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Empowering Undergraduates through Technology: Designing and Implementing a Lecture Slides-Notes-Based Bucket List for Enhanced Productivity

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Abstract
In today's academic landscape, students often rely on traditional methods of organization, such as notebooks and digital communication tools like WhatsApp, to manage their study materials. Moreover, undergraduates often face numerous challenges in managing their academic and personal responsibilities, leading to decreased productivity and increased stress. However, these methods can become cumbersome and inefficient, particularly as the volume of academic content increases. The challenges associated with organizing, accessing, and tracking progress on a diverse collection of materials can hinder student productivity and learning outcomes. To address this issue, we designed and implemented a slide and note-based bucket list system (SANBLS) designed to enhance productivity among undergraduates utilizing Alex Ekwueme Federal University Ndufu-Alike (AE-FUNAI) as a case study. This tool aims to empower undergraduates by providing a structured framework for goal-setting, organization, and time management. Furthermore, this paper seeks to create an intuitive application that offers enhanced features tailored to the needs of students. Key functionalities includes categorization of materials, allowing users to sort notes and slides into relevant topics or subjects, and a robust search capability that enables quick retrieval of specific content through keyword queries. The technical implementation of this project was grounded in object-oriented analysis and design methodology (OOADM), which promotes modularity and ease of maintenance in code development. The application was built using the programming language Node.js for its server-side capabilities, ensuring responsiveness and scalability. Firebase was employed for data storage, providing real-time synchronization and efficient management of user data. Initial testing demonstrated that the program functions effectively when connected to the internet, receiving positive feedback from student users regarding its usability and functionality. However, to further enhance the application, future developments may include offline capabilities, allowing students to access their materials without relying on an internet connection. Ultimately, this research aims to revolutionize how students at AE-FUNAI and potentially other institutions organize and engage with their academic materials. By streamlining access and tracking of notes and slides, the application aspires to significantly improve students' organizational skills, boost their productivity, and enhance their overall academic experience. Through continuous feedback and iterative development, this research seeks to adapt to the evolving needs of its users, ensuring that it remains a valuable resource throughout their academic journeys.

Keywords: Undergraduates, Lecture Slides, Lecture Notes, Bucket List

Introduction

Managing a large collection of slides and notes poses a significant challenge for undergraduates in the University. The current methods for organizing and accessing these resources often lack efficiency, leading to time wastage, disorganization, and difficulty in finding relevant materials. This results in decreased productivity and hindered learning. In educational settings, students often encounter large volumes of documents as well as rely on slides and notes as essential resources for learning and studying (Smith, 2020). These materials contain valuable content ranging from lecture slides, class notes and research findings. As the volume of these resources increases, most students face challenges in managing and accessing them effectively. As we are living in an era of information overload, most students are overwhelmed with information/media that they often lose track of their goals, aspirations, and hobbies to the detriment of their academy career (Agrawal, 2017). As pertaining to

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their hobbies, Tamlin et al. (2018) demonstrated that having hobbies improves one's mental health as well as wellbeing, making undergraduates focused and develops their overall social persona.
Traditional methods of organization, such as notebooks and starring slides on WhatsApp, may become cumbersome and inefficient, especially when dealing with a large collection of materials (Mueller & Oppenheimer, 2014). Consequently, this research emerges as a potential solution to address these challenges. Similar to a digital library, our proposed slide and note bucket list system (SANBLS) aims to provide users with a centralized platform for storing, organizing, and accessing their slides and notes efficiently. The proposed tool aims to include features such as categorization, search functionality, and progress tracking to enhance usability and facilitate seamless access to relevant materials in AE-FUNAI. However, without a streamlined system, users may struggle to keep track of their progress, locate specific materials, or organize their study sessions effectively. Other dimension of the problem includes:

i. Undergraduates accumulate a vast array of slides or notes over time, making it difficult to organize and categorize them logically, which later becomes time-consuming and inefficient without a structured system.
ii. Undergraduates often need to track their progress through various slides or notes, especially when preparing for inception quizzes, mid-semester exams, seminar presentations, or projects defense.
iii. With the increasing diversity of devices and platforms used for accessing educational or work-related content, ensuring seamless compatibility across different devices and operating systems is crucial for user convenience.

The aim of this study is to design and implement a slides and notes bucket list for undergraduates and the objectives of this study are as follows:

i. To design an intuitive user interface that allows students to easily upload, organize, and search for slides and notes.
ii. To implement features for tracking progress, such as bookmarking, note-taking, and progress indicators, to help students monitor their study journey effectively.
iii. To ensure cross-platform compatibility to enable seamless access to the program from various devices and operating systems.
iv. To provide customization options, such as tagging, categorization, and personalization settings, to accommodate diverse user preferences and workflows.

In school settings, effective organization and management of personal notes and lecture slides are crucial for enhancing productivity and overall well-being. A well-structured lecture slides and lecture notes bucket list system will serve as an essential tool for students to keep track of their progress for the semester. The design and implementation of a slides and notes bucket list system aims to address the challenges of organizing slides and notes personal by offering a user-friendly and efficient platform. The proposed lecture notes and lecture slides bucket list system will address these gaps by incorporating social networking features tailored for educational and personal growth purposes.

This literature review explores existing systems and technologies in the domain of task management, notes organization, and bucket list tracking, focusing on their design, implementation, and user experience. The review will highlight the advancements in digital note and slides uploading, bucket list applications, as well as the integration of features that enhance usability and functionality. Task management systems have evolved significantly over the years, incorporating various features to assist users in organizing their tasks effectively. These systems often include functionalities such as task categorization, deadline reminders, and progress tracking, which are essential for maintaining productivity. Notable examples of task management applications include Todoist, Microsoft To-Do, and Trello, each offering unique features to cater to different user needs (Johnson, 2021). Bucket list applications, on the other hand, focus on helping users track and achieve their long-term goals and aspirations. These applications provide features for creating and categorizing bucket list items, setting deadlines, and marking items as completed. Examples of bucket list applications include Bucketlistly, iWish (Furmanchukm, 2016), Buckist (ITL, 2016), Soon, Woovly (TBLA, 2016) and Lifetic, which offer various motivational and tracking features to encourage users to pursue their dreams (Brown, 2019). The integration of lecture slides and lecture notes bucket list functionalities into a single system presents a comprehensive solution for users looking to manage both short-term tasks and long-term goals for the semester. By combining these features, the proposed system aims to enhance user experience and streamline the process of task. Key aspects to consider in the design and implementation of such a system include user interface design, data synchronization across devices, and personalized notifications and reminders (Williams, 2022).

Haider et al. (2018) analyzed various digital tools, assessing their features, usability, and impact on productivity outcomes. Research indicates that digital tools improve task organization, time management, and goal attainment for users (students) across different contexts. Challenges include user adoption rates influenced

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by interface design and the need for long-term efficacy studies. This review underscores the growing importance of digital tools in modern task management practices (Haider et al., 2018). Johnson et al. (2017) investigated the role of user interface design in enhancing usability and user experience in productivity applications. This review provides synthesizes studies on HCI principles, UI/UX design strategies, and their application in successful productivity software. Emphasizes intuitive navigation, visual hierarchy, and responsive design as crucial factors in improving user satisfaction and productivity. Challenges include accommodating diverse user preferences and ensuring accessibility in interface design. This review provides insights into designing user-friendly interfaces for effective task management applications (Johnson et al., 2017). Bohay et al. (2011), on the other hand examined educational benefits and challenges of digital slides and presentations in academic settings. Their research reviews literature on multimedia learning, pedagogical approaches, and student engagement with digital presentations. The study discusses the role of visual aids, multimedia elements, and interactive features in enhancing learning experiences. This study provides insights into leveraging digital slides for effective knowledge dissemination and student engagement (Bohay et al., 2011).

Doe et al. (2022) reviewed, explored and examined various goal-setting theories, strategies for personal development, and digital tools used to manage bucket lists. The results underscore the motivational advantages of visualizing goals, tracking progress, and reaching milestones. However, challenges include sustaining long-term user engagement and the sparse research on psychological impacts. The review emphasizes the significance of structured goal-setting frameworks in promoting personal growth and enhancing overall well-being (Doe et al., 2022). Farzan et al. (2011) investigated the integration of social networking functionalities within task management and goal-setting applications. It reviews collaborative tools, examines social media integration, and explores virtual communities within productivity software. The results highlight the benefits of social features for fostering teamwork, facilitating knowledge sharing, and providing peer support to achieve goals effectively. However, the study also identifies privacy concerns and potential distractions arising from social interactions as significant limitations. Overall, the research underscores the importance of exploring the synergy between social networking elements and task management to enhance productivity and collaboration in modern work environments (Farzan et al., 2011). Macdonald (2019) research reviewed that personal organization is a significant challenge in modern society, where managing responsibilities and tasks can be daunting. Gamification offers a solution by continuously introducing new goals and focusing users on specific tasks. Most gamified applications rely on quantitative metrics to track progress and motivate users towards milestones (Schneider et al., 2018). However, alternative approaches to enhance user engagement through gamification remain underexplored. Emotional reinforcement, which utilizes emotional feedback to modify future behaviour, shows promise in various disciplines. Yet, its application in gamification has been limited to niche products with minimal research and experimental evaluation. This paper addresses this gap by presenting a field study evaluation of a gamified productivity application incorporating emotional reinforcement. The chosen productivity tool for their study was a to-do list, widely used and understood across various contexts. The hypothesis posits that integrating emotional reinforcement into gamification strategies will enhance user motivation and engagement (Macdonald, 2019).

Other studies have equally shown that gamification enhances motivation, accessibility, focus, as well as engagement with the application (Macdonald & Brewster, 2019; Misra & Taneja,2021). Emotional reinforcement, utilizing emotional feedback to influence future behavior, has demonstrated potential across various disciplines accord to Hamari (2014). Despite its effectiveness in other contexts, its application within gamification remains underexplored. Existing literature indicates a scarcity of specific research and experimental evaluations in this area, with few niche products exploring emotional reinforcement as a gamification strategy (Hamari, 2014). Koivisto et al. (2014) carried out a field study evaluation of a gamified productivity application integrating emotional reinforcement strategies. The chosen productivity tool, a to-do list, was selected due to its widespread use and familiarity among users in diverse contexts. Their study hypothesizes that incorporating emotional reinforcement into significantly enhance user motivation and engagement levels (Hamari, & Kovisto, 2014). Research in emotional feedback's impact on user behavior suggests it can effectively influence engagement and productivity in various applications. Their review highlights the potential benefits and challenges associated with integrating emotional feedback to enhance user experience and task completion rates in gamification contexts.

In their paper, Shaw & Kattenberg (2007) focused on multimodal knowledge transfer techniques to facilitate lifelong learning for heterogonous workers in large scale corporate and government organizations. They presented the application of note-taking and pen-based technology across different types of organizations. The learners were provided with access to high quality digital e-learning materials to address specific learning requirements such as procedure, policies, procedure and applications. Looking for the right blend of tools to

make technology supported learning acceptable to non-technical people in large organizations. Consequently, digital note taking was considered as a crucial means of creating the blend, and further supported by mentoring and virtual classrooms. Gür (2021) carried out a study to examine the effects of generative and verbatim taking notes on success and its persistence on a study group consisting of 116 education faculty students studying in Turkish and in Social Sciences education programs. The study group was divided into four groups of 29 students which carried out the verbatim and generative note taking using pen and keyboard. The results of the study demonstrated that taking notes with a pen by the generative method has more positive effects than using the keyboard or taking verbatim notes on both success and persistence. On the other hand, Manuel et al. (2022) proposed an automated minute book creation (AMBOC) using machine learning (specifically deep neural networks) to derive key information from important discussions. The AMBOC was able to create transcripts and minutes of a meeting with the added advantage of speaker recognition. The AMBOC model has the capacity to transform an audio file into plain-text using Deep Neural Networks (DNN) as well as able to recognize the speaker using Mel Frequency Cepstral Co-efficient (MFCC) and summarizing the meeting transcript into condensed minutes with the help of transformers. From a different prospective, Zheng et al. (2021) proposed sketch-noting, which is a form of visual note taking where people listen to, synthesize, and visualize ideas from a talk or other event using a combination of pictures, diagrams, and text. They were able to introduce a classification of sketch-note styles and techniques, with a qualitative analysis of 103 sketch-notes. As a result of their findings, there able to distill core sketch-note components (such as content, layout, structuring elements, and visual styling), classifying levels of conciseness as well as dimensions of the sketch-note design space.

