



Analysis and design of SIDATA as database management for the final project using Rapid Application Development

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ABSTRACT

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This study aims to analyze and design SIDATA, a database management system tailored for final project data, utilizing the Rapid Application Development (RAD) methodology. The primary objective is to enhance the efficiency and responsiveness of SIDATA in managing, storing, and retrieving final project-related information within an academic setting. The research employs a systematic approach that involves an initial analysis of user requirements and a comprehensive understanding of the final project data attributes. The RAD methodology is then applied, focusing on iterative development, quick prototyping, and continuous user feedback to tailor SIDATA to the specific needs of its users. The methodology allows for swift adjustments and refinements throughout the development process. Implementing RAD in the analysis and design of SIDATA has led to a more user-centric and adaptive database management system. SIDATA now efficiently captures, organizes, and presents final project data, streamlining the process for students, faculty, and administrators. The iterative nature of RAD facilitated the rapid development of features and ensured that SIDATA remained aligned with the evolving requirements of the academic environment. In conclusion, applying RAD in the analysis and design of SIDATA has proven to be instrumental in creating a responsive, user-friendly database management system. The iterative and collaborative nature of RAD has enhanced the adaptability of SIDATA to the dynamic needs of its users, providing an efficient platform for managing final project data within an academic context.

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1. INTRODUCTION

This study's primary aim is to significantly contribute to the existing body of knowledge in the database and information systems field for final project documentation in the

study program. The main objective is to analyze and design a database and information system known as SIDATA to solve documentation issues in academic institutions, which is anticipated to fill a critical gap in the literature. This study sheds light on the Rapid Application Development framework through rigorous analysis and synthesis of the challenges in using digital technology for academic repository databases. The study aspires to offer valuable implications for the Information System Department by addressing this gap, ultimately contributing to advancing scholarly understanding and practical applications in the field. In conclusion, the research is poised to make a meaningful and lasting contribution to the ongoing discourse in human-computer interaction and system design, with the potential to influence future research directions and practical developments.

The paramount significance of an effective data management system for Final Projects within education cannot be overstated. The central tenet facilitates seamless organization, accessibility, and analysis of critical academic data (Andrikopoulou et al., 2022). With an efficient system, educational institutions can streamline handling copious amounts of Final Project information, ensuring that it is systematically stored and readily available for evaluation and reference (Cox, 2023). Moreover, integrating advanced data management technologies enhances the overall efficiency of academic processes and fosters a conducive environment for meaningful research and academic discourse (Goldman et al., 2023). In light of these considerations, it is indisputable that a well-structured data management system for Final Projects is indispensable for the optimal functioning of educational institutions, playing a pivotal role in advancing scholarly endeavors (Mani et al., 2021).

Effective data management in thesis reports ensures the integrity and coherence of scholarly endeavors (Atmaja, 2020). The primary objective of data management in thesis reports is to establish a robust framework for organizing, storing, and retrieving diverse datasets integral to the research process (Andie, 2020). As the volume and complexity of data in academic theses continue to escalate, a well-structured data management system becomes increasingly imperative (Imamah & Hidayat, 2019). A judiciously designed system expedites the researcher's ability to navigate and comprehend intricate datasets and fortifies the credibility of research outcomes (Yesputra & Marpaung, 2018). In light of the evolving landscape of academic inquiry, a comprehensive data management approach addresses the logistical challenges associated with data. It substantiates the reliability and replicability of research findings (Faza, 2018). In conclusion, meticulous data management in thesis reports is an indispensable facet of scholarly pursuits, nurturing the coherence and rigor essential for contributing valuable insights to the academic domain.

Managing academic data poses multifaceted challenges that necessitate careful consideration within the scholarly landscape. The primary challenge lies in the sheer volume and diversity of data generated across educational institutions, encompassing student records, research findings, and administrative information (Rotikan, 2018). Negotiating the intricacies of handling this expansive dataset requires robust systems ensuring data integrity, security, and accessibility (Oktafianto et al., 2023). The evolving nature of academic research and technological advancements also introduces the challenge of adapting data management strategies to keep pace with emerging trends (Lindang et al., 2022). Despite the undeniable complexity, educational institutions must view these challenges as opportunities for innovation and improvement (Nisar et al., 2022). By addressing the challenges head-on, institutions can enhance the efficiency of their academic operations and contribute to the advancement of knowledge and the scholarly community as a whole (Nurokhim & Mulyanti, 2023). In conclusion, navigating the challenges of academic data management demands a strategic and adaptive approach that recognizes both the complexities and potential for progress within the dynamic educational landscape.

