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URL-Safety Checker

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ABSTRACT

The URL Safety Checker is a web-based application designed to help users identify suspicious and potentially harmful website links before accessing them. As internet usage continues to grow, online threats such as phishing attacks, fake websites, malicious links, and online scams have become major security concerns. Many users unknowingly visit unsafe websites, which may expose their personal information and sensitive data to cybercriminals. This project aims to reduce such risks by providing a simple and accessible tool for checking website URLs.

The system allows users to enter a URL and analyzes its structure to identify possible security threats. It checks the validity of the URL and looks for suspicious keywords that may indicate harmful or fraudulent websites. Based on the analysis, the system displays a safety result along with an appropriate message to help users understand potential risks. The application is developed using HTML, CSS, and JavaScript for the frontend, while Node.js and Express.js are used for backend processing. Its simple and responsive interface allows users to check website links easily without requiring advanced technical knowledge.

The URL Safety Checker provides an initial level of security by helping users recognize suspicious website links and encouraging safer browsing practices. It can be useful for students, professionals, and general internet users who frequently access unfamiliar websites. Although the current system uses basic URL validation and keyword-based detection, future improvements can include machine learning algorithms, real-time threat intelligence APIs, and security databases to improve detection accuracy and identify more advanced cyber threats.

Keywords: *URL Safety Checker, Cybersecurity, Phishing Detection, Malicious URLs, URL Validation, Threat Detection, Safe Browsing, Web Security.*

1. INTRODUCTION :

In today's digital world, internet safety is an important concern. Users may unknowingly open harmful websites or fake links while browsing the internet. Cyber threats such as phishing, online scams, and malicious websites can put personal information at risk.

The The URL Safety Checker is a web-based application designed to identify suspicious website links. It allows users to enter a URL, checks for suspicious patterns, and displays a safety result with a warning message.

This project helps users avoid potentially harmful websites and encourages safer browsing practices.

2. LITERATURE REVIEW :

Many studies show that URL safety checking systems help protect users from phishing attacks, malicious websites, and online scams. Existing security tools such as Google Safe Browsing and VirusTotal are used to identify harmful links and detect online threats. Research also explains that URL analysis techniques can identify suspicious websites by examining domain names, URL structures, HTTPS usage, and suspicious keywords. Based on these ideas, the **URL Safety Checker** is developed to identify potentially unsafe website links and provide users with simple safety warnings to encourage secure browsing

3. METHODOLOGY :

The the user enters a website URL into the application. The system validates the URL format and checks for suspicious keywords that may indicate security threats. The application is built using a three-layer.

First, the user enters a website URL into the application. The system validates the URL format and checks for suspicious keywords that may indicate security threats. The application is built using a three-layer structure:

- **Frontend:** HTML, CSS, and JavaScript handle the user interface.
- **Backend:** Node.js and Express.js process URL requests.
- **URL Analysis**:Checks suspicious Keyword and identifies unsafe links.

The system quickly classifies URLs as Safe or Suspicious and displays warnings



4. CONTENT :

The URL Safety Checker application includes several important modules:

- **URL Input Module:** Allows users to enter a website URL for checking.
- **URL Validation Module:** Checks whether the entered URL is in a valid format.
- **URL Analysis Module:** Examines the URL for suspicious keywords and patterns.
- **Risk Detection Module:** Identifies whether the URL is Safe or Suspicious.
- **Result Display Module:** Shows the analysis result with a warning message.
- **User Interface Module:** Provides a simple and easy-to-use interface.
- **Backend Module:** Processes URL requests using Node.js and Express.js.

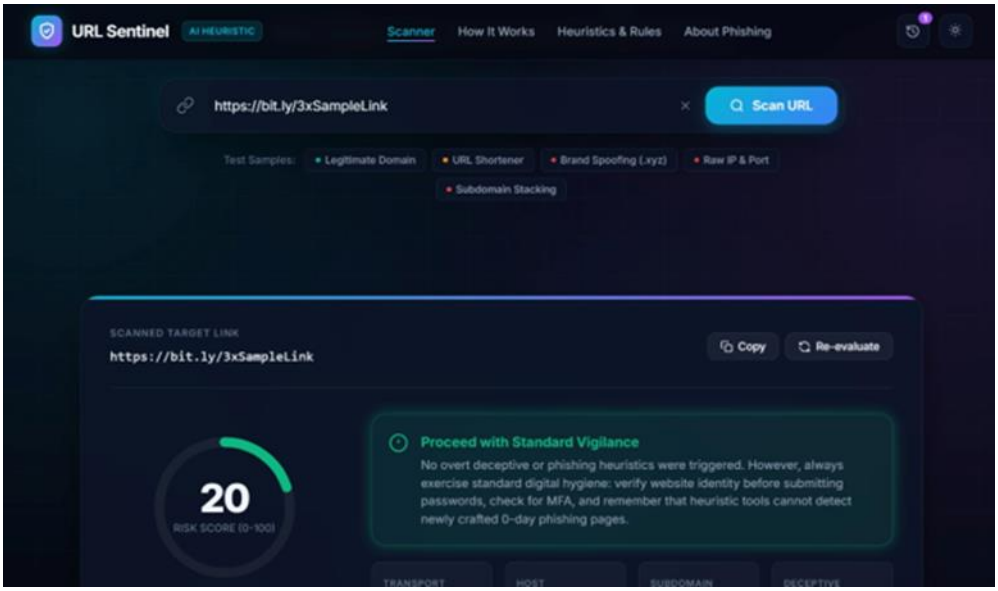
All these modules arework together to check URLs and help users stay safe online.

