SmartTask Final Project
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INFO-C 450: System Design

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Task Monitoring System

Problem Statement
In today's workplaces, tasks managing can be difficult to achieve for teams and individuals. Managing tasks can be an effective way to keep track of assignments, deadlines, and progress in projects. Boosting productivity and minimizing potential missed deadlines.

A Task Monitoring System will provide a structured way for users to create, track, and assign tasks. The system will allow users to set priorities, receive notifications, and track progress. Due dates can be assigned to task, ensuring tasks are being completed on time. This will enhance productivity and collaboration.

Glossary of Terms
- **Task Assignment:** assigning tasks to individuals or teams.
- **Due Date:** deadline of when the task should be completed.
- **Task Priority:** level of urgency assigned (Low, Medium, High).
- **Task Status:** state of the task (In Progress, Pending, Completed).

System Requirements

Functional:

No.	Priority Weight	Description
REQ-1	High	Users should be able to set priorities for each task
REQ-2	High	Users should be able to create and assign tasks
REQ-3	High	The system should provide notifications
REQ-4	Medium	Users should be allowed to update task status
REQ-5	Medium	Users should be allowed to filter tasks
REQ-6	Low	User will attach documents on link to tasks

Nonfunctional:

Category	Priority	Description
Functionality	High	The system should track and display task accurately
Usability	High	Users should have a user-friendly interface
Reliability	High	The system should be high quality and prevent task lost
Performance	Medium	There should be real-time updates on all tasks
Supportability	Low	The system should allow for future expansion or features

User Interface

UI-1 – High – Users should have a dropdown to create tasks.

Tasks:
- Create a new task

UI-2 – Medium – Each task should include details

create a task

task description

due date

priority

assignee

UI-3 – Medium – The dashboard should show each feature

Dashboard

Task list

Filters

Task Details

status updates

Plan of Work
- o **Download and install development software – Completed – Installed the tools needed to complete the project. Getting familiar with the tools and starting implementation.**
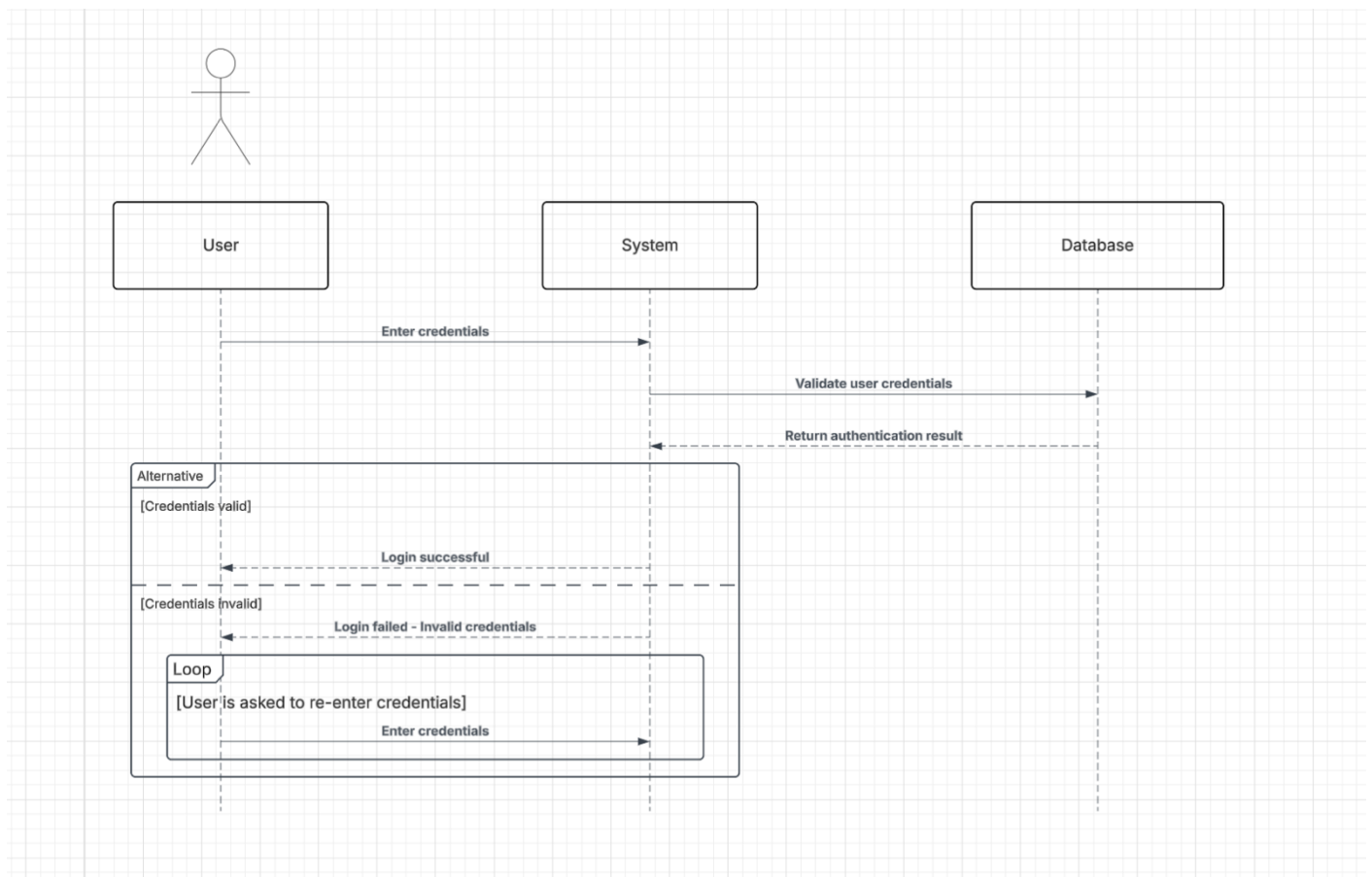
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Sequence Diagram

