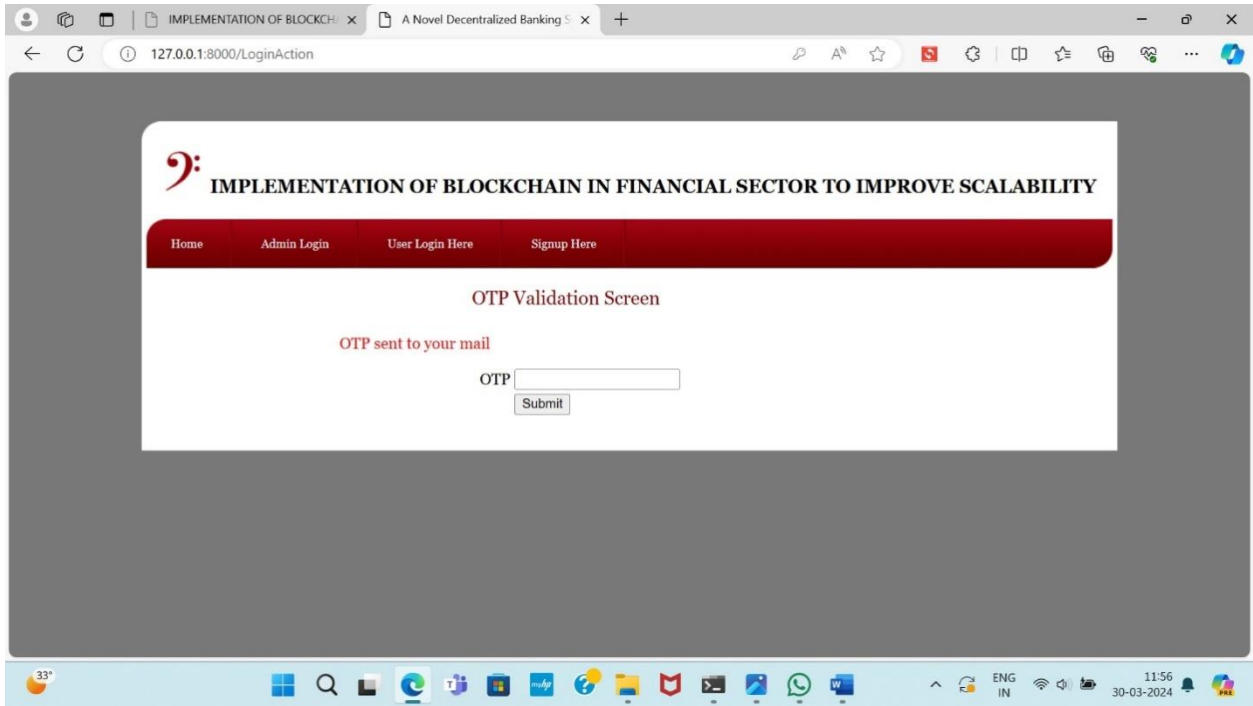
Admin can login to system using username and password as 'admin' and 'admin' and after login admin can view list or registered users. Admin can add various Crypto currency Assets manage by bank such as Ethereum, USD Coin, Bitcoin and many others

