Certificate Verification Portal

Abdel Taeha: Front End Development, Website Functionality, User Interface Design, Web3 Integration, User Experience Testing, Deployment.

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The Verification Challenge

Slow Process

Traditional verification is often slow and prone to fraud. Manual processes lead to delays and costs.

Security Risks

Centralized databases are vulnerable to tampering. Lack of transparency makes authenticity verification difficult.

Inefficiency

Current systems require multiple intermediaries. This creates bottlenecks in the verification workflow.

The Future of Certificate Verification

Enhanced Security

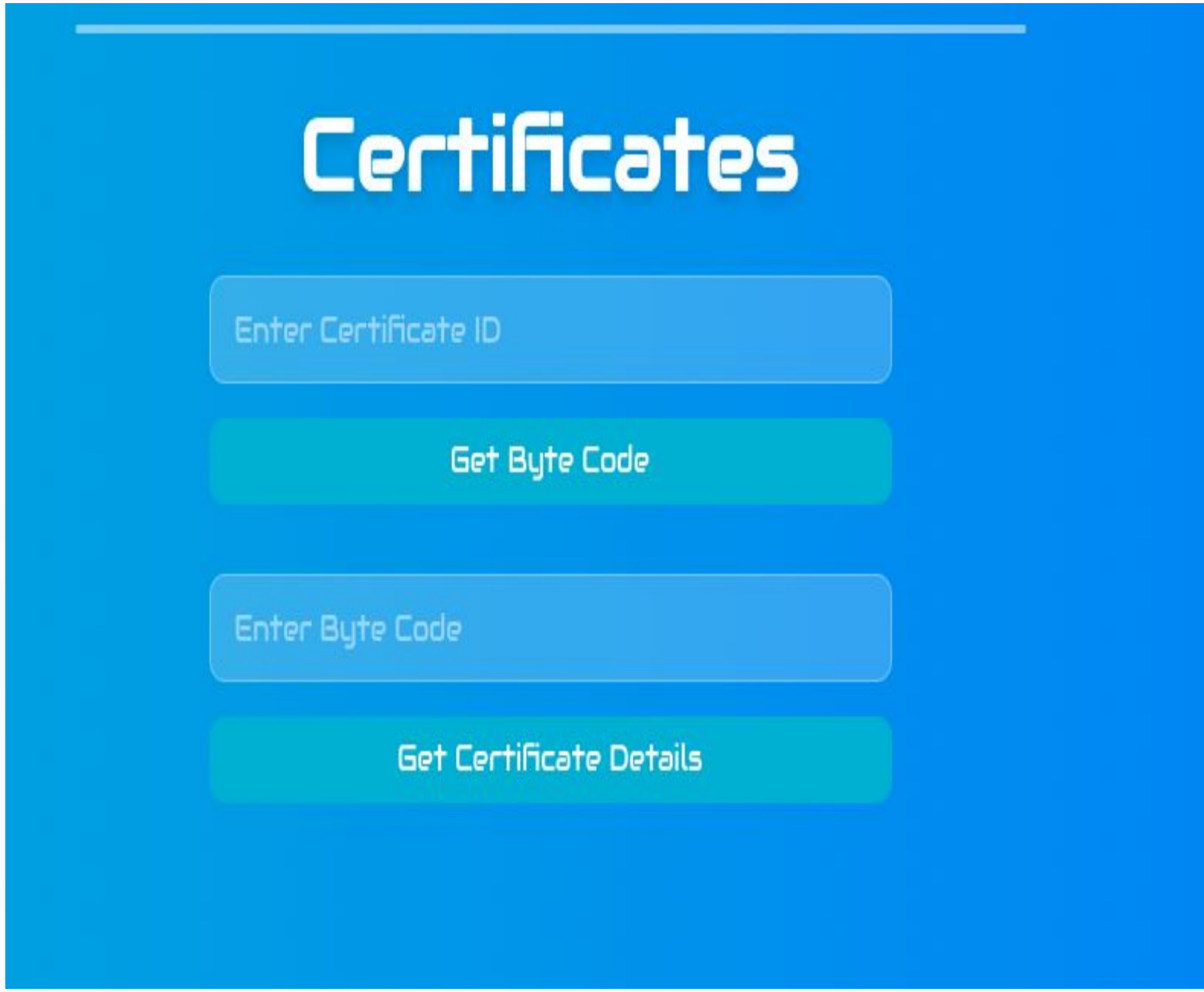
Blockchain-based security prevents fraud and tampering.

