

## PROJECT DESIGN PHASE

**Project Title:** Optimizing User, Group, and Role Management with Access Control and Workflows

DATE	NOV 2, 2025
TEAM ID	NM2025TMID03787
PROJECT NAME	Optimizing User, Group, and Role Management with Access Control and Workflows
MAXIMUM MARKS	4 MARKS

## System Architecture

Role	Description	Key Permissions
Admin	Configures roles, ACLs, and workflows within the system.	Full system access
Alice (Project Manager)	Creates and manages tasks, reviews updates, and approves completion.	Create / Read / Update / Delete
Bob (Team Member)	Works on assigned tasks and updates only status and comments.	Limited edit access (ACL-controlled)

### Architecture Description

The system follows a Role-Based Access Control (RBAC) model to ensure security, accountability, and automation throughout the project lifecycle.

- Admin: Configures users, groups, roles, and Access Control Lists (ACLs).
- Alice (Project Manager): Acts as the *approver*, responsible for project oversight and final approvals.
- Bob (Team Member): Acts as the *executor*, responsible for updating task progress and adding comments, restricted by ACLs to specific fields.

[Screenshot Placeholder: System Architecture Diagram]

Depict Admin managing configurations → Alice creating and approving tasks → Bob updating task progress within u\_task\_table\_2.

## 2. Database Design

Primary Table: u\_task\_table\_2

Purpose:

To store and manage all project task-related data used in the workflow.

Field Name	Type	Description	Access Control
Task Name	String	Title of the task	Read/Write (Alice only)
Description	String	Details about the task	Read/Write (Alice only)

Field Name	Type	Description	Access Control
Assigned To	Reference (User)	User assigned to the task (Bob)	Read (Bob)
Status	Choice	Task progress — <i>New, In Progress, Completed</i>	Read/Write (Bob)
Comments	String	Notes or feedback from the assignee	Read/Write (Bob)
Priority	Choice	Task priority level	Read (Bob)
Due Date	Date	Target completion date	Read (Bob)

#### Database Logic

- When a record is created or updated, ACLs enforce field-level access control.
- All data is securely stored within ServiceNow's platform database.
- Each record update automatically triggers the Flow Designer automation to maintain workflow consistency.

### 3. Workflow Design

Workflow Engine:

ServiceNow Flow Designer

Trigger Event:

A record is created or updated in u\_task\_table\_2.

Flow Logic

- Trigger: On record creation or update.
- Condition Check:
  - Status = "In Progress"
  - Comment = "Feedback"
  - Assigned To = Bob
- Action 1: Update record → set Status = "Completed".
- Action 2: Request approval → set Approver = Alice (Project Manager).
- Action 3: Await approval → upon approval, update approval status and notify the user.

### 4. Process Flow Description

- Alice (Project Manager) creates a new task and assigns it to Bob (Team Member).
- Bob updates the Status and Comments fields.
- Flow Designer detects the record update.
- The system automatically updates Status → "Completed."
- An approval request is sent to Alice.
- Alice reviews the request under My Approvals and marks it Approved.
- The Flow completes successfully, confirming the task as finished.

## 5. Flow Diagram Screenshot (Placeholder)

[Insert Screenshot: Flow Designer Diagram]

Example layout of workflow in ServiceNow Flow Designer:

- Trigger: Record created/updated in u\_task\_table\_2
- Condition: Status = “In Progress” AND Assigned To = Bob
- Actions:
  1. Update Status → “Completed”
  2. Request Approval → Alice
  3. Await Approval → Notify User on success

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## Task Table Automation

Active

View: Test Deactivate Activate Save ...

