



Regular Expression Refinement Types

Project Report

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Abstract

Entire classes of modern web application vulnerabilities arise due to problematic user input handling. This includes cross-site scripting (XSS), *injection* issues (SQL, LDAP, etc), insecure deserialisation and file inclusion vulnerabilities – all of which are encountered by information security firms on a regular basis in application assessments. This project explores the use of regular expressions as refinement types for constrained data in order to model user input validation. We normalise the type system of such a language and implement it. We then compare our system to and evaluate it against other, existing approaches by considering false positive and negative rates with a series of test cases.

1. Introduction

Lorem ipsum (Pierce, 2002)

References

Pierce, B. (2002), *Types and Programming Languages*, The MIT Press.