Actor: User
Object: System, Database

Steps on user login:
1. Users enter credentials.
2. System validates user credentials.
3. Database returns authentication results
4. If credentials are successful, login is successful.
5. If credentials are wrong, user is asked to re-enter information.

Steps on task creation:
1. User creates new task.
2. System stores task details.
3. Database confirms tasks creation.
4. System displays created tasks.

5. If user does not enter all required fields, error will prompt user to enter all information and retry.
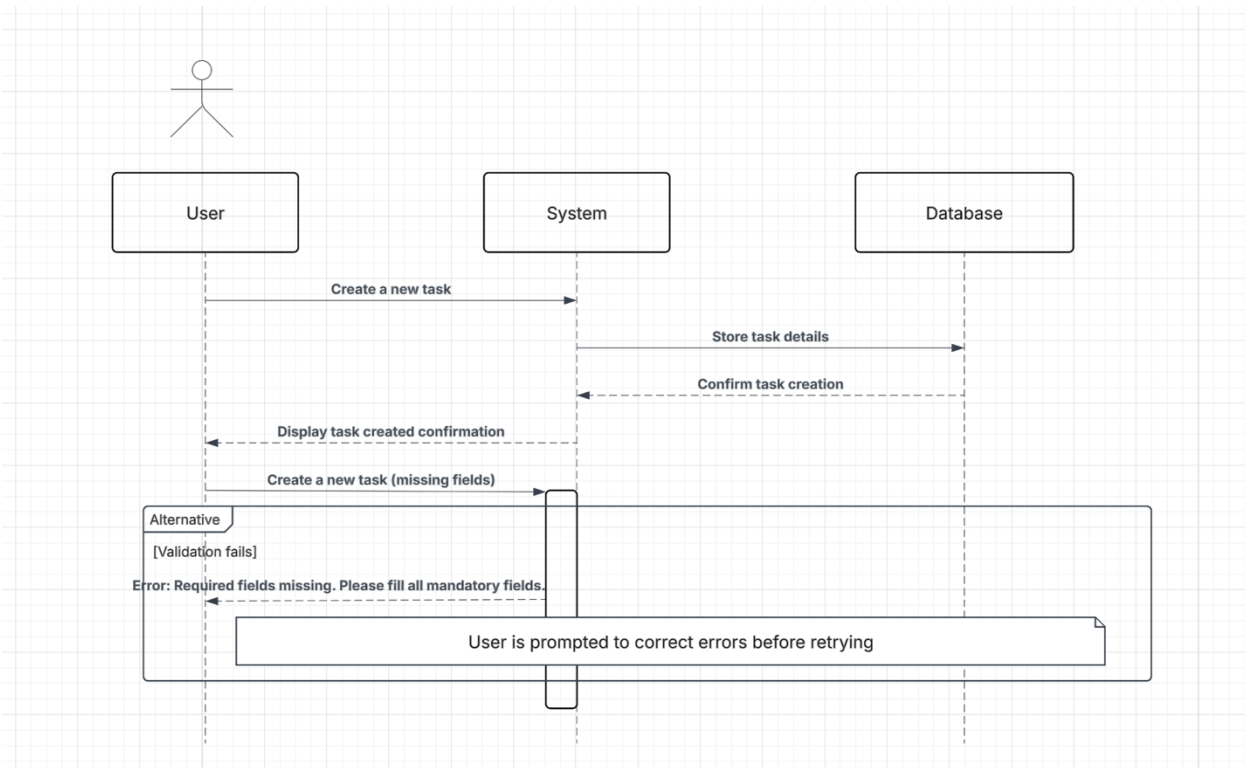
Activity Diagram