User Modules

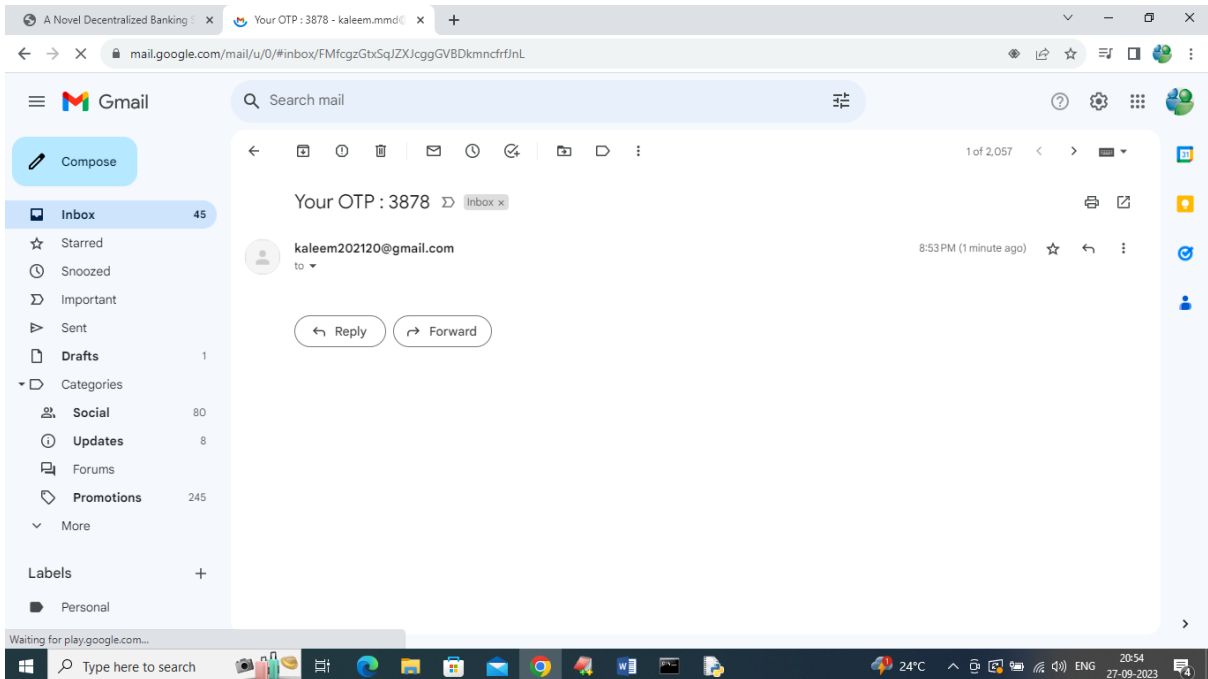
- 1) User signup: using this module new users can signup with the application
- 2) User Login: using this module user can login to application and then OTP will send to mobile for further validation. After successful validation user can perform below operations
- 3) Wallet Managements: using this module user can add dummy amount and this transaction will get stored in Blockchain and using this amount user can perform bill payment (Payments Management), fund transfer.
- 4) Fund Transfer: using this module user can transfer fund from his account to other accounts
- 5) Payment Management: using this module can make utility bill payments

4.RESULTS AND DISCUSSION

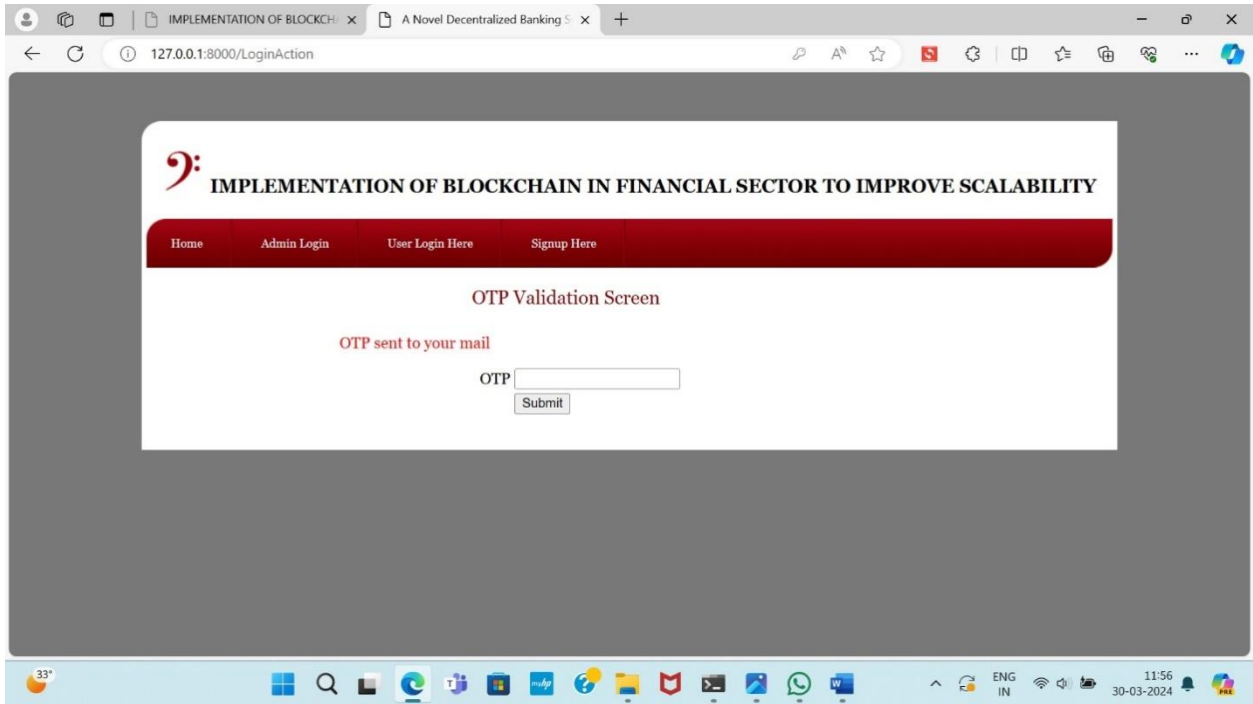
In above screen user is login and after login will get below OTP screen