Streamlined Process

Automated verification reduces time and administrative burden.

Global Accessibility

24/7 verification from anywhere in the world.



Certificates

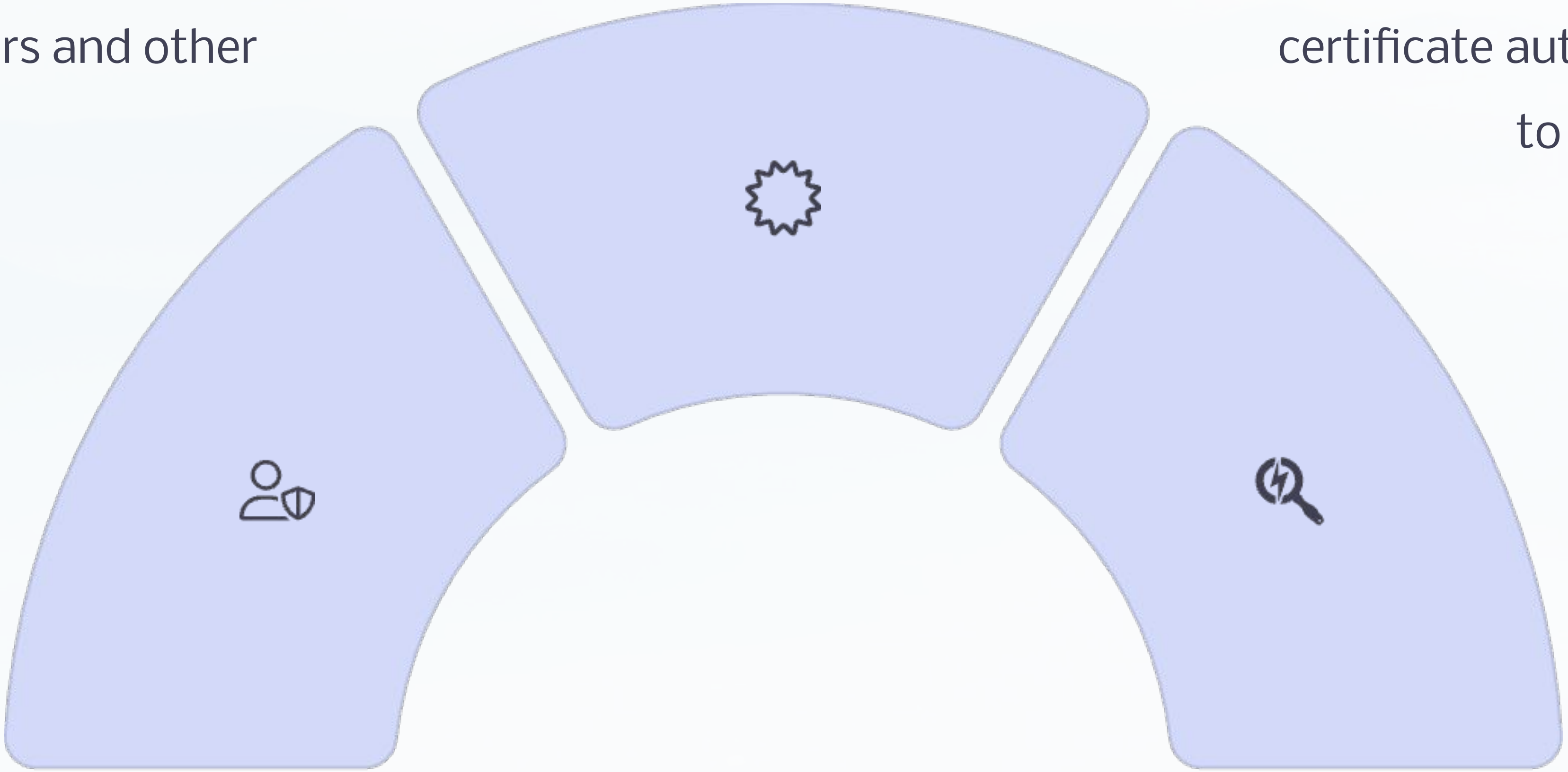
Enter Certificate ID

Get Byte Code

Enter Byte Code

Get Certificate Details

System Actors



Admins