User Login Process
States
        Initial State: User begins login process
        Final State:
1. The user logs in successfully and gain access to system.
2. User enter incorrect login and receives error message.
3. Users re-enter login or exits.

Actions:

The user enters their credentials, and the system validates them against stored data. If the credentials are correct, the user gains access to the system. If incorrect, the system denies access and displays an error message. The user may retry entering credentials or exit the system.
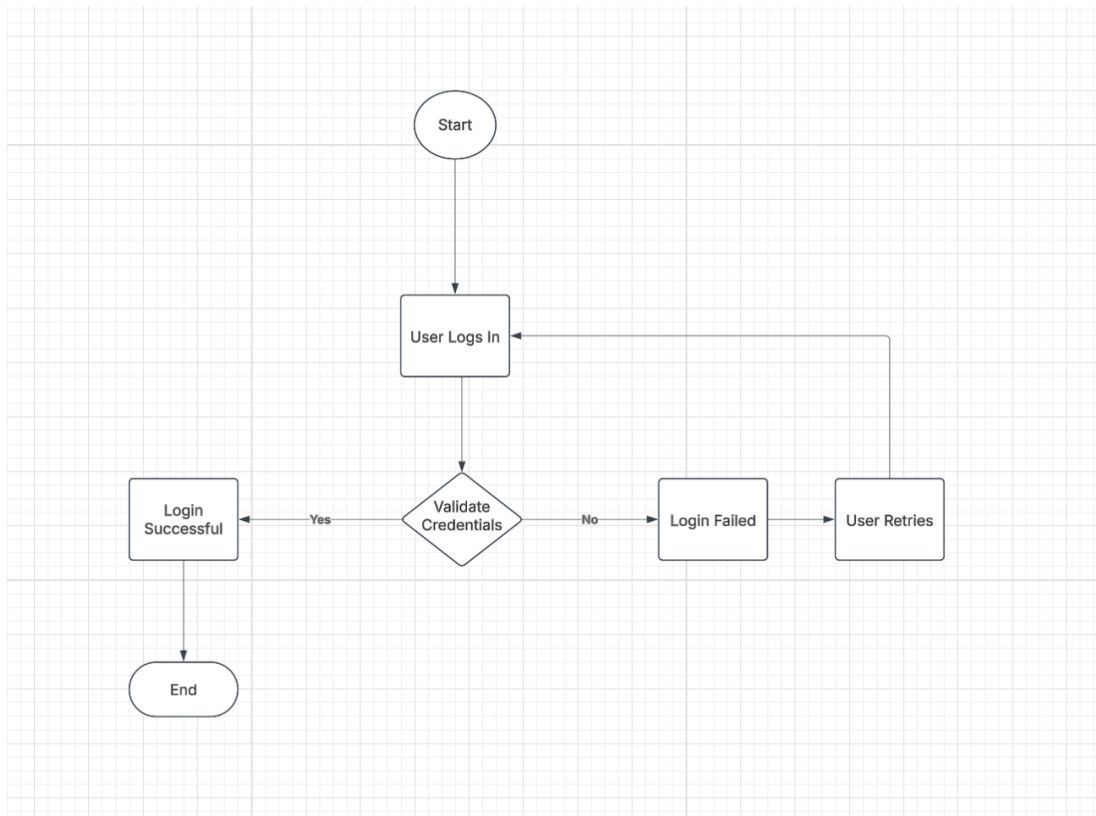
Task Creation Process

