UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Project Phase 3
SECD2613 - SYSTEM ANALYSIS AND DESIGN

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Section 01
Group: BlackBox

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DATE: 29/06/2023

TABLE OF CONTENT

1.0 OVERVIEW OF THE PROJECT

This project aims to develop an integrated task management system to streamline paper writing and publication processes for postgraduate students and lecturers. Currently, these tasks rely on inefficient and error-prone manual methods using tools like Excel, WhatsApp, and email. Our proposed system will centralize task management into a user-friendly platform, offering features such as task organization, dynamic scheduling, real-time collaboration, and automated progress tracking. This will enhance productivity and efficiency, reduce dependency on multiple tools, and ensure the accuracy and integrity of academic work. With universal browser compatibility and responsive design, users can access and manage their tasks from any location and device. Leveraging advanced web technologies, this project aims to deliver a scalable, reliable, and secure solution, ultimately improving the quality of academic research and publication.

2.0 PROBLEM STATEMENT

In academic settings, particularly among postgraduate students and their supervisors, the process of managing paper writing and publication is fraught with inefficiencies due to reliance on a variety of disparate tools. These tools include Excel for task tracking, WhatsApp for communication, and email for coordination and document sharing. This fragmented approach lacks coherence and integration, making it difficult to maintain a streamlined workflow. Consequently, users face significant challenges in efficiently managing their tasks and ensuring all aspects of the paper writing process are handled systematically.

One of the primary issues with the current manual system is the difficulty in tracking progress accurately. Supervisors and students must manually update multiple documents and spreadsheets, leading to inconsistencies and errors. Additionally, scheduling tasks and setting reminders are often done in isolation from the task tracking tools, resulting in overlooked deadlines and missed milestones.

The cumulative effect of these inefficiencies is a significant increase in the administrative workload for both students and supervisors. Time that could be spent on research and writing is instead consumed by managing logistics and resolving issues caused by the fragmented system. This not only hampers academic productivity but also impacts the quality and timeliness of research outputs. Therefore, there is an urgent need for an integrated task management system that can centralize and streamline these processes, enhance collaboration, and reduce the administrative burden, ultimately leading to improved efficiency and higher quality academic work.

3.0 PROPOSED SOLUTIONS

To address the inefficiencies and challenges of traditional academic task management, we propose developing WorkStudio, a comprehensive web platform designed for postgraduate students and lecturers. This platform will streamline academic processes and enhance productivity through the integration of several key features.

WorkStudio will provide robust task listing capabilities, enabling users to create and organize tasks with essential details such as deadlines, priority levels, and assigned stakeholders. Advanced categorization and tagging options will facilitate efficient organization and quick navigation, ensuring easy access and management of tasks.

The platform will include sophisticated task management and scheduling functionalities. Users can create dynamic schedules that automatically update project timelines in real-time, ensuring precise and clear task management. The system will also allow setting dependencies and milestones, offering a comprehensive overview of project progress and upcoming tasks.

Automated progress tracking mechanisms will streamline project management processes. Task statuses will be updated automatically based on user inputs or predefined triggers, providing real-time visibility into each task's progress. Detailed reports and visualizations will help users easily assess project status and make informed decisions.

Effective collaboration tools will facilitate seamless communication among team members. Users can share documents, edit collaboratively, leave comments, and receive notifications for immediate feedback. Real-time communication features will ensure all stakeholders are aligned, promoting efficient teamwork and accelerating project completion.

Personalized reminders and alerts will help users stay organized and meet important deadlines. The system will send notifications for upcoming deadlines, key milestones, and any changes in task statuses, ensuring users are always aware of their responsibilities and can manage their time effectively. Customizable notification settings will allow users to choose their preferred alert methods and timing.

In conclusion, WorkStudio aims to revolutionize academic task management by providing a centralized, efficient, and user-friendly platform tailored to the needs of postgraduate students and lecturers. By integrating comprehensive features such as task listing, task management and scheduling, progress tracking, collaboration tools, and system notifications, WorkStudio will eliminate the inefficiencies of traditional methods and foster a more productive and collaborative academic environment.

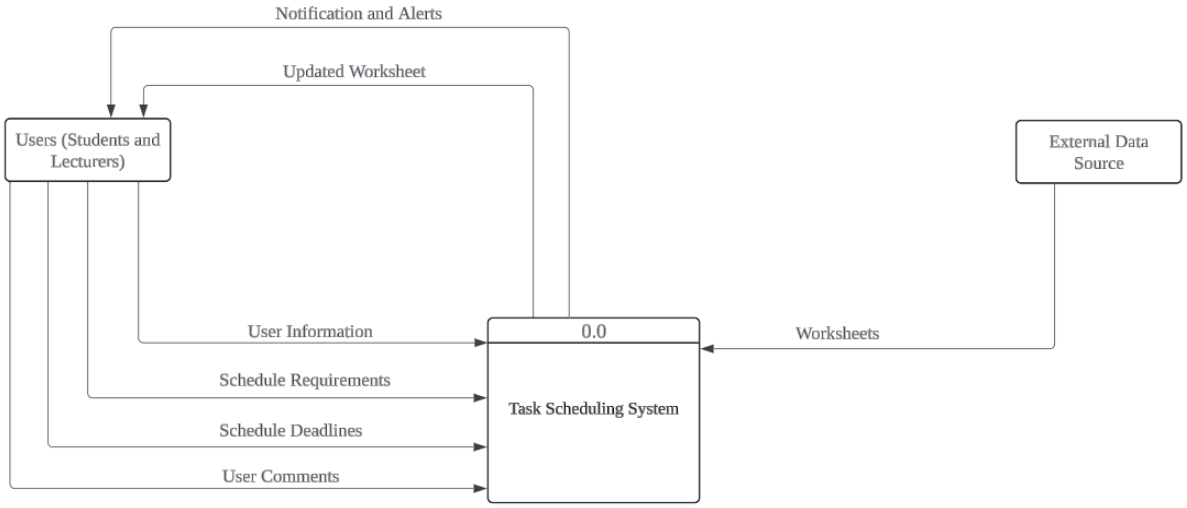
4.0 CURRENT BUSINESS PROCESS (SCENARIO, WORKFLOW)

Under the existing method, tasks are manually created by professors and postgraduate students using digital notepads or Excel spreadsheets, where they include task descriptions, deadlines, and priority levels. These spreadsheets are used for task management. Different columns are used to indicate different details, such as priority and status, and users manually update the status of activities such as not started, in progress, and completed and when they are completed. Email exchanges and shared drives, such as Google Drive or Dropbox, are the main means of user collaboration. This frequently leads to document versions and misunderstanding about which is the most recent. Limited real-time collaboration causes delays and breakdowns in communication.

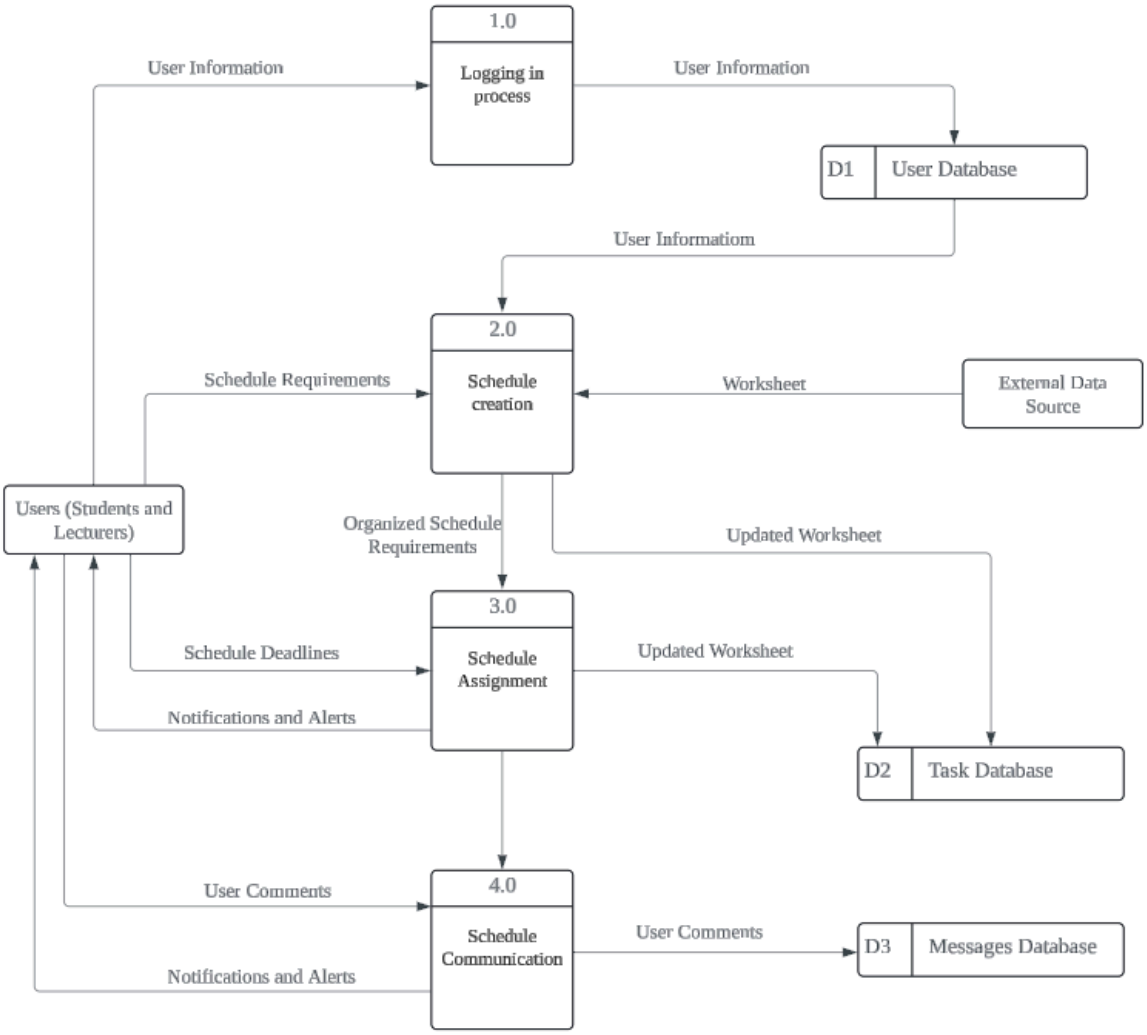
Scheduling is managed by manually entering deadlines into calendars such as Google Calendar and setting up reminders, with any changes to deadlines requiring manual updates across all tools used. Progress tracking is also manual, with users checking and updating progress in spreadsheets and generating reports by copying data into new documents, a process that is both time-consuming and error-prone. Notifications and reminders are set individually, often resulting in missed notifications, and communication about task updates and deadlines relies on email or chat applications, which can be fragmented and inconsistent.