You may see the One-Time Password (OTP) that was issued to your registered email ID (GMAIL) on the page below.



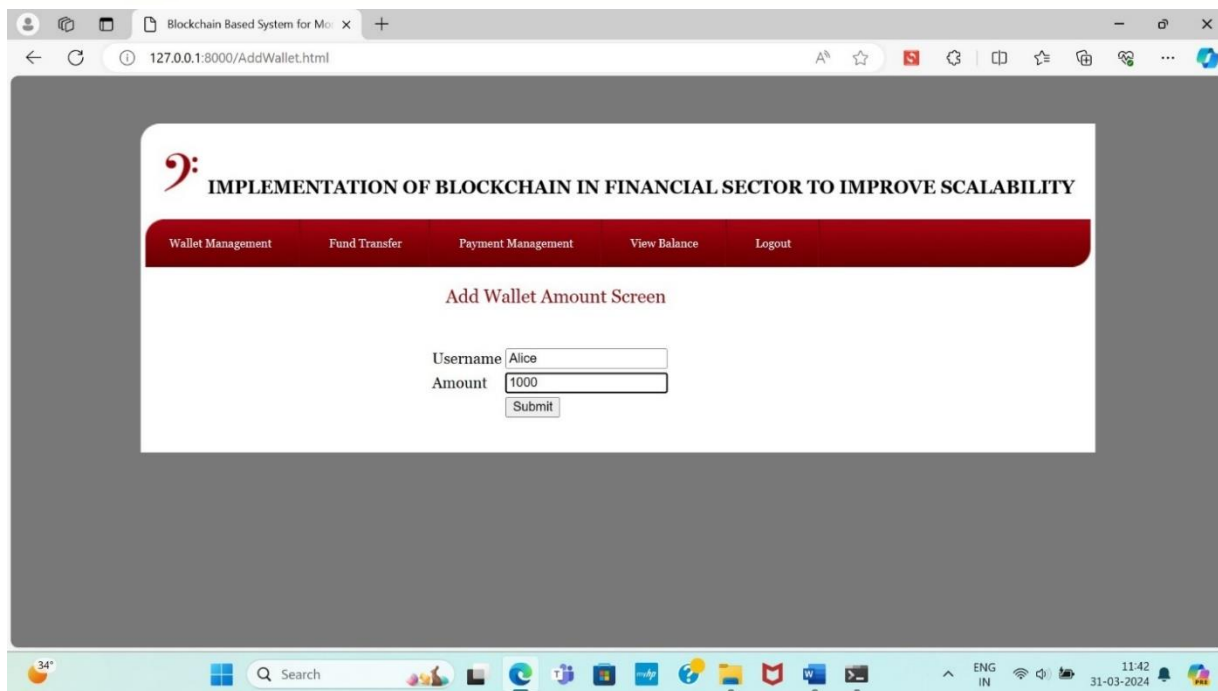
In above screen we got OTP as 3878 and below is the validation screen