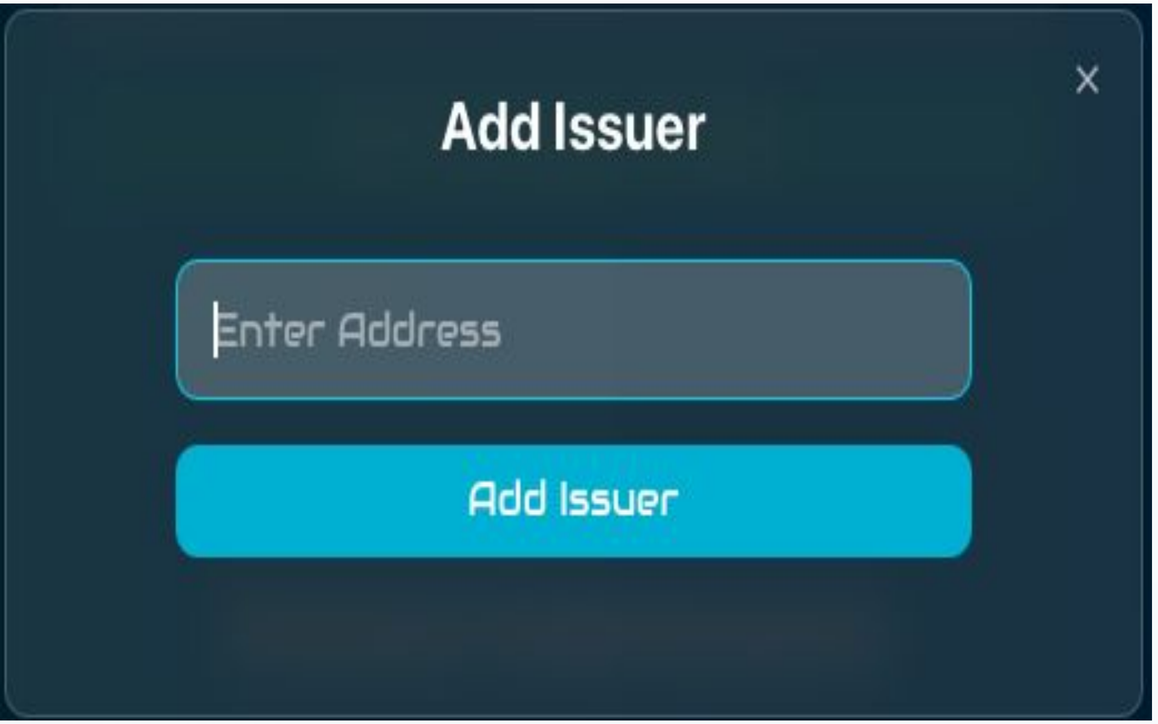
System managers with full control. Can add/remove issuers and other admins.

Issuers

Educational institutions that issue new certificates. Can revoke certificates and issue certificates when necessary.

Verifiers

Employers and institutions that verify certificate authenticity. Public access to verification.


