Project Proposal: TrustCheck – Fake Website Detection and Verification Tool

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1. Project Title

TrustCheck – Fake Website Detection and Verification Tool

2. Problem Statement

With the rapid increase in online banking and e-commerce, users often fall victim to fake or phishing websites that mimic legitimate platforms. These fraudulent websites deceive users into revealing sensitive information such as passwords, credit card details, and banking credentials. Currently, there is no simple desktop tool that instantly evaluates a website's trustworthiness and alerts users before they interact with it.

3. Objectives

The main objectives of this project are:

- To design a Java-based tool that can verify the authenticity of websites.
- To analyze SSL/TLS certificate information for validation.
- To perform WHOIS domain age and reputation checks.
- To detect recently registered or blacklisted domains.
- To provide users with visual alerts and risk explanations through a simple JavaFX/java spring interface.

4. Proposed Solution

TrustCheck is a security-oriented Java application that embeds a web browser using JavaFX/java spring `WebView`. When a user enters a website URL, the tool will:

1. Extract and analyze SSL/TLS certificate data.
2. Query WHOIS services to determine domain registration details.

3. Cross-check the domain against a known-malicious site list.

4. Display a trust score and warning message if the site appears suspicious.

This real-time analysis helps users distinguish between legitimate and fraudulent websites before interacting with them.

5. System Architecture

- **Frontend:** JavaFX or Java ‘spring (WebView, UI Controls)
- **Backend:** Java Networking APIs, SSL Certificate APIs
- **External Services:** WHOIS lookup APIs, optional blacklist databases
- **Encryption:** SHA-256 or similar for site hashing verification

6. Expected Outcome

- A functional JavaFX-based/Java spring browser plugin or desktop tool.
- Real-time detection and alerting of fake or untrusted websites.
- Improved user awareness and protection from phishing attacks.

7. Tools and Technologies

- **Programming Language:** Java (JDK 17+)
- **Framework:** JavaFX/Java Spring
- **APIs:** WHOIS API, SSL Certificate API
- **IDE:** IntelliJ IDEA / NetBeans
- **Version Control:** GitHub

8. Project Timeline

Phase	**Duration**
Requirement Analysis	day 5
Design and Architecture	day 10
Implementation (Core Modules)	day 15
Testing and Debugging	day 20
Final Report and Demonstration	day 25

9. Conclusion

TrustCheck aims to increase web browsing security by helping users identify untrustworthy websites before any damage occurs. This project combines Java networking, UI design, and cybersecurity concepts to deliver a practical and educational solution to a real-world problem.

End of Proposal