Establishing an academic data repository system constitutes a pivotal advancement in modern educational infrastructure. At its core, such a system serves as the linchpin for the organization, storage, and accessibility of diverse academic datasets, ranging from student records to research findings (Sukrianto & Maria, 2022). The primary benefit lies in consolidating dispersed data sources and fostering a centralized repository that facilitates efficient data management (Suhaidi et al., 2022). Additionally, an academic data repository system enhances data security, ensuring the confidentiality and integrity of sensitive information (Rohman & Hidayat, 2021). The system streamlines administrative processes from an operational standpoint, offering a user-friendly interface for seamless data retrieval and analysis (Kelvin et al., 2022). This innovative approach elevates the efficiency of academic institutions and provides a robust foundation for collaborative research initiatives (Kahpi et al., 2022). In conclusion, implementing an academic data repository system emerges as an imperative stride towards modernizing educational frameworks, offering a comprehensive solution to the challenges associated with data organization and accessibility in the academic domain.

The significance of designing a robust SIDATA (Final Project Data Information System) cannot be overstated in the academic realm. At its core, SIDATA is a pivotal tool for systematically organizing, storing and retrieving data related to final projects. The primary importance lies in its capacity to streamline the complex processes associated with managing and accessing a myriad of final project information. With a well-designed SIDATA, educational institutions can enhance administrative efficiency, providing stakeholders with a centralized platform for effortless data navigation. Furthermore, the system catalyzes promoting transparency and accountability in academic endeavors. In the ever-evolving landscape of educational technology, the implementation of SIDATA addresses the logistical challenges posed by the voluminous final project data and positions institutions at the forefront of innovative and adaptive data management solutions. In conclusion, the thoughtful design and implementation of SIDATA are paramount for fostering a conducive academic environment characterized by enhanced efficiency, transparency, and the seamless management of final project data.

The importance of SIDATA (Final Project Data Information System) for identifying trends in students' final project topics is paramount within the academic landscape. The central tenet lies in its capacity to systematically aggregate and analyze a vast array of final project data, allowing for the identification of prevalent themes and emerging trends. By implementing sophisticated algorithms and data analytics, SIDATA enables educational institutions to discern patterns in students' chosen research topics, facilitating a comprehensive understanding of academic interests and foci. This insight not only aids academic advisors in tailoring guidance but also assists institutions in aligning their curricula with students' evolving interests. In the dynamic landscape of academic research, SIDATA is an invaluable tool for tracking and anticipating student preference shifts, fostering an adaptive and responsive educational environment. In conclusion, integrating SIDATA is pivotal in identifying and responding to emerging trends in students' final project topics, contributing to the continued relevance and resonance of academic programs.

The importance of SIDATA (Final Project Data Information System) in minimizing the risk of data loss and supporting program accreditation is of paramount significance within the academic milieu. The primary rationale resides in SIDATA's role as a comprehensive repository that systematically safeguards and organizes critical academic data, mitigating the potential loss of invaluable information. Additionally, as accreditation processes increasingly emphasize data-driven decision-making and evidence-based assessments, SIDATA emerges as a pivotal tool in providing a transparent and traceable record of academic achievements, research outputs, and program outcomes. The seamless integration of SIDATA fortifies an institution's ability to demonstrate compliance with accreditation standards and enhances the academic programs' overall

reliability and credibility. In conclusion, adopting SIDATA is indispensable for mitigating data loss risks and fortifying the evidentiary foundation crucial for successful program accreditation.

2. RESEARCH METHOD

The Rapid Application Development (RAD) methodology encompasses several key stages, each playing a pivotal role in the swift and iterative development of software applications (Suni et al., 2023). The primary phase involves requirements planning, wherein project objectives and user needs are meticulously identified and documented. Subsequently, the system is designed through a collaborative and interactive process, continuously incorporating user feedback to ensure alignment with expectations. The actual construction phase follows, characterized by the rapid development of prototypes or iterations of the software. This iterative nature allows quick adjustments based on user feedback and changing requirements. The testing phase is integral, involving rigorous evaluation and validation to ascertain the application's functionality, performance, and reliability. Finally, the deployment phase concludes the RAD process, wherein the software is released for actual use. Opinions on RAD often highlight its agility, adaptability, and user-centric approach, emphasizing its effectiveness in delivering high-quality software solutions time-efficiently. In conclusion, the distinctive stages of the RAD methodology collectively contribute to its reputation as a dynamic and responsive approach to software development.