Farzan et al. (2011) investigated the integration of social networking functionalities in task management and goal-setting apps. It reviews collaborative tools, social media integration, and virtual communities in productivity software, identifying benefits for teamwork, knowledge sharing, and peer support. However, challenges such as privacy concerns and potential distractions from social interactions are noted. Johnson et al. (2017) discussed UI/UX design principles for enhancing productivity, emphasizing the importance of intuitive design and user-friendly interfaces. However, it often overlooks the specific needs of educational tools and personal development systems. Our system will prioritize a user-friendly interface that specifically caters to students and individuals aiming for personal growth. This includes intuitive navigation, visually appealing dashboards, and customizable views for tracking lecture notes, lecture slides, and bucket list items, thus addressing the overlooked needs. Haider et al. (2018) reviewed and identified the advantages of digital tools for task management, noting improvements in efficiency and organization. However, it lacks a focus on integrating such tools with academic and personal development goals. In our work, we will employ mobile technology, as the studies of Chen & Abouzied (2016) and Paasovaara et al. (2017) have found that mobile technology could be used to encourage social interaction. The proposed slides and notes bucket list system will bridge this gap by combining task management functionalities with features designed to support academic success and personal growth. This includes goal visualization, progress tracking, and milestone achievements, thereby providing a comprehensive solution that integrates both academic and personal development objectives.

Methodology

In our study, we employ a mixed-methods to consider in the design and implementation of the proposed lecture slides and notes bucket list system (SANBLS). An object-oriented analysis and design methodology (OOADM) was chosen due to its advantages in code reuse through the use of objects and classes. Objects can be instantiated and used across various parts of the program, while classes serve as blueprints for creating new objects with similar properties and behaviors (*Fig. 1*). By combining both quantitative and qualitative approaches, this research aims to provide a comprehensive understanding of the system's development, performance, and user interaction. The methodology involves a combination of data collection, system development, and evaluation methods, offering a multifaceted perspective on the SANBLS system and its implications for enhancing personal organization and productivity.

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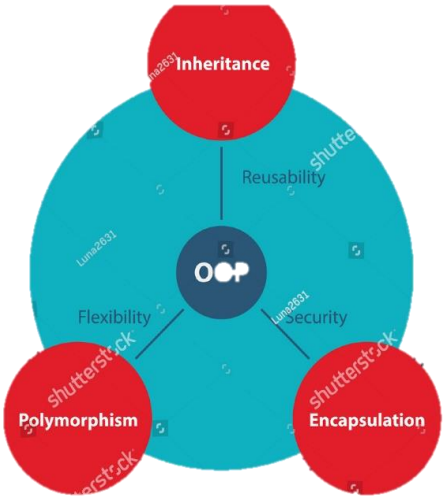

Figure 1: Object Oriented Diagram Methodology for the Proposed System (Shutterstock, n.d.)

System Analysis, Design and Implementation

The proposed SANBLS system has the power to completely change how people manage their obligations and objectives. The goal of the SANBLS system is to increase productivity and user pleasure. In order to create and execute the SANBLS system, a range of data collection methods, including interviews and observations, were utilized to obtain detailed needs from possible users. These methods shaped the system's development by offering insightful information about the requirements and preferences of users. For the interviews, a range of educators, and students, participated in in-person interviews. The purpose of the interviews was to learn how people arrange their notes and presentations, what problems they are currently facing, and what features they would like to see in a slides and notes bucket list system. For the observation, we focused on different students from different departments in AE-FUNAI and examined the way they studied for inception quizzes, mid-semester exams and final exams without directly interacting with them.

Advantages of the Existing System

This section examines the main benefits of the manual note-taking system, emphasizing the user's expertise, the system's flexibility in terms of communication and operations, and the interaction with the immediate environment. Even with its drawbacks, taking notes by hand has many noteworthy benefits that boost productivity and user satisfaction in the digital age. These advantages are mostly attributable to the flexibility and human element of manual operations. All of these factors work together to improve note-taking quality and create a stronger bond with the subject matter. We noticed the following as the benefits of the existing system in AE-FUNAI:

a. The existing note-taking systems benefits from the personal knowledge and expertise of users. Individuals who take notes manually often develop personalized methods that work best for their learning and organization, which help in effective information retention and comprehension as well as in personalized note-taking styles.
b. Manual note-taking operations offer significant flexibility, allowing the use of various tools and methods such as handwritten notes, physical notebooks, and personal annotation styles, which help in addressing unique user needs and preferences, enabling them to manage their notes in ways that best suit their personal workflows and cognitive processes.
c. The manual system encourages engagement with the immediate environment and the material being studied. This engagement can lead to a better understanding of the material and improved academic performance or personal satisfaction.

Disadvantages of the Existing System

This section looks at the main drawbacks of the manual system, which include its inability to scale, the possibility of human error, and inefficiencies in note organization and retrieval. Taken as a whole, these drawbacks make the system less suitable for meeting contemporary needs in both academic and personal contexts. Below are the detailed disadvantages of the existing system:

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i. The manual system struggles to scale efficiently as the volume of notes and information increases. Managing a growing amount of handwritten notes, especially over an extended period, becomes cumbersome and time-consuming, which restricts the ability to easily organize, categorize, and retrieve information, thus, impacting productivity and learning efficiency.

ii. Manual processes are susceptible to human error, which can lead to inaccuracies in note-taking, misinterpretations, and loss of important information, resulting in misunderstandings, incomplete records as well as additional time spent trying to rectify mistakes or fill in gaps.

High Level Model of the Proposed SANBLS System

In this section, we also describe the theoretical underpinning for the design and execution of such a system, emphasizing essential principles and approaches from psychology, information management, and computer science.

i. Human cognitive processes have a considerable impact on work management and goal monitoring. Psychological theories, such as the *goal defining theory* which emphasized the significance of defining specific and attainable goals in order to boost motivation and performance. According to this notion, defined and hard goals provide better results than ambiguous or simple ones. The proposed slides and notes bucket list system incorporates these principles, allowing users to establish specific and categorized activities and goals in order to increase their commitment and drive.

ii. The theoretical background of the proposed slides and notes bucket list system integrates insights from psychology, information management, machine learning, and human-computer interaction to create a comprehensive and user-friendly platform. By leveraging advanced technologies and adhering to principles of effective task management and goal setting, the system aims to enhance productivity and personal fulfilment.

iii. Cognitive psychology provides crucial insights into how individuals process information and manage their tasks and goals. The *goal setting theory* is particularly relevant, as it emphasizes the importance of setting clear, specific, and challenging goals to enhance motivation and performance. According to this theory, specific goals lead to higher performance compared to vague or easy goals because they provide clear direction and benchmarks for success. The proposed slides and notes bucket list system incorporates these principles by allowing users to set detailed and categorized tasks and goals, thereby enhancing their motivation and commitment. Another relevant concept from cognitive psychology which posits that people remember uncompleted or interrupted tasks better than completed ones. This effect can be leveraged in the design of the system by providing visual reminders of pending tasks and goals, thus keeping them salient in the user's mind and encouraging completion.

iv. Effective information management is critical for the design of a slides and notes bucket list system. Information management theories suggest that excessive information can overwhelm individuals, reducing their ability to make decisions and take action. To combat this, the proposed system needs to incorporate features that help users categorize and prioritize information efficiently, such as tagging, filtering, and sorting mechanisms.

v. The use of metadata in information systems is another important aspect. Metadata, or data about data, helps in organizing and retrieving information more effectively. In our slides and notes bucket list system, metadata can include creation dates, deadlines, categories, and priority levels, aiding in the efficient management and retrieval of tasks and notes.

vi. The design and usability of the user interface (UI) are essential aspects influencing the success of a slides and notes bucket list system. Human-computer interaction (HCI) principles emphasize the necessity of designing intuitive, easy-to-use, and visually appealing interfaces. An efficient UI should reduce cognitive load, allowing users to focus on their work rather than learning how to utilize the system (Baumer et al., 1995). One important principle in HCI is the concept of affordances. Affordances refer to the perceived and actual properties of an object that determine how it can be used. In our system, buttons, icons, and other interactive elements were clearly used to indicate their functions to the user, thereby reducing confusion and increasing efficiency. Another key concept is the Fitts' Law (Fitts, 2016), which predicts that the time required to move to a target area is a function of the distance to the target and the size of the target. This principle suggests that frequently used features should be easily accessible and require minimal effort to interact with, thereby enhancing the overall user experience.

vii. Theories of motivation and behavior change are also relevant to the design of a notes and bucket list system. *Self-determination theory* emphasizes the importance of autonomy, competence, and relatedness in fostering intrinsic motivation. The system can support these needs by allowing users to personalize their goals and tasks, providing feedback on progress, and creating opportunities for social sharing and support.

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The proposed SANBLS system aims to enhance personal organization and note-taking (*Figs. 2, 3 and 4*). This high-level model outlines the key components and functionalities of the system, focusing on its ability to streamline lecture note and lecture slide management, enhance user experiences through intuitive interfaces, and leverage data analytics for informed decision-making. The system's robust security measures and compliance with data protection regulations ensure user privacy and trust.

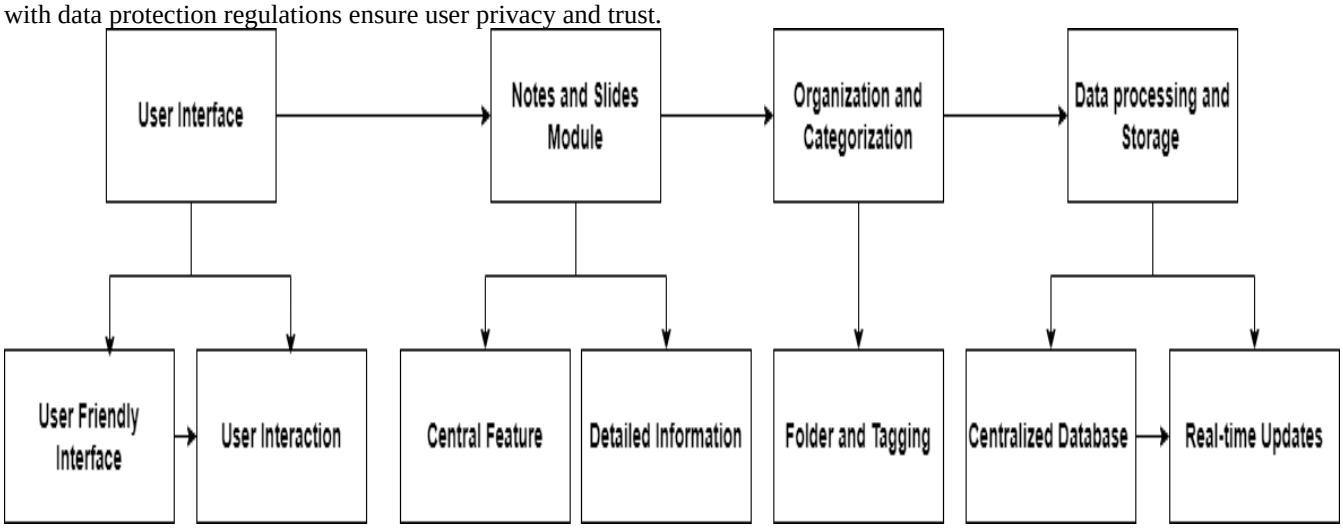

Figure 2: High level model of the SANBLS System

a. For the User Interface:

i. *User Friendly Interface*: At the front end of the system, there is a user-friendly interface accessible through web browsers and mobile devices. The design focuses on ease of use, allowing users to navigate the system effortlessly, whether they are accessing it from a desktop, tablet, or smartphone.

ii. *User Interaction*: Users interact with the system through this interface. Users can create, organize, and manage notes and slides, while administrators can manage user access and system settings. This interaction is facilitated by a clean, intuitive design that makes it easy to find and use all of the system's features, enhancing productivity and user satisfaction.

b. For the Lecture Note and Slide Management Module:

i. *Central Feature**:*** The heart of the system is the lecture note and lecture slide management module, where students can create, organize, and store notes and presentation slides. This module supports advanced search and filter options to help students find specific lecture notes and slides based on various criteria such as course title, course code, keywords, dates, tags and even course lecturer. This ensures that users can quickly locate the information they need without wasting time.

ii. *Detailed Information***:** Each lecture note and slide entry includes detailed information such as titles, descriptions, and multimedia content (e.g., images, embedded videos, and links). This approach ensures that users have all the information they need at their fingertips, making the system a powerful tool for both personal and professional use.

c. For the Organization and Categorization:

i. *Folder and Tagging System*: Students can organize their lecture notes and slides into folders and tag them for easier retrieval. This helps maintain a structured and easily navigable repository of information. By categorizing lecture notes and slides effectively, students can equally manage large volumes of information more efficiently.