5.0 LOGICAL DFD (AS-IS)

5.1 Context Diagram

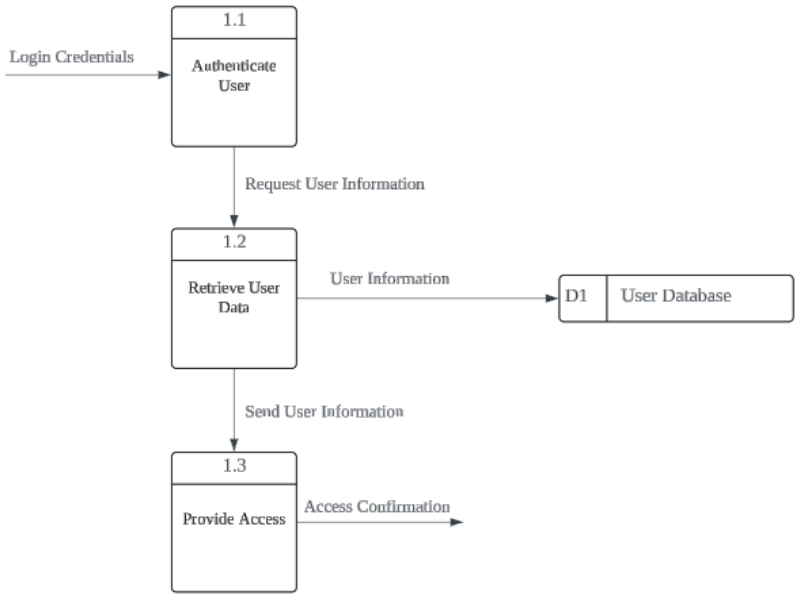


5.2 Level 0 Diagram

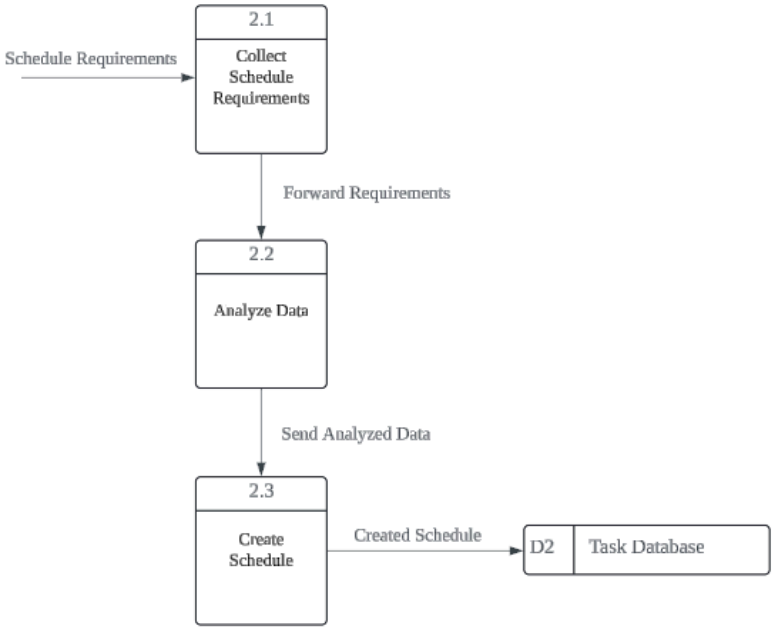


5.3 Child Diagram

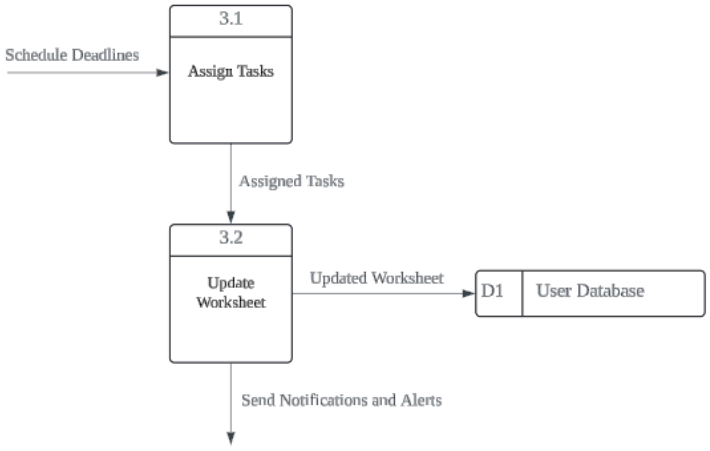
5.3.1 Logging In Process



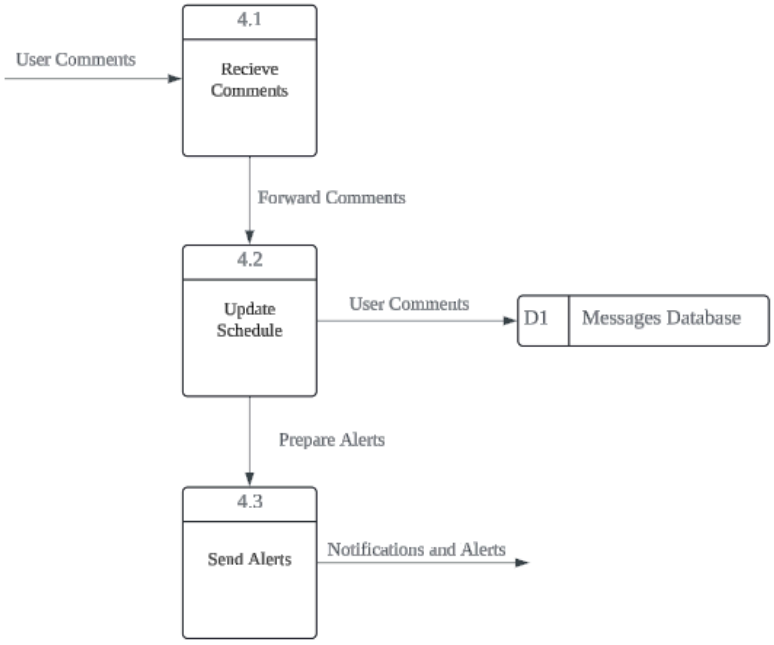
5.3.2 Task Management and Scheduling



5.3.3 Task Listing



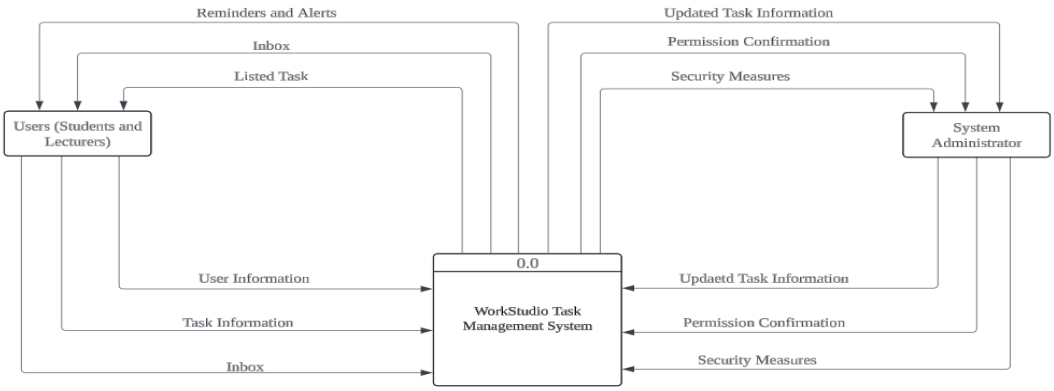
5.3.4 Collaboration tools



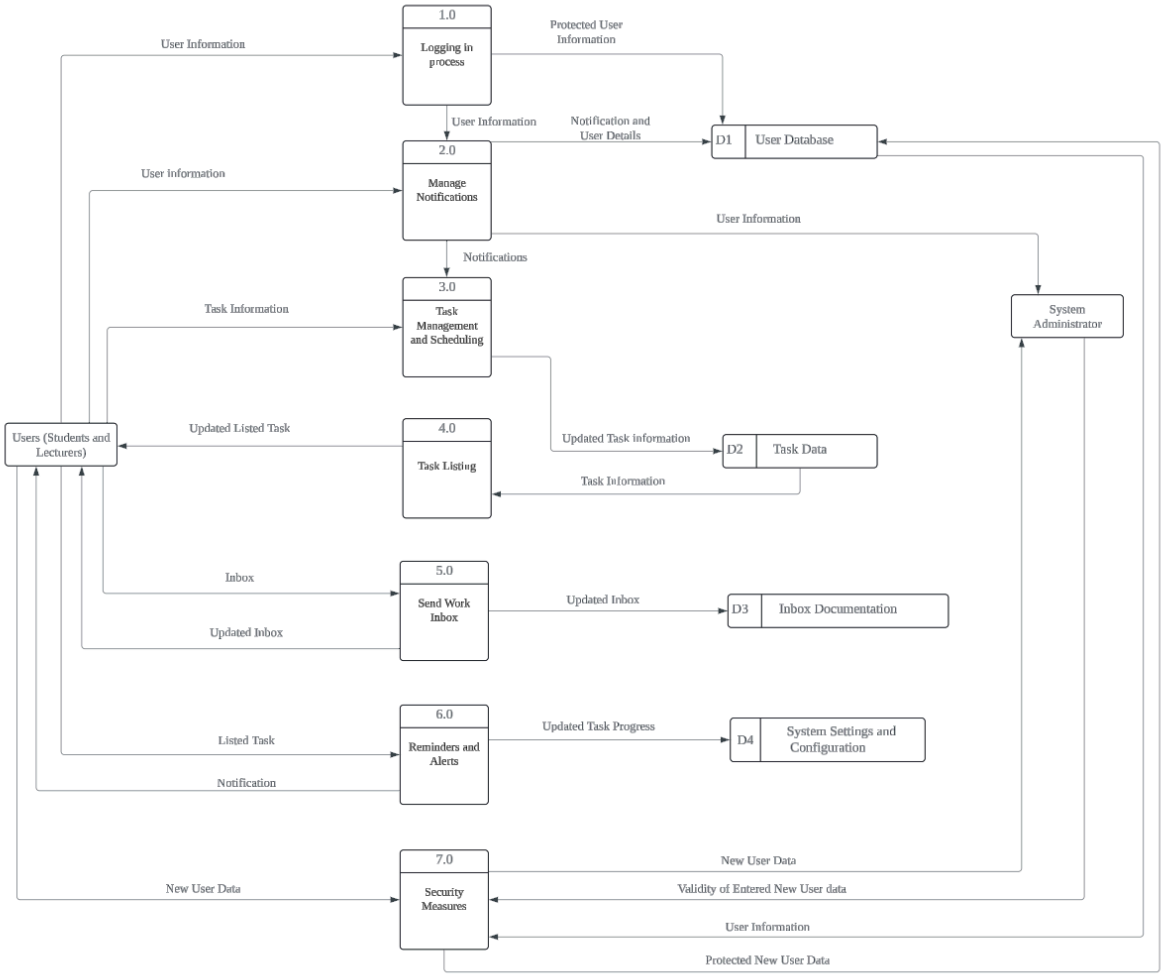
6.0 SYSTEM ANALYSIS AND SPECIFICATION

6.1 Logical DFD TO-BE System (Context Diagram, Diagram 0, Child)

6.1.1 Context Diagram

