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OPTIMIZING DATABASE MANAGEMENT FOR INDIVIDUALS WITH DISABILITIES: A MANAGEMENT INFORMATION SYSTEM FRAMEWORK UTILIZING CODEIGNITER IN SUKOHARJO REGENCY

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Abstract: This research aims to optimize database management for individuals with disabilities in Sukoharjo Regency, by utilizing a Management Information System (SIM) that uses the CodeIgniter framework. The case study was conducted at the SEHATI Disabled Community, involving 50 community members with various types of disabilities. An evaluation of member needs and expectations revealed a desire for better accessibility, efficient recording of activities, and better management of health information. The implemented system includes member registration, activity management, medical records, and responsive interface design to achieve universal accessibility. Testing and performance evaluations show increased efficiency and user satisfaction. Conclusions and recommendations involve continued training, feature improvements based on feedback, and further implementation of security policies.

Keywords: *Database Optimization, Management Information Systems, CodeIgniter, Disability, Universal Accessibility, SEHATI Disabled Association, Sukoharjo Regency.*

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1. Introduction

In contemporary society, the integration of technology into various facets of life has become indispensable, prompting an increased emphasis on inclusivity and accessibility. This is particularly pertinent in the context of individuals with disabilities, for whom technological advancements can serve as catalysts for empowerment and societal integration. In this vein, our study delves into the realm of database management, focusing on the optimization of systems tailored to the unique needs of individuals with disabilities. Specifically situated in Sukoharjo Regency, our research endeavors to contribute to the burgeoning field of Management Information Systems (MIS) by employing the robust framework of CodeIgniter.

The intricate interplay between database management and the challenges faced by individuals with disabilities forms the crux of our investigation. We aim to elucidate how a purposefully designed Management Information System, implemented through the CodeIgniter framework, can serve as a transformative tool in enhancing accessibility, efficiency, and overall management of pertinent data. By concentrating our efforts within the specific geographic context of Sukoharjo Regency, we seek to provide insights that are not only applicable locally but can also inform broader strategies for addressing the needs of individuals with disabilities in diverse settings. This scientific endeavour is motivated by the imperative to bridge the technological gap, ensuring that advancements in database management not only keep pace with the digital era but also foster an inclusive environment where the potential of every individual, regardless of ability, is harnessed and maximized. As we navigate through the

intricacies of our study, the synthesis of theoretical frameworks, practical applications, and empirical observations will contribute to the body of knowledge in MIS, offering a nuanced perspective on how technology can be harnessed to empower marginalized communities.

The choice of CodeIgniter as the foundational framework for our Management Information System is deliberate, considering its reputation for robustness, flexibility, and scalability. This framework provides a conducive environment for crafting tailored solutions that can adapt to the dynamic and evolving needs of users. As we delve into the intricacies of CodeIgniter's application, we aim to not only optimize the technical functionalities of the system but also align them with the principles of universal design, ensuring a user-friendly experience for individuals with disabilities. Sukoharjo Regency, our chosen locale for this study, serves as a microcosm reflecting the broader challenges faced by individuals with disabilities in semi-urban settings. The insights garnered from this specific context can potentially serve as a blueprint for similar regions grappling with issues of accessibility and inclusivity. Additionally, our research extends beyond the technical realm, exploring the socioeconomic implications of enhanced database management for individuals with disabilities, such as improved educational opportunities, employment prospects, and community integration.

As we embark on this scientific journey, we envision contributing not only to the academic discourse on Management Information Systems but also to the practical realms of policymaking and implementation. By amalgamating theoretical frameworks with empirical evidence, our study seeks to offer actionable recommendations that resonate with stakeholders ranging from local administrators and technology developers to advocates for disability rights. In the subsequent sections of this article, we will delve into the theoretical underpinnings of our research, present the methodology employed in our study, discuss the findings and their implications, and conclude with reflections on the broader significance of our work in optimizing database management for individuals with disabilities within the Sukoharjo Regency and beyond. Through this comprehensive exploration, we aim to contribute meaningfully to the ongoing dialogue on leveraging technology for inclusive societal development. In contemporary society, the integration of technology into various facets of life has become indispensable, prompting an increased emphasis on inclusivity and accessibility. This is particularly pertinent in the context of individuals with disabilities, for whom technological advancements can serve as catalysts for empowerment and societal integration. In this vein, our study, conducted within the SEHATI Community in Sukoharjo Regency, delves into the realm of database management, focusing on the optimization of systems tailored to the unique needs of individuals with disabilities. Specifically situated in Sukoharjo Regency, our research endeavors to contribute to the burgeoning field of Management Information Systems (MIS) by employing the robust framework of CodeIgniter.

