DEPARTMENT OF APEX INSTITUTE OF TECHNOLOGY

PROJECT PROPOSAL

1. Project Title: - Blockchain for Secure Voting Systems

2. Project Scope: -

The project aims to design and implement a secure, transparent, and decentralized voting system using blockchain technology, specifically Ethereum. This system will address common electoral issues such as voter fraud, tampering, and lack of transparency. The scope includes:

1. User Authentication: Implement a secure login system to ensure only registered voters participate.
2. Candidate Registration & Election Setup: Allow administrators to register candidates and define voting periods.
3. Real-time Voting & Immutability: Enable voters to cast votes with instant, verifiable results stored on an immutable blockchain ledger.
4. Transparency & Security: Ensure transparency by making the voting process publicly auditable while safeguarding voter privacy.
5. Scalability: Design the system to handle large-scale elections while maintaining performance and security.

This system will serve as a prototype for blockchain-based voting solutions, demonstrating the potential to replace traditional voting mechanisms with a more secure and transparent alternative.

3. Requirements: -

1. **Blockchain Platform**: Use Ethereum for decentralized, immutable vote recording.
2. **Smart Contracts**: Develop smart contracts to handle vote casting, counting, and election validation.
3. **Authentication System**: Secure voter registration and login system (e.g., voter ID and password).
4. **Candidate Registration**: Admin functionality to add and manage candidates.
5. **User Interface**: Simple, intuitive web interface for both voters and admins.
6. **Security**: Implement end-to-end encryption to protect voter data and ensure privacy.
7. **Transparency**: Provide real-time vote results that are publicly auditable.
8. **Database**: Store metadata like user credentials and candidate info securely.
9. **Testing Framework**: Create unit and integration tests for system reliability.
10. **Voting Period Control**: Admin control over election dates and periods.

These requirements ensure a robust and secure voting system with transparency and integrity sing blockchain technology.

4. Problem Statement:

Traditional voting systems are vulnerable to a range of security issues such as fraud, tampering, and lack of transparency. In many cases, the integrity of elections can be compromised due to centralized data storage, inadequate verification processes, and human error. These challenges raise concerns over voter trust and election fairness. A secure, transparent, and tamper-proof voting system is needed to ensure the integrity of the electoral process.

This project aims to address these issues by leveraging blockchain technology, which provides decentralized, immutable, and transparent data storage, combined with secure smart contracts and cryptographic methods to safeguard the voting process from fraud and tampering.

STUDENTS DETAILS

Name	UID	Signature
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APPROVAL AND AUTHORITY TO PROCEED

We approve the project as described above and authorize the team to proceed.

Name	Title	Signature (With Date)
NIRMALYA BASU	Blockchain for Secure Voting Systems	