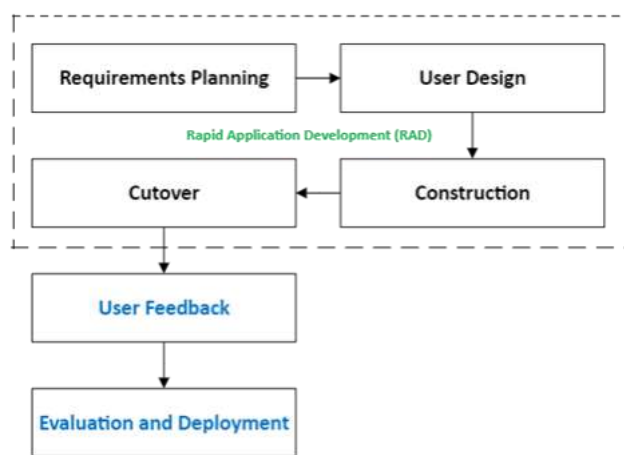


Figure 1. Rapid Application Development Framework for SIDATA (Suni et al., 2023)

The Rapid Application Development (RAD) methodology presents notable advantages in the software development (Jean & Sihombing, 2023). Its primary strength lies in its agility and speed, stemming from the iterative and collaborative nature of the development process. RAD allows for rapid prototyping, enabling stakeholders to visualize and interact with the evolving software early in the development cycle (Fajri & Hardiani, 2023). This iterative approach facilitates quick adaptation to changing requirements and user feedback, fostering a dynamic development environment (Artanti, 2023). Moreover, RAD promotes enhanced user involvement throughout the process, leading to a final product that aligns closely with user expectations (Nugraha et al., 2023). Opinions on RAD often emphasize its ability to deliver functional prototypes and responsiveness to evolving projects promptly (Nafanda et al., 2023). In conclusion, the

distinctive advantages of RAD position it as a preferred methodology for projects that demand flexibility, rapid iterations, and a high degree of stakeholder engagement.

Implementing Rapid Application Development (RAD) in the design of SIDATA (Final Project Data Information System) constitutes a strategic and advantageous approach to the development process. The primary phase involves swift requirements gathering, ensuring a clear understanding of the functionalities and objectives of SIDATA. Subsequently, RAD's iterative and collaborative nature allows for the rapid prototyping of essential features, enabling stakeholders to provide timely feedback and refine system requirements. The dynamic nature of SIDATA, influenced by RAD, ensures that the system is responsive to changing needs and evolving specifications throughout the development lifecycle. Opinions on this approach highlight its efficacy in expediting the development timeline, enhancing user engagement, and accommodating modifications efficiently. In conclusion, implementing RAD in SIDATA design accelerates the development process. It ensures the adaptability and responsiveness required to create a comprehensive and user-friendly Final Project Data Information System.

The Final Project Data Information System is instrumental in simplifying the research process for students, particularly in identifying novel research topics aligned with current trends. The primary facet of this approach involves swift requirements gathering, ensuring that SIDATA comprehensively captures students' diverse research interests and preferences. The iterative nature of RAD enables the rapid development of prototypes or features within SIDATA, allowing students to interact with the system and explore trending research topics efficiently. Opinions on this implementation emphasize its ability to enhance user engagement and responsiveness, facilitating a user-friendly interface for students seeking inspiration and guidance for their research endeavors. In conclusion, integrating RAD in SIDATA not only streamlines the process for students to identify novel research areas but also aligns the system with contemporary research trends, fostering a more intuitive and supportive platform for academic exploration.