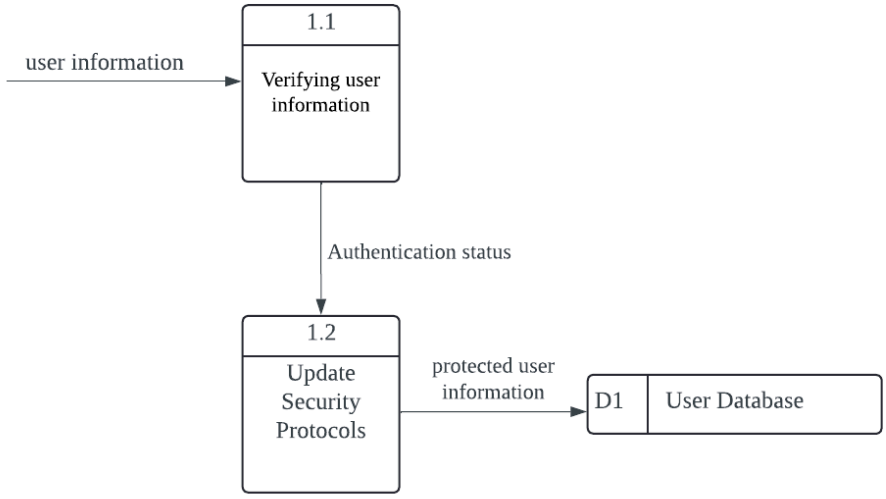


6.1.2 Level 0 Diagram

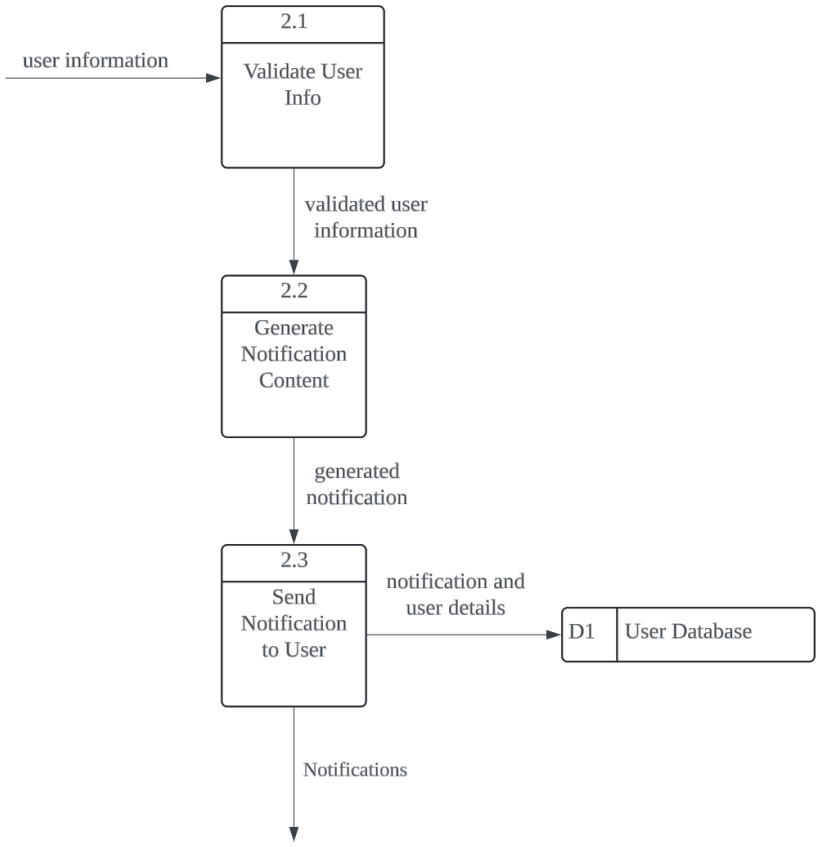


6.1.3 Child Diagram

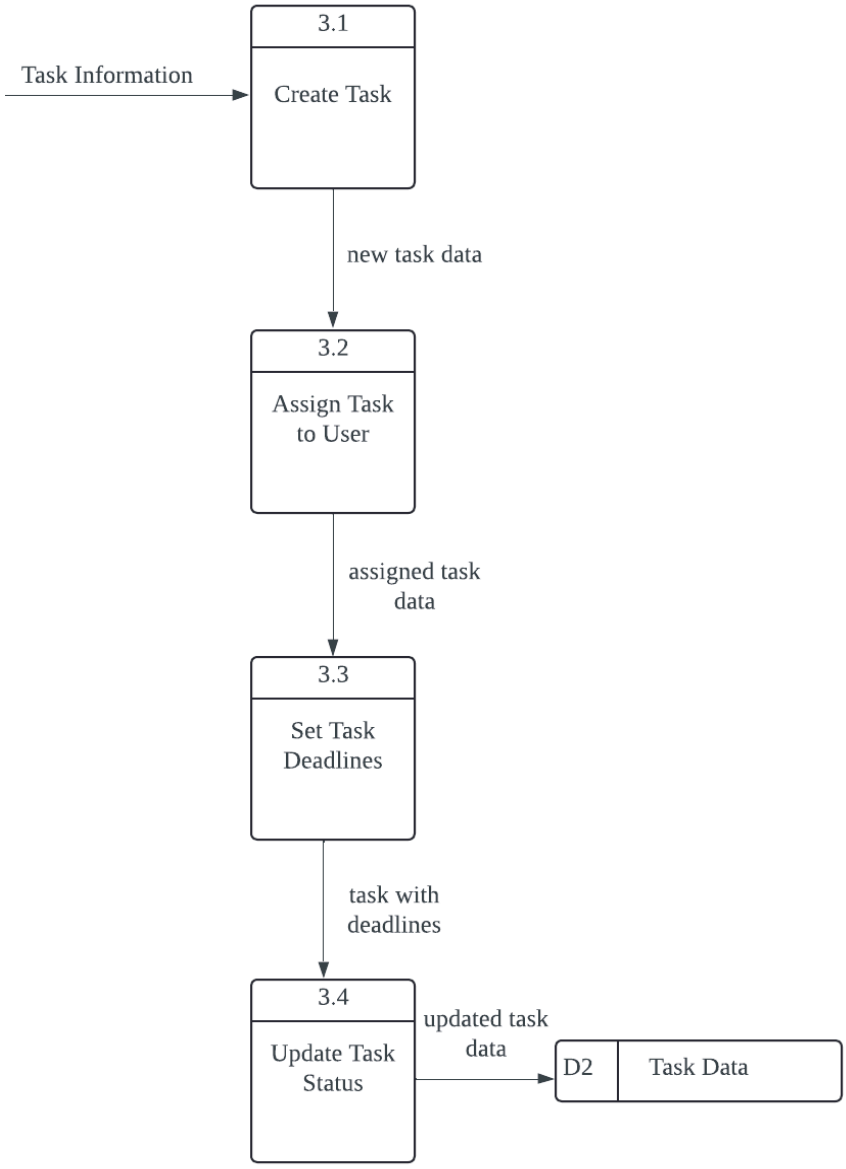
6.1.3.1 Logging In Process



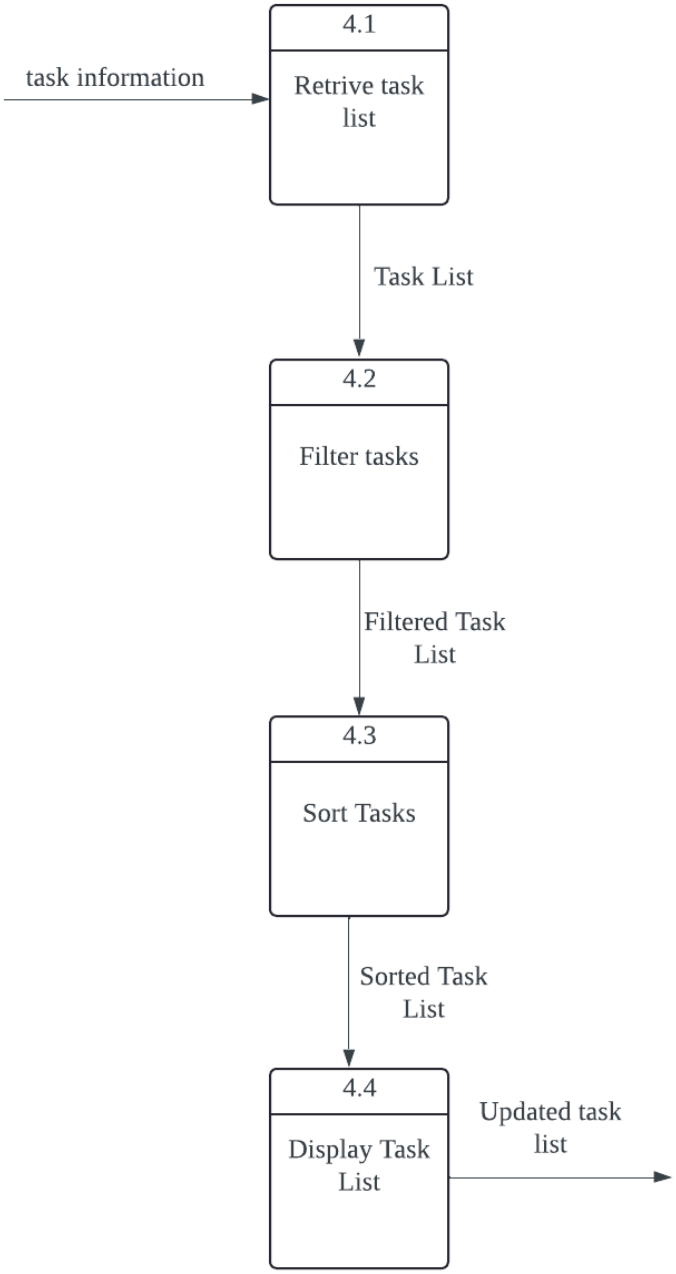
6.1.3.2 Manage Notifications



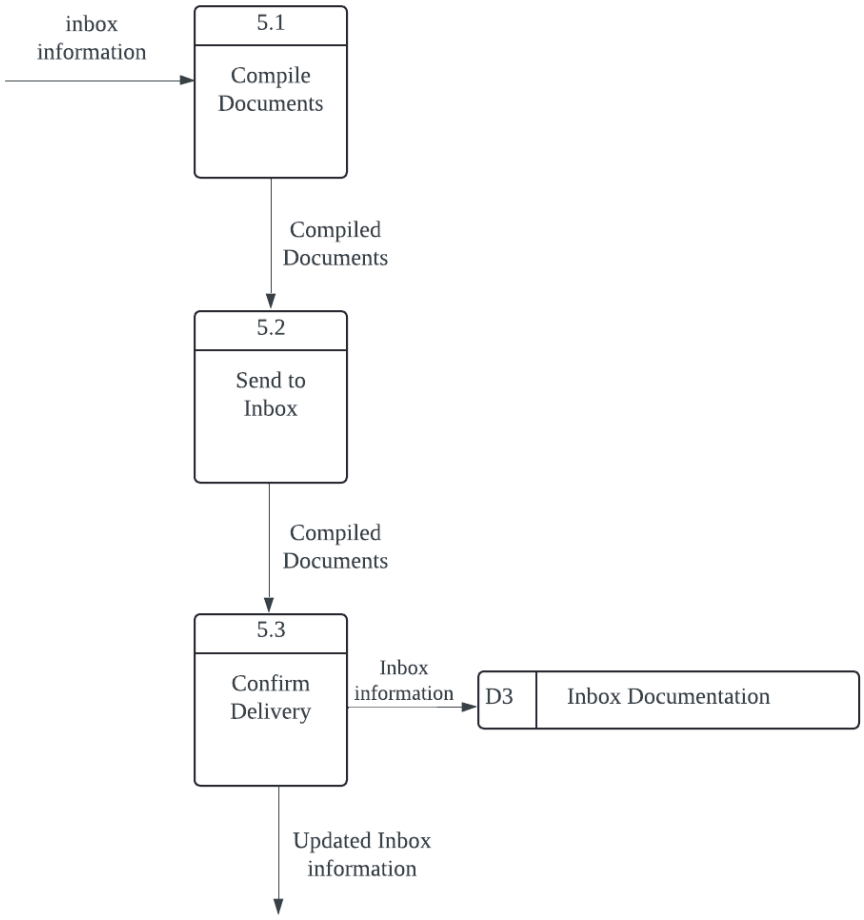
6.1.3.3 Task Management and Scheduling



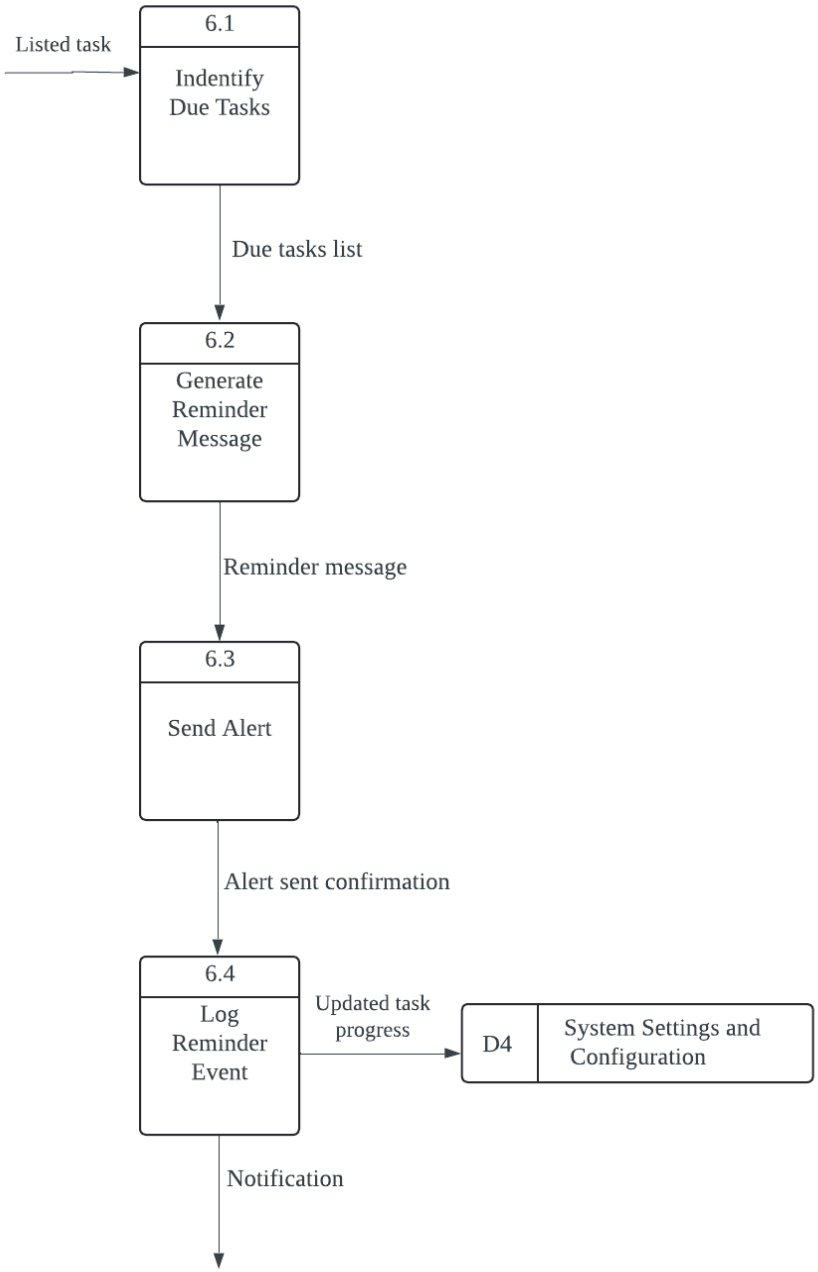
6.1.3.4 Task Listing



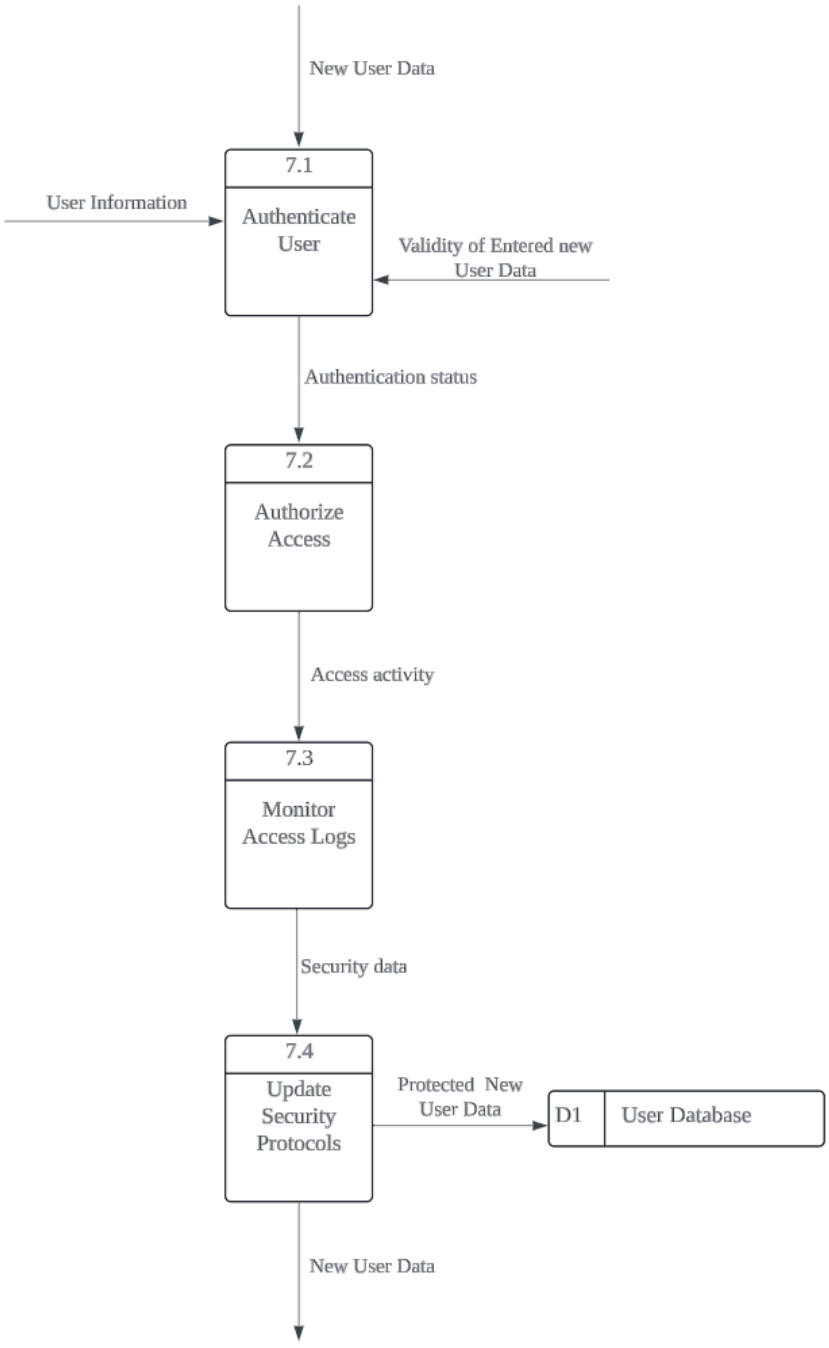
6.1.3.5 Send Work Inbox



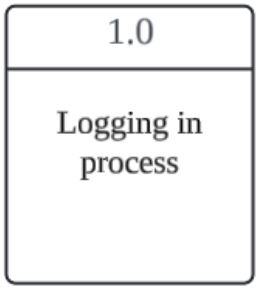
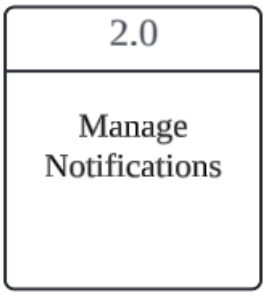
6.1.3.6 Reminders and Alert