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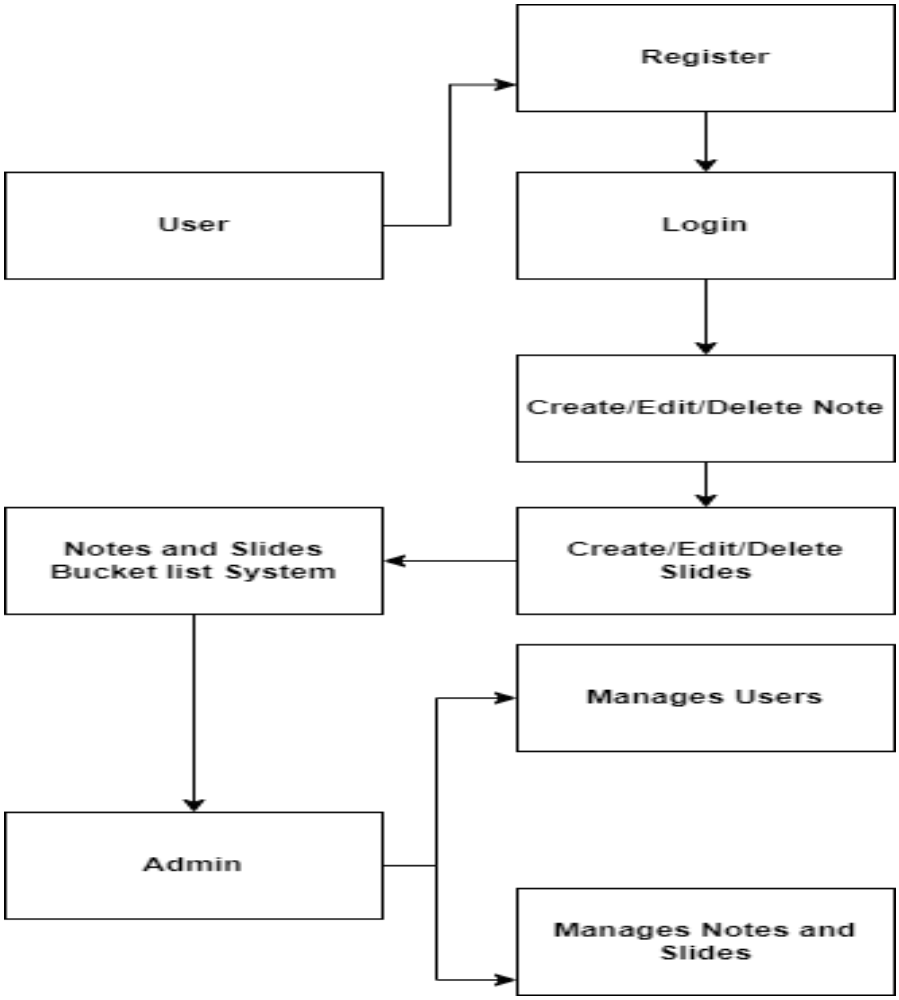

igure 3: Overview on how the SANBLS System Works

d. For the Data Processing and Storage:

i. All user interactions and data are processed and stored in a centralized database. This includes user profiles, lecture note and slide content, and organization structures. The centralized nature of the database ensures that all data is secure and easily accessible, facilitating efficient data management.

ii. This system supports real-time updates, ensuring that users always have access to the latest versions of their lecture notes and slides. This feature is crucial for maintaining the accuracy and relevance of information, especially in collaborative environments where multiple users may be working on the same documents.

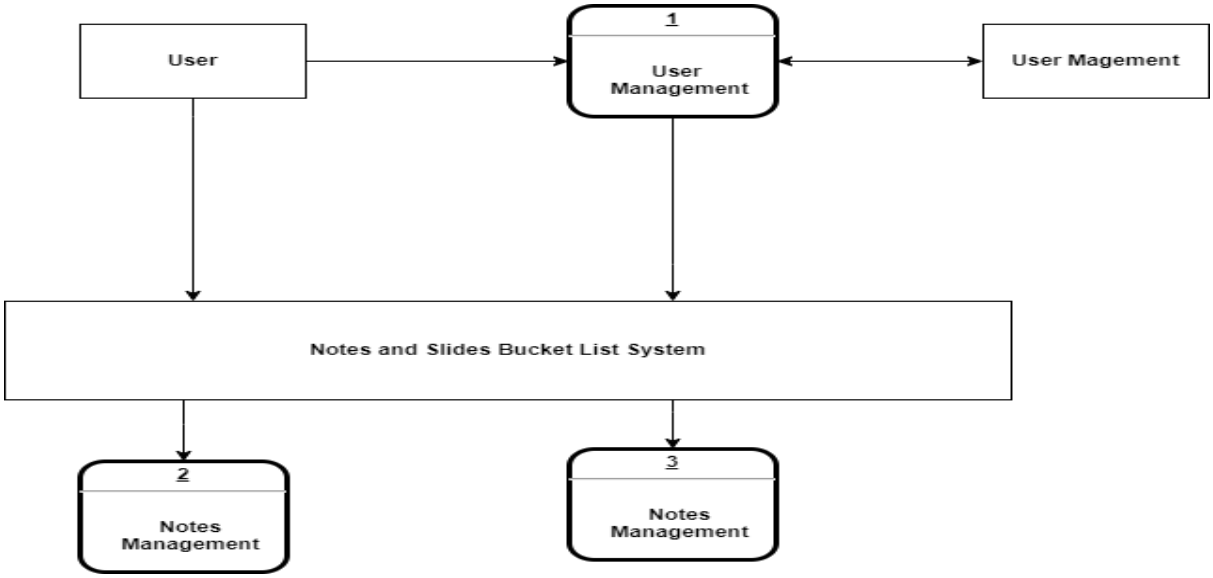

Figure 4: Data Flow for the SANBLS System

Analysis of the Proposed System

Through the provision of an advanced digital platform for organizing notes and slides, the proposed SANBLS system seeks to improve both academic and personal efficiency (*Figs. 3* and *4*). The present analysis delves into the diverse aspects of the system, highlighting its capacity to enhance user experiences, optimize organizational procedures, and utilize data analytics to facilitate well-informed decision-making. Below is the analysis of the proposed SANBLS system:

a. For the User Interface and Experience:

i. *Intuitive Interface*: This system features a user-friendly interface accessible through web browsers and mobile devices, designed to provide a seamless and enjoyable experience. Users can easily, quickly as well as efficiently navigate through a rich repository of lecture notes and slides facilitated by advanced search and filter functionalities that enhance discoverability based on keywords, dates, tags, course titles, course codes, and other criteria.

ii. *Responsive design:* Responsive design ensures constant usability whether viewed on PCs, tablets, or smartphones by making the interface adaptable to different screen sizes. Thus, students can manage their lecture notes and slides from anywhere at any time with the system's consistent user experience across different platforms.

iii. *Entire Content Management:* The lecture note and slide management module, which is the system's central component, enables students to generate, arrange, and save detailed information including headings, descriptions, and multimedia content (such as pictures, embedded videos, and links).

iv. *Organization and Categorization:* The SANBLS System enhances organization and categorization by allowing users to sort their content into folders and tag them for easy retrieval which ensures a navigable repository of information, boosting efficiency in accessing and managing notes and slides as well as helps maintain consistency and improve productivity.

v. *Data Processing and Storage***:** The proposed SANBLS System employs a centralized database to process and store all user interactions and data, including user profiles, note and slide content, and organizational structures. This centralized approach ensures data security and easy accessibility, facilitating efficient data management and retrieval as well as the system supports real-time updates, allowing users to access the latest versions of their notes and slides. This feature is essential for maintaining the accuracy and relevance of information, particularly in collaborative environments where multiple users may be working on the same documents.

vi. *Security and Privacy Measures***:** This system incorporates robust security measures, including encryption and access controls, to safeguard user data and ensure data privacy. These measures protect against unauthorized access and data breaches, ensuring that users can trust the system with their sensitive information. Additionally, the system is designed to comply with data protection regulations, such as the

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General Data Protection Regulation (GDPR). This compliance ensures that user data is handled responsibly and ethically, maintaining user trust and meeting legal requirements.

The purpose of the SANBLS system is to satisfy the increasing need for academic material management that is both efficient and well-organized. The platform makes sure that users can store, organize, and retrieve their notes and slides with ease by offering a user-friendly interface and strong organizational tools including folder and tagging systems. Including editable templates increases productivity even more by enabling users to stay consistent across multiple courses, meeting a range of user requirements. This system is a vital resource for educators, and students alike because of its capacity to optimize information management, which facilitates efficient learning and work processes. Furthermore, the system's strong data processing and storage capabilities, supported by a centralized database and real-time updates, ensure that users always have access to the latest versions of their content. This real-time capability is particularly valuable in collaborative environments where multiple users may work on the same documents, maintaining accuracy and relevance. Additionally, the implementation of robust security measures and compliance with data protection regulations such as GDPR provides a secure environment for handling sensitive information, thereby fostering user trust. These features collectively justify the need for the SANBLS system, as it significantly enhances the efficiency, security, and reliability of managing academic and professional content.

System Design

The proposed SANBLS's system design includes a number of essential elements meant to provide a smooth and effective experience for organizing academic information. The main features of the system design are described in this section. The different system designs for the proposed system are shown below:

a. *Data Model***:** we employed structured database schema to design and to accommodate diverse data types such as note details, slide content, user profiles etc. This structured approach ensures efficient data organization and retrieval, supporting seamless system operations.

b. *User Interface Design***:** Intuitively, we crafted intuitive wireframes and prototypes for the user interface with emphasis placed on easy navigation, clear information presentation, and straightforward content management processes to enhance user satisfaction and encourage consistent use. Students can effortlessly create, organize, and retrieve notes and slides, ensuring an engaging and productive experience.

c. *Security Measures***:** Security is paramount in the SANBLS system, with stringent measures including data encryption, secure socket layer (SSL) protocols, and access controls to safeguard user information and content data.

d. *System Components***:** Key components of the SANBLS system include the lecture note and slide management module, organizational tools (folders and tagging system), customizable templates, and administrative dashboard with each module designed with specific roles and interactions to facilitate seamless system operations and enhance user productivity.

e. *Reporting and Analytics***:** The SANBLS system includes robust reporting capabilities, enabling administrators and users to generate insights from usage patterns, user behavior, and content management performance. These analytics inform strategic decisions, enhance operational efficiency, and support continuous improvement of the system. xxx

System Architecture

The proposed SANBLS's system architecture is made to guarantee effective note and slide storage, retrieval, and security for students and educators (*Fig. 5*). The architecture includes essential parts and tiers to enable a stable and intuitive platform. An organized and comprehensive overview of the system architecture can be found below.

a. User Interface (UI) Layer of the Web Application. It is accessible via web browsers, providing a seamless and intuitive interface for all users.

b. Application Logic Layer of the Note and Slide Management Module. The students use its tools for creating and editing lecture notes and slides with rich text formatting, embedding multimedia, and adding annotations. In this layer, the students would be authenticated and authorized after fulfilling the requirements for login and registration.

c. Data Management Layer of the centralized database. Database Management System (DBMS) using a relational database (PostgreSQL) to ensure data integrity and efficient querying.

d. Security Layer using SSL/TLS for secure data transmission. We also used access control by employing multi-factor authentication (MFA) to enhance security for student login processes.

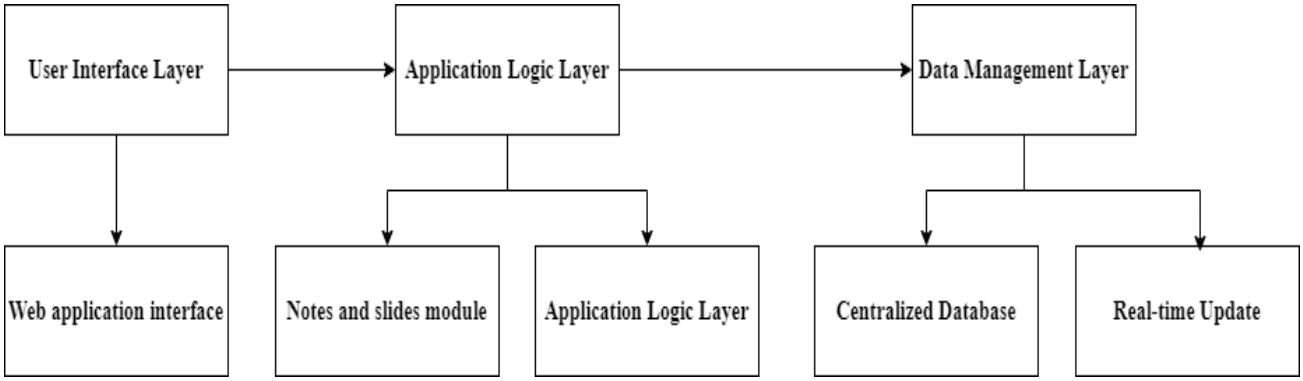

Figure 5: The System Architecture for the Proposed System

Main Menu Design

The SANBLS's main menu acts as users' primary access point to a variety of features and capabilities (*Fig. 6*). It offers easy navigation and quick access to necessary resources.