2.1 Requirements Planning

The requirement planning stage within the design of SIDATA (Final Project Data Information System) based on Rapid Application Development (RAD) is a critical phase aimed at meticulously identifying the needs of students. The primary objective is to establish a comprehensive understanding of the functionalities and features that will cater to the diverse requirements of users. In this stage, a systematic approach is adopted to gather, document, and analyze students' specific needs and expectations engaging with the system. The iterative nature of RAD in this context allows for ongoing refinement of requirements, ensuring that SIDATA is finely tuned to address the evolving needs of its users. Opinions on this phase underscore its pivotal role in laying the foundation for a user-centric system, fostering an environment where SIDATA becomes an intuitive and responsive tool for students navigating the complexities of academic research. In conclusion, the requirement planning stage, as facilitated by RAD, is instrumental in shaping SIDATA to be a tailored and effective resource in meeting the distinctive needs of students in their academic pursuits.

2.2 User Design

The user design phase in SIDATA (Final Project Data Information System) development based on Rapid Application Development (RAD) principles is pivotal in facilitating the seamless utilization of application features and functions. At its core, this phase centers on the collaborative and iterative creation of an interface that aligns closely with the preferences and needs of the end-users, primarily the students. Through interactive prototyping and continuous feedback loops, RAD allows for the swift adaptation and refinement of the user interface, ensuring an intuitive and user-friendly system. Opinions on this phase underscore its significance in enhancing user

engagement and satisfaction, as a well-designed interface not only expedites the learning curve for students but also optimizes the overall usability of SIDATA. In conclusion, the user design phase within the RAD framework plays a crucial role in shaping SIDATA into a highly functional and user-centric application, ultimately contributing to a more effective and user-friendly academic research environment.

2.3 Construction

The construction phase in SIDATA (Final Project Data Information System) design utilizing the Rapid Application Development (RAD) methodology is pivotal for building a database infrastructure tailored to user needs. This phase involves the rapid development and implementation of the system's architecture, focusing on database construction that aligns with users' specific requirements and preferences. RAD's iterative and collaborative nature allows for continuous refinement and adjustment, ensuring the database infrastructure is robust and adaptable to evolving user needs. Opinions on this phase emphasize its efficiency in expediting the development timeline and enhancing the system's responsiveness to changing requirements. In conclusion, the construction phase within RAD is instrumental in establishing a database infrastructure within SIDATA that is not only technically sound but also closely aligned with the dynamic needs of users, contributing to the overall effectiveness of the Final Project Data Information System.

2.4 Cutover

The cutover phase in the SIDATA (Final Project Data Information System) design based on the Rapid Application Development (RAD) methodology plays a crucial role in identifying potential issues within the application usage process. In this phase, the transition from the development environment to the live production environment is executed, allowing for a comprehensive assessment of how SIDATA functions in a real-world setting. Any glitches, bottlenecks, or usability challenges can be identified and addressed promptly through systematic testing, user feedback, and performance evaluations. Opinions on this phase underscore its significance in ensuring smooth and trouble-free deployment of SIDATA, thereby enhancing user experience and minimizing disruptions. In conclusion, the cutover phase within RAD serves as a valuable checkpoint for fine-tuning SIDATA, addressing any unforeseen issues, and ensuring a seamless transition to full-scale application utilization.

2.5 User Feedback

The user feedback stage in the SIDATA (Final Project Data Information System) design utilizing the Rapid Application Development (RAD) methodology is critical for gauging user responses after system implementation. During this phase, end-users are actively involved in interacting with SIDATA, providing valuable insights, critiques, and suggestions. This iterative and user-centric approach allows for real-time adjustments to the system based on user experiences, ensuring that the final product aligns closely with user expectations. Opinions on this stage highlight its significance in enhancing user satisfaction, identifying potential usability issues, and fostering a continuous improvement cycle for SIDATA. In conclusion, the user feedback phase within RAD serves as a valuable mechanism for refining and optimizing SIDATA, ensuring its effectiveness and responsiveness to the evolving needs of its user community.

3. RESULTS AND DISCUSSIONS

3.1 Requirements Planning

The requirement planning stage within the SIDATA (Final Project Data Information System) design is undertaken to identify the institutional needs related to student final project data that will be stored in the database. This pivotal phase involves

a systematic and comprehensive process of gathering, analyzing, and documenting the specific requirements and expectations of the institution concerning the data associated with students' final projects. By exploring these requirements in-depth, the development team ensures a nuanced understanding of the functionalities and features that SIDATA must encompass. Opinions on this stage underscore its fundamental role in laying the groundwork for an information system that aligns seamlessly with the institutional objectives and complies with the unique demands of managing student final project data. In conclusion, the requirement planning stage serves as a critical foundation, ensuring that SIDATA is purposefully designed to meet the precise needs of the institution regarding the storage and management of student final project data within the database.

