



JAWAHAR EDUCATION SOCIETY'S  
**A. C. PATIL COLLEGE OF ENGINEERING**  
PLOT NO-17, SEC-4, KHARGHAR, NAVI MUMBAI - 410210  
Approved by AICTE, New Delhi, Affiliated to University of Mumbai



Sachin Bade  
Yash Shirsath  
Vedant Bhosale  
Naresh Choudhary

# BCT MINI PROJECT - CRYPTOBANK

# Introduction to Blockchain Technology

Exploring the foundations of secure transactions



## Decentralized ledger system

Blockchain operates as a decentralized ledger, enhancing security and transparency in transactions.

## Rise of cryptocurrencies

The emergence of cryptocurrencies has highlighted the importance of blockchain for peer-to-peer transactions.

## Project aim

The goal is to develop a secure decentralized application, Crypto Bank, for managing financial transactions.

## Secure transactions

- Blockchain technology enables secure transactions, reducing the risk of fraud in financial dealings.

## Transparency

- Every transaction is recorded on the blockchain, promoting transparency and accountability.

# Motivation for Decentralized Finance

Addressing Vulnerabilities in Digital Transactions

## Growing Demand for Security

As digital transactions increase, the need for robust security mechanisms is paramount.

## Decentralized Solutions

Decentralized financial solutions like Crypto Bank offer enhanced security and trust.

## Centralized Banking Vulnerabilities

Recent breaches have exposed significant vulnerabilities in traditional banking systems.

## Need for Transparency

Transparency in digital finance is crucial to build trust among users.

## \$27 Billion in Exploitation

Elder financial exploitation has resulted in approximately \$27 billion in losses over a year.





# OBJECTIVES OF CRYPTO BANK

Key Goals for a Secure Blockchain Application



## Develop a blockchain-based application

Focus on creating an application that ensures secure transactions using blockchain technology.



## Implement key functionalities

Features include mining, transaction validation, and viewing the blockchain to support user activities.