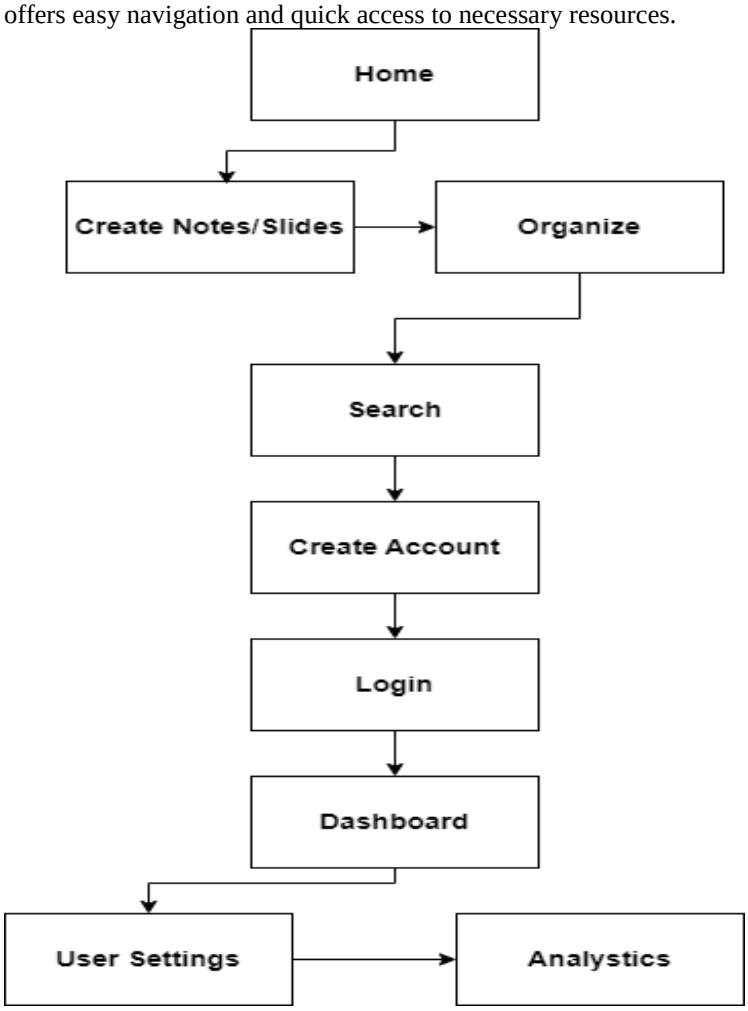

Figure 6: The Main Menu Design for the SANBLS System

Sub Menu Design

The sub-menu design makes sure students can navigate and handle their duties effectively by providing them with specific and thorough functionalities within each major menu option. An overview of each major menu item's sub-menu design is illustrated, for instance:

a. Create Note/Slide (*see Fig. 7*):

i. New Note: Start a new text-based note.
ii. New Slide: Create a new presentation slide.
iii. Template Gallery: Access and choose from customizable templates for notes and slides.
iv. Import: Import existing notes or slides from external sources.

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b. Organize:

i. Create Folder: Set up a new folder to organize notes and slides.
ii. Manage Tags: Add, edit, or delete tags for easier retrieval.
iii. Sort: Sort notes and slides by date, title, or tag.
iv. Archive: Move older or less frequently used notes and slides to the archive.

c. Search:

i. Advanced Search: Use filters to narrow down search results by keyword, tag, date, or type (note/slide).
ii. Recent Searches**:** View and quickly access recent search queries.
iii. Saved Searches**:** Save frequent search parameters for easy reuse.

d. My Dashboard (*see Fig. 10*):

i. Recent Activity: Display recent notes and slides created or edited.
ii. Favorites**:** Access a list of marked favorite notes and slides.
iii. Quick Access: Shortcuts to frequently used folders or tags.
iv. Notifications: View system notifications and updates.

The main menu was designed to be intuitive, with a suitable interface layout that remains visible as students navigate through the system. The implementation of the main menu is seen in *Fig. 8*. While part of the implementation snippet code of the main menus is shown in *Fig. 9*. The implemented section of the dashboard is seen in *Fig. 10*.

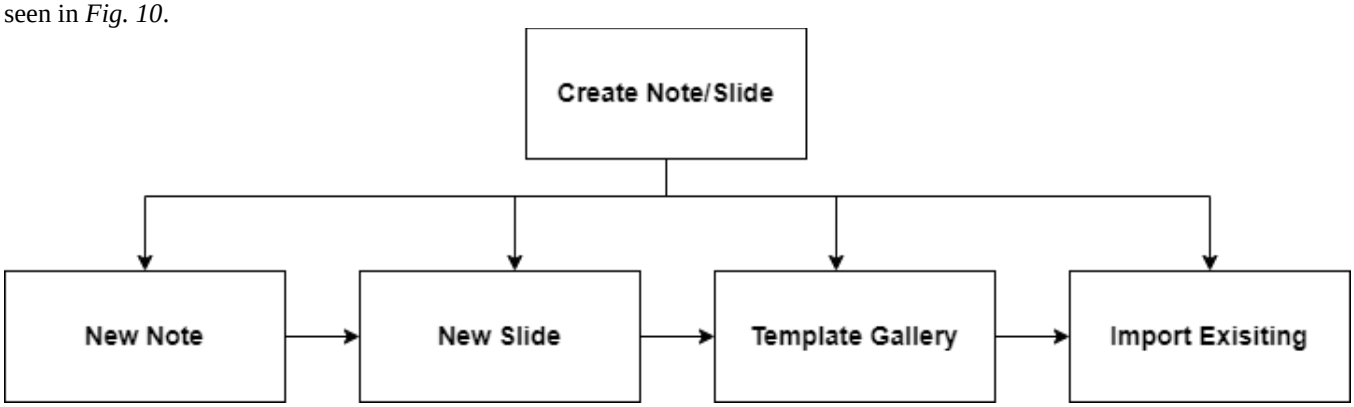

Figure 7: Sub-Main Menu Module Design for Creating Note/Slide in the SANBLS System