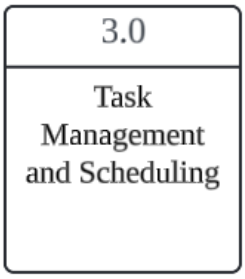
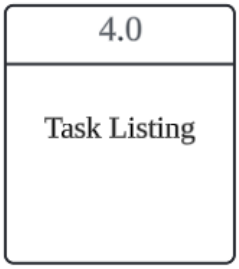
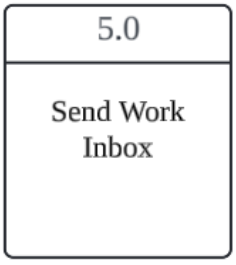
6.1.3.7 Security Measures

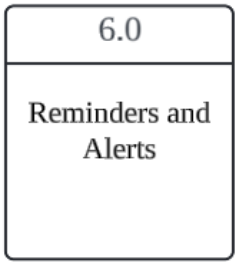
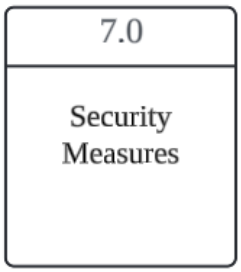


6.2 Process Specification (based on Logical DFD TO-BE)

Process	Process Specification Form
	**Input Data Flow:** User Information
	Output Data Flow: Protected User Information, User Information
	Structured English: START INPUT User Information BEGIN IF IF User Information is Valid STORE Protected User Information ELSE notify user “Invalid credentials” END IF END
	**Input Data Flow:** User Information
	Output Data Flow: User Information, Notifications

	Structured English:
	START
	INPUT User Information
	BEGIN IF
	IF Receive User Information THEN
	UPDATE User Information in database
	SET Notifications
	SEND Notifications
	ELSE notify user “No notifications”
	END IF
	END

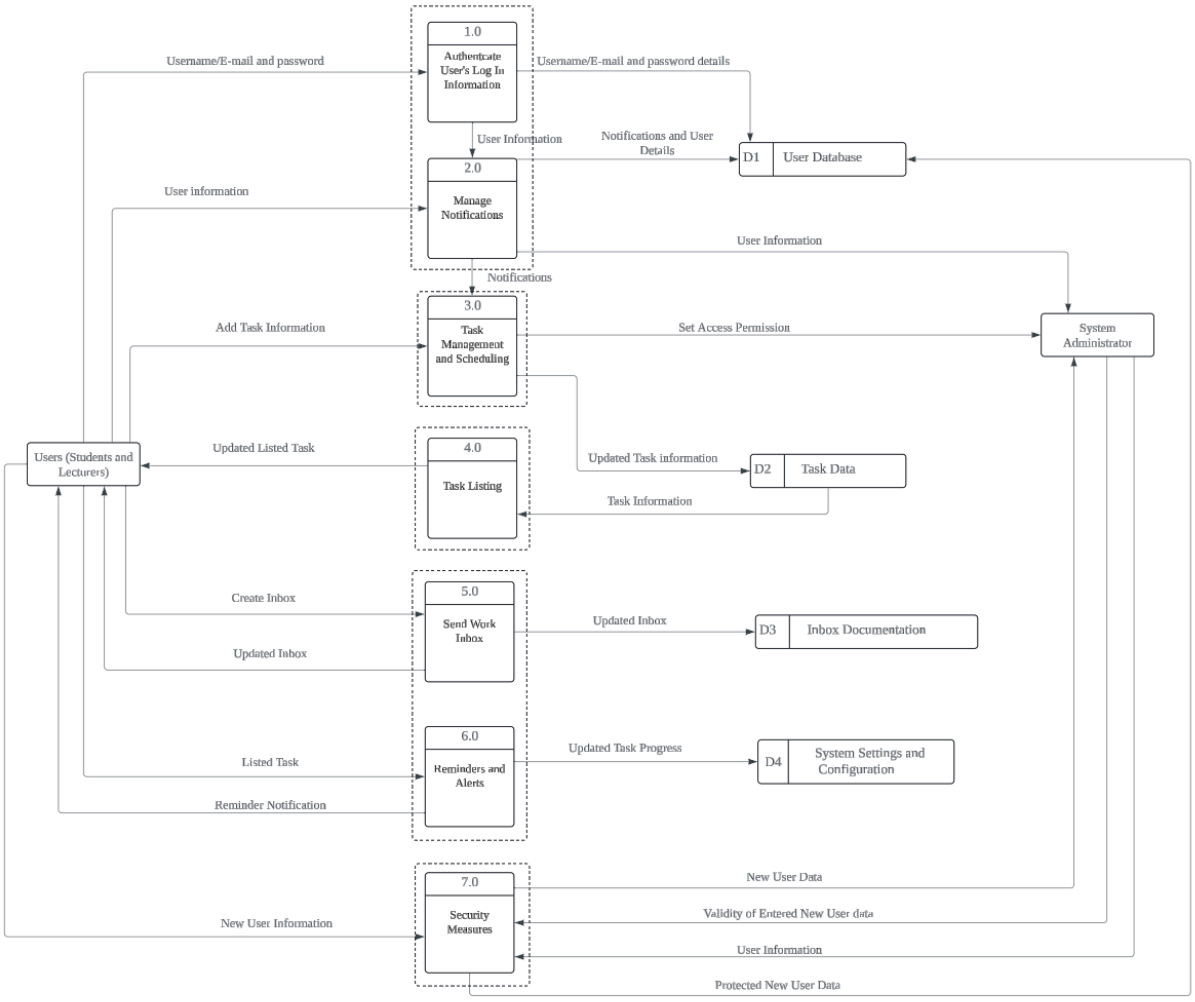
<table>
<tr><td rowspan="3"> 
</td><td>Input Data Flow: Task Information</td></tr>
<tr><td>Output Data Flow: Updated Task Information</td></tr>
<tr><td>Structured English:
START
INPUT Task Information
BEGIN IF
IF SET Task Information THEN
UPDATE Task Information
OUTPUT Updated Task Information
ELSE
RETURN Task Information
END IF
END</td></tr>
<tr><td rowspan="3"> 
</td><td>Input Data Flow: Task Information</td></tr>
<tr><td>Output Data Flow: Updated Task List</td></tr>
<tr><td>Structured English:
START
INPUT Task Information
BEGIN IF
IF SET Task Information THEN
UPDATE Task Information
OUTPUT Updated Task List
ELSE
RETURN Task List
END IF
END</td></tr>
<tr><td rowspan="3"> 
</td><td>Input Data Flow: Inbox Information</td></tr>
<tr><td>Output Data Flow: Updated Inbox</td></tr>
<tr><td>Structured English:
START
INPUT Inbox Information
BEGIN IF
IF Receive Inbox Information
UPDATE Inbox Information</td></tr>
</table>

<table>
<tr><td></td><td>OUTPUT Updated Inbox
ELSE
RETURN Inbox
END IF
END</td></tr>
<tr><td rowspan="3">  </td><td>Input Data Flow: Listed Task</td></tr>
<tr><td>Output Data Flow: Updated Task Progress, Notification</td></tr>
<tr><td>Structured English:
START
INPUT Listed Task
BEGIN IF
IF Receive Listed Task THEN
UPDATE Task Progress in database
SET Notifications
SEND Notifications
ELSE notify user “No notifications”
END IF
END</td></tr>
<tr><td rowspan="3">  </td><td>Input Data Flow: User Information, New User Data, Validity of Entered new User Data</td></tr>
<tr><td>Output Data Flow: Protected New User Data, New User Data</td></tr>
<tr><td>Structured English:
START
INPUT User Information
INPUT New User Data
INPUT Validity of Entered new User Data
BEGIN IF
IF Receive New User Data
SET Validity of Entered new User Data
OUTPUT New User Data
STORE Protected New User Data
IF Receive User Information
STORE Protected New User Data
END IF
END</td></tr>
</table>

7.0 PHYSICAL SYSTEM DESIGN

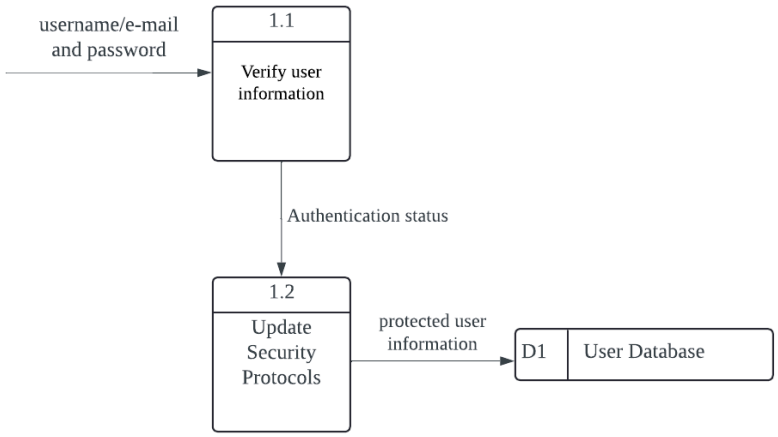
7.1 Physical DFD TO-BE system (Diagram 0, Child, Partitioning, CRUD Matrix, Event Response Table, Structure Chart, System Architecture)