Add Issuer

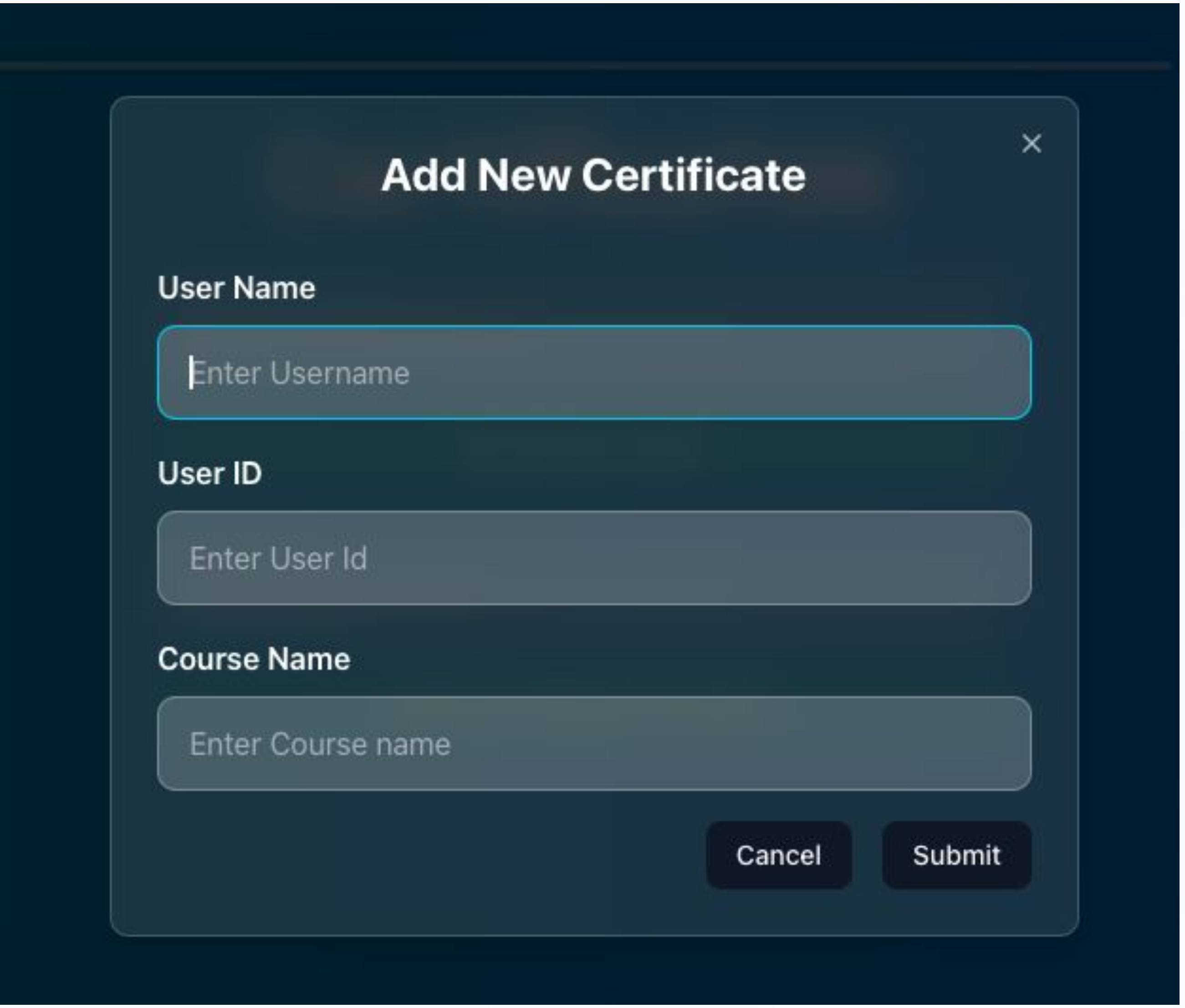
Functionality: Certificate Issuers

Securely upload certificates on the blockchain.

Generate verifiable credentials to share.

Maintain control over data and revoke access.

Functionality: Verifiers



Add New Certificate

User Name

Enter Username

User ID

Enter User Id

Course Name

Enter Course name

1

Instant Verification

Verify certificates in real-time with blockchain technology.

2

Enhanced Efficiency

Reduce manual workload with automated verification processes.

3

Minimize Fraud Risk

Significantly lower the potential for accepting falsified credentials.

User Access and Verification

Enter Certificate ID

Users input the unique identifier for the certificate they wish to verify.

