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Assessing Web Application Security Through Vulnerabilities in Programming Languages and Environments

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Abstract

Cybersecurity has become increasingly important for organisations. At present, there are several software development companies that employ strategies to eliminate code-based security risks. It is estimated that 95% of businesses use web applications that are the most vulnerable among all other types of applications. Application security company Veracode checked out 759,445 applications over a year using different security scans and found that 74% of these apps had at least one security flaw. It is important to note that Veracode also pointed out that 69% of the applications had at least one vulnerability from the Open Worldwide Application Security Project's Top Ten list. This research is divided into two parts. First, two web applications were developed using ASP.NET and Node.js respectively, using security best practices. This was followed by analysing the security of these applications for some of the OWASP's Top 10 vulnerabilities using cybersecurity software and tests. The outcomes are then reported, which provides an understanding of the vulnerabilities of the applications developed using ASP.NET and Node.js, in spite of using security best practices. The conclusions of the report emphasise the importance of incorporating cybersecurity practices at the earlier stages of the software development lifecycle (SDLC) and providing sufficient awareness about cybersecurity vulnerabilities to the developers.

Keywords: Web application vulnerabilities, programming best practices, security in programming languages

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