States

        Initial States: User being task creation process.

        Final State:

1. The task was successfully created.
2. System checks for missing fields and prompts for correct information.
3. System detects invalid users and prompts to re-enter
4. System retrieves task list
5. User submits task

Actions:

The user enters task details. The system validates the inputs. If valid, the task is created successfully. If errors occur (e.g., missing fields, invalid date), the system provides appropriate error messages and prompts the user to correct the issue before retrying task creation.

```
                              Start


                          User
                          Creates
                          Task


          Task                                  Error:
          Created          System               Missing
          Successfully  Yes  Validate  No        Fields         ●
                          Details


                          Assign user


          Update Task                            User not
          Status      Yes            No           found          ●


                          Retreiev
                          Task List


          Submit      Yes  Decision  No    No List              ●
                                            Added
```
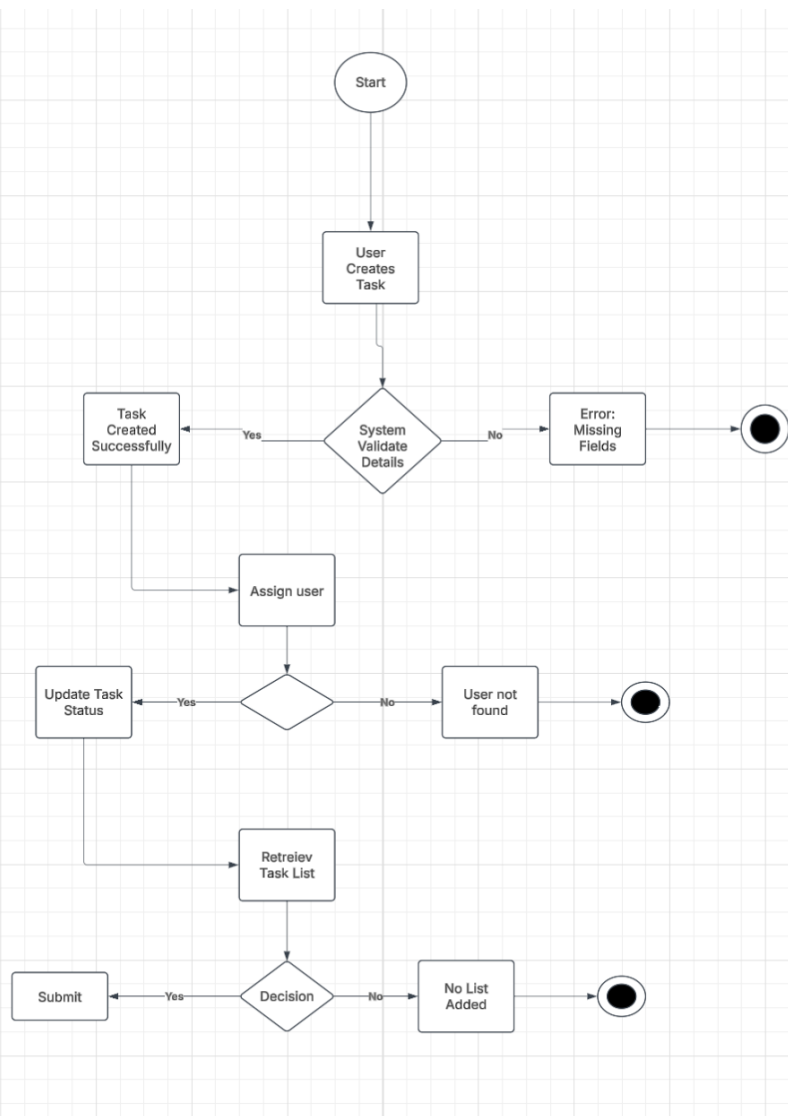
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User Interface Specification