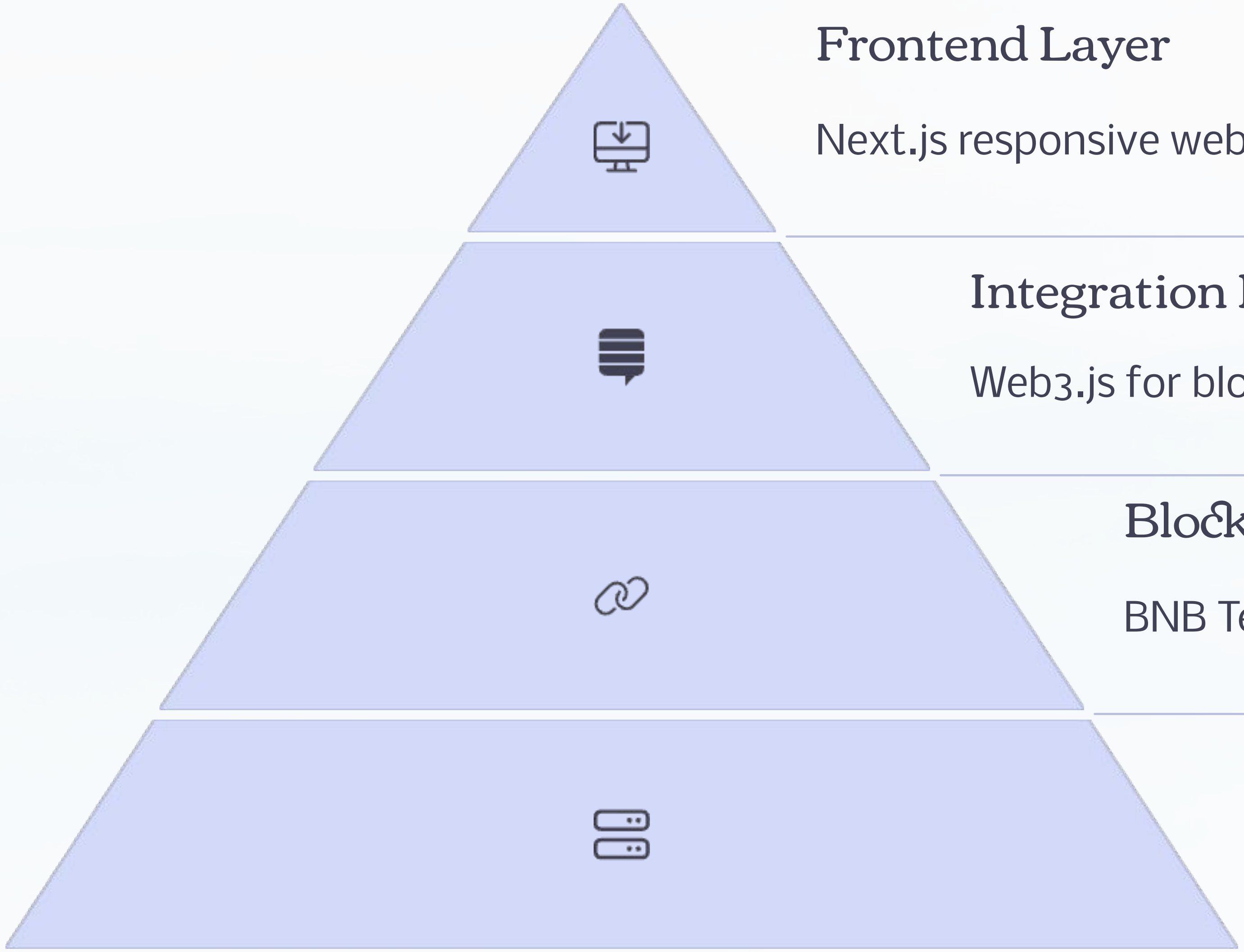
Get ByteCode

System retrieves the blockchain bytecode associated with the certificate ID.

Verify Certificate

ByteCode is processed to verify the certificate's authenticity and validity.