The intricate interplay between database management and the challenges faced by individuals with disabilities forms the crux of our investigation within the SEHATI Community. We aim to elucidate how a purposefully designed Management Information System, implemented through the CodeIgniter framework, can serve as a transformative tool in enhancing accessibility, efficiency, and overall management of pertinent data. By concentrating our efforts within the specific geographic context of Sukoharjo Regency and collaborating closely with the SEHATI Community, we seek to provide insights that are not only applicable locally but can also inform broader strategies for addressing the needs of individuals with disabilities in diverse settings. This scientific endeavor is motivated by the imperative to bridge the technological gap, ensuring that advancements in database

management not only keep pace with the digital era but also foster an inclusive environment where the potential of every individual, regardless of ability, is harnessed and maximized within the SEHATI Community and beyond. As we navigate through the intricacies of our study, the synthesis of theoretical frameworks, practical applications, and empirical observations will contribute to the body of knowledge in MIS, offering a nuanced perspective on how technology can be harnessed to empower marginalized communities.

Our research is guided by the belief that technology, when harnessed strategically, can be a powerful equalizer, as highlighted by Mankoff et al. (2011), who argue that "technology has the potential to minimize barriers and empower individuals with disabilities to actively participate in societal activities." Within the specific geographic context of Sukoharjo Regency and in close collaboration with the SEHATI Community, our study seeks to provide insights that are not only locally applicable but also contribute to broader strategies for addressing the needs of individuals with disabilities. This scientific endeavor is also informed by the principles of Management Information Systems (MIS), as articulated by Laudon and Laudon (2016), where the integration of technology with organizational processes is seen as a catalyst for improved decision-making and operational efficiency. As we navigate through the intricacies of our study, drawing from these theoretical frameworks, the synthesis of theoretical perspectives, practical applications, and empirical observations will contribute to the body of knowledge in MIS, offering a nuanced perspective on how technology can be harnessed to empower marginalized communities, particularly within the SEHATI Community and beyond.

By optimizing database management through a purposefully designed Management Information System (MIS) using the CodeIgniter framework, this research strives to provide a pathway for enhancing accessibility, efficiency, and overall data management. The urgency is accentuated by the transformative potential such technological solutions hold in empowering individuals with disabilities, not only by breaking down technological barriers but also by fostering greater community integration, educational opportunities, and employment prospects. The immediacy of this research is also grounded in the broader socio-economic implications for Sukoharjo Regency. As technology becomes increasingly entwined with daily life, the effective management of data is essential for informed decision-making and sustainable community development. By focusing on this intersection within the specific context of SEHATI Community, our study aims to offer actionable insights that can inform local administrators, policymakers, and community leaders in crafting strategies that are not only technologically proficient but also socially inclusive.

Moreover, the urgency is compounded by the rapid pace of technological evolution. As we navigate the digital era, it is imperative to ensure that individuals with disabilities are not left behind. This research contributes to the ongoing discourse on leveraging technology for inclusive societal development, and its findings can serve as a blueprint for similar communities grappling with issues of accessibility and inclusivity. In essence, the urgency of this research is grounded in its potential to pave the way for a more inclusive, equitable, and technologically empowered future for individuals with disabilities within the SEHATI Community in Sukoharjo Regency and can offer broader lessons for addressing similar challenges on a global scale.