Identifying institutional needs about attributes associated with student final projects is crucial in designing an effective database system. Firstly, it is imperative to ascertain the specific data elements required, such as student details, project titles, and advisors, to ensure comprehensive coverage (Giri et al., 2023). Additionally, identifying data relationships is essential, elucidating how different elements interconnect within the database schema (Titiana & Bangkalang, 2023). Furthermore, determining data constraints, such as permissible values and validation rules, ensures data integrity (Johan et al., 2023). Data access requirements are considered, defining the levels of access and permissions for various users. Lastly, anticipating future scalability needs is vital to accommodate potential growth in data volume. The meticulous identification of these six key points provides a solid foundation for the database design, catering precisely to the institutional requirements for student final project attributes.

3.2 User Design

The six key points resulting from identifying institutional needs related to student final project attributes play a crucial role in shaping the user interface design of an Oracle APEX-based application. Firstly, the specific data elements identified, such as student details and project titles, directly influence the creation of user interface components dedicated to capturing and displaying these details. Secondly, understanding data relationships informs the arrangement and linkage of interface elements, ensuring a coherent and intuitive navigation experience. Data constraints, including permissible values and validation rules, guide the implementation of input forms and data validation mechanisms within the user interface. Considering data access requirements during the user interface design phase involves establishing distinct user roles and designing access controls accordingly. Furthermore, the anticipation of future scalability needs influences the design's flexibility and adaptability to accommodate potential expansions in data volume. In essence, these six key points intricately connect with the design of the user interface in an Oracle APEX-based application, serving as foundational considerations that contribute to developing a user-friendly and functionally efficient interface aligned with institutional requirements.