7.1.1 Diagram 0

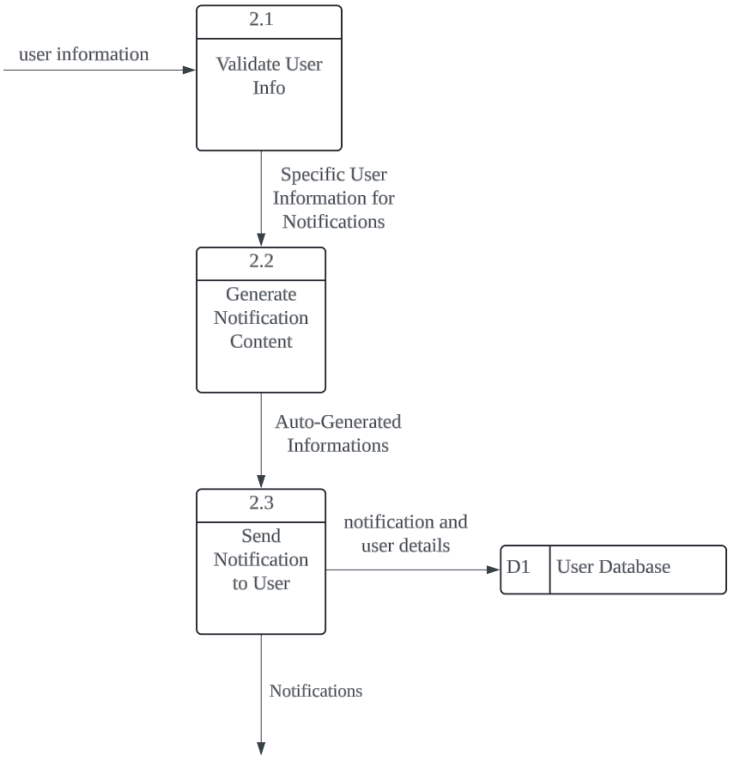


7.1.2 Child Diagram

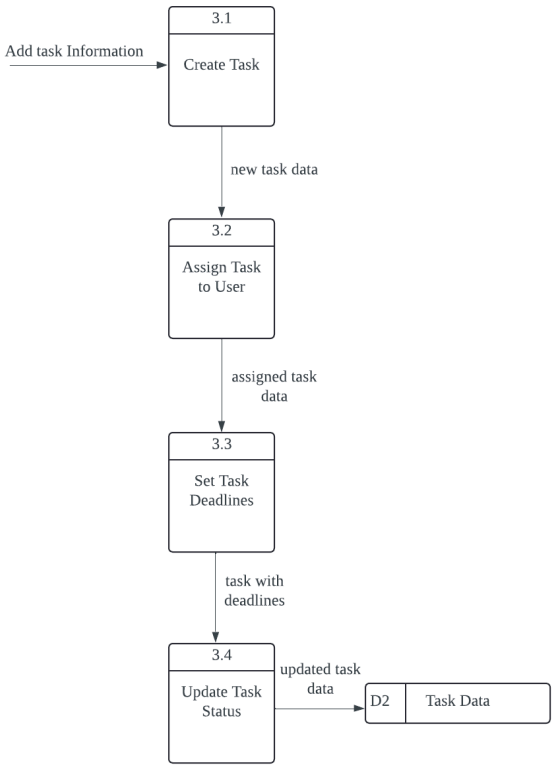
7.1.2.1 Logging In Process



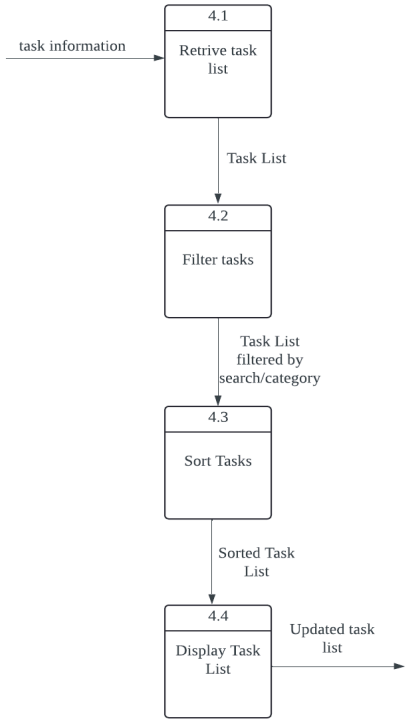
7.1.2.2 Manage Notifications



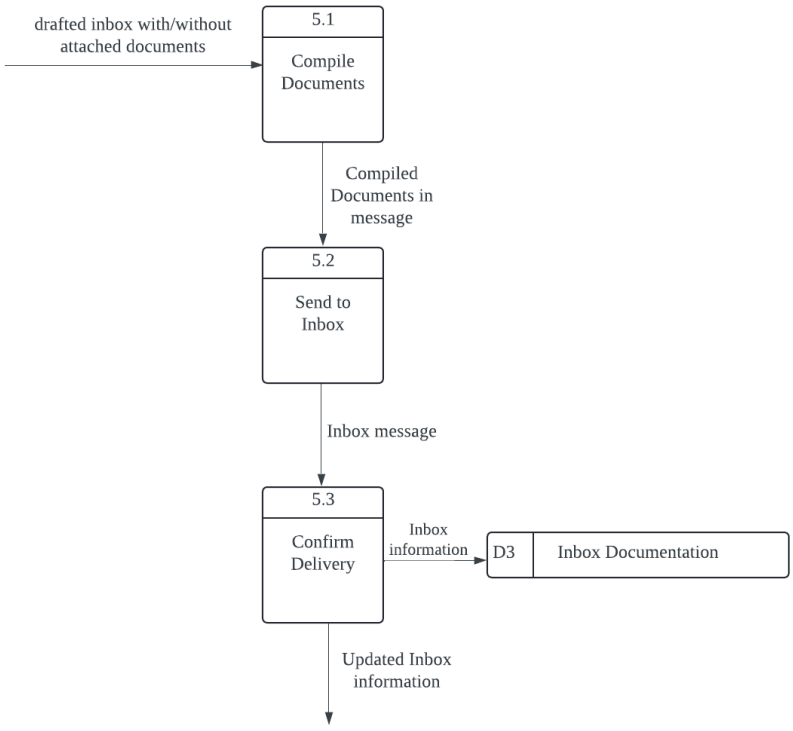
7.1.2.3 Task Management and Scheduling



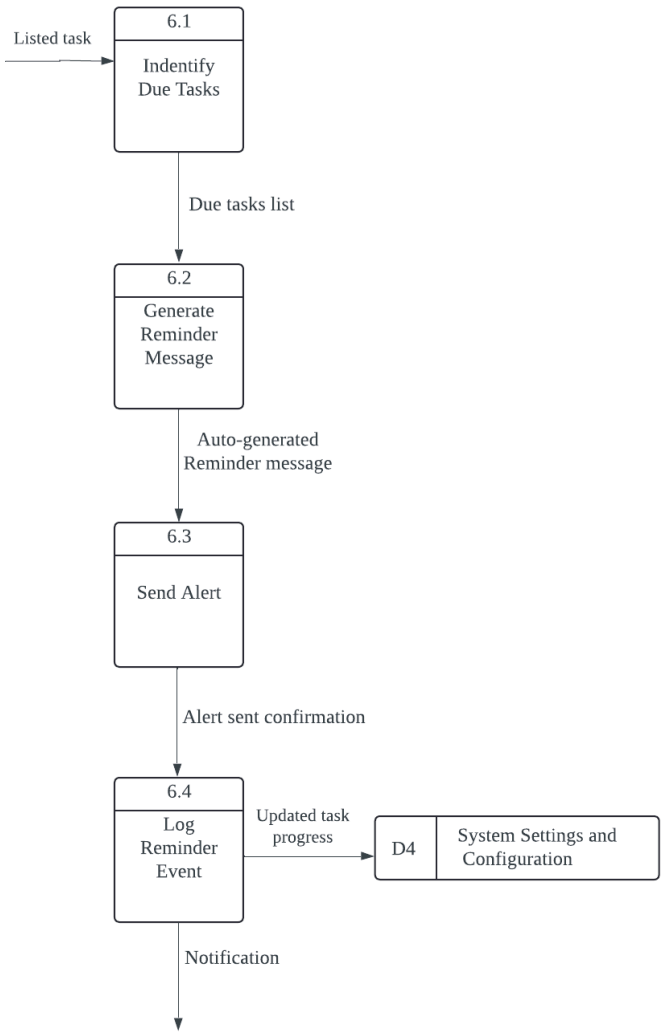
7.1.2.4 Task Listing



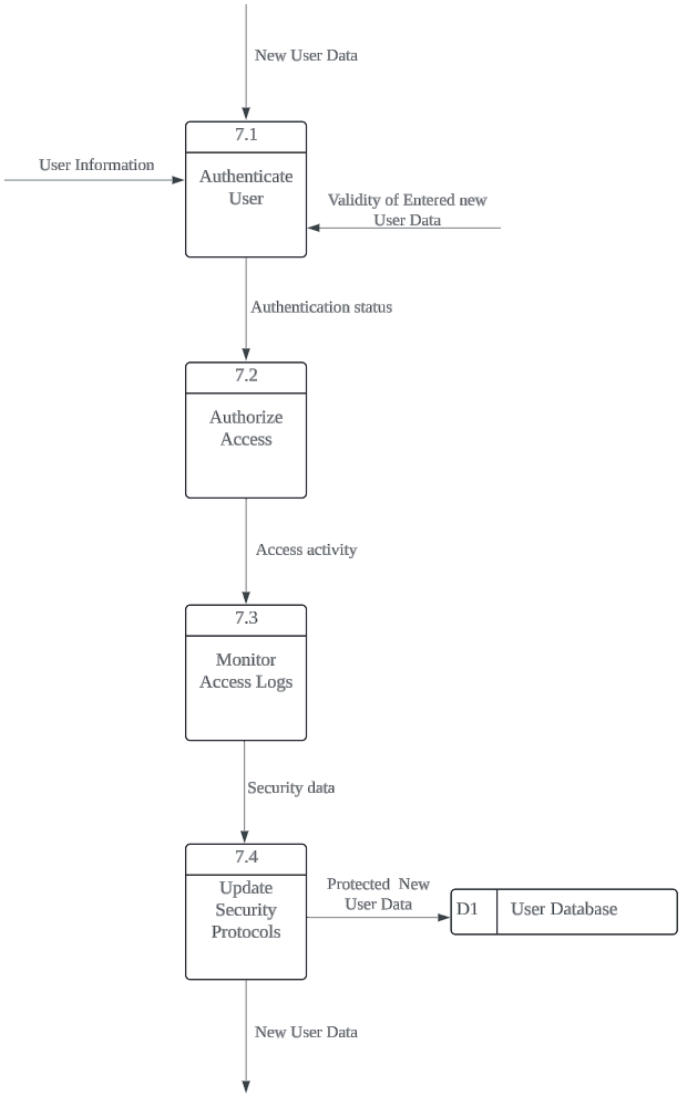
7.1.2.5 Send Work Inbox



7.1.2.6 Reminders and Alert



7.1.2.7 Security Measures



7.1.3 CRUD Matrix

Activity	User Account (student or lecturer)	Notification (Message, Reminder and Alert)	Tasks	System Administrator
Logging in process	R			CU
Manage Notification	R	CU	R	
Task Management and Scheduling	C		RU	
Task Listing			CRUD	
Send Work Inbox	R	CU	R	
Reminders and Alerts	R	CU		
Security Measurement				CRU
C = Create/Capture/Gather R=Read/Access U=Update D=Delete				

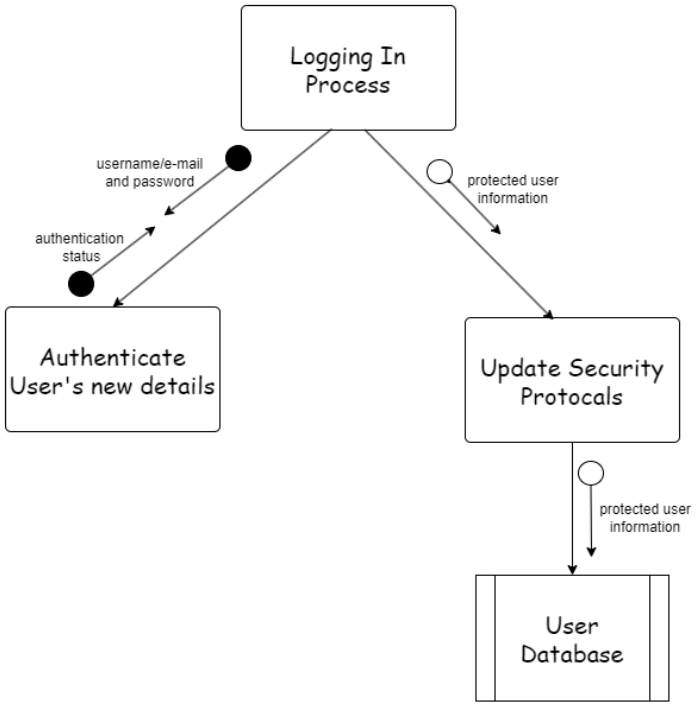
7.1.4 Event Response Table

Event	Source	Trigger	Activity	Response	Destination
Logging in Process	User, System Administrator	User submits login details. End user session	Find user record and verify password. End user session	Authentication granted.	User
Manage Notification	User	User request notification	Send request notification	Send notification to the user.	User
	System Administrator	Manage user data	Generate notification content		
Task Management and Scheduling	User	User creates/updates task	Create a task. Set task deadline.	Update task status.	System
	System Administrator	Manage and execute task	Assign Task to user.		
Task Listing	User	User views task list	Update new task	Display Task List	User
	System Administrator	Set access permission	Retrieve task list. Filter tasks. Sort taks.		
Send Work Inbox	User	User sends work to inbox	Compile document. Send to inbox. Confirm delivery.	Send documents between users.	User

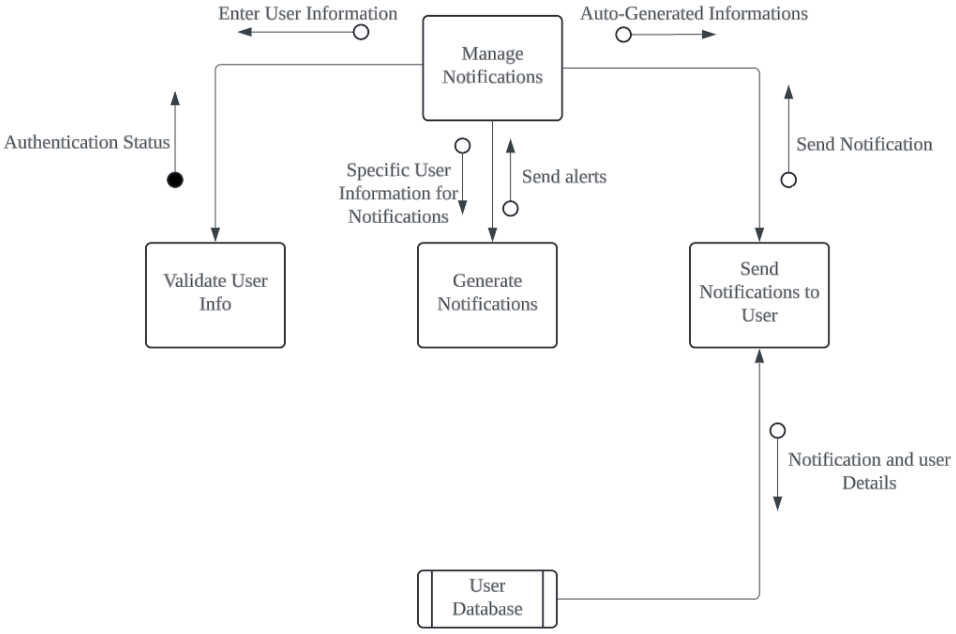
Reminders and Alerts	User	User sets or view reminders	Identify due task. Generate reminder message.	Send Alert. Log reminder event.	System
Security Measurement	System Administrator	Admin updates security settings	Authorize user's new details. Monitor access logs Update Security Protocols	Authorize access	System

