Optimizing User, Group, and Role Management with Access Control and Workflows

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Category: Access Control and Workflow Automation

Problem Statement

Managing users, groups, and roles in modern organizations across multiple systems is a complex and inefficient task prone to security vulnerabilities. Manual

and decentralized access control processes result in excessive permissions, operational inefficiencies, compliance challenges with inadequate audit trails, scalability issues, and poor user experience due to slow access granting.

Objectives

Centralize user, group, and role management in one platform.

Implement secure Role-Based Access Control (RBAC) policies.

Automate workflows for provisioning, access modification, and revocation.

Ensure regulatory compliance with detailed audit trails and access reviews.

Reduce manual tasks to improve administrative efficiency.

Design a scalable system for growing organizations.

Enhance user experience with faster access and approval processes.

Skills Required

Programming: Python, Java

Database Management: SQL, NoSQL

Access Control and Security: RBAC, Authentication, Authorization

Workflow Automation and Scripting

Web Development: HTML, CSS, JavaScript

API Integration

Cloud Deployment

Testing and Debugging

Project Description:

This project aims to develop a centralized platform for managing users, groups, and roles with integrated RBAC and automated workflows. The system streamlines access management by automating user onboarding, role changes, and access revocation while supporting compliance and security requirements. It reduces errors caused by manual processing, improves operational efficiency, and enhances user experience. The system is scalable and adaptable to organizational growth, providing audit trails for compliance and security assurance.

Milestones and Activities

Milestone 1: Setup Environment and Architecture

Configure cloud and development tools.

Define system architecture including database schema.

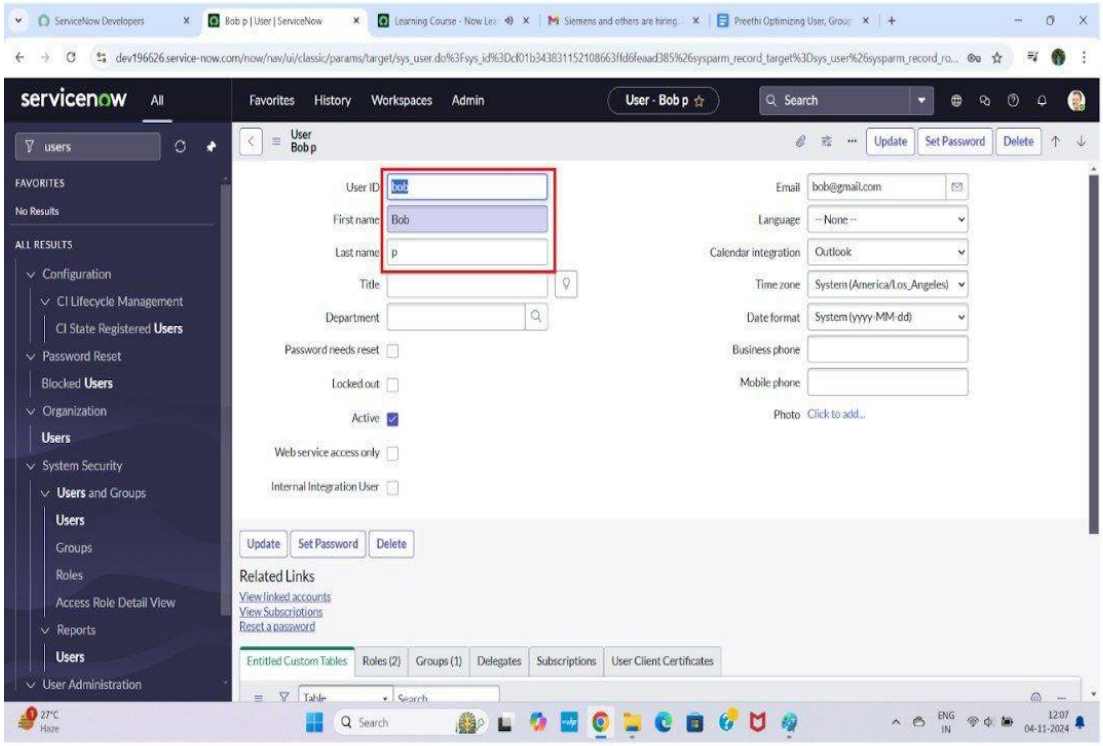
Establish development and testing environments.

