Blockchain-Based Certificate Verification Platform

Phase I - Project Analysis & Platform Sketching

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1. Project Overview

A platform to issue and verify academic certificates using blockchain. Issuers record a certificate hash on a local blockchain or a smart contract; verifiers or the public can validate authenticity by hash or QR.

2. Objectives

- Prevent certificate forgery
- Provide instant verification
- Keep auditable records while protecting privacy (hash only)

3. Roles

Issuer, Verifier, Admin, Public (read-only verification).

4. Functional Requirements

Registration/Login; Issue (SHA-256), Verify, Revoke; Admin management; Billing & analytics.

5. Non-Functional Requirements

Security (HTTPS, roles, audit logs), Privacy (hash only), Usability (clear UI), Scalability (modular).

6. Sitemap & User Flows

Auth -> Dashboards (Issuer/Verifier/Admin)

Issuer -> New Certificate -> Hash -> Publish

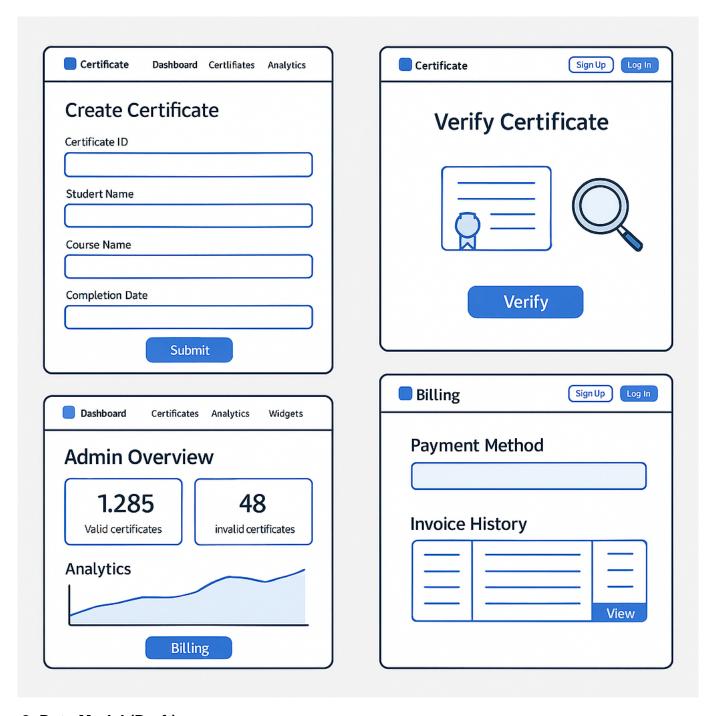Verifier/Public -> Enter Hash or Upload PDF -> Verify -> Result

7. Wireframes (Sketches)

BLOCKCHAIN-BASED CERTIFICATE VERIFICATION PLATFORM

Login

Email

Password

Log In

Reset Password

Verify certificates securely and prevent fraud

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Blockchain-Based Certificate Verification Platform

Dashboard

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	Valid Certificates			Revoked Certificates			Pending Requests
✓	123		✕	4		⊠	7

Recent Certificates

Name	Date Issued	Status
…	2024-04-15	Valid
…	2024-04-15	Valid
…	2024-04-15	Valid
…	2024-04-15	Valid

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8. Data Model (Draft)

User(id, name, email, role, org_id, status)

Organization(id, name, type, billing_plan, verified)

Certificate(id, student_name, student_id, program, issue_date, pdf_url?, hash, issuer_org_id, status, chain_tx)

Verification(id, requester_org_id, hash_submitted, method, result, checked_at)

Invoice(id, org_id, amount, currency, paid, created_at)

AuditLog(id, actor_user_id, action, target_type, target_id, meta, created_at)

9. Acceptance Criteria

- Issuer can issue a certificate and see it in the list.
- Public/Verifier can verify by hash and see correct status.
- Admin can view statistics and manage organizations.

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10. Conclusion

This document concludes Phase I (Analysis & Sketching). The platform is ready for implementation.