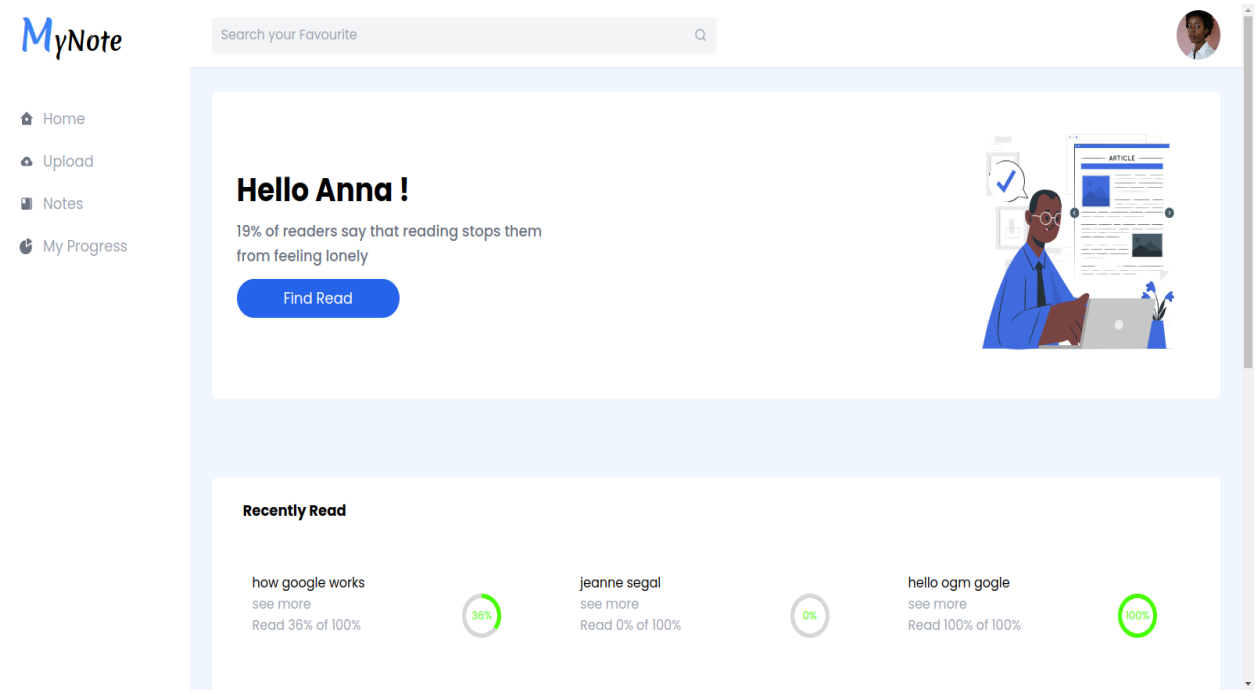

Figure 8: The Main Menu of the System

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```
1.  import React, { useState } from 'react';
2.  import { Link } from 'react-router-dom';
3.  import './MainMenu.css';  // Assuming you have some basic styling
4.
5.   const MainMenu = () => {
6.   const [activeMenu, setActiveMenu] = useState(null);
7.
8.    const toggleSubMenu = (menu) => {
9.     setActiveMenu(activeMenu === menu ? null : menu); // Toggle sub-menu
    visibility
10.  };
11.
12.  return (
13.    <div className="main-menu">
14.      <ul>
15.     <li>
16.       <button onClick={() => toggleSubMenu('bucketList')}>Bucket List</button>
17.      {activeMenu === 'bucketList' && (
18.        <ul className="sub-menu">
19.          <li><Link to="/add-item">Add New Item</Link></li>
20.          <li><Link to="/view-items">View Items</Link></li>
21.           <li><Link to="/completed-items">Completed Items</Link></li>
22.        </ul>
23.      )}
24.     </li>
25.     <li>
26.       <button onClick={() => toggleSubMenu('profile')}>Profile</button>
27.      {activeMenu === 'profile' && (
28.        <ul className="sub-menu">
29.          <li><Link to="/edit-profile">Edit Profile</Link></li>
30.          <li><Link to="/view-profile">View Profile</Link></li>
31.        </ul>
32.      )}
33.     </li>
34.     <li><Link to="/settings">Settings</Link></li>
35.     <li><Link to="/logout">Logout</Link></li>
36.    </ul>
37.  </div>
38.  );
39. };
```

Figure 9: The Main Menu Implementation of the System

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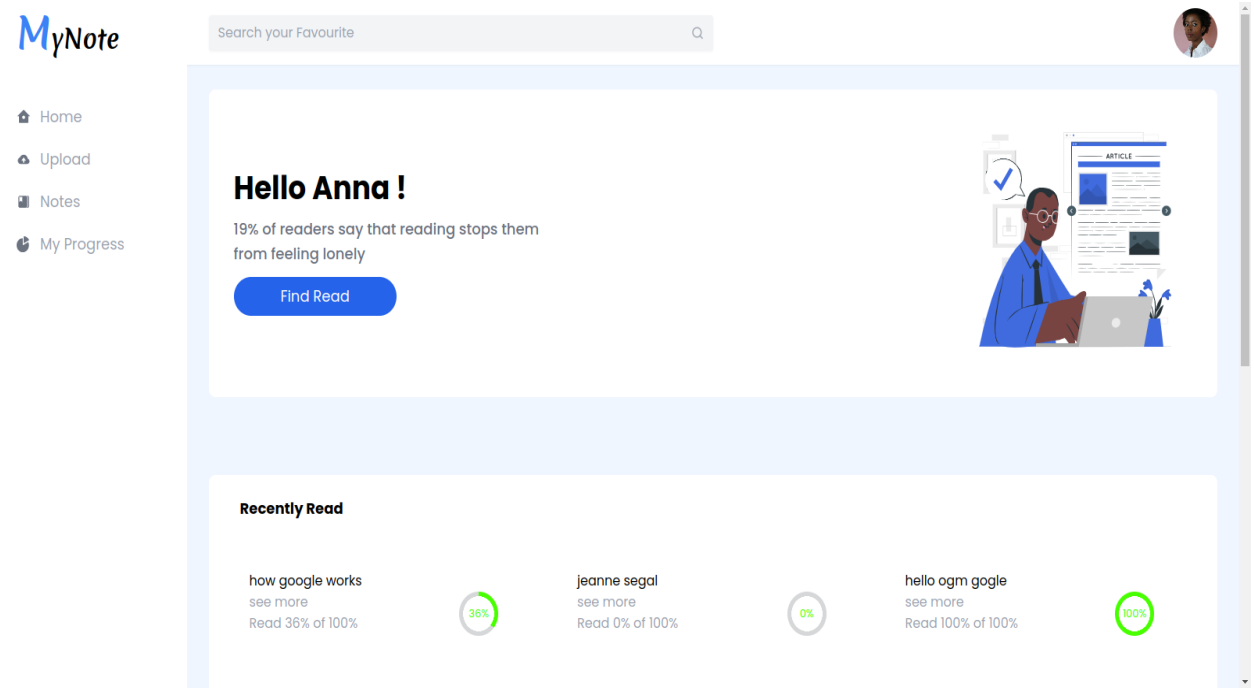

Figure 10: Dashboard of the System

The students creates a new note or slide by clicking on the template gallery and importing the desired slide or note that already exists in their gallery. The *note management submenu* **i**ncludes options for adding new notes, viewing all notes, and organizing notes into folders and tags. See the implementation screenshot of *note management submenu* in *Fig. 11*.

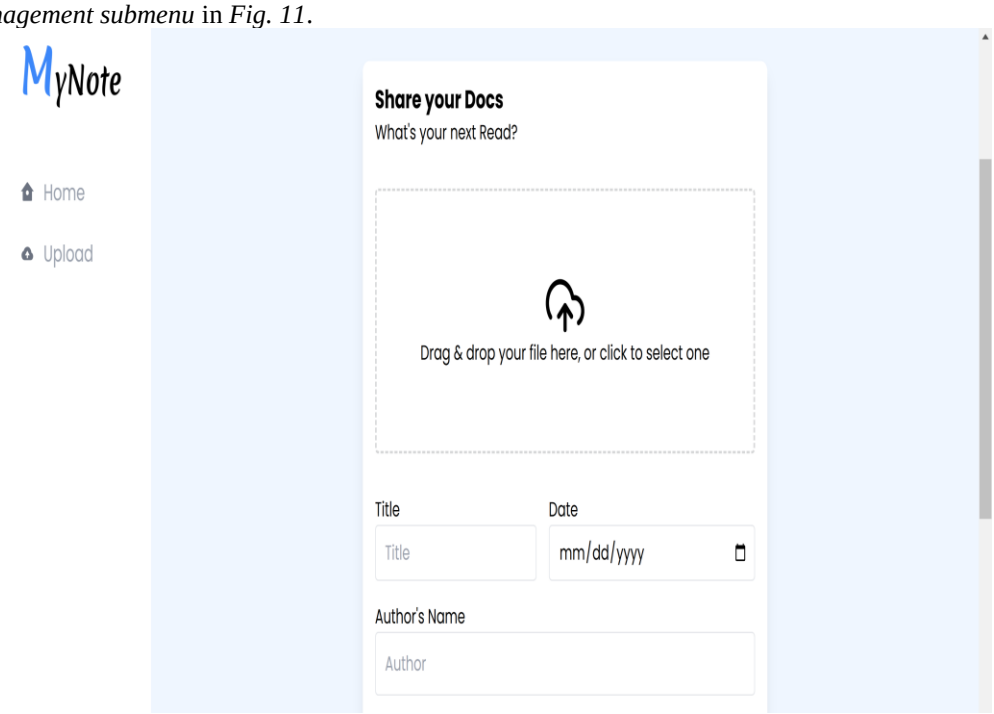

Figure 11: The Note Management Submenu of the System

The *slide management submenu* provides options for creating new slides, viewing slide collections, and applying customizable templates. The implementation screenshot is shown in *Fig. 12*. The snippet code for the sub-menu implementation is shown in *Fig. 13*.

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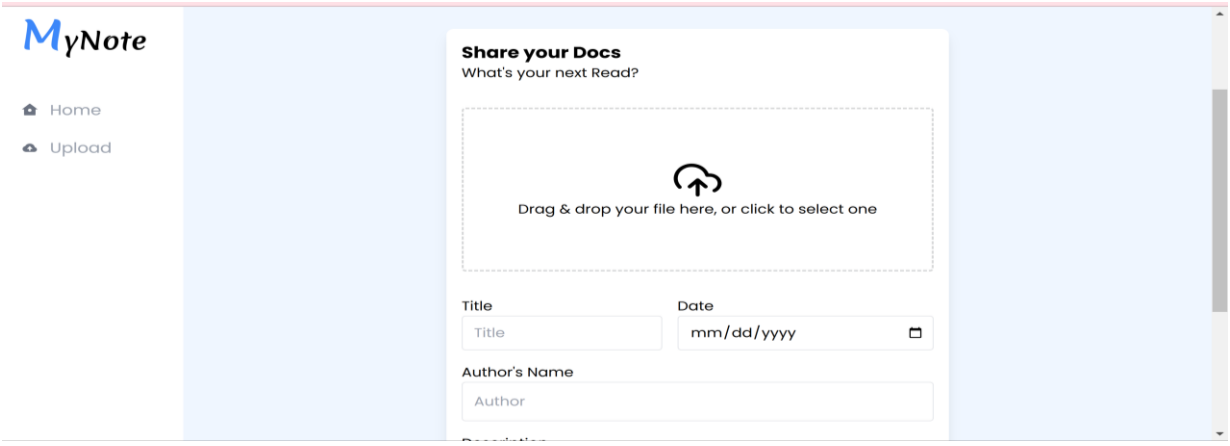

Figure 12: The Slide Management Submenu of the System