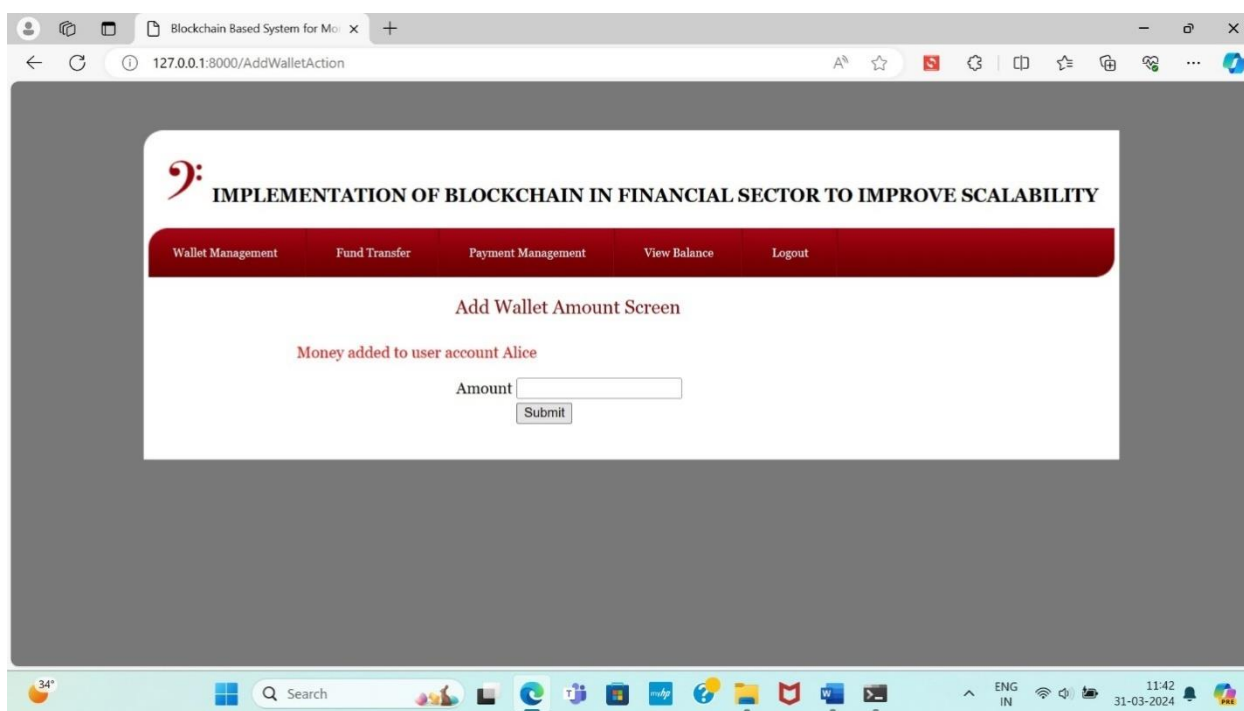
In above screen entering OTP to get below page user home page



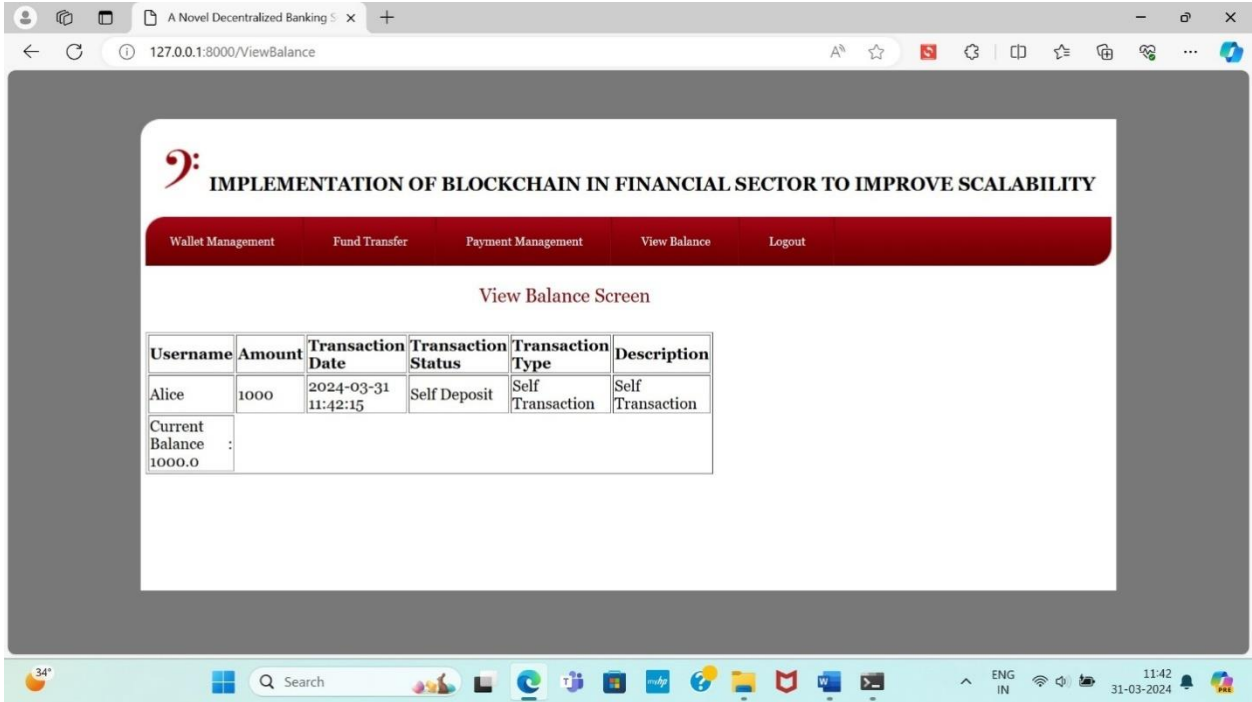
In above screen user can click on 'Wallet Management' link to add crypto amount to wallet and get below page