7.1.5 Structure Chart

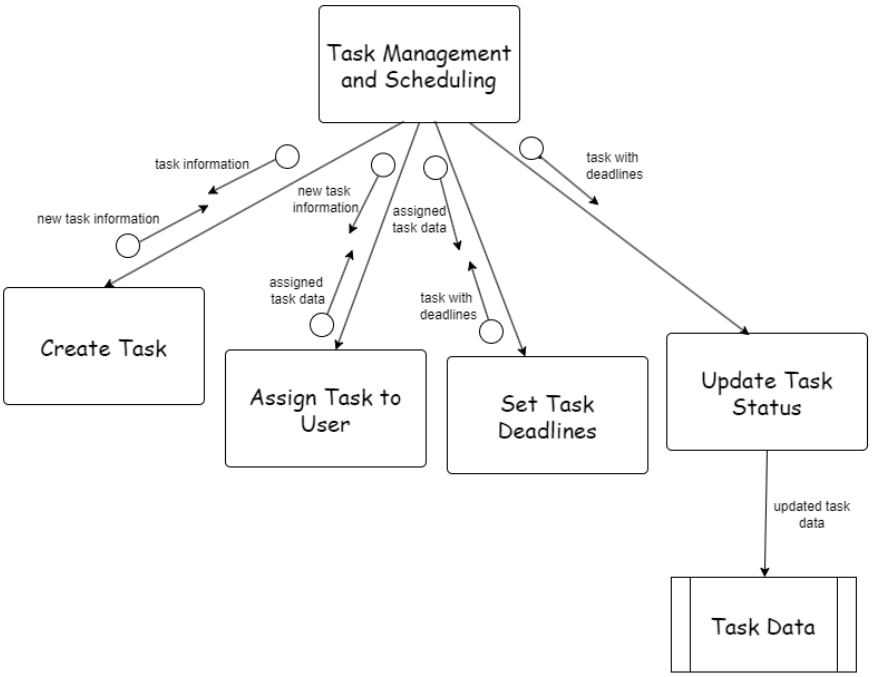
7.1.5.1 Process 1



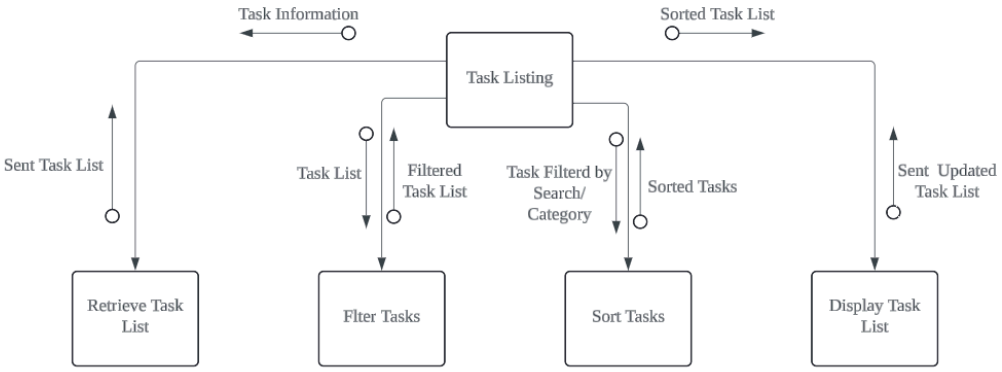
7.1.5.2 Process 2



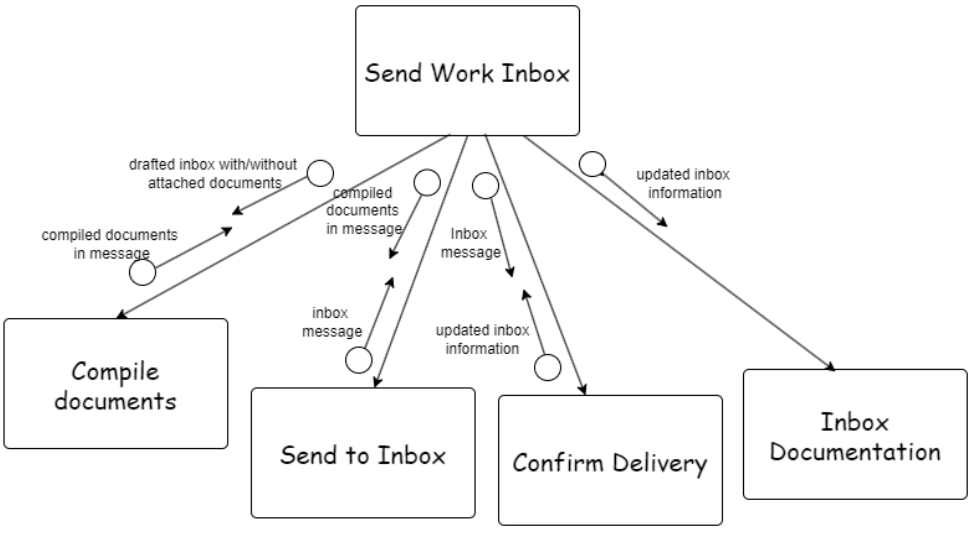
7.1.5.3 Process 3



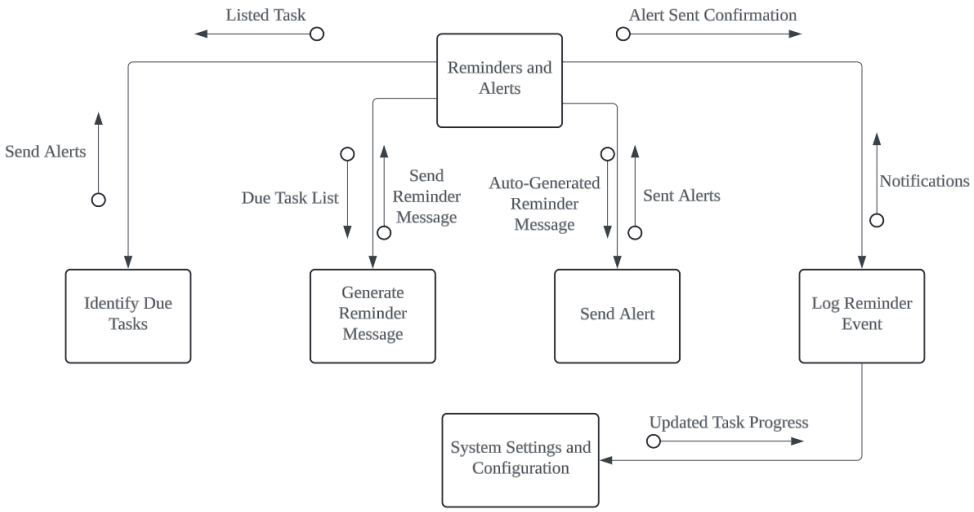
7.1.5.4 Process 4



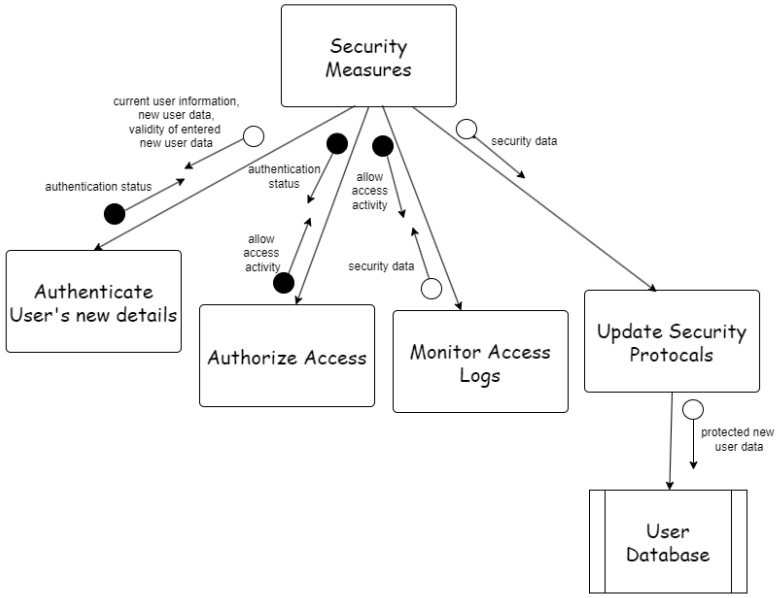
7.1.5.5 Process 5



7.1.5.6 Process 6

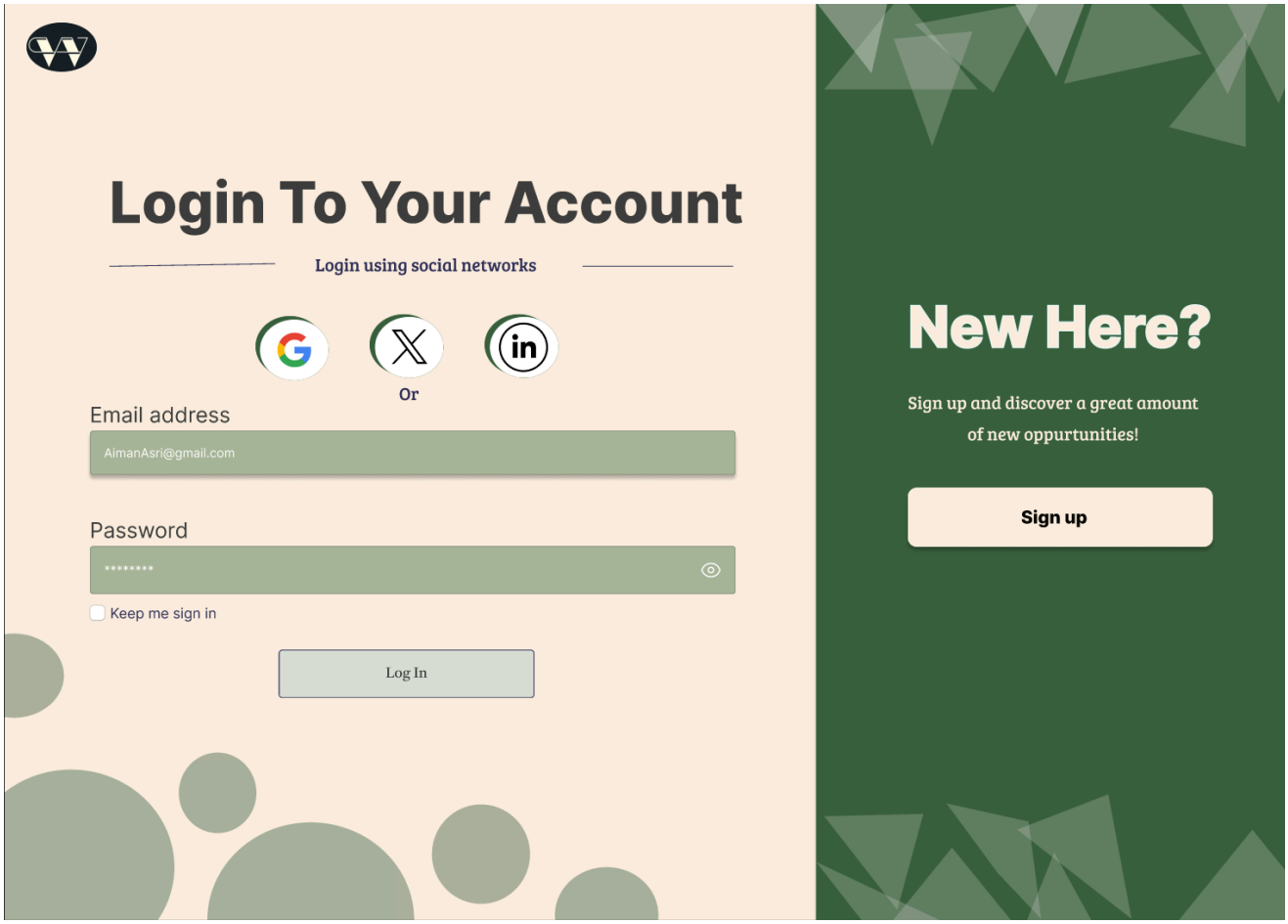


7.1.5.7 Process 7



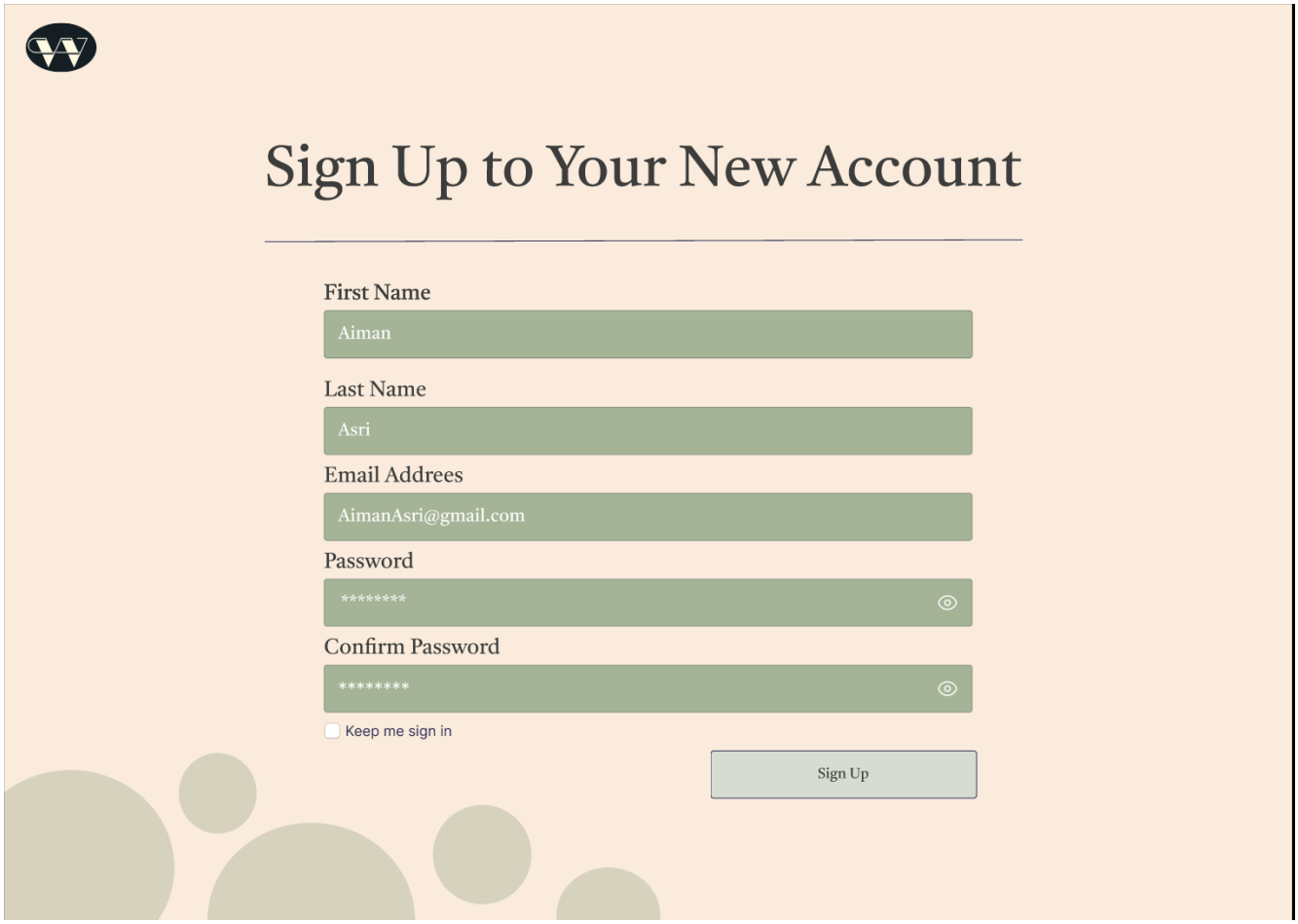
8.0 SYSTEM WIREFRAME (INPUT DESIGN, OUTPUT DESIGN)

