Information Security in E-commerce

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***Abstract*—This thesis explores the security of information in e-commerce, focusing on the design and implementation of a secure e-commerce website using PHP and MySQL. The study includes an analysis of the company 'Tuổi Trẻ Hòa Bình' and proposes solutions to address security vulnerabilities and protect customer information. The research covers the theoretical foundations of e-commerce, including online transactions, payment methods, and security measures. It also discusses the operations of 'Tuổi Trẻ Hòa Bình', highlighting the current challenges in managing and securing business data. The thesis details the design and implementation of a secure e-commerce website, including database queries, JavaScript integration, and the selection of PHP and MySQL as the primary tools for web application development. The results show that the developed website has essential functionalities, including secure online payments and a user-friendly interface. However, the thesis acknowledges that further improvements are needed to fully address security issues and meet customer demands. The discussion focuses on the identified security vulnerabilities and proposes solutions such as secure coding practices, data backup, and the use of PHP and MySQL for efficient database management. The thesis also highlights the benefits of using open-source software and the importance of regular updates and maintenance.**

***Index Terms*—e-commerce, PHP, MySQL, security, database, web design**

I. Introduction

The thesis provides a theoretical foundation for e-commerce, detailing various aspects such as online transactions, payment methods, and security measures. It also analyzes the operations of a local e-commerce company, 'Tuổi Trẻ Hòa Bình', to understand the current challenges in managing and securing business data. The company, established in 2005, specializes in selling mobile phones and accessories from reputable brands. Despite its young age, the company has grown to include a management team and a sales department, with a focus on providing high-quality, affordable products to customers. However, the company's current operations rely on manual record-keeping, which limits efficiency and accuracy. The thesis aims to address these challenges by designing and implementing a secure e-commerce website using PHP and MySQL [1]. Published articles on the methods and subject of this project provide context for this English summary [6]. Related earlier ICTU undergraduate theses provide context for this English summary [7]. Published books on the methods and subject of this project provide context for this English summary [8]. Published articles on the methods and subject of this project provide context for this English summary [9], [10].

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II. Methods

The methods section covers the design and implementation of a secure e-commerce website using PHP and MySQL. The research includes database queries, JavaScript integration, and the selection of PHP and MySQL as the primary tools for web application development. The thesis details the creation of a customer database, an admin account table, and a news table. The implementation of PHP and MySQL is described through examples, such as fetching data from a database and embedding JavaScript into HTML files. The choice of PHP and MySQL is justified by their speed, stability, and compatibility with various operating systems and web servers. The thesis also discusses the importance of secure coding practices, data backup, and regular updates to ensure the website's security and reliability [1].

III. Results

The developed e-commerce website includes essential functionalities such as secure online payments and a user-friendly interface. The website's design and implementation demonstrate the successful integration of PHP and MySQL for database management. However, the thesis acknowledges that further improvements are needed to fully address security issues and meet customer demands. The website's current functionalities, such as secure payment processing, are functional but require additional security measures to fully protect customer information. The thesis also highlights the need for continuous updates and maintenance to ensure the website's security and reliability [1].

IV. Discussion

The discussion focuses on the identified security vulnerabilities and proposes solutions such as secure coding practices, data backup, and the use of PHP and MySQL for efficient database management. The thesis emphasizes the importance of secure coding practices to prevent common security issues such as SQL injection and broken links. The use of PHP and MySQL is highlighted as a reliable solution for efficient database management and secure coding. The thesis also discusses the benefits of using open-source software and the importance of regular updates and maintenance to ensure the website's security and reliability. The proposed solutions aim to address the identified security vulnerabilities and provide a secure platform for customers to conduct transactions [1].

V. Conclusion

The conclusion summarizes the key findings, emphasizing the importance of secure e-commerce practices and the need for continuous improvement in web application security. The thesis suggests future work to optimize existing functionalities and enhance security measures. The research highlights the challenges faced by e-commerce companies in managing and securing business data and the importance of implementing robust security practices. The thesis provides a foundation for future research and development in e-commerce security, particularly in the context of small and medium-sized enterprises (SMEs) in Vietnam [1].

References

[1] ICTU Student 151, "Information Security in E-commerce," internal undergraduate thesis (original in Vietnamese), Thai Nguyen University of Information and Communication Technology, 2010.

[2] NGUYỄN TRƯỜNG SINH (Chủ biên), "Sử Dụng PHP & MySQL Thiết Kế Web Động"- Nhà Xuất Bản: Thống kê

[3] PHẠM HỮU KHANG (Chủ biên), "Xây Dựng Ứng Dụng Web Bằng PHP Và MySQL (Ấn Bản Dành Cho Sinh Viên - Có CD Bài Tập Kèm Theo sách)"- Nhà Xuất Bản: Phương Đông

[4] NGUYỄN THIÊN BẰNG (Chủ biên), "Giáo Trình Nhập Môn PHP & MySQL - Xây Dựng Ứng Dụng Web"- Nhà Xuất Bản: Lao động - Xã hội

[5] NGUYỄN TẤN TRƯỜNG (Tác giả), "Hướng Dẫn Thực Hành PHP Và MySQL Toàn Tập"- Nhà Xuất Bản: Thanh Niên

[6] Barbara Gengler, "E-commerce security study," Network Security, vol. 1999, no. 9, pp. 7, 1999. DOI: 10.1016/s1353-4858(99)90262-3.

[7] ICTU Student 70, "Application of E-commerce," internal undergraduate thesis, Thai Nguyen University of Information and Communication Technology, 2008.

[8] C. Darie and E. Balanescu, Beginning PHP and MySQL E-Commerce: From Novice to Professional, 2nd ed. Apress, 2008. DOI: 10.1007/978-1-4302-0291-2.

[9] Robert J. Boncella, "Web Security for E-Commerce," Communications of the Association for Information Systems, vol. 4, 2000. DOI: 10.17705/1cais.00411.

[10] Whitfield Diffie, "E-commerce and security," StandardView, vol. 6, no. 3, pp. 116-117, 1998. DOI: 10.1145/324042.324047.