5. RESEARCH AND REVIEWS :

Many studies show that URL checking systems help users identify suspicious and unsafe websites. These systems analyze URL patterns, keywords, and links to detect possible phishing threats.

Research also shows that URL validation and warning messages help users avoid harmful websites.

Based on these studies, this project is developed to identify suspicious URLs and improve online safety.



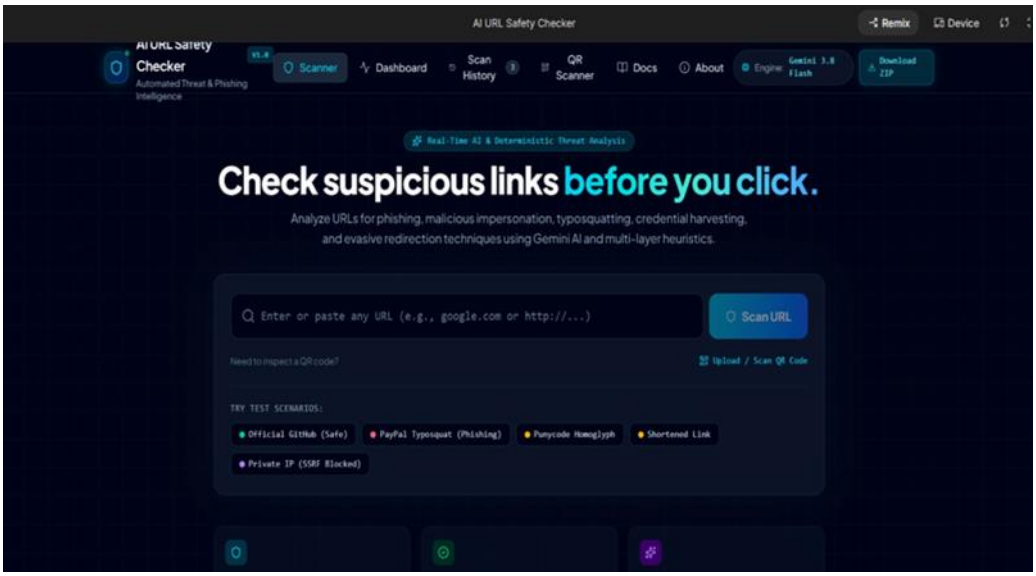
6. RESULTS & DISCUSSION :

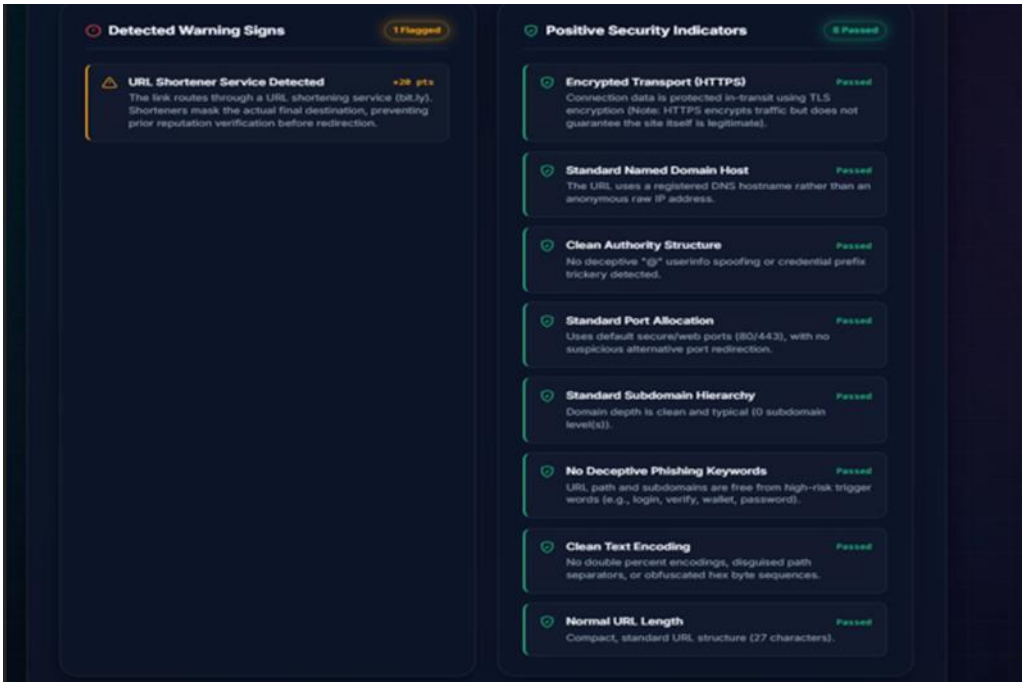
The URL Safety Checker application was successfully developed and tested with its main functionalities. The system allows users to enter a website URL and checks whether it is Safe or Suspicious.

During testing, the application analyzed URLs based on their format, suspicious keywords, and patterns. The system displayed the results with appropriate warning messages to help users identify potentially unsafe websites.

The application provides quick results and helps users make safer decisions while browsing the internet.

Overall, the results show that the URL Safety Checker is a simple and useful application for identifying suspicious website links and improving online safety.





7. CONCLUSION :

The URL Safety Checker is a useful web application that helps users identify suspicious and potentially unsafe websites. It checks website URLs based on their format, keywords, and patterns.

The system provides quick results with warning messages, helping users avoid harmful links and browse the internet safely.

Overall, this project helps detect suspicious URLs and improve online safety.

8. FUTURE SCOPE :

The URL Safety Checker system can be improved further in many ways:

- AI-Based Detection
- Real-Time URL Checking
- Phishing Extension
- Browser Extension
- Database Integration
- Machine Learning
- Multi-language support
- Mobile Application

These improvements can make the system more accurate,secure,and useful for users.

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