1. Login Page



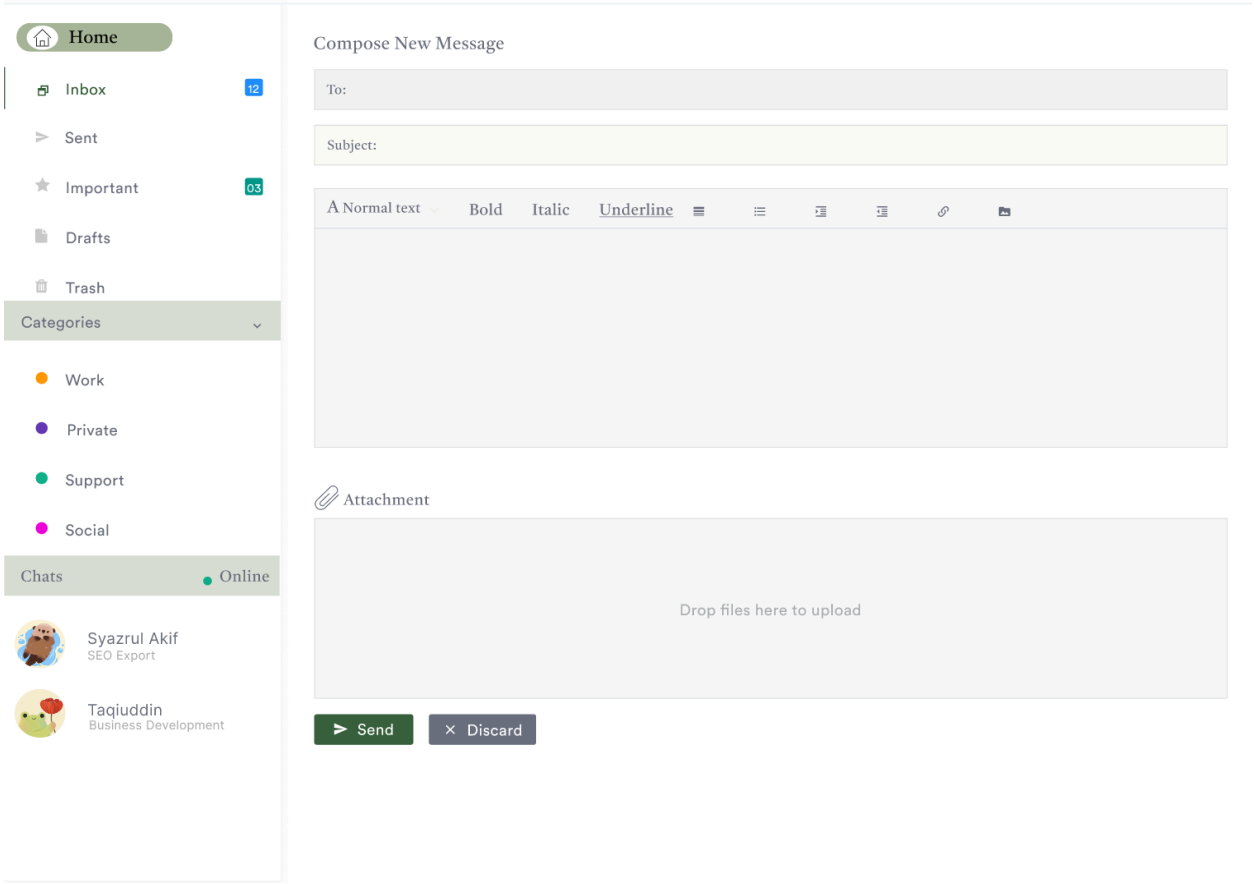
The screen above represents the Account Login page of the proposed WorkStudio website. This screen allows current users to log back into their accounts using their credentials to access the website's features. This page is categorized under input design because it requires users to enter their username and password to gain access to the website. The page will appear during the initial launch of the website, immediately after the user navigates to the site or clicks to open the website.

2. Create Account Page



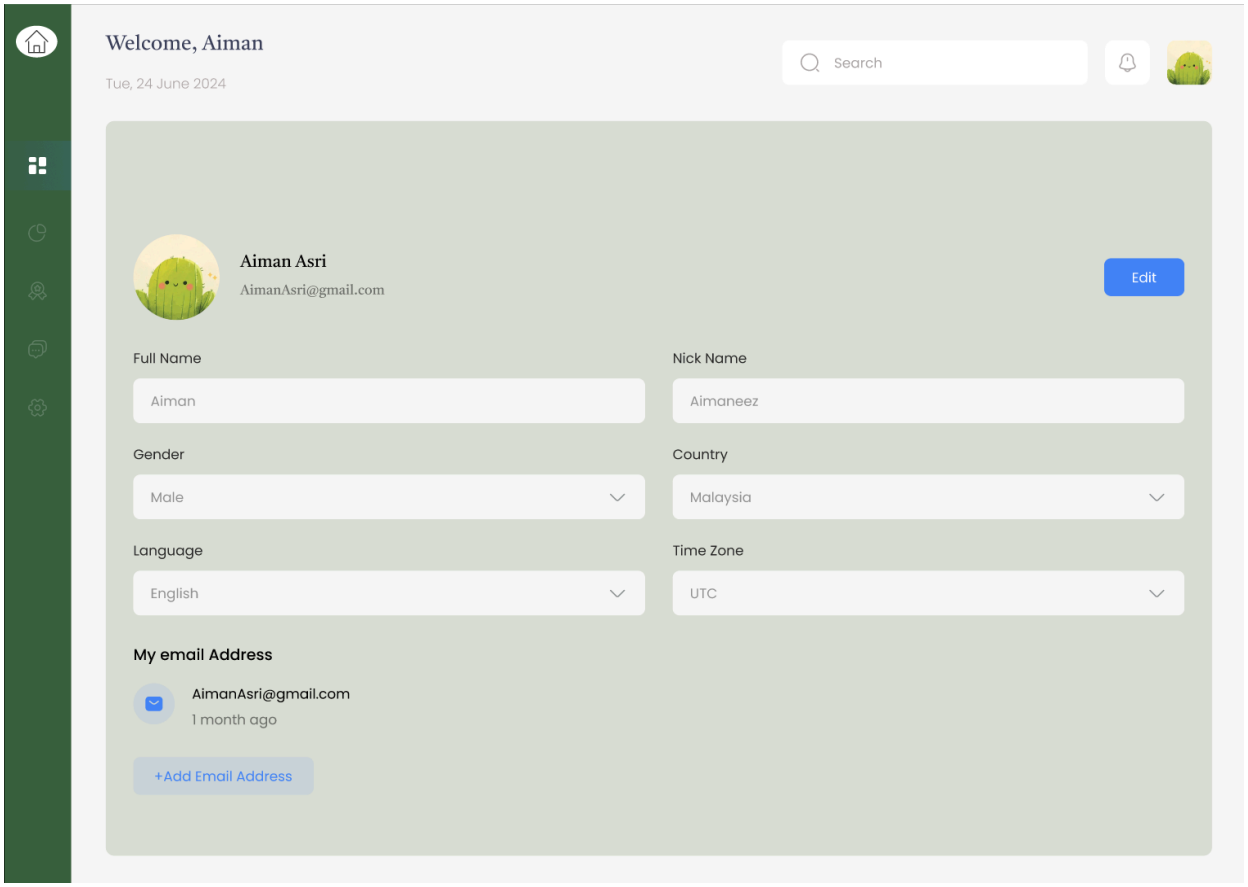
The screen above represents the Account Registration page of the proposed WorkStudio website. This screen allows postgraduate students and lecturers interested in utilizing the WorkStudio platform to register an account to access the website's features. This page is categorized under input design because it requires users to enter their information to create an account. The page will appear during the initial launch of the website, immediately after the user navigates to the site or clicks to open the website.

3. Compose file page



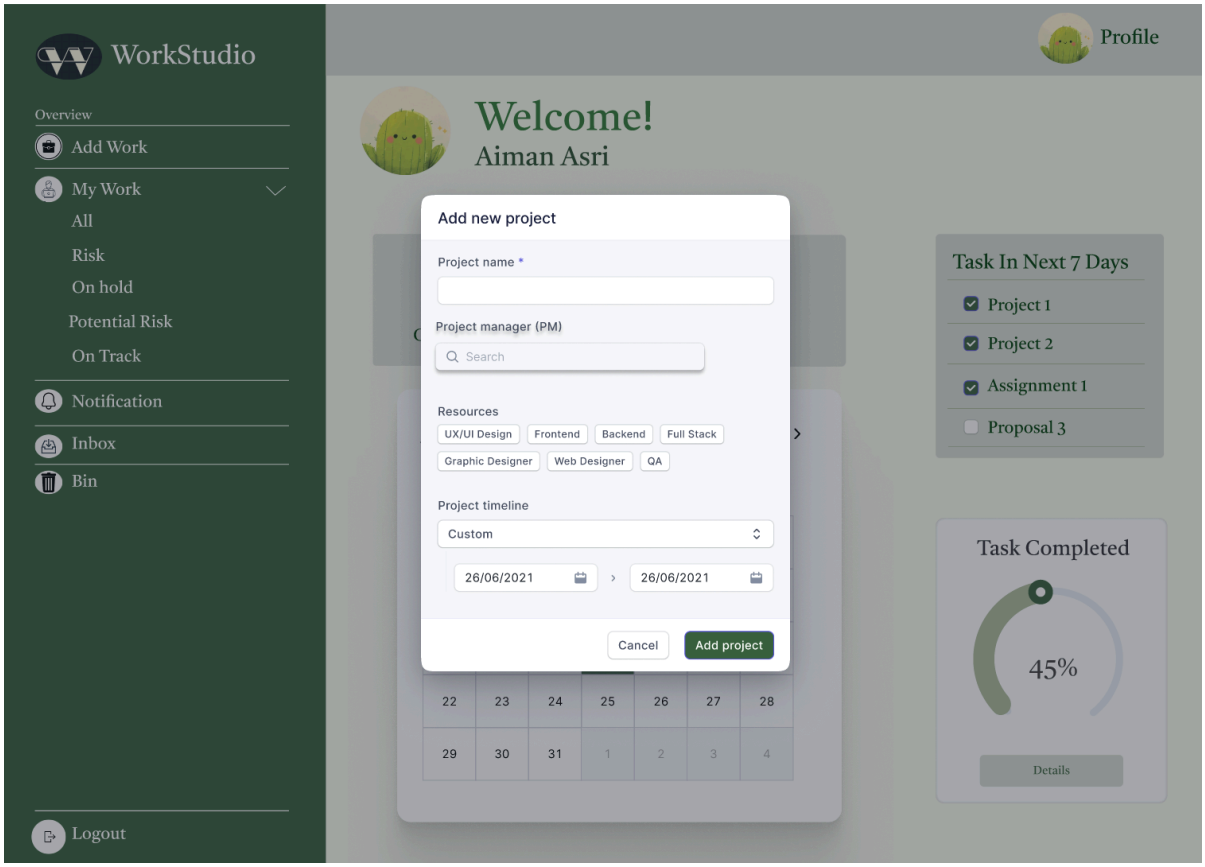
The screen above represents the Compose Message page of the proposed WorkStudio website. This page allows users to draft messages, input text, upload files, and format their content before sending it to recipients via email. This page serves as an input design because users actively enter and format their messages and attachments. It will be accessible within the website after users navigate to the messaging section, providing a streamlined interface for communication and collaboration among postgraduate students and lecturers using the WorkStudio platform.

4. Edit Profile Page



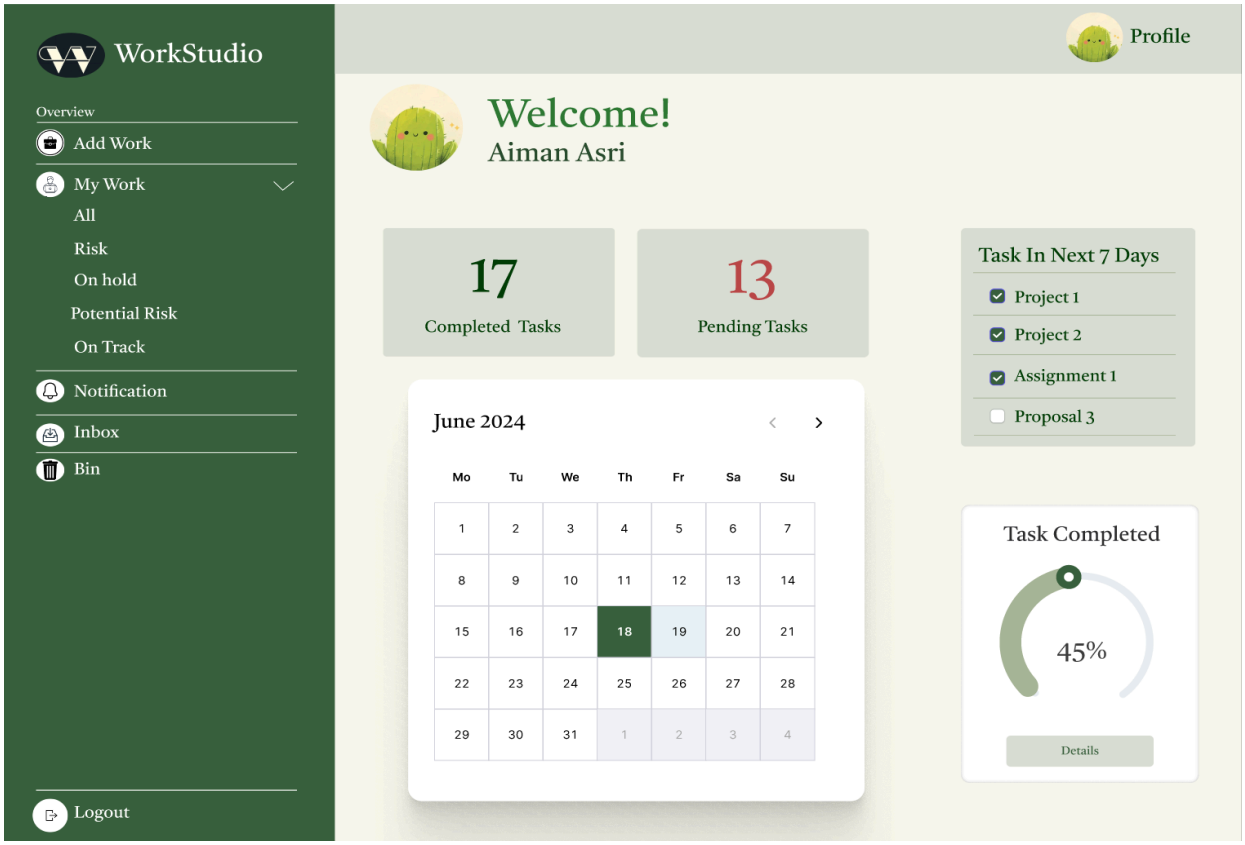
The screen above shows the Edit Profile section of our WorkStudio website. Users can update their personal details on this page, including name, email address, phone number, and profile picture. They can also change their password and control other account settings to keep their profile updated and secured. This page falls under input design as users must input and regularly update their personal information. The user dashboard will have a link to access the Edit Profile page, which offers a user-friendly interface for postgraduate students and lecturers to customize and control their accounts, enhancing their experience on this platform.

