EMPIRICAL ANALYSIS ON JAVASCRIPT ENGINE PERFORMANCE

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M.Sc. in Computer Science

Department of Computer Science and Engineering

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Thesis submitted in partial fulfillment of the requirements for the degree

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DECLARATION

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ABSTRACT

JavaScript is a prominent scripting language in web browsers. Earlier JavaScript was only used for client-side programming of browsers. JavaScript has been becoming a mainstream and a significant language in all types of large-scale applications from recent past.

JavaScript is an interpreted loosely typed language. JavaScript does not compile the source beforehand instead it translates codes at run time, line by line. JavaScript does not contain data types. Therefore, it is called a loosely typed language as well.

JavaScript does not consist fully pledged Object-Oriented concepts implemented. Instead, it uses prototypes to mimic the behavior of Object Orientation.

JavaScript was initially developed in 10 days by the founder Brendan Eich during the emergence of dot-com bubble and browser wars. At later points he himself had also admitted regarding some design mistakes of JavaScript.

Due to these reasons JavaScript has certain innate performance issues. To address these issues many researches have been done. Most of these researches have been focusing on fixing the performance issues of interpreting and loosely typed nature, by such solutions as JIT compilers and Typescript.

Hence this research will be focusing on an area which was given less significance, namely the coding standards. Research will first validate the common notion of coding standards have an impact on performance of JS and continue to provide an analytic document as a reference document of setting up a coding standards for any particular entity.

ACKNOWLEDGEMENTS

I would like to express profound gratitude to my advisors, Dr. Kutila Gunasekara and Dr. Malaka Walpola, for their invaluable support by providing relevant knowledge, materials, advice, supervision, and useful suggestions throughout this research work. Their expertise and continuous guidance enabled me to complete my work successfully.

Further I would like to thank all my fellow students who helped me on finding the relevant research material, sharing knowledge and experience and for their encouragement.

I am as ever, especially indebted to my parents for their love and support throughout my life. Finally, I wish to express my gratitude to all my colleagues at all my workplaces, for the support given to me to manage my MSc research work.

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API – Application Package Interface

CDN – Content Delivery Network

CSS – Cascading Style Sheets

DNS – Domain Name Server

HTML – Hyper Text Markup Language

JIT – Just in Time

JS – JavaScript

JSON – JavaScript Object Notation

SQL – Structured Query Language