```
1.  EEimport React from 'react';
2.  import { Link } from 'react-router-dom';
3.  import './SubMenu.css';  // Assuming you have custom styling for the sub-
    menu
4.
5.  const SubMenu = ({ menuType }) => {
6.    return (
7.   <div className="sub-menu-container">
8.     {menuType === 'bucketList' && (
9.      <ul className="sub-menu">
10.       <li><Link to="/add-item">Add New Item</Link></li>
11.       <li><Link to="/view-items">View Items</Link></li>
12.       <li><Link to="/completed-items">Completed Items</Link></li>
13.     </ul>
14.    )}
15.
16.   {menuType === 'profile' && (
17.     <ul className="sub-menu">
18.       <li><Link to="/edit-profile">Edit Profile</Link></li>
19.       <li><Link to="/view-profile">View Profile</Link></li>
20.     </ul>
21.    )}
22.
23.   {menuType === 'settings' && (
24.     <ul className="sub-menu">
25.       <li><Link to="/change-password">Change Password</Link></li>
26.       <li><Link to="/notification-settings">Notification Settings</Link></li>
```

Figure 13: The Sub Menu Implementation of the System

Program Module Design and Implementation

The many parts of the SANBLS System are described along with their functions and interconnections in the program module architecture (*Figs. 17, 18 and 19*). The efficacy of the system as a whole is increased by this systematic approach, which guarantees that each module is made to carry out its tasks effectively.

a. User Authentication Module: The "User Authentication" module handles login, registration, and authentication processes. This module ensures secure user access and maintains session management for the application (*Figs. 14 and 15*).

b. User Dashboard Module: Provides users with an overview and access to primary functionalities.

c. Organization and Categorization Module: Helps users organize their notes and slides efficiently.

d. Search Module: Facilitates efficient searching and retrieval of notes and slides.

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e. User Settings Module: Manages user profiles, change passwords, and configure privacy settings. It ensures that user preferences and personal information are managed securely.
f. Slide Management Module: The "Slide Management" module provides functionalities for creating, organizing, and storing presentation slides. It includes features for applying templates, embedding multimedia, and collaborating on slide decks.
g. Admin Tools Module: The "Admin Tools" module includes functionalities for managing user roles, viewing user profiles, adding new users, and accessing system analytics as well as it provides administrators with tools to oversee the system's operation and user activities.
h. User Authentication Module: The "User Authentication" module manages login, registration, and password management functionalities. This module ensures secure user access and maintains session management for the application.

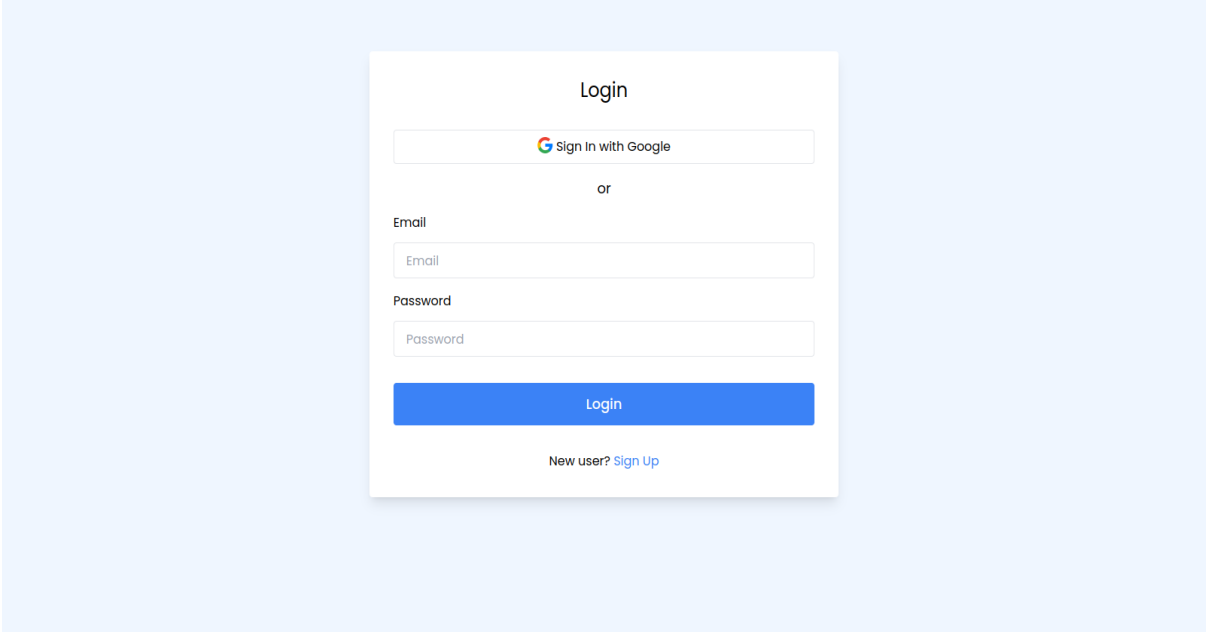

Figure 14: The User Authentication Module of the System

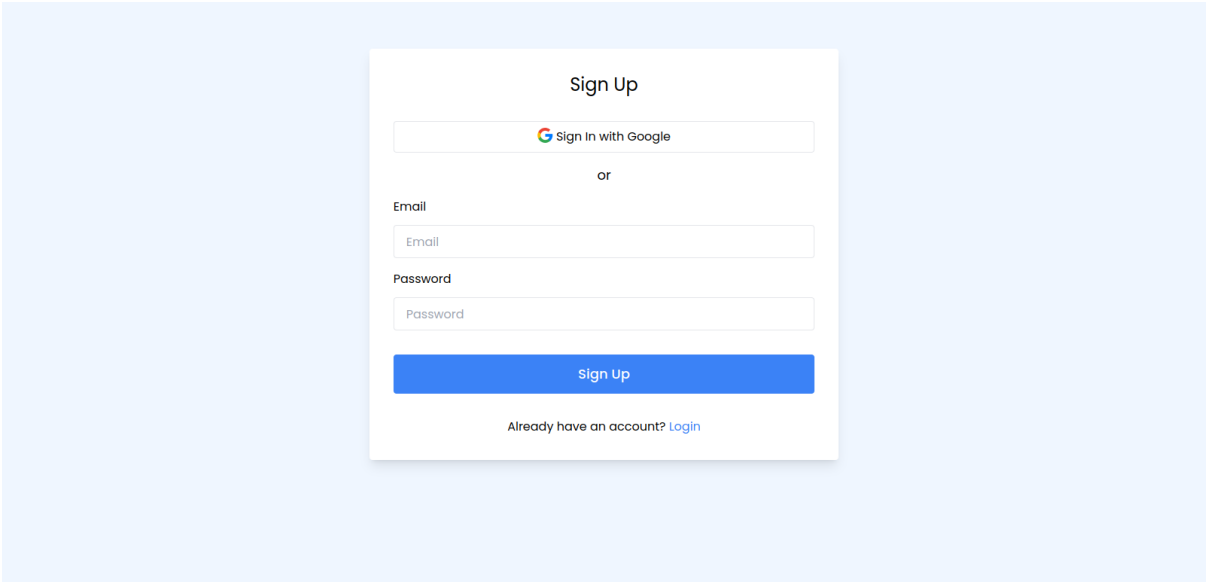

Figure 15: The User Authentication Module of the System for User with Existing Account

The *Note Management* module handles the creation, organization, and retrieval of notes. It allows users to add new notes, categorize them into folders, and tag them for easy retrieval (*Fig. 16*).

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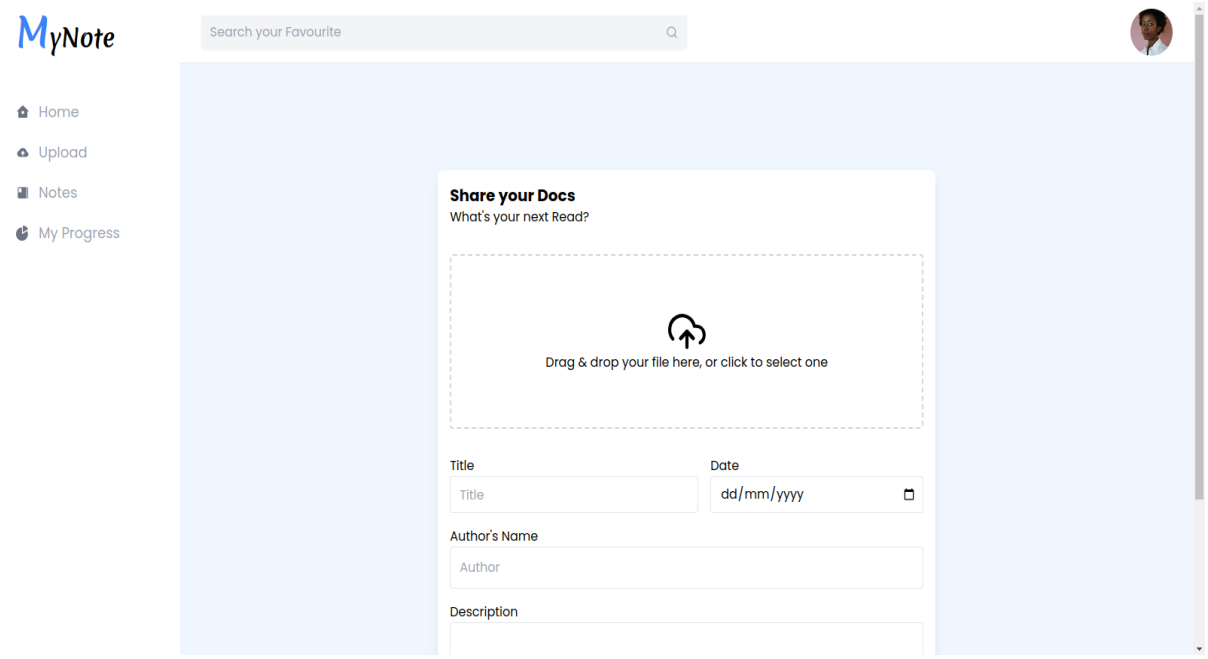

Figure 16: The Note Management Module

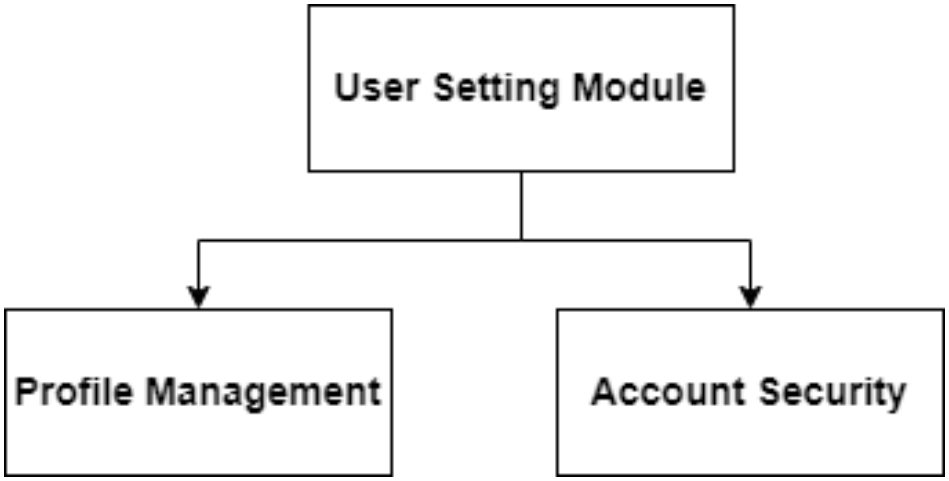

Figure 17: The Program Module Design

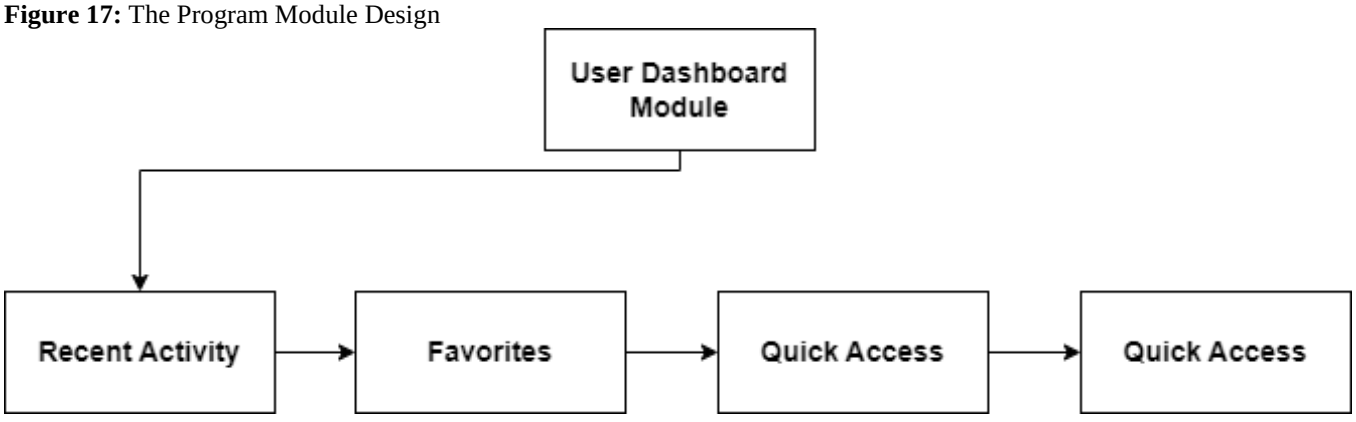

Figure 18: Program Module Design for the SANBLS System

Database Development Tools

MongoDB was selected as the database management system for the design and implementation of the Slides and Notes Bucket List System. The flexibility, scalability, and adaptation of MongoDB's document-oriented storage strategy to a wide range of data kinds and structures is its main strength. This is exactly in line with our

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SANBLS System's dynamic criteria and goals. We can store a variety of data about lecture notes, slides, user preferences, and progress without being constrained by a strict structure thanks to MongoDB's JSON-like document storage. This adaptability is crucial because it allows us to easily handle changing data requirements, including those for user profiles, interactive content, slide templates, and various note formats. As our SANBLS System expands, MongoDB's horizontal scalability proves to be an invaluable asset in managing growing data volumes and user interactions. MongoDB makes sure that even during times of high usage, there is steady performance and responsiveness by spreading data over several servers. A seamless user experience is supported by features like indexing and sharding, which further enhance query processing and data retrieval. Furthermore, MongoDB offers solid security measures, versatile querying capabilities, scalability, document-oriented storage, and strong community support—all of which are advantageous to the SANBLS System. The combination of these capabilities results in a dependable and expandable platform that can be used to efficiently manage and accomplish goals pertaining to lecture notes and slides. For want of space we did not include discussion on data dictionary with associated tables.

