

# **QUANTUM DRIVEN SECURE PASSWORD MANAGER USING AWS CLOUD SERVICES**

**Domain:** Cryptography

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# MOTIVATION

- 🧠 Future-Proof with Quantum
- 🔒 Weak Security = Data at Risk
- ⚛️ Legacy Systems are Vulnerable





# PROBLEM STATEMENT

Current Password Systems are Vulnerable:

-  Quantum Key Cracking: Future decryption of stored passwords.
-  Insecure Key Exchange: Risk of interception in transit.
-  Weak Encryption: Vulnerable to brute-force attacks.

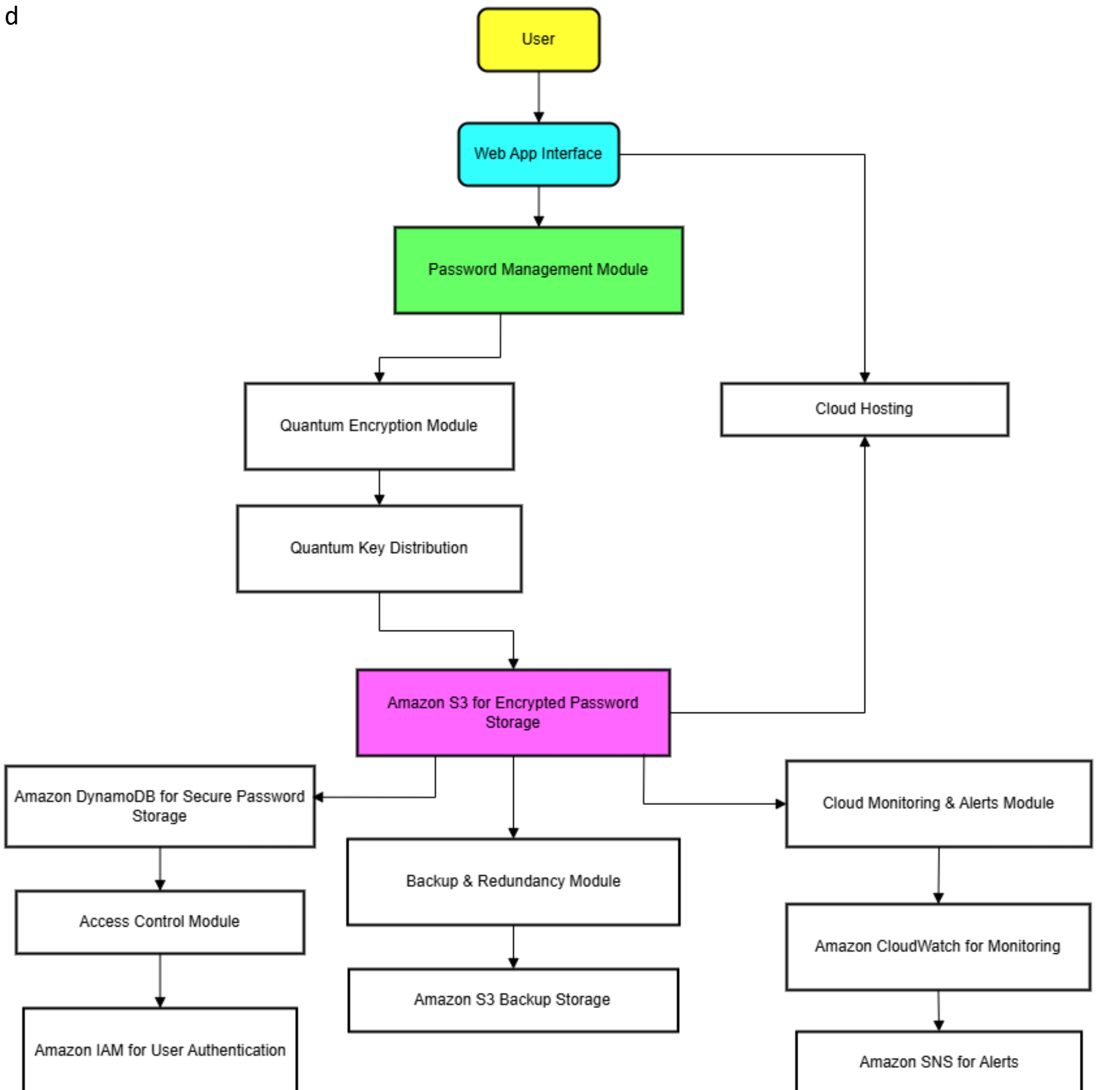
# OBJECTIVE

To overcome existing vulnerabilities, our system utilizes:





-  Quantum-Safe Encryption: PQC algorithms (Kyber/NTRU) protect against future threats.
-  Hybrid Encryption: AES-256 + PQC Key Encapsulation for robust security.
-  Role-Based Access Control: Ensures authorized access only.
-  Secure Cloud Storage: Encrypted password data stored on AWS S3.