Use Case: User creates a new task and saves.

Task System

Dashboard

Create Task

Task List

Reports

Click Create Task

Create Task

Task Name

Description

Due Date

Enter task name, add description, and due date

Task Name

Description

Due Date

Save Task

Click Submit
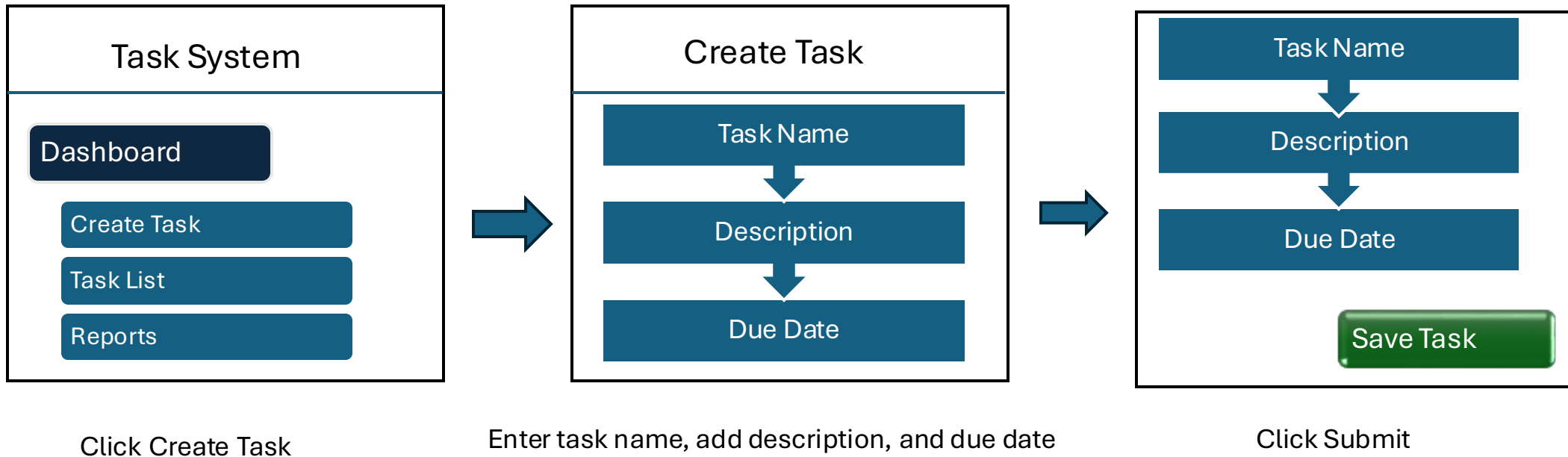
Use Case: Select a task and assign a user.

