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Real-Time Phishing URL Detection in Chat Application Using Machine Learning and Flutter

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Abstract: *Phishing attacks continue to be a critical threat in the digital ecosystem, particularly in real time communication platforms. This document introduces an Android application developed using Flutter, which identifies and prevents phishing URLs in real-time chat through a machine learning model that has been trained with PyCaret and deployed using FastAPI. The core URL classification is driven by the XGBoost algorithm, selected for its exceptional performance in classification tasks. Socket programming ensures real-time message delivery between users, while the integrated FastAPI backend filters malicious URLs before they are transmitted. This integrated architecture offers a practical and scalable solution for enhancing online security. The system's capability to intercept and neutralize phishing threats before they reach the end-user marks a significant contribution to cybersecurity practices in mobile applications.*

Keywords: Phishing Detection, XGBoost, Flutter, FastAPI, PyCaret, URL Classification, Real-Time Security

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