# ARCHITECTURE DIAGRAM

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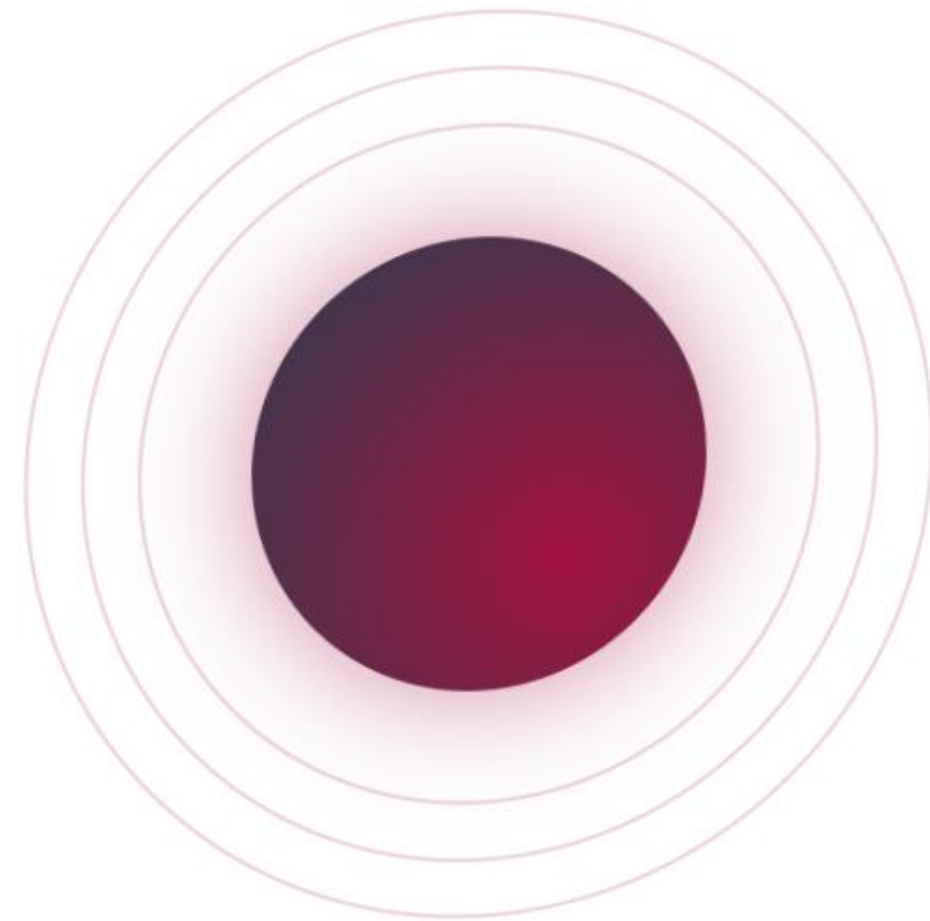
# OUTCOME

-  Successfully implemented quantum-resistant password management using a hybrid encryption scheme (AES-256 + PQC), enhancing protection against future quantum threats.
-  Established secure key exchange leveraging simulated QKD protocols on Amazon Braket, demonstrating the potential of quantum-enhanced key distribution.
-  Built a secure password data storage system on AWS S3, ensuring that only authorized users can retrieve their encrypted credentials.
-  Implemented role-based access control, enforcing strict access policies and preventing unauthorized access to password data.



# Welcome to Quantum Pass

Secure your digital life with quantum-inspired encryption

[Get Started](#)[Sign In](#)

# Password Vaults



Quantum Pass



Dashboard



Generator



Settings



Logout

## My Vaults

+ New Vault



google

7 entries



Open Vault



# Password Generator



Quantum Pass



Dashboard



Generator



Settings

Logout

## Quantum Password Generator

Generate cryptographically secure passwords using quantum randomness

Password Length



16 characters

Character Sets

- ☒ Uppercase Letters (A-Z)
- ☒ Lowercase Letters (a-z)
- ☒ Numbers (0-9)
- ☒ Special Characters (!@#\$%^&\*)

Generated Password

4;{FxX)sM0fvzJ3D



Generate New Password

### Password Strength



Strong: Your password meets all security requirements!