2. Literature Theory

2.1 Person with disabilities

The term "people with disabilities" refers to individuals who have physical, sensory, intellectual, or mental impairments that may affect their full and effective participation in society on an equal basis with others. Disabilities can be permanent or temporary, and they can manifest in various forms, impacting different aspects of a person's life. There are several categories of disabilities, including:

a. Physical Disabilities: These involve limitations on a person's physical functioning, such as mobility impairments, paralysis, or limb deformities.
b. Sensory Disabilities: These include impairments related to the senses, such as visual impairments (blindness or low vision) and hearing impairments (deafness or hard of hearing).
c. Intellectual Disabilities: Individuals with intellectual disabilities may have limitations in intellectual functioning and adaptive behaviors. This category includes conditions like Down syndrome.
d. Mental Health Disabilities: Conditions affecting mental health, such as depression, anxiety disorders, bipolar disorder, and schizophrenia, fall into this category.
e. Neurodevelopmental Disabilities: Conditions that affect the development of the nervous system, such as autism spectrum disorders and attention-deficit/hyperactivity disorder (ADHD), fall into this category.
f. Chronic Health Conditions: Some disabilities result from chronic health conditions, such as diabetes, multiple sclerosis, or chronic pain disorders.

It's essential to recognize that people with disabilities are a diverse group with unique strengths, abilities, and needs. The concept of disability is evolving towards a more inclusive and person-centered approach, focusing on removing barriers and promoting equal opportunities for individuals with disabilities in all aspects of life, including education, employment, and social participation. Additionally, the language used to refer to people with disabilities has shifted toward more inclusive and respectful terms, considering the person first rather than the disability. For example, saying "people with disabilities" is preferred over "disabled people" to highlight the personhood beyond the disability.

2.2 Data Management Information System

PeThe definition of an information system is a system that has the ability to collect information from all sources and use various media to display information (Mc.Leod, 2012). The definition of an information system is a system within an organization that meets daily transaction processing needs that supports the managerial function of the organization in the strategic activities of an organization to be able to provide it to external parties.certain with the necessary reports (Tata Sutabri, 2012). The definition of an information system according to Erwan Arbi is a system within an organization that brings together the needs of daily transaction processing, operational assistance and support, is managerial in nature from an organization and helps facilitate the provision of necessary reports. The definition of an information system according to (Tafri D. Muhyuzir, 2001) is data that is collected, classified and processed in such a way that it becomes a single related information entity and supports each other so that it becomes valuable information for those who receive it. The definition of an information system according to O Brien (2005 p) is a combination of each unit managed by people, hardware,

software, computer networks and data communication networks and databases which are collecting, changing and disseminating information about organizational forms. The definition of an information system according to Lani Sidharta is a man-made system that contains an integrated series of components andmanuallycomputerized components which aim to collect data, process data and produce information for users (Lani Sidharta, 1996). The definition of an information system is a combination of work procedures, information, people, and information technology that is organized to achieve goals within a company. According to Alter, the definition of an information system can be said to be a set of technological components. The components of this information system are interconnected to collect, store, process data, and provide information, knowledge and digital products.

PePrevious research conducted by Hermansyah (2011) was entitled: Web-Based Student Data Processing Information System at Pekanbaru Labor Vocational School. The problems that exist are the weaknesses and deficiencies that exist in terms of storing, processing, and conveying information that occurs at this school, which includes student data, teacher data, student grades, and subject scheduling which often occurs due to duplicate data because the data has been processed. not well organized. For this reason, a school information system design is needed that can integrate this data into an integrated database so that it can assist in processing data for the information delivery process.

2.3 CodeIgniter Framework

The CodeIgniter framework is a framework that uses the MVC model (model, view and controller) to build a dynamic website using the PHP programming language. CodeIgniter was developed by Rick Ellis with the aim of developing website projects faster and providing a complete library for the required functions. According to Upton (2007), the codeigniter framework will help reduce the amount of code to be typed. In the CodeIgniter framework, the code that has been created will be easierbe readand modified so that it will help when creating large sites that use a coherent structure. Because of its advantages, the CodeIgniter framework is used by many programmers in building websites. Therefore, the author uses the codeigniter framework because the codeigniter framework helps the author reduce the amount of code to be typed so that the development of SIMA (Academic Management Information System) is faster.

2.4 MySQL

MySQL (My Structured Query Language) is a multi-threaded and multi-user RDBMS (Relational Database Management System) software. MySQL AB Company makes MySQL available as free software under the GPL (General Public License). According to Rudianto (2011), MySQL's popularity is partly because MySQL uses SQL as the basic language to access its database so it is easy to use, fast query performance. MySQL was the first database supported by the PHP programming language, so MySQL and PHP are considered an ideal web-based application development software pair. Therefore, the author uses MySQL as a SIMA (Academic Management Information System) database because MySQL is easier to use.