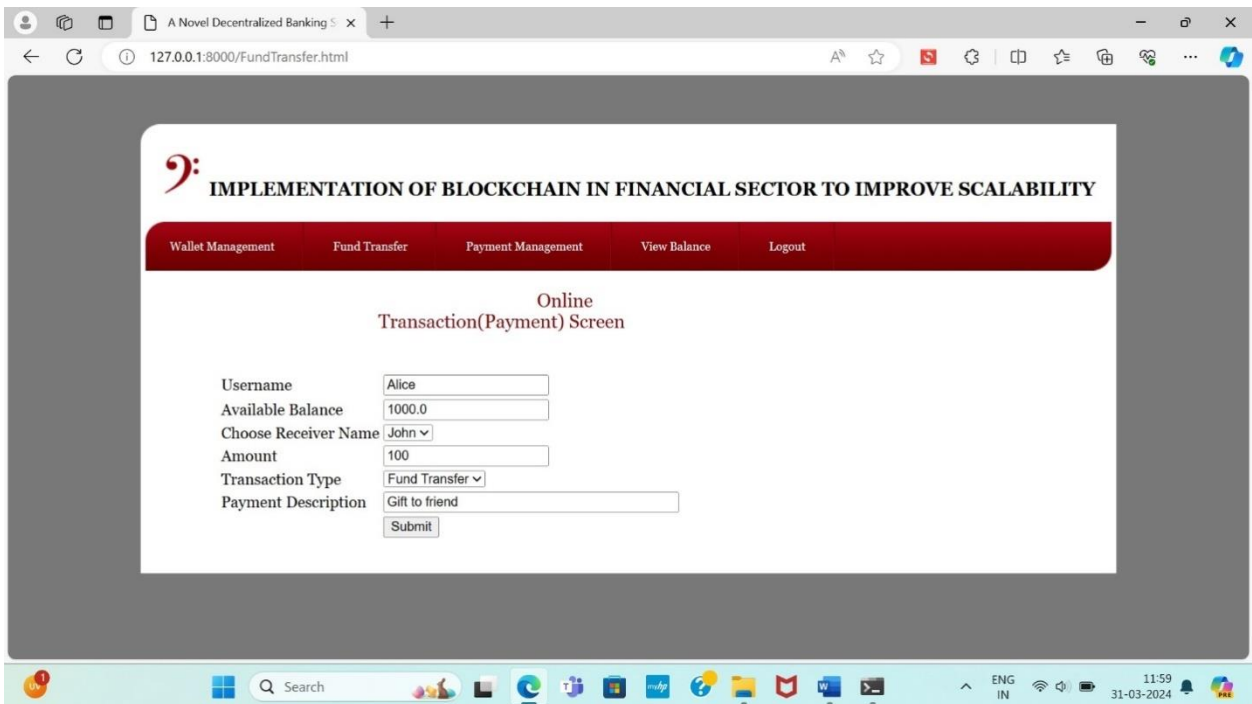
In above screen user is adding some amount to wallet and after adding will get below page



In above screen wallet filled with amount and now click on 'View Balance' link to view available balance