Select Task List

Task System

- Dashboard
- Create Task
- Task List
- Reports

Select a task

Task List

Select a task

- Update Sales Log
- Send Reminder Email
- Update Documents

Assign a user

Update Sales Log

Assign a user

- Mary Smith
- Kelly Hopkins

Assign a user

- Mary Smith
- Kelly Hopkins

Confirm

Confirm user
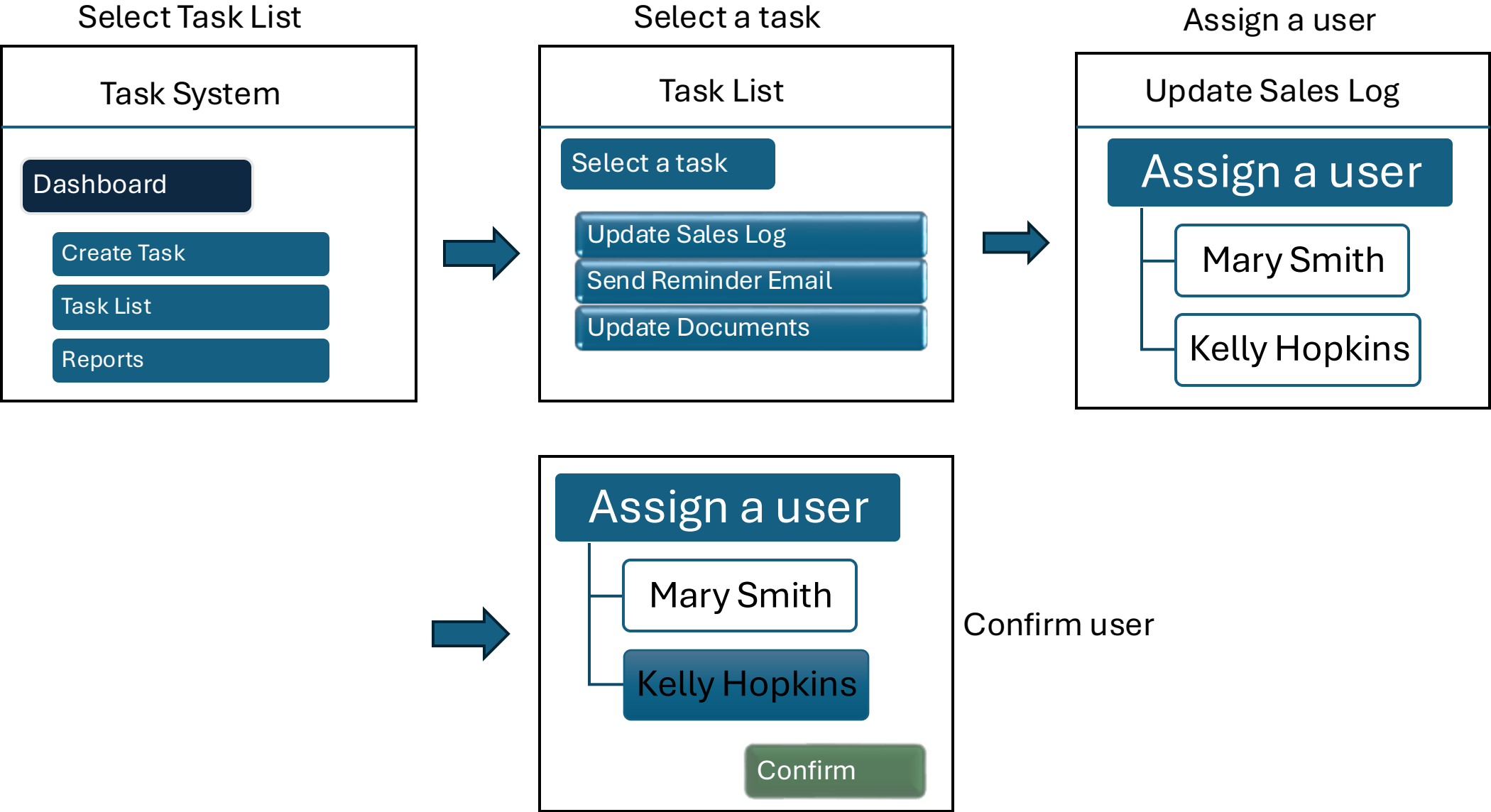
Use Case: User changes status on task.