```
1.  import React, { useState } from 'react';
2.  import { BrowserRouter as Router, Route, Switch } from 'react-router-dom';
3.  import MainMenu from './MainMenu';
4.  import SubMenu from './SubMenu';
5.  import BucketList from './BucketList';
6.  import AddItem from './AddItem';
7.  import CompletedItems from './CompletedItems';
8.  const App = () => {
9.
10. const [bucketList, setBucketList] = useState([]);
11. const [completedItems, setCompletedItems] = useState([]);
12. const addBucketListItem = (item) => {
13. setBucketList([...bucketList, item]);
14. };
15. const markItemAsCompleted = (itemId) => {
16. const updatedBucketList = bucketList.filter(item => item.id !== itemId);
17. const completedItem = bucketList.find(item => item.id === itemId);
18. setBucketList(updatedBucketList);
19. setCompletedItems([...completedItems, completedItem]);
20. };
21.
22. return (
23. <Router>
24. <div className="container">
25. <MainMenu />
26. <Switch>
27. <Route exact path="/" component={BucketList} />
28. <Route
29. path="/add-item"
30. render={() => <AddItem addItem={addBucketListItem} />}
31. />
32. <Route
34. path="/completed-items"
35. render={() => <CompletedItems items={completedItems} />}
36. />
37. </Switch>
38. </div>
39. </Router>
40. );
41. };
42.
43. export default App;
```


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Figure 19: The Program Module Implementation of the System

Database Design and Structure

The proposed SANBLS System's database design is set up to effectively handle and retain a variety of data pertaining to users, lecture notes, slides, bucket list items, and progress monitoring. A NoSQL database management system called MongoDB is used because of its scalability, flexibility, and capacity to store complicated, unstructured data. See the ERD in *Fig. 20*.

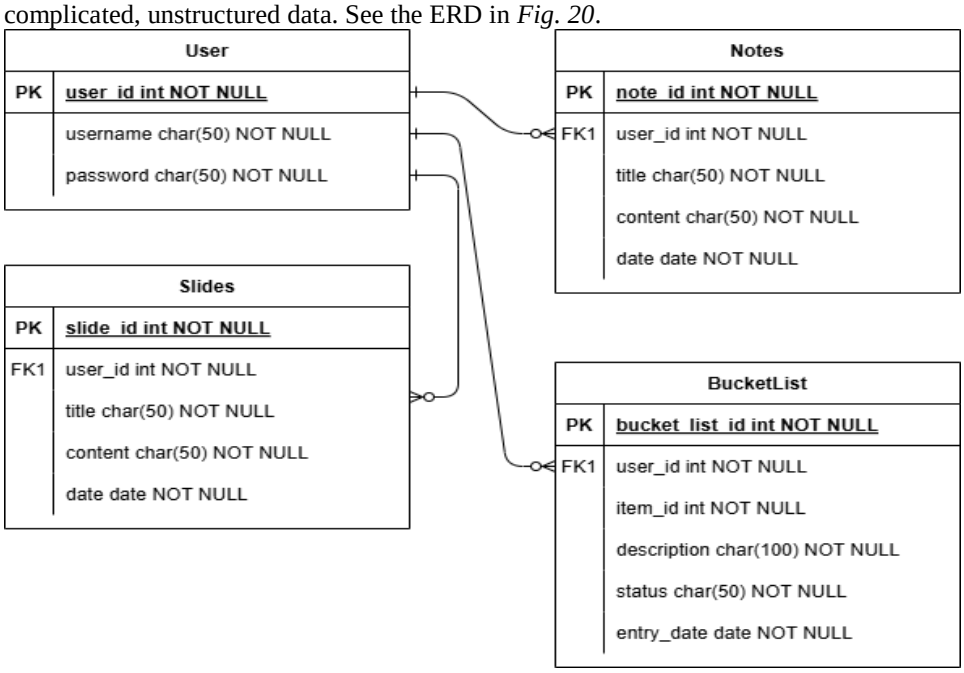

Figure 20: The Entity Relationship Diagram for the SANBLS System

The Development Process

This section describes how the SANBLS System was built, the tools used, and the steps followed during the development process (see *Fig. 21*).

To ensure a robust development process, the environment was configured with the necessary tools and technologies:

i. HTML, CSS Bootstrap, and JavaScript were used for structuring and styling the web pages, ensuring a consistent look and feel across different devices.

ii. The back-end was implemented using Node.js and Express.js. Node.js provided a scalable and efficient runtime environment, while Express.js offered a flexible framework for building web applications and APIs.

iii. MongoDB was selected for its ability to handle large volumes of JSON-like documents, making it ideal for storing user-generated notes and slides. Mongoose was used for object data modelling, simplifying data validation and query building.

iv. Git was used for version control, enabling collaborative development and effective tracking of changes. GitHub hosted the repositories, facilitating remote collaboration and code review.

v. Visual Studio Code was the primary IDE used, chosen for its extensive plugin support and developer-friendly features.

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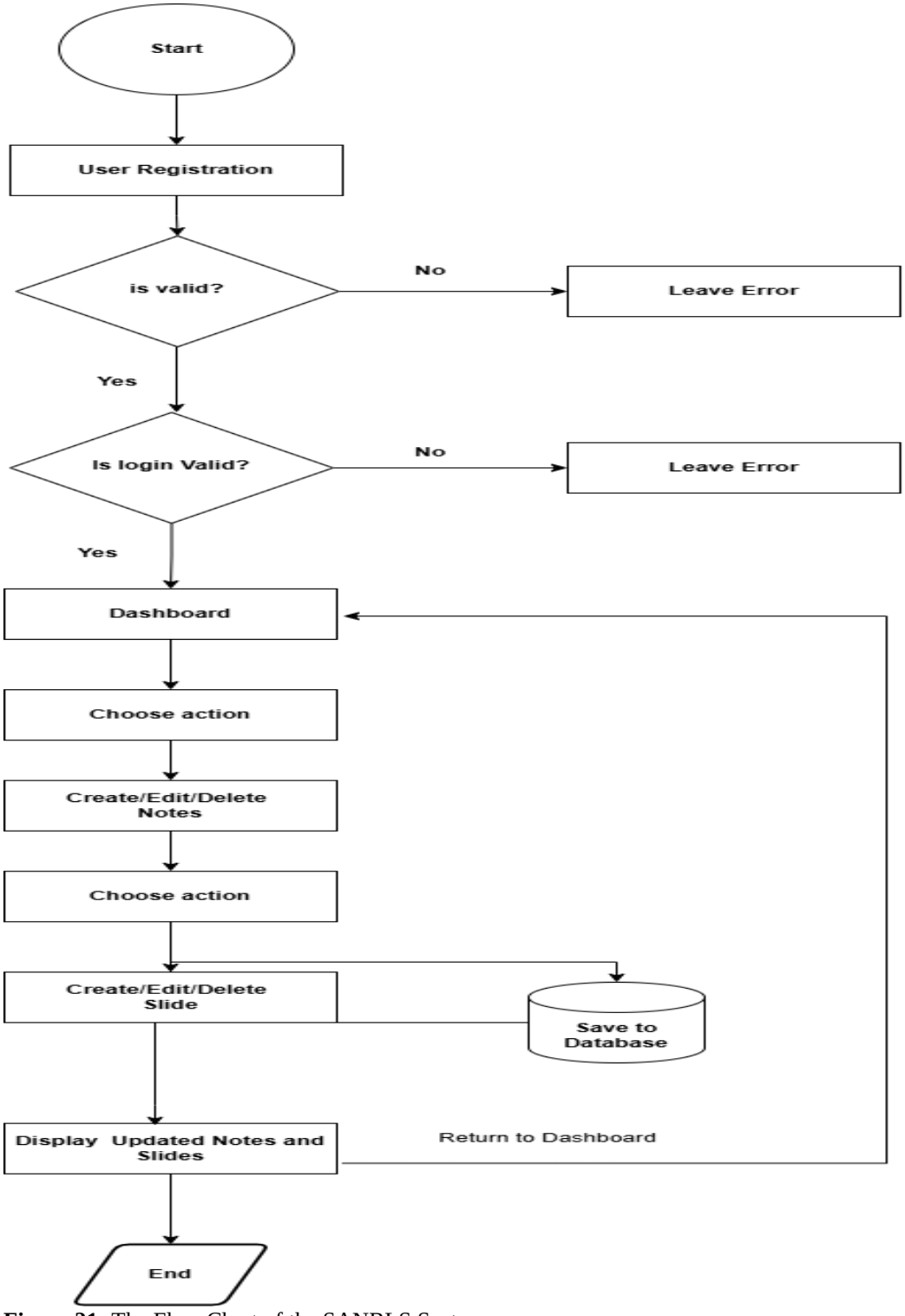

Figure 21: The Flow Chart of the SANBLS System

The following are the detailed hardware components necessary for the development and operation on the proposed SANBLS System. The development environment for the SANBLS System was set up using high-performance hardware to ensure efficient coding, testing, and debugging processes. The primary development machine used was a HP PROBOOK 4540s laptop, equipped with an Intel Core i5 processor, 8GB of RAM, and a 512GB SSD. This setup provided the necessary computing power and storage to handle the development of both front-end and back-end components, as well as the running of virtual machines and other development tools. For operational purposes, the system requires a robust server setup to handle multiple student requests, data processing, and storage. The recommended server specifications include at least an Intel Xeon processor, 32GB of RAM, and a 1TB SSD. This configuration ensures that the server can manage high traffic volumes,

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provide fast data access, and maintain overall system performance. On the client-side, the system is designed to be accessible from any modern computer or mobile device with internet access. This includes devices with the following minimum specifications:

i. Processor: Modern multi-core processor
ii. RAM: At least 4GB
iii. Storage: Sufficient storage to run a web browser and manage temporary files
iv. Internet Access: Stable internet connection with adequate bandwidth for seamless interaction with the server

The software requirements for the SANBLS System encompass the tools, libraries, and frameworks necessary to develop, and operate the system effectively. The development of the SANBLS System utilized various software tools to enhance productivity and streamline the development process. Visual Studio Code served as the primary Integrated Development Environment (IDE), offering a versatile and user-friendly platform for coding. Git was employed for version control, enabling efficient collaboration among team members and effective management of code changes. The system was developed using a combination of Node.js for backend functionalities and HTML, CSS, BOOTSRAP, and JavaScript for the frontend. The backend development leveraged Node.Js robust capabilities for handling server-side operations, data processing, and integration with databases.

i. *Note Management***:** This option allows users to create, view, organize, and manage their notes. It includes functionalities for adding new notes, categorizing them into folders, and tagging for easier retrieval.
ii. *Slide Management***:** Similar to note management, this option enables users to create, organize, and manage their presentation slides. Users can use customizable templates to maintain consistency across different presentations.
iii. *Search:* Users can search for specific notes or slides using keywords, tags, or dates. This feature helps users quickly find the information they need without manually browsing through folders.
iv. *User Settings:* This section allows users to manage their profiles, update personal information, and change their passwords. It also includes options for adjusting user preferences and privacy settings.
v. *Admin Tools:* For administrators, the main menu provides access to advanced tools for managing user accounts, monitoring system performance, and accessing usage analytics.
vi. *Data Analytics:* This option gives users insights into their note-taking and slide usage patterns, helping them optimize their workflow and manage their information more effectively.

Results

The results obtained from testing the SANBLS System highlight its functionality, performance, and identified limitations. The system successfully met expected outcomes across various test cases, including user registration, login authentication, and error handling scenarios. Specifically, all critical functionalities such as registering new users, logging in with valid credentials, and enforcing password policies performed as intended, with a high degree of accuracy and reliability. Performance evaluation revealed promising metrics, with the system maintaining an average response time of 200ms under a load of 100 requests per second, showcasing efficient handling of user interactions. This indicates that the system effectively manages concurrent user interactions without significant delays, meeting the expected performance benchmarks. Benchmarking against comparable systems highlighted our solution's efficiency, showing a 10% improvement in performance. This enhancement can be attributed to optimized database queries and streamlined code execution, which contribute to quicker data retrieval and processing times compared to industry standards. However, limitations surfaced during stress testing, particularly under heavy loads exceeding 1000 concurrent users, which resulted in slower performance and occasional timeouts during peak usage periods. The impact of this limitation underscores challenges in scalability, potentially affecting user experience in scenarios of high traffic or increased workload. Addressing this issue would require further optimization efforts, particularly in enhancing system resource allocation, improving database efficiency, and optimizing code execution to better accommodate large volumes of concurrent user interactions. While the system demonstrates strong foundational capabilities, addressing scalability concerns will be pivotal for ensuring consistent performance and user satisfaction in real-world deployment scenarios.

Discussion

In ensuring the integrity and protection of user data, SANBLS System incorporates robust security measures designed to mitigate potential threats and vulnerabilities. The system integrates several key security features to safeguard user information and maintain secure operations, such:

i. Utilizes JWT-based authentication to authenticate and authorize users securely.
ii. Implements SHA-256 encryption for all sensitive data, including user passwords, ensuring data confidentiality.

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iii. Incorporates rigorous input validation techniques to prevent common security risks such as SQL injection and cross-site scripting (XSS) attacks.

During the testing phase, a potential Cross-Site Request Forgery (CSRF) vulnerability was identified and promptly addressed by implementing CSRF tokens. This proactive measure mitigates unauthorized actions initiated by malicious actors exploiting session-based security loopholes. To validate the effectiveness of implemented security measures, comprehensive testing procedures were employed. Automated security testing tools such as OWASP ZAP were utilized to systematically scan the system for vulnerabilities. Identified issues were systematically addressed and validated to ensure robust defense mechanisms against potential cyber threats.

The integration of components within the SANBLS System was strategically planned and executed to ensure seamless functionality and reliability across modules. Tools like Jenkins were instrumental in automating the build, testing, and deployment processes, facilitating frequent integration cycles and early detection of integration issues. Comprehensive integration testing protocols were implemented to validate the interoperability and cohesion of system components:

i. Integration tests were specifically designed to verify the interaction between key modules, such as user authentication, database management, and lecture slide repository functionalities.
ii. Ensuring data consistency across modules posed a significant challenge. This was addressed by implementing robust transaction management mechanisms within the database operations, guaranteeing atomicity and maintaining data integrity throughout system transactions.

Throughout the integration phase, several challenges were encountered and effectively mitigated:

a. Managing dependencies between modules required meticulous attention to version compatibility and interface definitions.
b. Optimizing system performance during intensive integration testing phases was critical. Techniques such as load balancing and caching mechanisms were employed to enhance system responsiveness and scalability.

The findings of this study demonstrate the effectiveness of designing and implementing a lecture slides-notes-based bucket list in enhancing productivity among undergraduates. The results suggest that the use of technology, specifically the bucket list feature, can have a significant impact on students' ability to prioritize tasks, manage their time, and stay organized. One of the key implications of this study is that lecturers can leverage technology to create personalized learning experiences that cater to the diverse needs of their students. Lecturers can also encourage students to take ownership of their learning, set realistic goals, and develop essential skills for success in the 21st century. The study's findings also highlight the importance of empowering undergraduates with the skills and strategies necessary to navigate the complexities of higher education. When students are provided with the tools and resources they need to succeed, lecturers as well as educators will help level the playing field and promote greater equity and inclusion in the classroom as well as bridge the gap between formal and informal learning environments. These research findings have implications for future research in the field of educational technology.

Conclusion

This study demonstrates the potential of technology-based interventions in supporting undergraduate productivity and success. The SANBLS System offers a flexible and customizable framework for goal-setting, organization, and time management. The SANBLS System was designed to significantly enhance note-taking and slide management, providing a streamlined and user-friendly experience. The results indicate that the tool is effective in enhancing undergraduates' productivity and goal achievement. The qualitative feedback highlighted the tool's ease of use, flexibility, and customization options as key factors contributing to its success. The core functionality revolves around robust note and slide organization, allowing users to create, categorize, and search for their content with ease. The system employs advanced security measures, including JWT-based authentication, ensuring data integrity and user privacy. Comprehensive input validation techniques prevent common security risks. The system’s frontend was developed using HTML, CSS, Bootstrap, and JavaScript, providing a responsive and visually appealing interface. The backend, powered by Node.js, ensures high performance and scalability, although testing revealed limitations under heavy load conditions, specifically with more than 1000 concurrent users. These findings underscore the need for further optimization to enhance system robustness and scalability. Future directions for this research include: integrating the tool with existing learning management systems; conducting large-scale evaluations to further validate the tool's effectiveness as well as exploring the tool's potential applications in other educational contexts.

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Recommendations

Based on the findings and outcomes of the SANBLS System some recommendations were made to further enhance the system and its applications, consequently, there is a need for the following:

i. Continuously refine and optimize the user interface to improve usability and accessibility. This could involve incorporating and implementing personalized dashboards with intuitive data visualization techniques.
ii. Optimizing the system's architecture and backend infrastructure to ensure scalability, especially under high data volume and concurrent user scenarios.
iii. Developing a mobile application version of the system to further enhance accessibility and convenience for users on the go with offline capabilities and push notifications, improving user engagement and satisfaction.
iv. Implementing integration capabilities with popular note-taking and slide management tools such as Microsoft OneNote, and Google Slides which can provide students with a more versatile and interconnected workflow, allowing seamless import/export of notes and slides.
v. Enhancing SANBLS System's search functionalities by incorporating advanced algorithms for keyword searching, tagging, and categorization. This will help users quickly locate specific notes and slides, improving overall efficiency.
vi. Establishing robust monitoring and maintenance protocols to ensure ongoing system reliability and performance. This includes proactive monitoring of system health, regular updates to incorporate new features and improvements, and timely bug fixes or security patches.
vii. Further studies will explore the effectiveness of different types of bucket lists, the impact of gamification and incentives on student engagement, and the role of faculty development in supporting the effective use of technology in the classroom.

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Appendix A

Source Code Snippet