**TRIGGER**

Task Table 2 Created where (Status is In progress; Assigned To is Bob p; Comment is feedback)

Trigger: **Created**

\* Table: **Task Table 2 [u\_task\_table\_2]**

Condition: All of these conditions must be met

- Status is In progress
- Assigned To is Bob p
- Comment is feedback

OR AND

New Criteria

Advanced Options

Data

- Flow Variables
- Trigger - Record Created
- Task Table 2 Record (Record)
- Task Table 2 Table (Table)
- Run Start Time UTC (Date/Time)
- Run Start Date/Time (Date/Time)
- 1 - Update Record
- Task Table 2 Record (Record)
- Task Table 2 Table (Table)
- Action Status (Object)
- 2 - Ask For Approval
- Approval State (Choice)
- Action Status (Object)

Status: Published | Application: Global | 0

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## Task Table Automation

Active

View: Test Deactivate Activate Save ...

1 Update Task Table 2 Record

Action: **Update Record**

\* Record: Trigger - R... → Task Table 2 R... (Task Table 2 Record)

\* Table: **Task Table 2 [u\_task\_table\_2]**

\* Fields: Status → Completed

+ Add field value

Delete Cancel Done

2 Ask For Approval

Add an Action, Flow Logic, or Subflow

Error Handling

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**Workflow Studio** | Task Table Automation Flow | Active

2 Ask For Approval

Action: Ask For Approval

\* Record: Trigger - Record Created → Task Table 2 Record

Table: Task Table 2 [u\_task\_table\_2]

Approval Field: Status

Journal Field: Comment

\* Rules:

- Approve When: Anyone approves (alice p)

Due Date: None

**Data**

- Trigger - Record Created
- Task Table 2 Record (Record)
- Task Table 2 Table (Table)
- Run Start Time UTC (Date/Time)
- Run Start Date/Time (Date/Time)
- 1 - Update Record
- Task Table 2 Record (Record)
- Task Table 2 Table (Table)
- Action Status (Object)
- 2 - Ask For Approval
- Approval State (Choice)
- Action Status (Object)

**Buttons:** Add another OR rule set, Delete, Cancel, Done

Status: Published | Application: Global

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**servicenow** All Favorites History Process Mining Workspace Task Table 2s

Assigned To: Search Actions on selected rows...

All

Assigned To	Comment	Description	Due Date	Priority	Status	Task Name
(empty)	Due date passed auto Approved task				requested	
(empty)	alice p approved the task.		2025-10-31		approved	
Bob p	alice p approved the task.	FINAL TEST	2025-10-31		approved	FINAL
Bob p	alice p approved the task.	esting approval workflow"	2025-10-31		approved	Test Approval Flow
Bob p	alice p approved the task.	AGAIN FINAL TEST	2025-10-31		approved	AGAIN FINAL
Bob P	alice p approved the task.	hello	2025-10-31		approved	Frotend
Bob p	alice p approved the task.	NOTHING	2025-10-31		approved	NAAN MUTHALVAN
Bob p	alice p approved the task.	HELLO	2025-10-31		approved	HELLO
Bob p	Due date passed auto Approved task	Vanakkam	2025-10-31		requested	Name Find
Bop P	Initial draft assigned to Bob	Create homepage layout for project	2025-10-31		approved	Design UI Layout

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servicenow All Favorites History Workspaces Approvals Approvals Search Actions on selected rows...

All

State	Approver	Comments	Approval for	Created
Requested	alice p	(empty)		2025-10-30 23:29:19
Requested	alice p	(empty)		2025-10-30 23:20:19
Requested	alice p	(empty)		2025-10-30 23:20:19
Approved	alice p	(empty)		2025-10-30 03:18:23
Approved	alice p	(empty)		2025-10-30 03:18:21
Approved	alice p	(empty)		2025-10-30 02:46:26
Approved	alice p	(empty)		2025-10-30 02:46:23
Approved	alice p	(empty)		2025-10-30 02:43:12
Approved	alice p	(empty)		2025-10-30 02:43:03
Approved	alice p	(empty)		2025-10-30 02:42:32
Approved	alice p	(empty)		2025-10-30 02:42:25
Approved	alice p	(empty)		2025-10-30 02:29:24
Approved	alice p	(empty)		2025-10-30 02:29:21
Approved	alice p	(empty)		2025-10-30 02:26:23
Approved	alice p	(empty)		2025-10-30 02:13:10
Approved	alice p	(empty)		2025-10-30 01:59:21
Approved	alice p	(empty)		2025-10-30 00:17:23

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Workflow Studio Task Table Automation Flow

## Task Table Automation

**Test flow**

Run your flow to make sure it has no errors before you activate it. When the test finishes running, check the execution details to see each action's configuration, runtime values, and the log messages for any errors that occurred.

