

SQL injection attacks countermeasures assessments

Mamdouh Alenezi¹, Muhammad Nadeem², Raja Asif²

¹College of Computer and Information Sciences, Prince Sultan University, Saudi Arabia

²Department of Computer Engineering, Faculty of ICT, BUTEMAS, Quetta, Pakistan

Article Info

Article history:

Received Jun 26, 2020

Revised Aug 11, 2020

Accepted Aug 21, 2020

Keywords:

CVE

Database security

Injection attack

SQLIA

SQLIV

ABSTRACT

SQL injections attacks have been rated as the most dangerous vulnerability of web-based systems over more than a decade by OWASP top ten. Though different static, runtime and hybrid approaches have been proposed to counter SQL injection attacks, no single approach guarantees flawless prevention/ detection for these attacks. Hundreds of components of open source and commercial software products are reported to be vulnerable for SQL injection to CVE repository every year. In this mapping study, we identify different existing approaches in terms of the cost of computation and protection offered. We found that most of the existing techniques claim to offer protection based on the testing on a very small or limited scale. This study dissects each proposed approach and highlights their strengths and weaknesses and categorizes them based on the underlying technology used to detect or counter the injection attacks.

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Corresponding Author:

Mamdouh Alenezi

Department of Computer Science

Prince Sultan University

P.O.Box No. 66833 Ralifa Street, Riyadh 11586 Saudi Arabia

Email: malenezi@psu.edu.sa

1. INTRODUCTION

In recent years SQL injections have emerged as one of the most dangerous types of attacks to web-based systems and are ranked number one among the Open Web Application Security Project's (OWASP) top ten vulnerabilities [1]. SQL injection attacks (SQLIAs) are launched by entering malicious characters into the input fields of web applications resulting in a modified SQL query. There has not been a long history of SQL injection attacks. During the early days of the Internet, most content was static and not prone to injection attacks. The first large scale SQL injection attack was launched in Feb 2002 on Guess.com customers' database permitting the attacker to retrieve more than 200,000 customer names, credit card numbers, and expiration dates. More recently, the National Vulnerability Database (NVD) reports that 7 percent of the total reported incidents in 2011 were caused by SQL injections [2]. Moreover, it was discovered that an average of 71 SQL injection attacks is attempted every hour [3].

SQLIAs are used by attackers to gain access to confidential information in a database. SQLIAs can result in a financial loss as well as a damaged reputation for the impacted organization. There is no sound technique or combination of techniques that fully protects against all types of SQLIAs [4]. To help protect confidential data from being illegally accessed by attackers using SQLIA, the effectiveness of different techniques and combinations of techniques need to be evaluated to determine a robust set of combined techniques to lessen the impact SQLIAs have on an organization. Our strategy for determining which techniques and combinations of techniques are most effective consists of performing a systematic mapping study on the subject of SQLIA mitigation strategies. By analyzing the effectiveness of various techniques, we will be able to identify the best protection mechanisms that also consume the least human and computing

Study Of Sql Injection Attacks And Countermeasures

Julia Schneider



Study Of Sql Injection Attacks And Countermeasures:

Decoding **Study Of Sql Injection Attacks And Countermeasures**: Revealing the Captivating Potential of Verbal Expression

In a time characterized by interconnectedness and an insatiable thirst for knowledge, the captivating potential of verbal expression has emerged as a formidable force. Its capability to evoke sentiments, stimulate introspection, and incite profound transformations is genuinely awe-inspiring. Within the pages of "**Study Of Sql Injection Attacks And Countermeasures**," a mesmerizing literary creation penned with a celebrated wordsmith, readers attempt an enlightening odyssey, unraveling the intricate significance of language and its enduring affect our lives. In this appraisal, we shall explore the book is central themes, evaluate its distinctive writing style, and gauge its pervasive influence on the hearts and minds of its readership.

https://wwwnew.greenfirefarms.com/book/Resources/default.aspx/expert_affiliate_marketing_for_creators_for_beginners_7953.pdf

Table of Contents Study Of Sql Injection Attacks And Countermeasures

1. Understanding the eBook Study Of Sql Injection Attacks And Countermeasures
 - The Rise of Digital Reading Study Of Sql Injection Attacks And Countermeasures
 - Advantages of eBooks Over Traditional Books
2. Identifying Study Of Sql Injection Attacks And Countermeasures
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Study Of Sql Injection Attacks And Countermeasures
 - User-Friendly Interface
4. Exploring eBook Recommendations from Study Of Sql Injection Attacks And Countermeasures
 - Personalized Recommendations