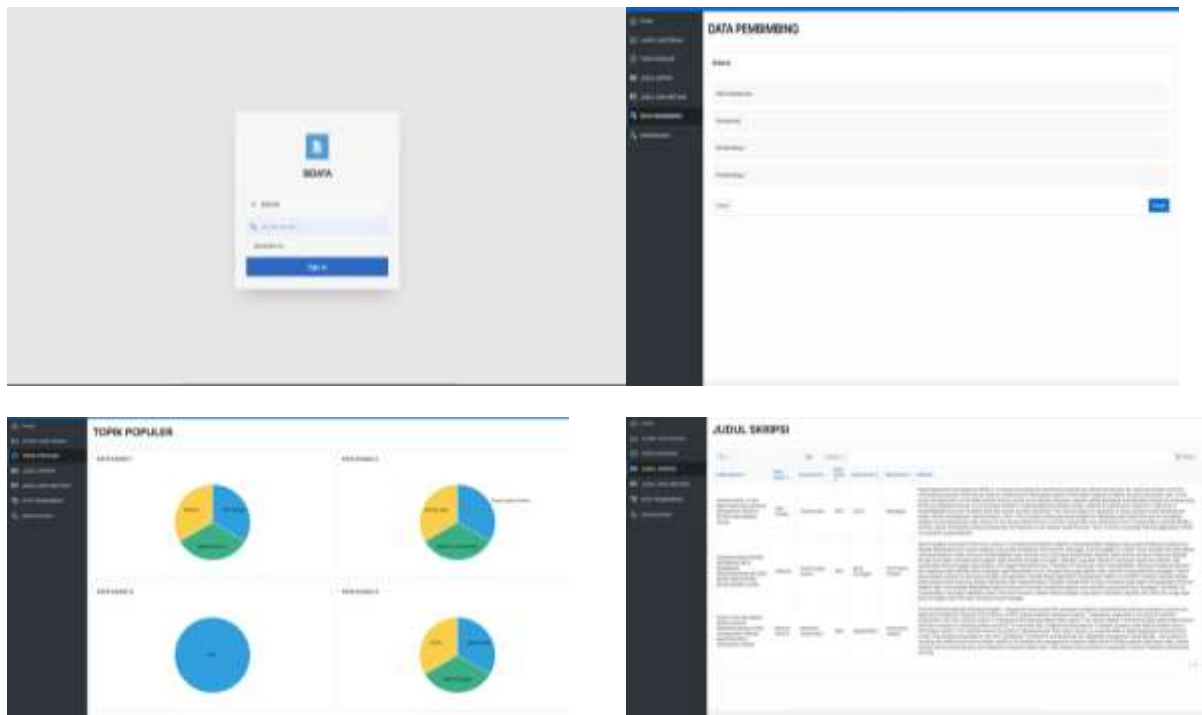


Figure 1. User Interface for SIDATA

The results of the user interface design for SIDATA are intricately tailored to meet the specific requirements of an academic data repository. The main focus lies in aligning the interface with the overarching goal of effectively managing and presenting academic data. The design incorporates user-friendly components and features, ensuring seamless navigation for stakeholders interacting with the repository. Moreover, the visual representation of data is thoughtfully structured to enhance clarity and facilitate straightforward interpretation. The adaptability of the user interface to diverse academic data types and formats is a crucial consideration, emphasizing the need for a versatile design that accommodates various data elements within the repository. In conclusion, the results of the user interface design for SIDATA prioritize the aesthetic aspect and, more importantly, harmonize with the functional requirements of an academic data repository, thereby contributing to an efficient and user-centric system for handling diverse academic data.

3.3 Construction

The utilization of Oracle APEX significantly streamlines the process of modifying the SIDATA database to align with the dynamic needs of both the institution and the students. The primary advantage lies in the user-friendly development environment provided by Oracle APEX, allowing for efficient and rapid modifications without necessitating an in-depth knowledge of complex coding languages. This ease of use facilitates quick adjustments to the database structure, ensuring it remains adaptable to evolving institutional and student requirements. Furthermore, the flexibility of Oracle APEX enables the incorporation of customizations that cater to specific needs, fostering a database system that is finely tuned to the unique demands of SIDATA users. In conclusion, the application of Oracle APEX not only expedites the modification process but also empowers institutions to maintain a responsive and tailored database system that effectively meets the diverse needs of the institution and its students.

The superiority of the SIDATA database design, rooted in user requirements, is evident in its alignment with the specific needs and preferences of the users. The primary strength lies in the meticulous identification and incorporation of user requirements during the database design phase, ensuring that the system is technically sound and highly user-centric. The database design reflects a comprehensive understanding of the intricacies of managing final project data, with user-friendly interfaces that facilitate seamless navigation and interaction. Furthermore, including features and functionalities directly informed by user needs enhances the overall user experience and satisfaction. This user-centric approach not only optimizes data accessibility and retrieval but also contributes to the effectiveness and relevance of SIDATA in catering to the diverse requirements of its user base. In conclusion, the superiority of the SIDATA database design lies in its unwavering commitment to addressing and incorporating user needs, thereby establishing a robust and user-friendly platform for managing final project data.

3.4 User Feedback

The majority of users have conveyed positive feedback regarding SIDATA, as evidenced by responses from academic programs, supervising faculty, and students, highlighting its beneficial impact on the endeavor to explore research novelty and determine advanced research topics. The main feedback underscores the system's utility in providing a centralized and efficient platform for accessing and managing final project data. Supporting this, faculty members find SIDATA instrumental in facilitating their advisory roles, streamlining the process of guiding students in identifying novel research avenues. Additionally, students express their satisfaction with the system, emphasizing its role in simplifying the exploration of research trends and aiding in selecting relevant research topics. This overall positive sentiment reflects the tangible benefits SIDATA brings to the academic community, reinforcing its value in fostering a conducive research exploration and topic determination environment. In conclusion, the favorable feedback from program studies, faculty, and students affirms SIDATA's positive impact, validating its significance in supporting academic efforts related to research novelty and topic determination.

3.5 Discussion

The challenges SIDATA faces as a central repository for research findings and a supporter of the *Merdeka Belajar Kampus Merdeka* curriculum are multifaceted. Primarily, SIDATA encounters the challenge of managing various research outputs, including varying data formats and methodologies. Addressing these challenges requires a robust and adaptable infrastructure that can accommodate the heterogeneity of research data. Additionally, SIDATA must align with the dynamic principles of the *Merdeka Belajar Kampus Merdeka* curriculum, fostering autonomy, flexibility, and innovation in academic pursuits. Despite these challenges, implementing SIDATA as a centralized hub for research data presents an opportunity to enhance transparency, collaboration, and knowledge sharing within the academic community. Opinions on these challenges highlight the need for continual refinement and adaptation of SIDATA to ensure it remains a reliable and effective resource in supporting both the diverse research landscape and the goals of the innovative *Merdeka Belajar Kampus Merdeka* curriculum. In conclusion, while SIDATA faces inherent challenges, its data repository and curriculum supporter role underscores its potential as a transformative force in advancing research and education within *Merdeka Belajar Kampus Merdeka*.