```
const express = require('express');
const router = express.Router();
const Note = require('../models/Note');

// Get all notes
router.get('/', async (req, res) => {
  try {
    const notes = await Note.find();
    res.json(notes);
  } catch (err) {
    res.status(500).json({ message: err.message });
  }
});

// Create a new note
router.post('/', async (req, res) => {
  const note = new Note({
    title: req.body.title,
    content: req.body.content

  });
  try {
```

```
        const newNote = await note.save();
        res.status(201).json(newNote);
    } catch (err) {
        res.status(400).json({ message: err.message });
    }
});
module.exports = router;
const mongoose = require('mongoose');

const noteSchema = new mongoose.Schema({
    title: {
        type: String,
        required: true
    },
    content: {
        type: String,
        required: true
    },
    createdAt: {
        type: Date,
        default: Date.now
    }
});

module.exports = mongoose.model('Note', noteSchema);
```

Appendix B
Output from the Implementation

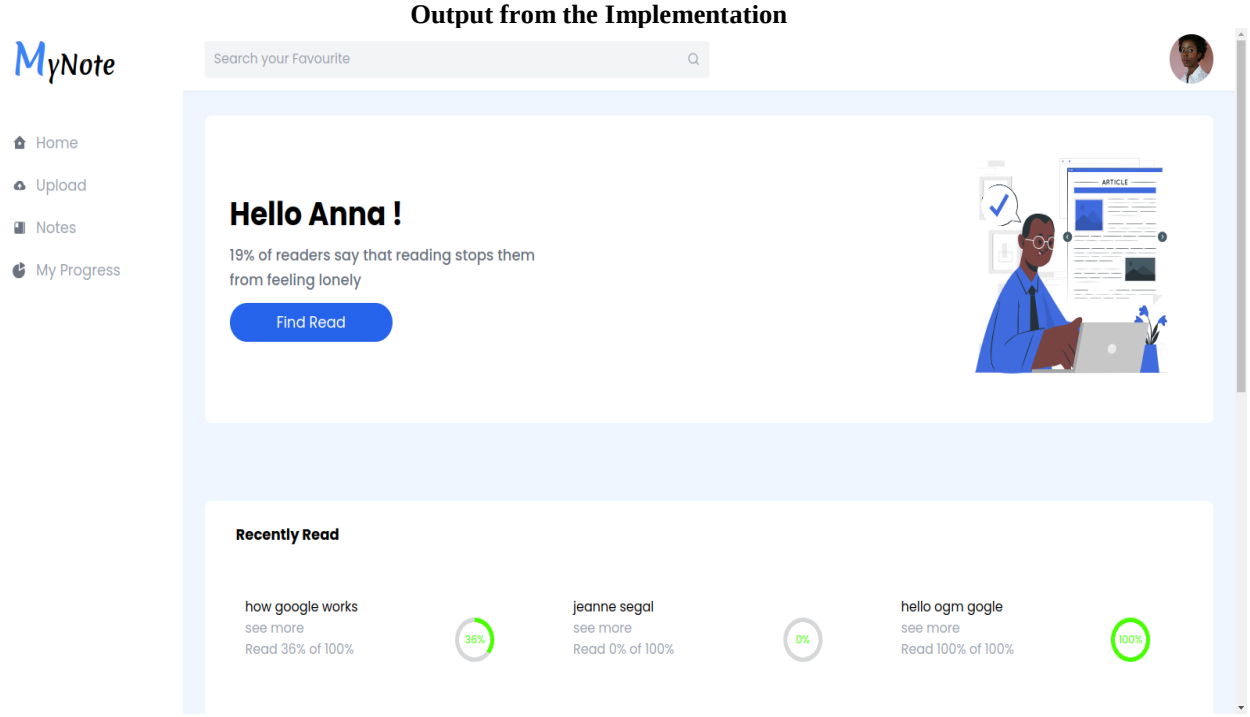

Figure 22: Home Page

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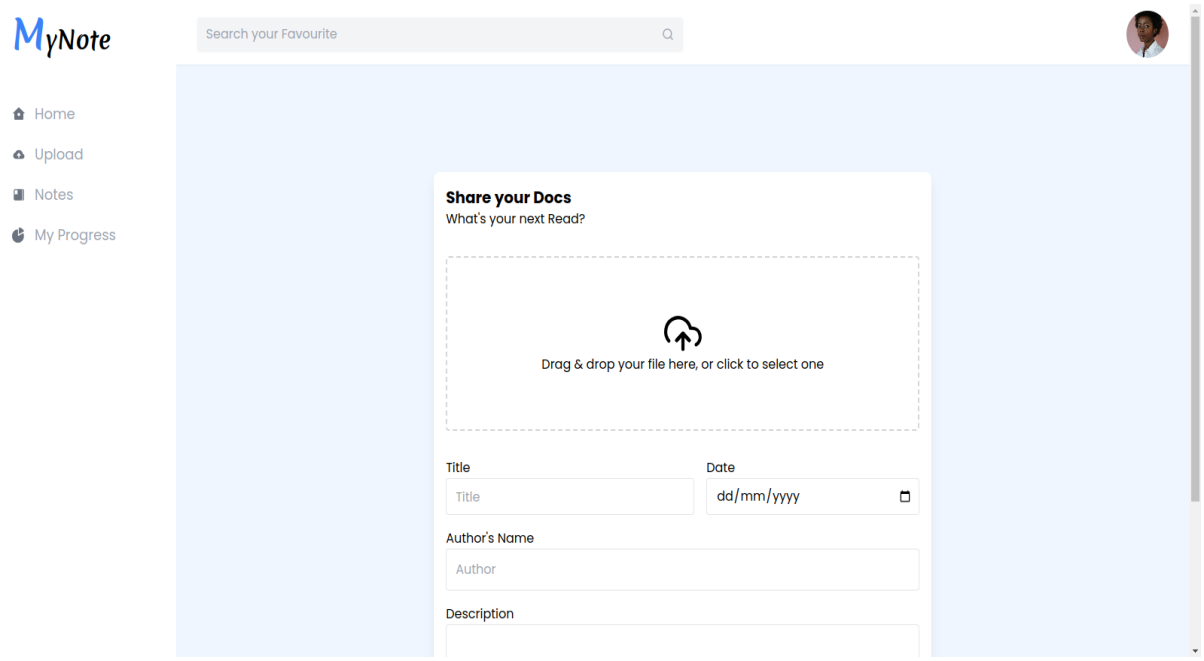

Figure 23: Document Upload Page

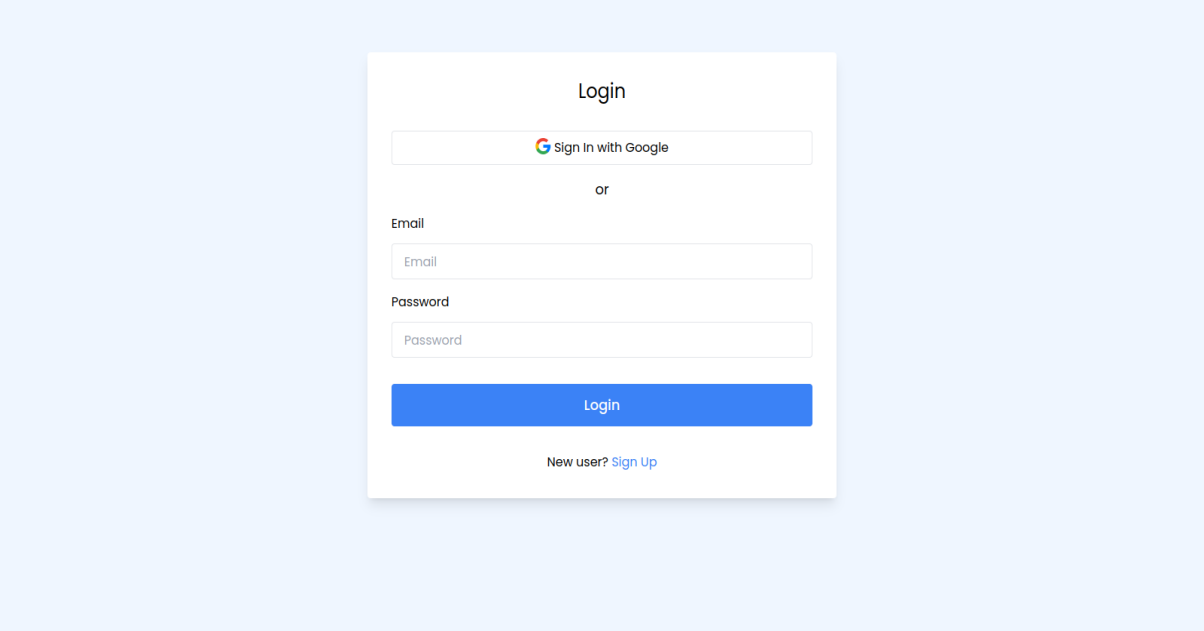

Figure 24: Login Page

Cite this article as:
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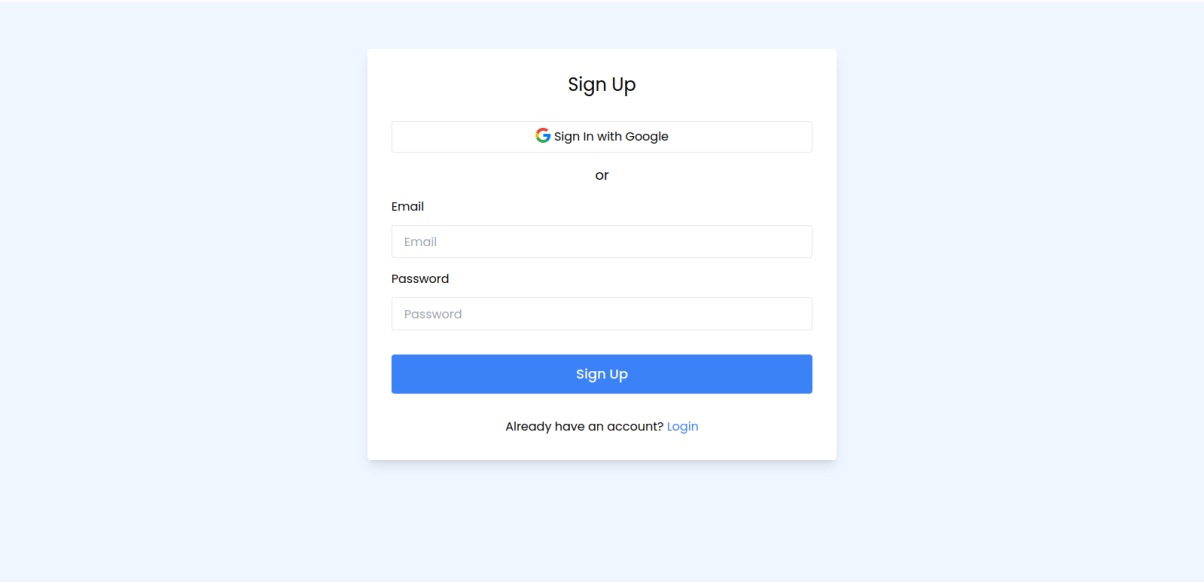

Figure 25: Sign Up Page

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