

DESIGN AND DEVELOPMENT OF A SOFTWARE SOLUTION FOR DETECTING AND CLASSIFYING MALICIOUS JAVASCRIPT CODE

Yaroslav Chuiko, Andrii Kopp

National Technical University «Kharkiv Polytechnic Institute», Kharkiv

JavaScript is a dynamic programming language used to create web content in combination with HTML (HyperText Markup Language) and CSS (Cascading Style Sheets). It is used by the vast majority of websites and is supported in all modern web browsers. However, in recent years, JavaScript has become the most common and successful language for building web attacks [1]. Malicious code is a term used to describe any code in any part of a software system or script that is intended to cause undesirable effects, security breaches, or system damage. Malicious JavaScript code is designed to create or exploit vulnerabilities, leading to client-side security incidents and data leaks, and malicious scripts can also target server systems and files [2].

Lexical analysis is the process of analyzing a sequence of characters, usually in the form of source code, and transforming them into meaningful units called “tokens”. The main goal of lexical analysis is to break the source code into tokens by removing non-essential elements such as spaces and comments [3].

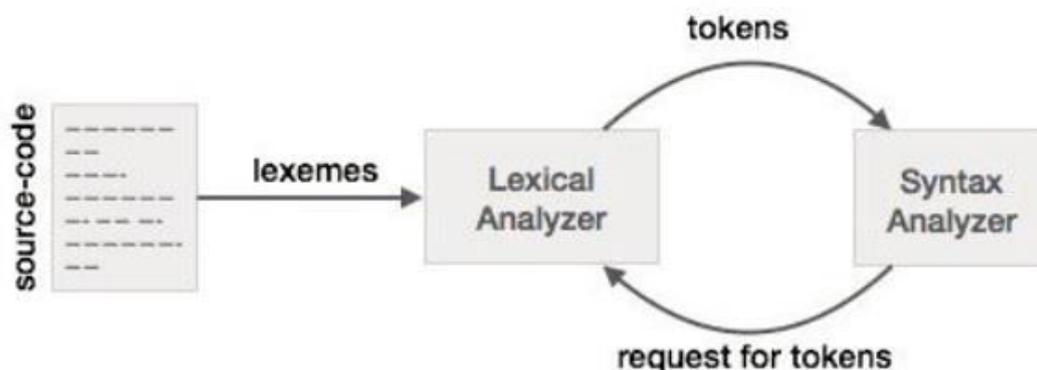


Fig. 1. – Lexical analysis [3]

In the context of cybersecurity, lexical analysis, also known as content analysis or content validation, refers to the process of examining and analyzing the content of data, documents, network traffic, or files to identify security threats, vulnerabilities, or sensitive information. This analysis aims to recognize patterns, anomalies, and suspicious content in data, which can help identify and mitigate cyber threats.

Lexical analysis has a number of advantages when applied in the field of cyber defense: detection of known malware signatures and malicious content in files, emails, and network traffic, which allows for early detection and mitigation of cyber threats.

References:

1. JavaScript. URL: <https://developer.mozilla.org/en-US/docs/Web/JavaScript>.
2. Malicious Code. URL: <https://www.veracode.com/security/malicious-code>.
3. Introduction of Lexical Analysis. URL: <https://www.geeksforgeeks.org/introduction-of-lexical-analysis/>.