**Synopsis**

**1. Project Title:**

Machine Learning-Based Digital Signature System

**2. Problem Statement:**

As digital documents become increasingly prevalent, ensuring their authenticity and preventing forgery is critical. Current digital signature methods, while secure, do not leverage user-specific biometric or behavioral traits, making them susceptible to certain types of fraud and unauthorized access.

**3. Objective:**

To develop a secure digital signature system that integrates machine learning models for user authentication using biometric or behavioral data, alongside traditional cryptographic methods, to ensure document integrity and prevent forgery.

**4. Proposed Solution:**

This project will create a digital signature system that combines cryptographic algorithms (e.g., RSA, ECDSA) with machine learning-based user authentication. The system will utilize biometric data (e.g., handwriting, voice, or typing patterns) to enhance security. Machine learning models like CNN for handwriting, RNN for keystroke dynamics, and voice recognition will authenticate users before generating or verifying digital signatures.

**5. Expected Outcome:**

The system will securely authenticate users and sign documents using a combination of cryptography and machine learning. This will result in improved security, preventing unauthorized document access and ensuring that signed documents are genuine and tamper-proof.

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