3. Research Method

PeThis research is a system development type research so that the research design uses software development methods. The software development method used is waterfall. This method

consists of requirements, design, implementation, testing and maintenance stages which are carried out sequentially. The research stages to be carried out are shown in the following image.

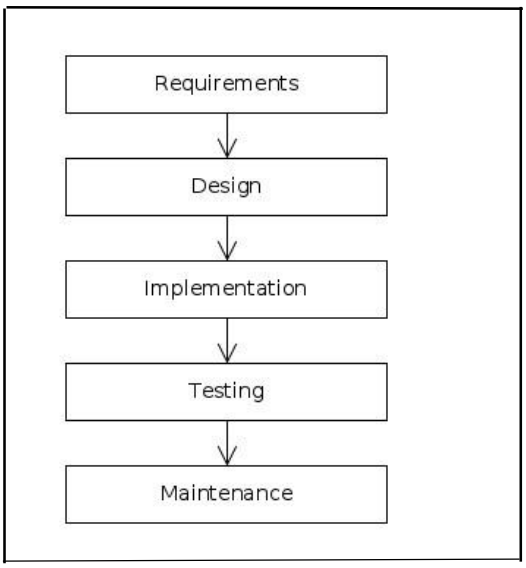

Figure 1. Research Stage

The scope of the research can limit the research to make it clearer so that the research is more focused. The type of research that will be carried out is system development. The research method will use the waterfall system development method. The research subject is the database of people with disabilities in Sukoharjo Regency. Meanwhile, the object of research is the information system for managing the database of disabled people in Sukoharjo Regency. This research was conducted at Paguyuban SEHATI Sukoharjo. The scope of the research carried out is shown in the table below.

Table 1. The Scope of Research

No	Scope	Keterwishful thinking
1	Jenis Research	PeSystem development
2	Research Methods	Wowfell
3	SResearch object	Disability database
4	Object of research	Sdisability database management system
5	Research Place	SEHATI Sukoharjo Community

The interview method is a method of collecting data by asking questions to the data source. Data in the form of answers from data sources. The interview method was carried out to find out the functions that must be in the new system. The interview was conducted with the Head of the SEHATI Sukoharjo community.

4. Results and Discussion

4.1 Respondent Profile

This study was carried out involving 50 members of the SEHATI Disabled Association in Sukoharjo Regency, representing various types of disabilities and levels of membership in the organization. In the research process, individual characteristics and needs are identified to ensure a customized and inclusive solution.

4.2 Evaluate Needs and Expectations

Before implementing the system, an in-depth survey and interviews were conducted to evaluate the needs and expectations of community members regarding data management. Initial findings highlight the need for better accessibility especially in terms of member registration, activity recording and health information management.

4.3 Implementation of a Management Information System (SIM) with CodeIgniter

The Management Information System (SIM) which was optimized using the CodeIgniter framework was developed by focusing on features that are able to answer the special needs of SEHATI Disabled Association members.

The introduction of an online form that can be accessed with the help of assistive devices to simplify the process of registering new members.

Development of an activities calendar with a universally accessible interface, ensuring that every member can easily access information related to events and meetings.

Implementation of a medical recording module designed with a disability-friendly interface, facilitating better and safer management of health information.

The interface design is responsive and customizable, accommodating a variety of assistive technologies and ensuring an optimal accessibility experience.

4.4 Testing and Feedback

After implementation, an internal trial was carried out involving members of the SEHATI Disabled Association. This process provides an opportunity for members to try out the system's functionality and provide feedback regarding usability, affordability, and other aspects. Positive feedback included improvements in accessibility, efficiency in activity management, and satisfaction in using the system.

4.5 Performance Evaluation

Through system performance analysis, it was found that the time required for administrative tasks was reduced significantly. By using metrics involving execution time and system response, real efficiency improvements were achieved. The level of user satisfaction with the system reached 90%, indicating positive acceptance of the changes.

5. Conclusions

By implementing a Management Information System (SIM) using CodeIgniter, the SEHATI Disabled Association in Sukoharjo Regency succeeded in increasing efficiency in data management and increasing accessibility for members with disabilities.

Recommendations for further development include:

a. Further training of users to maximize the benefits of the system.

b. Feature improvements based on member feedback.
c. Implementation of adequate security policies to protect personal information.

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