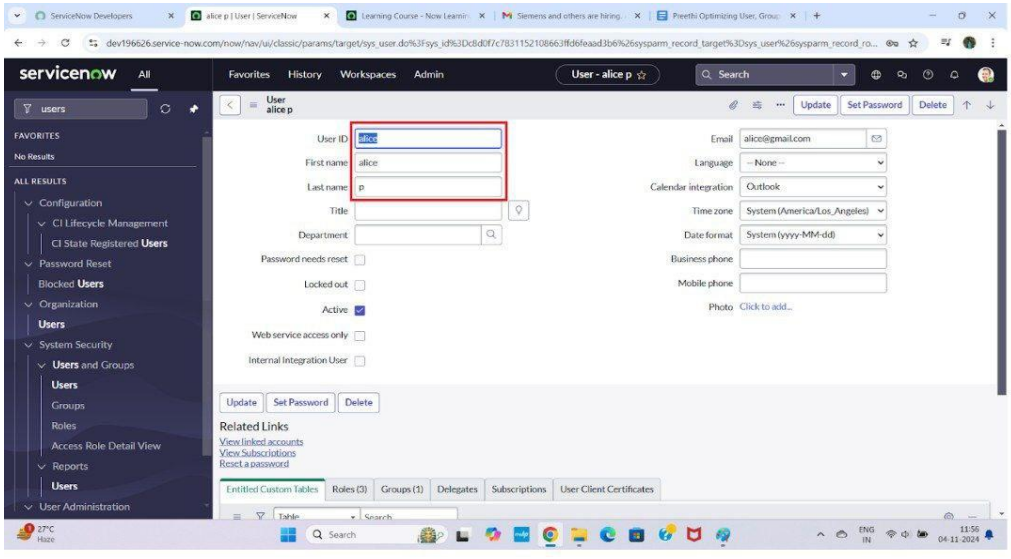
Milestone 2: Create User, Group, and Role Entities

Develop database tables representing users, groups, and roles.

Define RBAC policies and permissions.

Build administration interfaces.



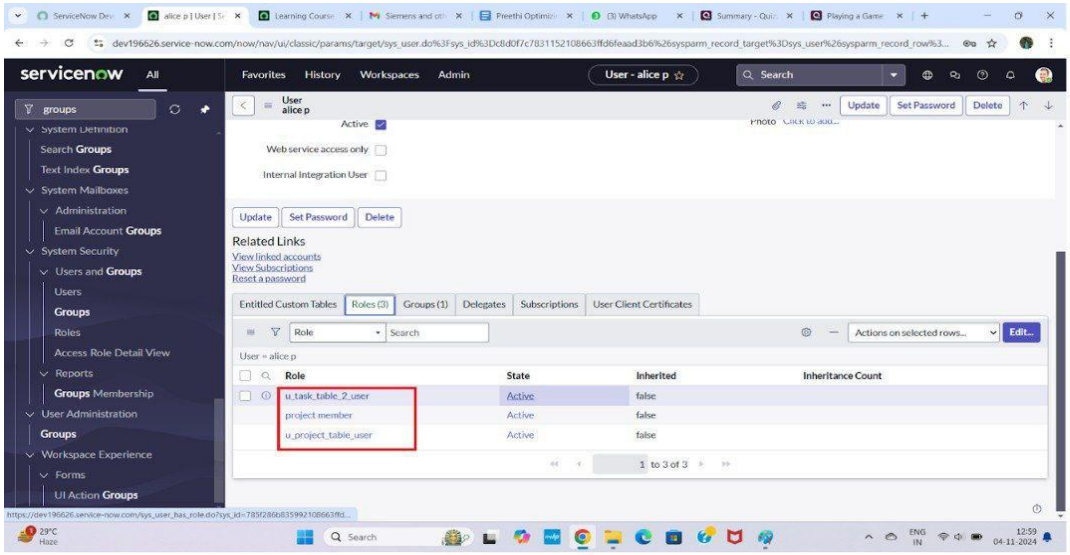


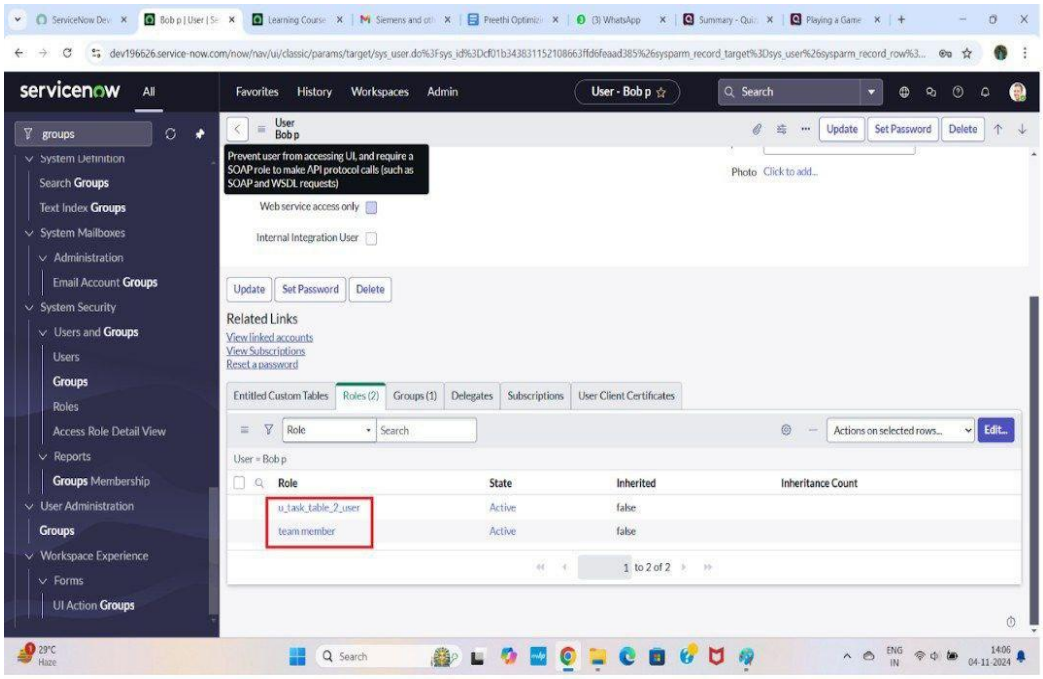
Milestone 3: Implement Workflow Automation