- Study Of Sql Injection Attacks And Countermeasures User Reviews and Ratings
- Study Of Sql Injection Attacks And Countermeasures and Bestseller Lists
- 5. Accessing Study Of Sql Injection Attacks And Countermeasures Free and Paid eBooks
 - Study Of Sql Injection Attacks And Countermeasures Public Domain eBooks
 - Study Of Sql Injection Attacks And Countermeasures eBook Subscription Services
 - Study Of Sql Injection Attacks And Countermeasures Budget-Friendly Options
- 6. Navigating Study Of Sql Injection Attacks And Countermeasures eBook Formats
 - ePub, PDF, MOBI, and More
 - Study Of Sql Injection Attacks And Countermeasures Compatibility with Devices
 - Study Of Sql Injection Attacks And Countermeasures Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Study Of Sql Injection Attacks And Countermeasures
 - Highlighting and Note-Taking Study Of Sql Injection Attacks And Countermeasures
 - Interactive Elements Study Of Sql Injection Attacks And Countermeasures
- 8. Staying Engaged with Study Of Sql Injection Attacks And Countermeasures
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Study Of Sql Injection Attacks And Countermeasures
- 9. Balancing eBooks and Physical Books Study Of Sql Injection Attacks And Countermeasures
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Study Of Sql Injection Attacks And Countermeasures
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Study Of Sql Injection Attacks And Countermeasures
 - Setting Reading Goals Study Of Sql Injection Attacks And Countermeasures
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Study Of Sql Injection Attacks And Countermeasures
 - Fact-Checking eBook Content of Study Of Sql Injection Attacks And Countermeasures

- Distinguishing Credible Sources
- 13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
- 14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

Study Of Sql Injection Attacks And Countermeasures Introduction

Free PDF Books and Manuals for Download: Unlocking Knowledge at Your Fingertips In today's fast-paced digital age, obtaining valuable knowledge has become easier than ever. Thanks to the internet, a vast array of books and manuals are now available for free download in PDF format. Whether you are a student, professional, or simply an avid reader, this treasure trove of downloadable resources offers a wealth of information, conveniently accessible anytime, anywhere. The advent of online libraries and platforms dedicated to sharing knowledge has revolutionized the way we consume information. No longer confined to physical libraries or bookstores, readers can now access an extensive collection of digital books and manuals with just a few clicks. These resources, available in PDF, Microsoft Word, and PowerPoint formats, cater to a wide range of interests, including literature, technology, science, history, and much more. One notable platform where you can explore and download free Study Of Sql Injection Attacks And Countermeasures PDF books and manuals is the internet's largest free library. Hosted online, this catalog compiles a vast assortment of documents, making it a veritable goldmine of knowledge. With its easy-to-use website interface and customizable PDF generator, this platform offers a user-friendly experience, allowing individuals to effortlessly navigate and access the information they seek. The availability of free PDF books and manuals on this platform demonstrates its commitment to democratizing education and empowering individuals with the tools needed to succeed in their chosen fields. It allows anyone, regardless of their background or financial limitations, to expand their horizons and gain insights from experts in various disciplines. One of the most significant advantages of downloading PDF books and manuals lies in their portability. Unlike physical copies, digital books can be stored and carried on a single device, such as a tablet or smartphone, saving valuable space and weight. This convenience makes it possible for readers to have their entire library at their fingertips, whether they are commuting, traveling, or simply enjoying a lazy afternoon at home. Additionally, digital files are easily searchable, enabling readers to locate specific information within seconds. With a few keystrokes, users can search for keywords, topics, or phrases, making research and finding relevant information a breeze. This efficiency saves time and effort, streamlining the learning process and allowing

individuals to focus on extracting the information they need. Furthermore, the availability of free PDF books and manuals fosters a culture of continuous learning. By removing financial barriers, more people can access educational resources and pursue lifelong learning, contributing to personal growth and professional development. This democratization of knowledge promotes intellectual curiosity and empowers individuals to become lifelong learners, promoting progress and innovation in various fields. It is worth noting that while accessing free Study Of Sql Injection Attacks And Countermeasures PDF books and manuals is convenient and cost-effective, it is vital to respect copyright laws and intellectual property rights. Platforms offering free downloads often operate within legal boundaries, ensuring that the materials they provide are either in the public domain or authorized for distribution. By adhering to copyright laws, users can enjoy the benefits of free access to knowledge while supporting the authors and publishers who make these resources available. In conclusion, the availability of Study Of Sql Injection Attacks And Countermeasures free PDF books and manuals for download has revolutionized the way we access and consume knowledge. With just a few clicks, individuals can explore a vast collection of resources across different disciplines, all free of charge. This accessibility empowers individuals to become lifelong learners, contributing to personal growth, professional development, and the advancement of society as a whole. So why not unlock a world of knowledge today? Start exploring the vast sea of free PDF books and manuals waiting to be discovered right at your fingertips.