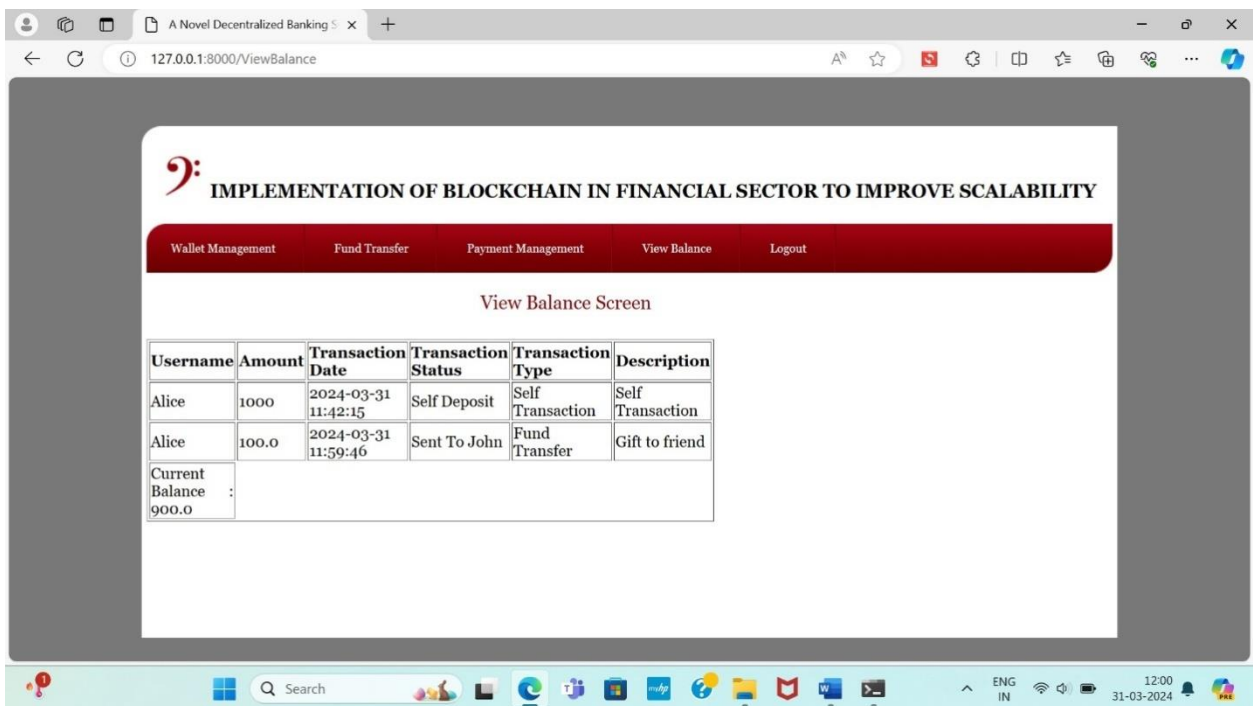
In above screen user can view his available balance with complete transaction details and now click on 'Fund Transfer' link to transfer fund to other account



In above screen sender can select receiver name and then enter transfer amount and then press button to get below page



In above screen in red colour text can see fund transferred and now click on ‘View Balance’ link to view balance



In above screen after 5000 coin transferred then balance drop to 5000 and john can login and see 5000 deposited and now click on ‘Payment Management’ link to pay bills like below screen

5.CONCLUSION

Blockchain technology has recently caused major shifts in the banking industry. Blockchain technology eliminates the need for intermediaries by allowing decentralized groups to agree on the state of a data collection. Financial services, such as installments, may be provided via blockchain technology without the need for a third party, such as a bank. The decentralized ledger of payments made on the blockchain allows for faster instalments at less costs than banks. Security tokens, bonds, and optional resources are established on public blockchains. Firms' capital becomes more productive as a result. A new idea that uses a sequential arrangement of blocks is known as blockchain technology. To reduce risk and avoid cyber fraud, banking and financial institutions are using technologies based on the Blockchain. The database that stores the transaction data is highly dispersed. As an intermediary in financial transactions, the banking sector is vulnerable to fraud, accidents, and cyberattacks. By using blockchain technology, a middleman is no longer needed. Since the majority of banking systems rely on centralized databases, these systems are more vulnerable to penetration attempts that might jeopardize the personal information of bank customers. Customer data must be carefully guarded against the ever-increasing threat of hackers in order for banking as a service to remain operational. One possible solution to the problem with the current financial system is the peer-to-peer distributed ledger technology known as blockchain.

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Author profiles



M.Anitha Working as Assistant & Head of Department of MCA ,in SRK Institute of technology in Vijayawada. She done with B .tech, MCA ,M. Tech in Computer Science .She has 14 years of Teaching experience in SRK Institute of technology.



Y.Nagamalleswara Rao working as Assistant Professor of MCA Department in SRK Institute of technology in Vijayawada. He done with MSC(IS),M.Tech in Computer Science and engineering. He has 7years of teaching experience.



G.Poornima From MCA In SRK Institute of Technology, Vijayawada Enikepadu.