Select Task List

Task System

- Dashboard
- Create Task
- Task List
- Reports

Select a task

Task List

Select a task

- Update Sales Log
- Send Reminder Email
- Update Documents

Change Status

Update Sales Log

Update Status Change
- Pending
- In Progress
- Completed

Update Status Change
- Pending
- In Progress
- Completed

Save

Choose status and save
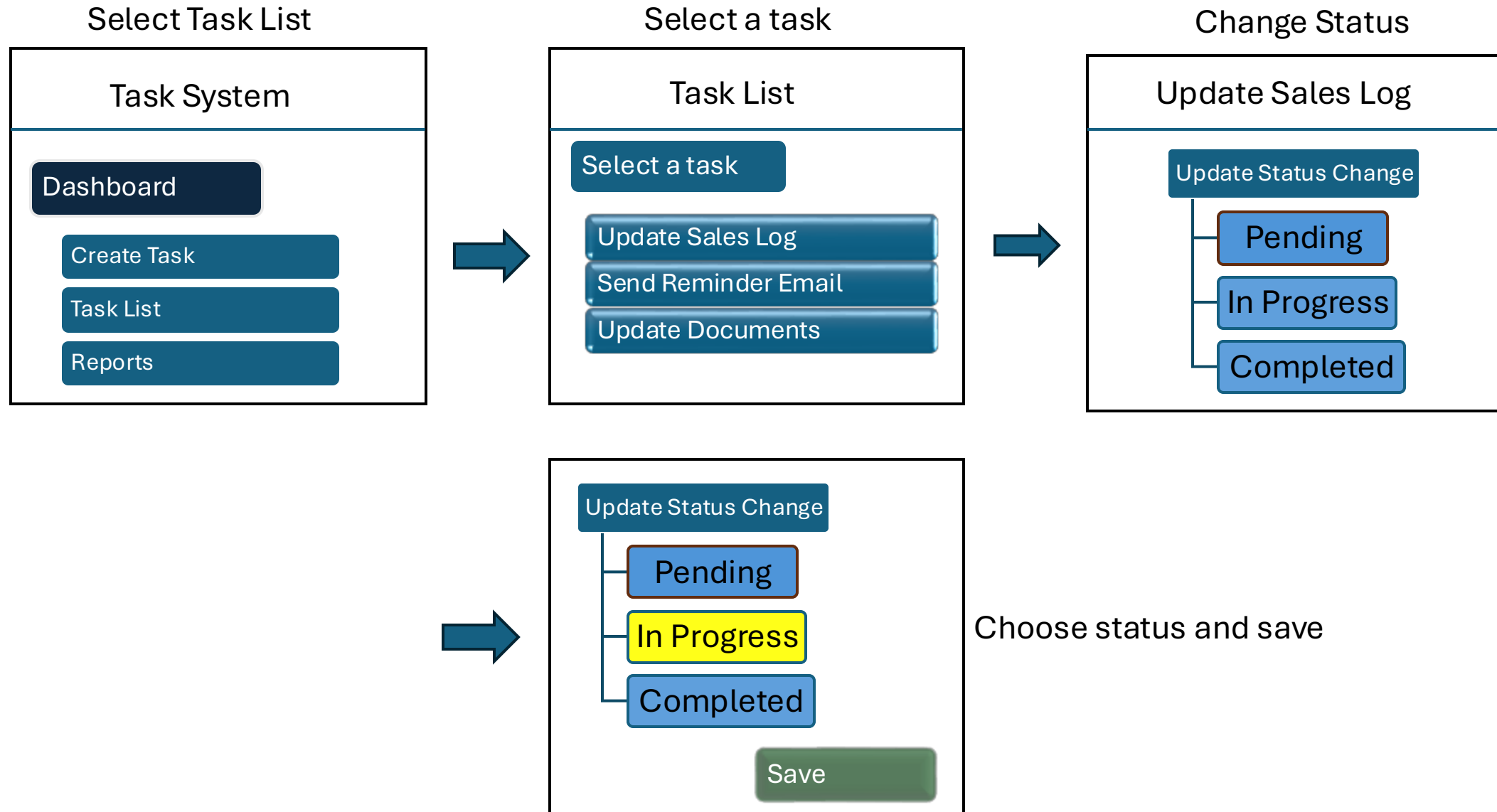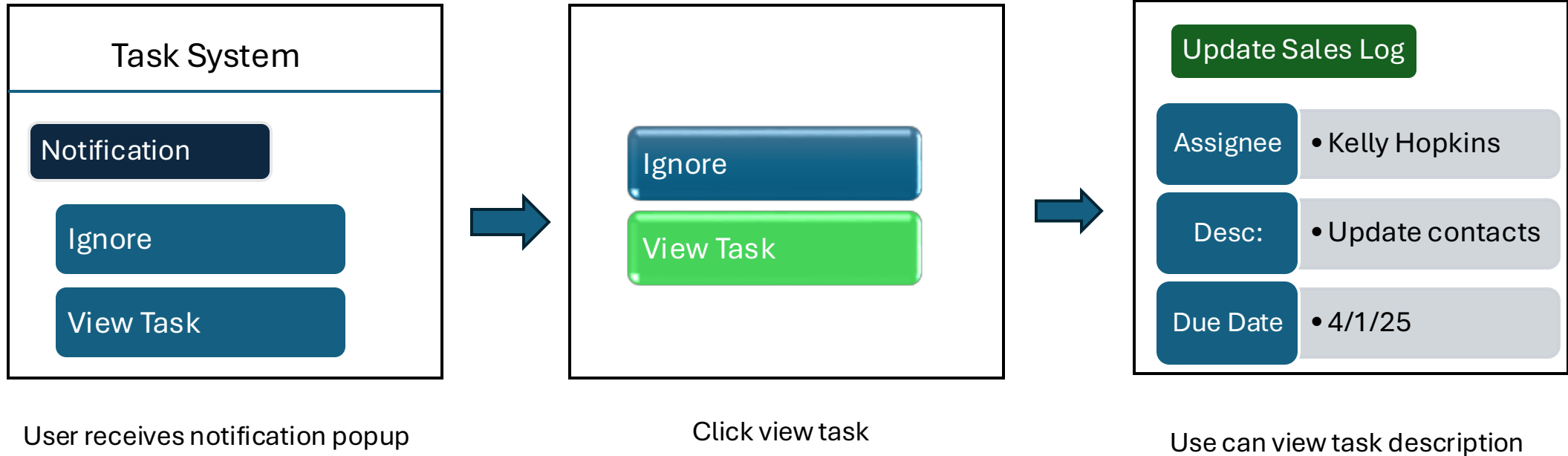
User effort estimation

