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Analysis of User Data Security in Risks and Recommendations in the Shopee Application

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Article Info	ABSTRACT
	This analysis aims to evaluate the security of user data on the Shopee application, identify risks that may arise, and provide recommendations for improving data protection. This research was carried out by examining existing security mechanisms at Shopee, including data encryption, privacy policies, and protective measures against cyber attacks. The analysis was carried out through a literature review regarding data security practices in e-commerce applications, as well as case studies of past security incidents. experienced by Shopee and similar applications. Apart from that, interviews with cyber security experts were also conducted to gain deeper insight. *This is an open access article under the CC BY-NC license.*

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1. INTRODUCTION

Nowadays online shopping has become an inseparable part of everyday life. Shopee, one of the leading e-commerce platforms in Southeast Asia and Taiwan, provides convenient and diverse online shopping services. However, with this convenience, there are also user data security risks that need to be considered. This analysis aims to identify potential security risks to user data on the Shopee application and provide recommendations for mitigating these risks.

Shopee offers a variety of features that enable users to make purchases, sell products and interact in a dynamic digital environment. Users can access the platform via mobile applications and websites, allowing them to carry out financial transactions online. However, with increasing reliance on digital technology, the security risks of user data also increase.

User data security is a crucial aspect in maintaining the trust and integrity of e-commerce platforms. Personal data, such as names, addresses, telephone numbers and financial information, are the main targets for cybercriminals. Data security breaches can resulting in significant negative impacts, including identity theft, financial fraud, and damage to a company's reputation

2.   RESEARCH METHOD

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┌──────────────┐      ┌──────────────┐      ┌──────────────┐
│  Pendekatan  │  →   │ Pengumpulan  │  →   │ Analisis Risiko │
│  Penelitian  │      │    Data      │      │              │
└──────────────┘      └──────────────┘      └──────────────┘

┌──────────────┐      ┌──────────────┐
│   Evaluasi   │  →   │  Penyusunan  │
│  Kerentanan  │      │ Rekomendasi  │
└──────────────┘      └──────────────┘
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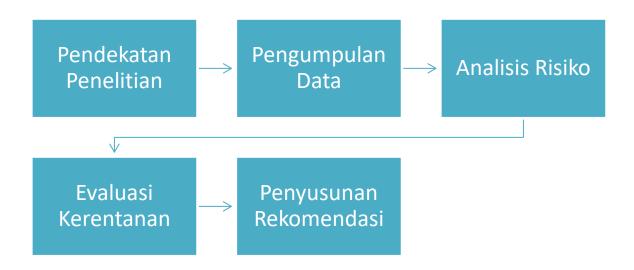
Figure 1. Research Methode

1. Research Approach
   Using qualitative and quantitative approaches to obtain comprehensive data.

2. Data collection
   - Primary data:
   - Interviews: Conduct interviews with cybersecurity experts and e-commerce industry practitioners to gain their views on risks and effective mitigation.
   - Survey: Distributed questionnaires to Shopee application users to obtain their perceptions about data security. Questions can cover aspects such as user experience, awareness of security practices, and trust in the application.
   - Application Security Testing: Conduct penetration testing on the Shopee application using tools such as OWASP ZAP, Burp Suite, and other security tools to identify vulnerabilities.- Data Sekunder:
   - Studi Kasus: Menganalisis insiden keamanan sebelumnya pada aplikasi e-commerce lainnya yang mirip dengan Shopee.
   - Laporan Keamanan: Mengumpulkan data dari laporan keamanan dari organisasi terkait seperti OWASP, lembaga keamanan siber, dan publikasi akademis.

3. Risk Analysis
   - SWOT Analysis: Identifying strengths, weaknesses, opportunities and threats related to user data security at Shopee.
   - Threat Modeling: Build threat models to understand potential threats and vulnerabilities in applications.- Risk Assessment Matrix: Assess the risk level of various identified threats based on their probability and impact.

4. Vulnerability Evaluation
- Penetration Testing: Conduct penetration testing to find and exploit security vulnerabilities in applications.
- Static and Dynamic Analysis: Uses static and dynamic analysis tools to assess source code and application behavior.

5. Preparation of Recommendations
Based on the results of risk analysis and vulnerability evaluation, develop recommendations that include:
- Security Protocol Implementation: Implement end-to-end encryption, multi-factor authentication, and other security measures.
- Increased User Awareness: Educate users about good cybersecurity practices through campaigns and guides.
- Internal Security Policies and Procedures: Develop and update internal security policies to reduce risks.

3.   RESULTS AND DISCUSSION

Analysis of user data security in risks and recommendations on the Shopee application is an important topic in the context of protecting personal information and security of online transactions.

1. Identified Security Risks
    User data leaks against potential leaks of personal information such as user names, addresses, telephone numbers and emails.

2. Security Practices Adopted by Shopee
    Verification identification verification process implemented to ensure user identity and reduce the risk of account misuse.

3. Recommendations for Improving Security
  Cooperation with independent security third parties and collaboration with cybersecurity experts to validate and improve security practices.

4. Lack of User Awareness
  Many users may not heed recommended security practices such as updating software or avoiding applications from unofficial sources.

5. Data Encryption
  Shopee uses end-to-end data encryption for financial transactions, which minimizes the risk of illegal access to sensitive information.

4.   CONCLUSION

This research identifies various user data security risks in the Shopee application and provides recommendations for improving this security. The implementation of stronger security protocols, increased user awareness, and stricter internal policies are expected to reduce risks and better protect user data.

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