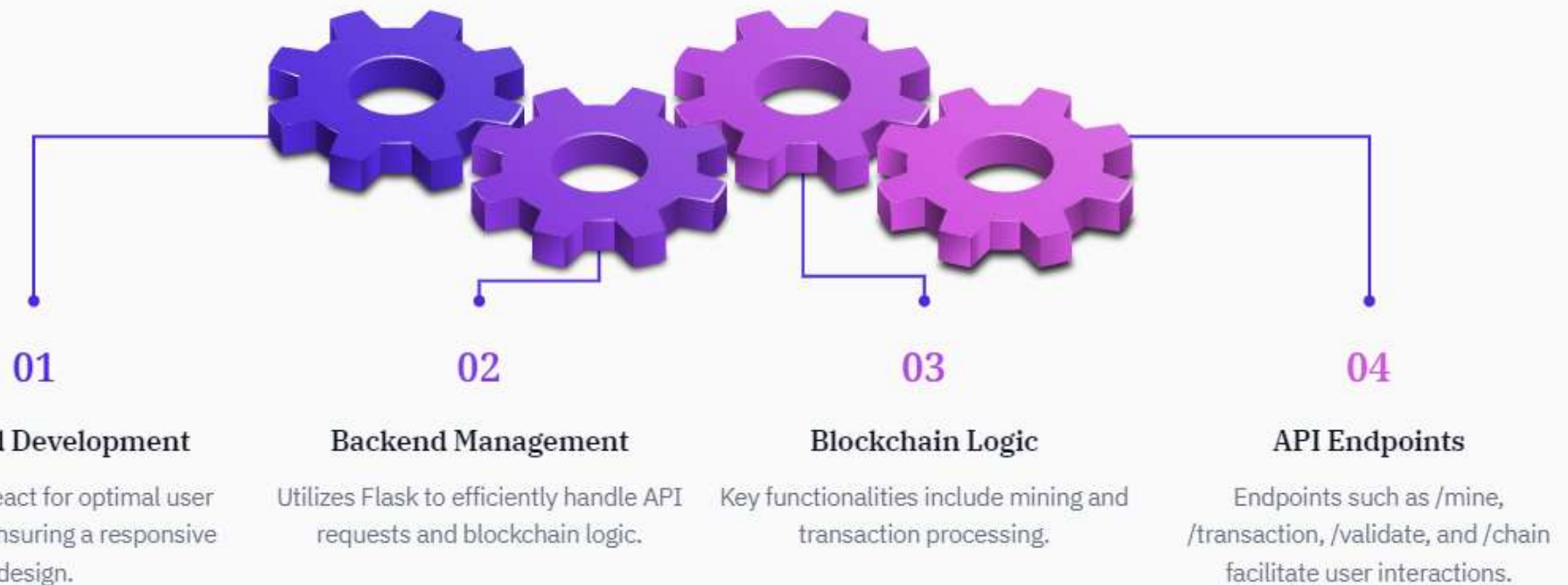


## Create an intuitive user interface

Design a user-friendly interface that allows seamless interaction with the blockchain for all users.

# Architecture Overview

A Deep Dive into the Crypto Bank Structure



# Key Features of Crypto Bank

Explore the essential functions of our decentralized application

## Create and Manage Transactions

Users can easily initiate and oversee transactions within the secure platform.



## Validate Blockchain Integrity

Ensures that all transactions are legitimate and the blockchain remains unaltered.



## Mine New Blocks

Enhance the blockchain by mining blocks, which secures and validates network transactions.



## User-Friendly Interface

A seamless interface designed for effortless navigation and interaction with the application.



```
{
  "message": "New block mined successfully!",
  "block": {
    "index": 1,
    "transactions": [...],
    "proof": 12345,
    "previous_hash": "abcdef..."
  }
}
```



# Application Demonstration

- A live showcase of Crypto Bank's features and user interactions.

```
<  →  ↻  127.0.0.1:5000

Yash Shirsath's Blog  DigiLocker  Yash Shirsath | Link...  2K+  Discord  Yash Ashok Shirsath...  GitHub  PNR status and Wai...

{
  "message": "Welcome to Crypto Bank!"
}
```

```
<  →  ↻  127.0.0.1:5000/mine

Yash Shirsath's Blog  DigiLocker  Yash Shirsath | Link...  2K+  Discord  Yash Ashok Shirsath...  GitHub  PNR status and Wai...

{
  "index": 2,
  "message": "New block mined!",
  "nonce": 100,
  "previous_hash": "8ac2cdc2b7122905b6066196a300aef7208c97b304fee743a20cde1b4eff0098",
  "transactions": []
}
```

```
<  →  ↻  127.0.0.1:5000/chain

Yash Shirsath's Blog  DigiLocker  Yash Shirsath | Link...  2K+  Discord  Yash Ashok Shirsath...  GitHub  PNR status and Wai...

{
  "chain": [
    {
      "index": 1,
      "nonce": 100,
      "previous_hash": "1",
      "timestamp": 1728922424.8792603,
      "transactions": []
    },
    {
      "index": 2,
      "nonce": 100,
      "previous_hash": "8ac2cdc2b7122905b6066196a300aef7208c97b304fee743a20cde1b4eff0098",
      "timestamp": 1728922475.7552528,
      "transactions": []
    }
  ],
  "length": 2
}
```

```
<  →  ↻  127.0.0.1:5000/validate

Yash Shirsath's Blog  DigiLocker  Yash Shirsath | Link...  2K+  Discord  Yash Ashok Shirsath...  GitHub  PNR status and Wai...

{
  "message": "Blockchain is valid."
}

{
  "sender": "Alice",
  "recipient": "Bob",
  "amount": 10
}
```



# Conclusion and Future Enhancements

Advancing Decentralized Finance with Crypto Bank

## Significant Advancement

The Crypto Bank application represents a major step in decentralized finance.

## Blockchain Technology Importance

Emphasizes the critical role of blockchain in today's financial landscape.

## Improved Security Measures

Focus on enhancing security to protect user data and transactions.

## Future Enhancements

Plans to introduce additional features to enhance user experience.

04

03

01

02