FAQs About Study Of Sql Injection Attacks And Countermeasures Books

How do I know which eBook platform is the best for me? Finding the best eBook platform depends on your reading preferences and device compatibility. Research different platforms, read user reviews, and explore their features before making a choice. Are free eBooks of good quality? Yes, many reputable platforms offer high-quality free eBooks, including classics and public domain works. However, make sure to verify the source to ensure the eBook credibility. Can I read eBooks without an eReader? Absolutely! Most eBook platforms offer webbased readers or mobile apps that allow you to read eBooks on your computer, tablet, or smartphone. How do I avoid digital eye strain while reading eBooks? To prevent digital eye strain, take regular breaks, adjust the font size and background color, and ensure proper lighting while reading eBooks. What the advantage of interactive eBooks? Interactive eBooks incorporate multimedia elements, quizzes, and activities, enhancing the reader engagement and providing a more immersive learning experience. Study Of Sql Injection Attacks And Countermeasures is one of the best book in our library for free trial. We provide copy of Study Of Sql Injection Attacks And Countermeasures in digital format, so the resources that you find are reliable. There are also many Ebooks of related with Study Of Sql Injection Attacks And Countermeasures. Where to download Study Of Sql Injection Attacks And

Countermeasures online for free? Are you looking for Study Of Sql Injection Attacks And Countermeasures PDF? This is definitely going to save you time and cash in something you should think about. If you trying to find then search around for online. Without a doubt there are numerous these available and many of them have the freedom. However without doubt you receive whatever you purchase. An alternate way to get ideas is always to check another Study Of Sql Injection Attacks And Countermeasures. This method for see exactly what may be included and adopt these ideas to your book. This site will almost certainly help you save time and effort, money and stress. If you are looking for free books then you really should consider finding to assist you try this. Several of Study Of Sql Injection Attacks And Countermeasures are for sale to free while some are payable. If you arent sure if the books you would like to download works with for usage along with your computer, it is possible to download free trials. The free guides make it easy for someone to free access online library for download books to your device. You can get free download on free trial for lots of books categories. Our library is the biggest of these that have literally hundreds of thousands of different products categories represented. You will also see that there are specific sites catered to different product types or categories, brands or niches related with Study Of Sql Injection Attacks And Countermeasures. So depending on what exactly you are searching, you will be able to choose e books to suit your own need. Need to access completely for Campbell Biology Seventh Edition book? Access Ebook without any digging. And by having access to our ebook online or by storing it on your computer, you have convenient answers with Study Of Sql Injection Attacks And Countermeasures To get started finding Study Of Sql Injection Attacks And Countermeasures, you are right to find our website which has a comprehensive collection of books online. Our library is the biggest of these that have literally hundreds of thousands of different products represented. You will also see that there are specific sites catered to different categories or niches related with Study Of Sql Injection Attacks And Countermeasures So depending on what exactly you are searching, you will be able to choose ebook to suit your own need. Thank you for reading Study Of Sql Injection Attacks And Countermeasures. Maybe you have knowledge that, people have search numerous times for their favorite readings like this Study Of Sql Injection Attacks And Countermeasures, but end up in harmful downloads. Rather than reading a good book with a cup of coffee in the afternoon, instead they juggled with some harmful bugs inside their laptop. Study Of Sql Injection Attacks And Countermeasures is available in our book collection an online access to it is set as public so you can download it instantly. Our digital library spans in multiple locations, allowing you to get the most less latency time to download any of our books like this one. Merely said, Study Of Sql Injection Attacks And Countermeasures is universally compatible with any devices to read.

Find Study Of Sql Injection Attacks And Countermeasures :

[expert affiliate marketing for creators for beginners 7953](#)

quick cheap flights usa guide for experts 8227

how to ai video generator for moms for students 7950

expert anti inflammatory diet online for workers 9156

best blog post ideas for creators for experts 9805

beginner friendly home workout guide for students 9631

best cheap flights usa ideas for workers 9567

beginner friendly ai writing assistant for beginners for students 9568

how to use budgeting tips for small business for creators 9173

ultimate cheap flights usa guide for workers 8870

quick digital nomad visa ideas for creators 8477

top method for affiliate marketing for small business for beginners 8089

how to use sleep hygiene tips for students for beginners 8691

ultimate ai video generator for beginners for creators 9780

simple budgeting tips for students for beginners 8696

Study Of Sql Injection Attacks And Countermeasures :

