RAMAIAH
Institute of Technology

Intelligent Vulnerability Detection and Response System of Web Applications

Submitted in Partial fulfillment of Requirement for the award of the Degree of

MASTER OF COMPUTER APPLICATIONS

Shravan K S

1MS21MC051

Under the
Guidance of

Dr. Manish Kumar

Assistant Professor
Department of Master of Computer Applications
RIT Bangalore

Department of Master Computer Applications

RAMAIAH INSTITUTE OF TECHNOLOGY
(Autonomous Institute, Affiliated to VTU)
Accredited by National Board of Accreditation & NAAC with 'A+' Grade
MSR Nagar, MSRIT Post, Bangalore
www.msrit.edu
2023

RAMAIAH
Institute of Technology

CERTIFICATE

This is to certify that the Final Project entitled **"Intelligent Vulnerability Detection and Response System of Web Applications"** is carried out by **Shravan K S** bearing USN No. **1MS21MC051**, a bonafide student of Ramaiah Institute of Technology, Bangalore, in partial fulfillment for the award of Master of Computer Applications of the Visvesvaraya Technological University, Belgaum, during the year 2023. The final project report has been approved as it satisfies the academic requirements in respect to dissertation work prescribed for the said degree.

Guide **HOD**

(Dr. Manish Kumar) **(Dr. S Seema)**

Name & Signature of Examiners with Date:-

1)

2)

RAMAIAH
Institute of Technology

DECLARATION

I **Shravan K S** hereby declare that the final project report entitled "Intelligent Vulnerability Detection and Response System of Web Applications" based on study undertaken by me, towards the partial fulfilment for the Final Project (MCA41) carried out during the 4th semester, has been compiled purely from the academic point of view and is, therefore, presented in a true and sincere academic spirit. Contents of this report are based on my original study and findings in relation there to are neither copied nor manipulated from other reports or similar documents, either in part or in full, and it has not been submitted earlier to any University/College/Academic institution for the award of any Degree/Diploma/Fellowship or similar titles or prizes and that the work has not been published in any specific or popular magazines.

Place: Bangalore **Shravan K S**

Date: **1MS21MC051**

RAMAIAH
Institute of Technology

ACKNOWLEDGEMENTS

I would like to express my heartfelt gratitude to the following individuals and institutions who have played a significant role in the successful completion of my project titled **"Intelligent Vulnerability Detection and Response in Web Applications"**

First and Foremost, I express my gratitude to our institute, **Ramaiah Institute of Technology (RIT), Bangalore** and our principal **Dr. N.V.R. Naidu** for creating an environment that fosters academic growth and innovation.

I would like to thank **Dr. Seema Shedole**, the Head of the **Department of Master of Computer Applications (MCA)**. Her unwavering support, encouragement, and guidance have been instrumental in shaping this project.

I extend my heartfelt appreciation to my project guide, **Dr. Manish Kumar,** Department of MCA, RIT. whose expertise and mentorship have been invaluable. His guidance, constructive feedback, and patience have helped me navigate through various challenges and refine my understanding of intelligent vulnerability detection and response in web applications. I am grateful for his unwavering support and commitment to my project's success.

Additionally, I would like to express my gratitude to all the faculty members of the Master of Computer Applications (MCA) department for their constant encouragement, insightful discussions, and willingness to share their knowledge and expertise. Their dedication to teaching and nurturing the students has been commendable.

Last but not least, I would like to thank my family and friends for their love, support, and understanding throughout this project. Their encouragement and belief in my abilities have been a constant source of motivation.

I am truly privileged to have received such valuable guidance and support from everyone involved in this project. This opportunity has not only enhanced my technical skills but also enriched my overall learning experience. Thank you all for being an integral part of my academic journey and contributing to the successful completion of my project.

RAMAIAH
Institute of Technology

ABSTRACT

This project work offer a novel method that combines established security methodologies with intelligent response to improve web application vulnerability scanning, detection and mitigation. The approach starts by thoroughly scanning and analyzing web apps using conventional vulnerability detection methods. The project concentrate on locating widespread flaws like remote code execution (RCE), SQL injection, File inclusion, Sensitive data exposure, Security misconfigurations, insecure direct object references (IDOR) and cross-site scripting (XSS). The project use the OpenAI API to produce intelligent responses based on errors and vulnerabilities found during scanning, enhancing the vulnerability detection process. With this strategy, the project make use of the capabilities of machine learning and natural language processing to produce context-specific queries that look for potential fixes or mitigation techniques for the discovered vulnerabilities. The findings of the project demonstrate the potential of this comprehensive strategy for enhancing online application security. The project advances online application security by offering a thorough framework for improved vulnerability scanning.