5. Add Task Page



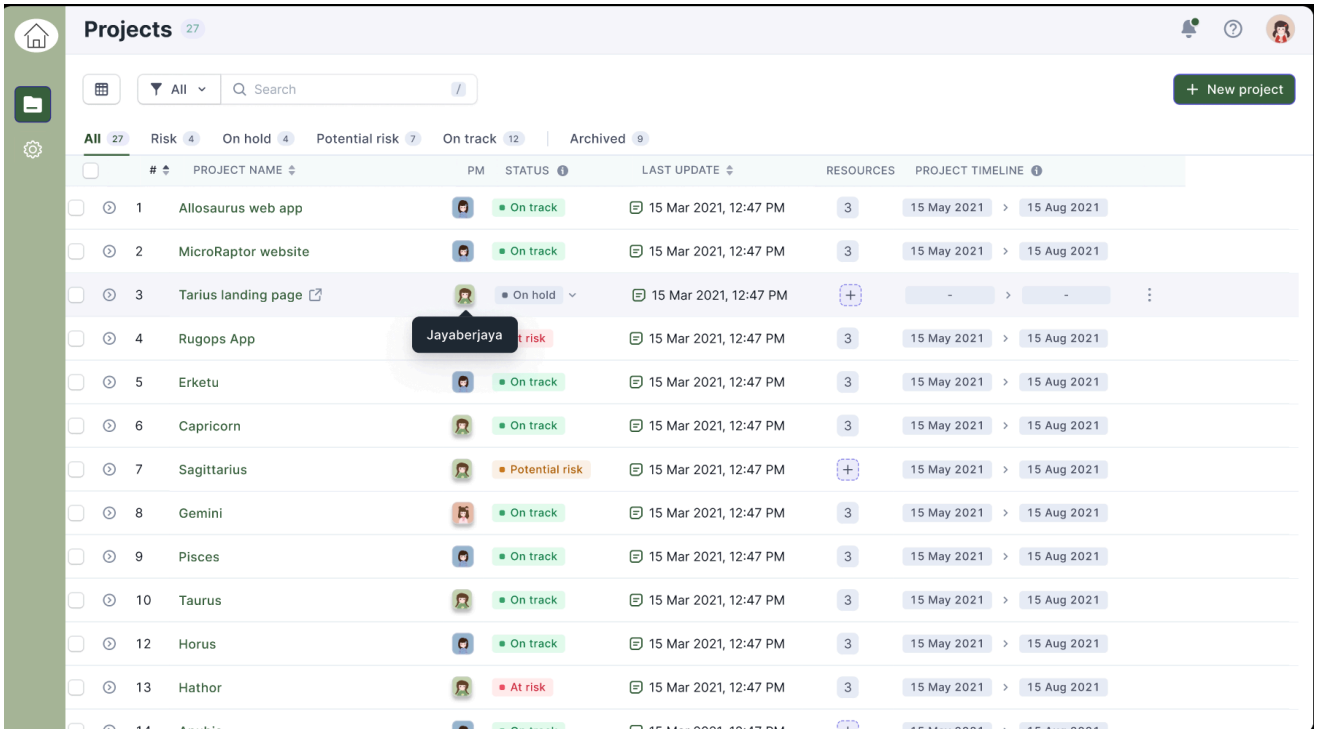
The screen above represents the Add New Project page of the proposed WorkStudio website. This page allows postgraduate students and lecturers to create new projects by providing essential details such as project name, manager name, resources, project timeline, and due date. It falls under input design as users must input all necessary project information.The Add Task page can be found in the add work section as well as my work section of the website, offering an organized yet user-friendly interface for postgraduate students and lecturers to simplify their work tracking and ensure efficient timely completion of projects and assignments on the WorkStudio platform.

6. Home Page



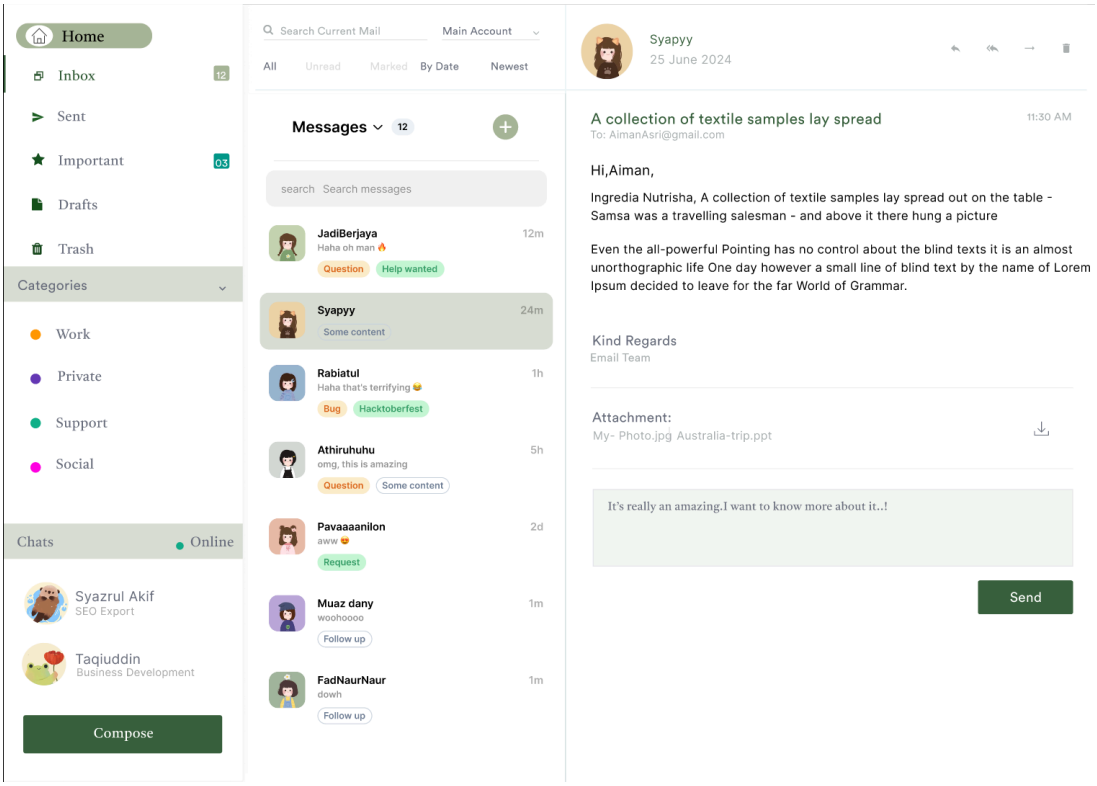
The screen above represents the Task Listing page of the proposed WorkStudio website. This page provides users with an overview list, featuring an add work button, my work button, notification button, inbox button, and bin button, all of which navigate to their own unique pages. Additionally, users can see their completed task number, pending task number, a calendar of the month, task completed percentage, and a list of tasks to be worked on in the next 7 days. This page falls under output design as it primarily displays an overview of tasks and navigational options without requiring significant user input on this specific page.

7. Task Listing Page



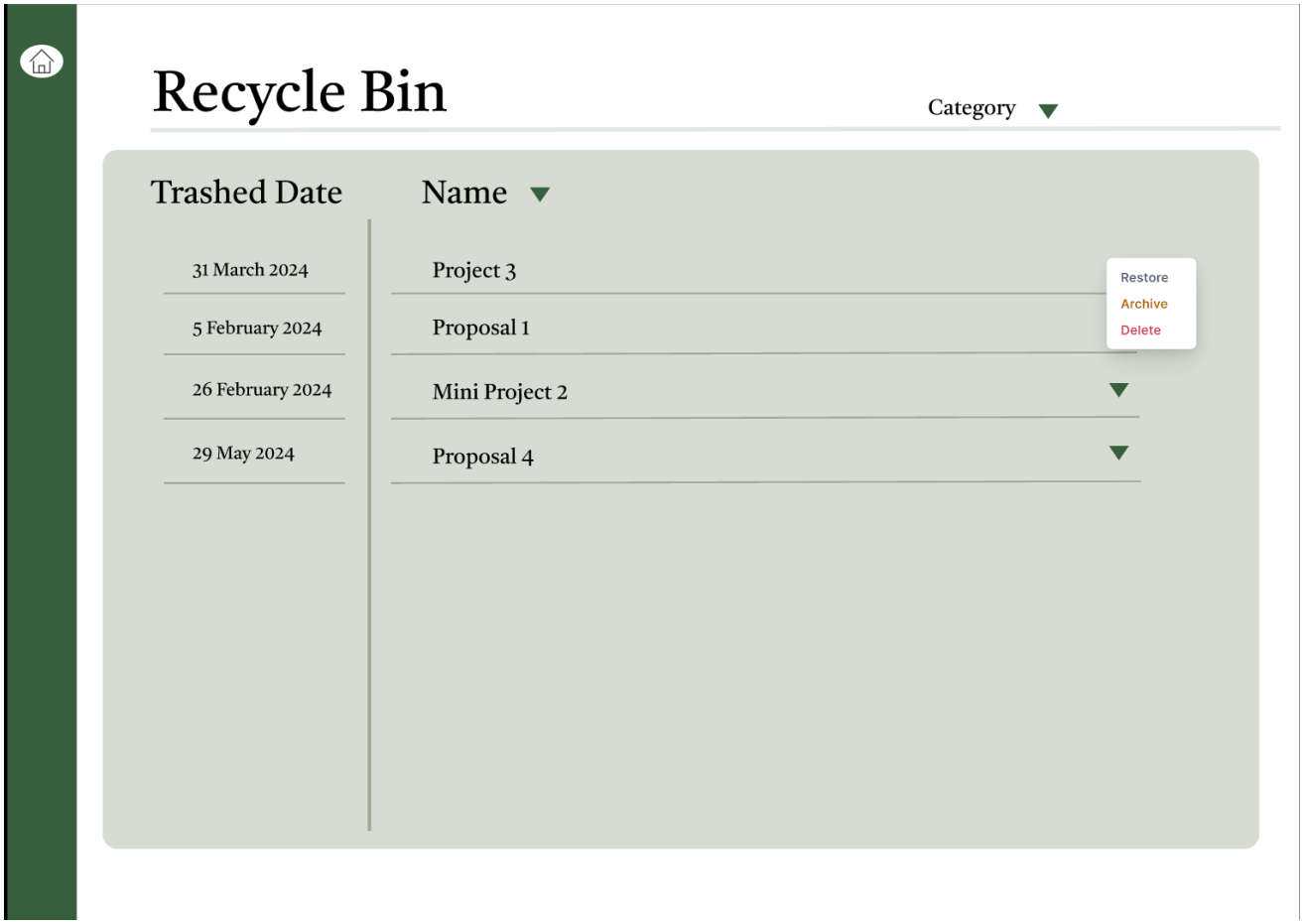
The screen above represents the Task Listing page of the proposed WorkStudio website. This page allows users to see a list of their work, including the project name, the profile picture of the project manager, the date of the last update, resources, status of completion and the project timeline. Users can select certain tasks to delete, archive, or send via email.Users have the ability to efficiently manage their workload by filtering, sorting, and searching through tasks.The filters features are categorized by project name, project manager name, last update, resources, and estimation. Additionally, users can view the description of each project. This page falls under both input and output design as it displays information and allows users to manage their tasks effectively.

8. Inbox Page



The inbox page of the proposed WorkStudio website is shown on the screen above. This page shows all received messages and communications, such as emails and notifications from other users on the platform. It is an output design as the Inbox page presents data to users in a structured layout, enabling them to send, view, respond to, or save messages and documents. Users have the ability to filter and search their inbox in order to locate particular messages efficiently. The inbox section of the website allows postgraduate students and lecturers to communicate with one another directly on the WorkStudio platform. This page falls under both input and output design as it displays messages and allows users to manage their inboxes effectively.

9. Bin Page



The display above shows the Bin page. This page acts as a storage for removed tasks, messages, and other content, enabling users to revisit and retrieve items if needed. This page falls under both input and output design, as it displays information about deleted tasks and allows users to input actions to manage these tasks effectively. The details shown on the Bin page will include the item name, deletion date, as well as restoration, archive or permanent deletion options. The Bin page is available on the main dashboard or in related sections like tasks or messages and offers postgraduate students and lecturers a safety feature to retrieve accidentally deleted information, enhancing data management on the WorkStudio platform.

9.0 SUMMARY OF PROPOSED SYSTEM

Conclusively, WorkStudio is an innovative approach to the academic community that specifically addresses the difficulties that postgraduate students and their lecturers encounter in handling the preparation and publication of papers. Through the centralization of task management into a unified, intuitive platform, WorkStudio provides a range of functionalities aimed at enhancing efficiency, optimizing processes, and guaranteeing the precision and originality of academic projects. The administrative load will be significantly decreased by the inclusion of an effective task listing, dynamic scheduling, automated progress monitoring, efficient collaboration tools, and customized reminders. This will allow users to concentrate more on writing and research. This comprehensive approach not only increases task management effectiveness but also promotes a more cooperative and well-organized learning environment.

Given that WorkStudio depends on modern web technologies, it is scalable, reliable, and secure—making it a sustainable in the future solution that can be easily adapted to meet the changing needs of colleges and universities. WorkStudio has the ability to completely transform academic work management by eliminating the existing inefficiencies and providing an optimized, holistic system, which will ultimately lead to higher-quality and more efficient research results. We see a time when academic professionals may work more productively, communicate effortlessly and precisely and easily accomplish their academic goals with WorkStudio.