Dynamics of Mass Communication: Media in Transition ... Explore how the traditional mass media are dealing with shrinking audiences, evaporating advertising revenue and increased competition from the Internet. Dynamics of Mass Communication Media in Transition | Rent Rent Dynamics of Mass Communication 12th edition (978-0073526195) today, or search our site for other textbooks by Dominick. Every textbook comes with a ... Dynamics of Mass Communication: Media in Transition ... Dynamics of Mass Communication: Media in Transition 12th Edition is written by Dominick, Joseph and published by McGraw-Hill Higher Education. The Dynamics of mass communication : media in transition The Dynamics of mass communication : media in transition ; Author: Joseph R. Dominick ; Edition: 12th ed., International student edition View all formats and ... Dynamics of Mass Communication: Media in Transition Social media, 'apps' and the new media Goliaths are new and major themes of the 12th edition. Explore how the traditional mass media are dealing with shrinking ... The Dynamics of Mass Communication - Joseph R. Dominick This work provides an introduction to the field of mass communication. It covers the major media, from books, magazines and newspapers to radio, TV, ... (PDF) Dynamics-of-Mass-Communication-Media-in ... This course focuses on the complex relationships between media, society, and the individual. How do mass communication technologies, such as newspaper, radio, ... Dynamics of Mass Communication: Media in Transition ... Dynamics of Mass Communication: Media in

Transition (12th Edition). by Dominick, Joseph R. Used; Fine; Paperback. Condition: Fine; ISBN 10: 0073526193 ... Dynamics of Mass Communication: Media in Transition 12th Find 9780073526195 Dynamics of Mass Communication: Media in Transition 12th Edition by Joseph Dominick at over 30 bookstores. Buy, rent or sell. Visual Mnemonics for Physiology and... by Marbas, Laurie L. Visual Mnemonics for Physiology and Related Anatomy (VMS) uses cartoon drawings that make the material easier to learn with tremendous recall months later. Visual Mnemonics for Physiology and Related... by Laurie ... Visual Mnemonics for Physiology and Related Anatomy (VMS) uses cartoon drawings that make the material easier to learn with tremendous recall months later. Physiology Mnemonics Dec 16, 2019 - Explore Medicaorispoter's board "Physiology Mnemonics" on Pinterest. See more ideas about mnemonics, physiology, how to memorize things. Visual Mnemonics for Physiology and Related Anatomy Visual Mnemonics for Physiology and Related Anatomy (VMS) uses cartoon drawings that make the material easier to learn with tremendous recall months later. Visual Pathway Mnemonics (Memorable Neurology Lecture 10) Visual Mnemonics for Physiology and Related Anatomy Visual Mnemonics for Physiology and Related Anatomy (VMS) uses cartoon drawings that make the material easier to learn with tremendous recall months later. Human Physiology - Picmonic for Pre-Health Ace Your Human Physiology Classes and Exams with Picmonic: #1 Visual Mnemonic Study Tool for Pre-Health Students. With Picmonic, facts become pictures. Visual Mnemonics for Physiology and Related Anatomy ... Visual Mnemonics for Physiology and Related Anatomy (Visual Mnemonics - GOOD ; Item Number. 255715761985 ; Brand. Unbranded ; Book Title. Visual Mnemonics for ... Mnemonic Devices for the Biological Psychology Chapter ... This is Michael Britt and I developed the mnemonic images contained in this document. I truly hope they will help you remember the various parts of the brain ... Anatomy and Physiology Nursing Mnemonics & Tips May 12, 2023 — Here are 5+ anatomy and physiology nursing mnemonics to help you understand the concepts behind it. Abbreviations and tips are also ... Leading Edge Publishing - 737 Cockpit Companion, FMC ... Leading Edge Publishing offers a range of 737 Cockpit Companion, QRG, FMC User Guides & Cockpit Companion for iPad to meet your aviation needs. Flight Management Computer Info and screenshots from the many 737 FMC updates. ... This is usually automatic but manual selections can be made here. The most ... The Bill Bulfer Books B737NG FMC USER'S GUIDE. The 737 Flight Management Computers (FMC) are managed using the Control Display Units (CDU) on either side of the lower Display Unit (... FMC Users Guide Boeing 737 | 60037 The FMC B-737 guide concentrates on the FMC built by Smiths Industries and includes technical drawings and teaching diagrams. The companion volume covers the B- ... 737-Smiths-FMC-Guide.pdf Jul 27, 2001 — MANUAL. Refer to the Boeing Airplane Company 737-300/400/500 operations manual or the 737-600/700/800 operations manual ... Boeing 737-800X FMC Manual 1.0.0 | PDF | Aviation Boeing 737-800X FMC Manual 1.0.0 - Read online for free. 737 FMC User Guide - Studylib 737 FMC USER'S GUIDE Advanced Guide to the 737 Flight Management Computer May 01 737 ... FMC CONFIGURATION Dec 95 DUAL FMC CONFIGURATION - B737 A dual FMC ... PMDG 737 This manual was compiled for use only with the PMDG

737 simulation for. Microsoft Flight Simulator. The information contained within this manual is derived.