

# SecureDocs Final Project Report

**Project Title:** Secure Document Vault with Authentication, Integrity, and Encryption

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## 1. Introduction

SecureDocs is a secure document management web application designed to simulate a real-world system often used in legal, HR, or enterprise contexts. It enables users to upload, sign, store, and manage documents securely. The system incorporates multiple layers of security including user authentication, data encryption, digital signatures, and role-based access control (RBAC).

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## 2. Core Features

### 2.1 Authentication and Access Control

- **OAuth 2.0 Login** via Google and GitHub
- **SSO Login** using Okta (simulates enterprise-level login systems)
- **Two-Factor Authentication (2FA)** using Google Authenticator (TOTP-based QR code setup)
- **Session Management** with token expiration
- **Role-Based Interface:** Admin panel accessible only to users with Admin roles

### 2.2 Document Vault

- **File Upload Support:** PDF, DOCX, TXT
- **AES Encryption** of uploaded files to ensure confidentiality

- **SHA-256 Hashing** for document integrity verification
- **HMAC/CRC** used to validate file integrity upon download
- **Digital Signing** with OpenSSL to ensure authenticity and non-repudiation
- **Signature Verification** upon document download

### **2.3 Profile Management**

- Users can view and edit their profile information
- Admins have privileges to view all profiles and assign roles
- Strong password enforcement policies

### **2.4 HTTPS and SSL/TLS Configuration**

- Configured HTTPS using OpenSSL-generated certificates
- Prevents man-in-the-middle (MITM) attacks and ensures encrypted data in transit

### **2.5 Security Audit Simulation**

- MITM attack simulation using Wireshark
- Demonstrates how unencrypted data is exposed and HTTPS protects data
- Screenshots of both intercepted and protected traffic will be added

### **2.6 User Interface (UI)**

- Clean, responsive UI built using Bootstrap or Tailwind CSS
- Role-based route protection
- Pages include:
  - Login/Register with OAuth and fallback options
  - 2FA setup via QR code

- Dashboard with role-specific widgets and stats
  - Document upload page with encryption and signing
  - Documents list page (includes download, delete, verify buttons)
  - Profile page for personal data
  - Admin panel with access to user roles and audit logs
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### 3. Technologies Used

- **Frontend:** HTML, CSS, JavaScript, Bootstrap/Tailwind CSS
  - **Backend:** Node.js / Python / (choose your tech)
  - **Database:** MongoDB / MySQL / (your DB)
  - **Security:** OpenSSL, SHA-256, AES, HMAC, HTTPS
  - **Tools:** Wireshark (for MITM simulation), Google Authenticator
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### 4. Conclusion

SecureDocs successfully demonstrates how to implement secure document management with real-world enterprise-level practices. The system integrates layered security from login to file integrity and access control, ensuring both user safety and data confidentiality.

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## Two-Factor Authentication

Please enter the 6-digit code from your authenticator app.

Authentication Code

Verify

Lost access to your authenticator?  
Contact support for assistance.

## Sign In

Email

Password

☐ Remember Me

Sign In

Or sign in with:

Google

GitHub

New to SecureDocs? [Register here](#)

### Register

Username

Email

Password

Password must contain at least:

- 8 characters
- One uppercase letter
- One lowercase letter
- One number
- One special character (!@#\$\$%^&\*())

Repeat Password

Register

### Upload Document

Select Document

Choose File

No file chosen

Allowed file types: PDF, DOCX, TXT

Maximum file size: 16MB

#### Security Features

- AES-256 encryption for secure storage
- SHA-256 hashing for integrity verification
- Digital signature for authenticity
- HMAC verification on download

Upload Document

Back to Documents

SecureDocs

HomeUploadAdmin

ProfileLogout

Users

2

Manage Users

Documents

1

View All

Recent Activity

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View Logs

Recent Activity Logs

Timestamp	User	Action	Details	IP Address
2025-05-22 01:42:59	<a href="#">admin</a>	2fa_success	Two-factor authentication successful	127.0.0.1
2025-05-22 01:42:50	<a href="#">admin</a>	2fa_requested	Two-factor authentication requested	127.0.0.1
2025-05-22 01:41:31	<a href="#">admin</a>	2fa_requested	Two-factor authentication requested	127.0.0.1
2025-05-22 00:52:05	<a href="#">admin</a>	logout	User logged out	127.0.0.1
2025-05-22 00:51:59	<a href="#">admin</a>	delete_user	Deleted user: Kerlous Nasser	127.0.0.1
2025-05-22 00:51:43	<a href="#">admin</a>	2fa_success	Two-factor authentication successful	127.0.0.1
2025-05-22 00:51:27	<a href="#">admin</a>	2fa_requested	Two-factor authentication requested	127.0.0.1

SecureDocs

HomeUploadAdmin

ProfileLogout

All Documents

Document Name	Owner	Uploaded	Last Accessed	File Hash	Actions
SW-sheet6.pdf	<a href="#">admin</a>	2025-05-21 18:17:43	2025-05-22 00:41:06	4e17eef9...	<div>DownloadDelete</div>

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