Usage Scenario	Navigation	Clicks	Keystrokes
User creates new task	Dashboard, task list, save	5	3
Select a task and assign user	Dashboard, task list, assign user, save	6	1
Change status on task	Dashboard, task list, status change, save	5	0
Generate report	Dashboard, reports, filter due date	4	0
Task notification	Notification, view task details	1	0

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Traceability Matrix

No.	Priority Weight	Description
REQ-1	5	System should allow users to create and assign tasks
REQ-2	4	User should be able to set priorities for each task
REQ-3	5	Users can log in the system
REQ-4	4	System should allow users to update task status
REQ-5	3	Users should filter task based on status
REQ-6	2	The system should all assigning tasks to different users
REQ-7	3	System should display dashboard for pending tasks
REQ-8	2	User should be able to attach documents
REQ-9	2	System should generate reports

Use Cases

No.	Description
UC-1	User logs in to the system
UC-2	User creates a task
UC-3	User assigns a task to another user
UC-4	User updates a task status
UC-5	User filters through task based on status
UC-6	User views dashboard
UC-7	User attaches documents to task
UC-8	User generates reports

Traceability Mix

System Requirement	PW	UC-1	UC-2	UC-3	UC-4	UC-5	UC-6	UC-7	UC-8
REQ-1	5		✓	✓					
REQ-2	4		✓						
REQ-3	5	✓							
REQ-4	4				✓				
REQ-5	3					✓			
REQ-6	2			✓					
REQ-7	3						✓		
REQ-8	2							✓	
REQ-9	2								✓
Max PW		5	5	5	4	3	3	2	2
Total PW		5	9	7	4	3	3	2	2