**Trigger**: Task Table 2 Created where (Status is I)

**ACTIONS**: Select multiple

1. Update Task Table 2 Record
2. Ask For Approval

**ERROR HANDLER**

If an error occurs in your flow, the actions you add here will run.

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Trigger - Record Created

- Task Table 2 Record
- Task Table 2 Table
- Run Start Time UTC
- Run Start Date/Time

1 - Update Record

- Task Table 2 Record
- Task Table 2 Table
- Action Status

2 - Ask For Approval

- Approval State
- Action Status

Record Table Date/Time Date/Time Object Choice Object

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Workflow Studio Task Table Automation Flow

## Task Table Automation

**Test flow**

Run your flow to make sure it has no errors before you activate it. When the test finishes running, check the execution details to see each action's configuration, runtime values, and the log messages for any errors that occurred.

\* Task Table 2 Record

Run test in background ⓘ

**TRIGGER**

Task Table 2 Created where (Status is I...)

**ACTIONS** Select multiple

1 Update Task Table 2 Record ⓘ

2 Ask For Approval ⓘ

+ Add an Action, Flow Logic, or Subflow

**ERROR HANDLER**

If an error occurs in your flow, the actions you add here will run.

Status: Published | Application: Global

Trigger - Record Created

Task Table 2 Record Record

Task Table 2 Table Table

Run Start Time UTC Date/Time

Run Start Date/Time Date/Time

1 - Update Record

Task Table 2 Record Record

Task Table 2 Table Table

Action Status Object

2 - Ask For Approval

Approval State Choice

Action Status Object

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Workflow Studio Task Table Automation Flow execution

## Task Table Automation

**EXECUTION DETAILS**

Test Run - Waiting

Show Action Details	State	Start time	Duration	
FLOW STATISTICS	Run as: System Administrator <a href="#">Open flow logs</a>	Waiting	2025-10-31 23:31:31	91ms
<b>TRIGGER</b>	Open current record ⓘ			
Task Table 2 Created				
<b>ACTIONS</b>				
1 Update Record	Core Action	Completed	2025-10-31 23:31:31	17ms
2 Ask For Approval	Core Action	Waiting	2025-10-31 23:31:31	74ms
<b>ERROR HANDLER</b>				

0

**EXECUTION DETAILS** Task Table Automation

Show Action Details

FLOW STATISTICS

Run as: System Administrator Open flow logs *Completed* 2025-10-31 23:34:27 69ms

TRIGGER

**Task Table 2 Created** Open current record *Completed*

ACTIONS

Index	Action	Type	Status	Start Time	Duration
1	Update Record	Core Action	Completed	2025-10-31 23:34:27	6ms
2	Ask For Approval	Core Action	Completed	2025-10-31 23:34:27	63ms

ERROR HANDLER

## 6 Design Validation

Component	Tested	Result
User Roles	<span style="background-color: green; border: 1px solid black; padding: 2px;"></span>	Correct roles assigned
Table Fields	<span style="background-color: green; border: 1px solid black; padding: 2px;"></span>	Properly configured
ACLs	<span style="background-color: green; border: 1px solid black; padding: 2px;"></span>	Bob restricted correctly
Flow Designer	<span style="background-color: green; border: 1px solid black; padding: 2px;"></span>	Trigger and actions executed
Approval Process	<span style="background-color: green; border: 1px solid black; padding: 2px;"></span>	Alice approval received

## 7 Conclusion

The **Project Design Phase** defines the system architecture, table schema, and workflow automation logic for efficient role-based task management.

By combining ACL security and Flow Designer automation, this design ensures only authorized users can modify data, while all approvals are tracked transparently.