Tech Stack and System Architecture



Frontend Layer

Next.js responsive web application with MetaMask integration

Integration Layer

Web3.js for blockchain communication and IPFS for storage

Blockchain Layer

BNB TestNet with Solidity smart contracts

Data Storage

On-chain validation data and off-chain certificate content

Key Smart Contract Functions

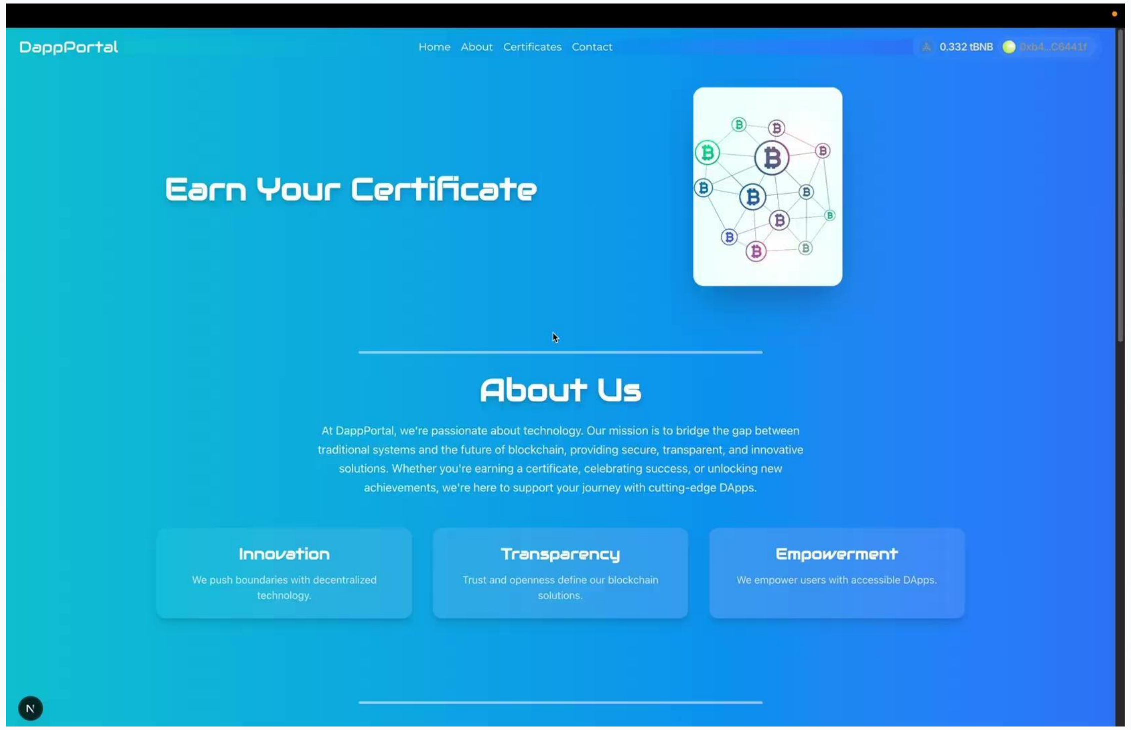
```
// Admin Management
function addAdmin(address _admin) public onlyAdmin {
 require(!admins[_admin], "Already an admin");
 admins[_admin] = true;
 emit AdminAdded(_admin, msg.sender);
}
// Issuer Management
function addIssuer(address _issuer) public onlyAdmin {
 require(!issuers[_issuer], "Already an issuer");
 issuers[_issuer] = true;
 emit IssuerAdded(_issuer, msg.sender);
}
```

Certificate Verification

```
function verifyCertificate(string memory _certificateId) public
view returns (
  bool exists,
  string memory recipientName,
  string memory courseName,
  address issuer,
  uint issuanceDate,
  bool isValid
) {
  Certificate memory cert = certificates[_certificateId];
  return (
  bytes(cert.certificateId).length > 0,
  cert.recipientName,
  cert.courseName,
  cert.issuer,
  cert.issuanceDate,
  cert.isValid
```

Demonstration Video

https://drive.google.com/file/d/16b-FySIS2oLSAWIwdBk0QNy5l1ujrlJE/view?usp=share_link



Earn Your Certificate

About Us

At DappPortal, we're passionate about technology. Our mission is to bridge the gap between traditional systems and the future of blockchain, providing secure, transparent, and innovative solutions. Whether you're earning a certificate, celebrating success, or unlocking new achievements, we're here to support your journey with cutting-edge DApps.

Innovation

We push boundaries with decentralized technology.

Transparency

Trust and openness define our blockchain solutions.

Empowerment

We empower users with accessible DApps.

Thank You

We hope this presentation has given you a clear understanding.

For further inquiries, please reach out to our team.