Furthermore, SIDATA, a central application for selecting research topics and determining final project titles, is pivotal in adapting to contemporary technological developments and business innovations. The primary function of SIDATA revolves around providing a centralized platform for students to explore and select research topics aligned with the latest advancements in technology and current trends in business innovation.

Supporting this, the application facilitates seamless access to diverse research materials, enabling students to stay abreast of emerging technologies and contemporary business practices. Furthermore, the user-friendly interface and collaborative features of SIDATA enhance students' overall experience in topic selection and title determination. The application's capacity to align with the dynamic landscape of technology and business innovation positions it as a valuable tool, ensuring that students can undertake final projects that are academically sound and relevant to the evolving demands of the contemporary professional environment. In conclusion, SIDATA serves as a strategic application that not only streamlines the process of topic selection and title determination but also ensures the alignment of student research endeavors with current technological trends and business innovations.

Moreover, SIDATA is an internal document automation system within the academic program, particularly crucial for accreditation purposes. The central role of SIDATA lies in automating the compilation and management of essential documents required for accreditation processes. Supporting this, the application systematically organizes and updates academic records, faculty profiles, and research outputs, ensuring accurate and up-to-date documentation for accreditation purposes. The efficiency introduced by SIDATA in automating these internal processes expedites accreditation-related tasks and enhances the overall transparency and accuracy of data presented during accreditation assessments. Opinions on this matter highlight SIDATA's instrumental role in reducing administrative burdens associated with accreditation, enabling academic programs to focus more on substantive aspects of continuous improvement. In conclusion, SIDATA's automation of internal documents is indispensable for streamlining accreditation processes, positioning it as a valuable asset in pursuing academic program excellence and compliance.

In the digital transformation era and the evolving landscape of generative artificial intelligence (AI), SIDATA is a crucial university data asset for advancing machine learning. The primary assertion underscores its significance in digital transformation as a strategic data repository. Supported by this, SIDATA houses a rich and structured dataset and forms the foundation for developing machine learning algorithms. In this perspective, SIDATA transcends its role as a mere information repository, evolving into a resource that substantiates the progress of generative AI technology. By providing access to extensive academic data, SIDATA facilitates a profound understanding of trends, patterns, and relationships that can be applied in developing machine learning models. Thus, SIDATA emerges as an administrative tool and a strategic asset propelling innovation by utilizing generative AI technology within the university environment.

The development of SIDATA proves to be instrumental in managing and coordinating research topics in alignment with the overarching research and community service master plan within the University. The central assertion highlights SIDATA's pivotal role in curating and organizing research topics, ensuring their conformity with the strategic objectives outlined in the university's research and community service master plan. Supporting this, SIDATA is a structured repository that stores and evaluates diverse research topics, guaranteeing alignment with the university's strategic focus. This perspective underscores that SIDATA is not merely an administrative tool but a catalyst supporting the coordinated planning and management of research endeavors. In conclusion, the development of SIDATA emerges as an initiative that optimizes efficiency and substantially contributes to attaining university research and community service objectives.

4. CONCLUSION

The implementation of Rapid Application Development (RAD) in the design of the SIDATA application culminates in a notable conclusion. The central assertion emphasizes that

RAD, with its iterative and collaborative approach, has significantly accelerated the development process of SIDATA. This is supported by the efficiency in requirements gathering, prototyping, and continuous user feedback loops inherent in RAD, resulting in a more responsive and adaptable application. The opinion here underscores that RAD has played a pivotal role in enhancing user engagement, reducing development timelines, and accommodating evolving specifications seamlessly. In conclusion, implementing RAD in SIDATA has not only streamlined the development cycle. However, it has also fostered a user-friendly and dynamic application, aligning with its users' contemporary needs and expectations. The limitations of this research include potential issues with generalizability due to the specific context and sample size, methodological constraints, temporal considerations, and the potential for bias in both researcher perspectives and participant responses. Additionally, future research should consider employing a technology acceptance model to provide a more comprehensive understanding of the complex dynamics inherent in human-computer interaction.

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