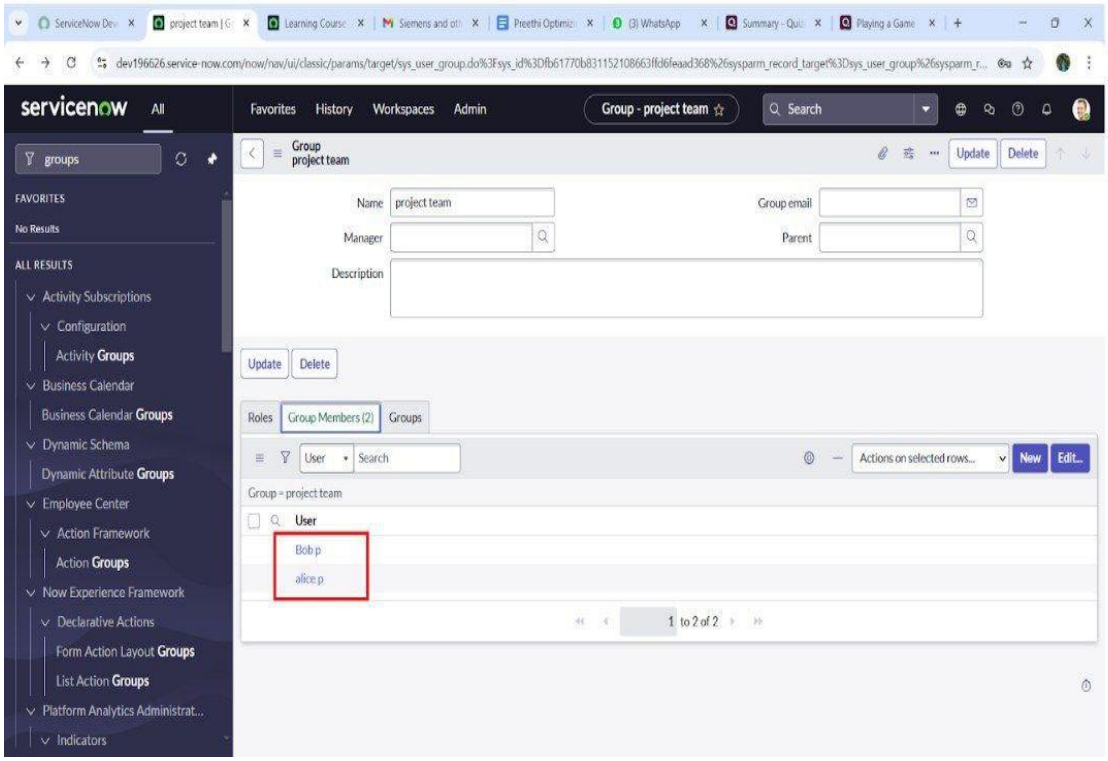
Design and implement automated workflows for access provisioning, modification, and revocation.

Build approval processes with role-based approvers.

Integrate notifications for workflow stages.




servicenow
All
Favorites
History
Workspaces
Admin
User - Bob p
Search
groups
System Definition
Search Groups
Text Index Groups
System Mailboxes
Administration
Email Account Groups
System Security
Users and Groups
Users
Groups
Roles
Access Role Detail View
Reports
Groups Membership
User Administration
Groups
Workspace Experience
Forms
UI Action Groups
User
Bob p
Update
Set Password
Delete
Prevent user from accessing UI, and require a SOAP role to make API protocol calls (such as SOAP and WSDL requests)
Photo Click to add...
Web service access only
Internal Integration User
Related Links
View linked accounts
View Subscriptions
Reset a password
Entitled Custom Tables
Roles (2)
Groups (1)
Delegates
Subscriptions
User Client Certificates
Role
Search
Actions on selected rows...
Edit...
User = Bob p
Role
State
Inherited
Inheritance Count
u_task_table_2_user
Active
false
team member
Active
false
1 to 2 of 2

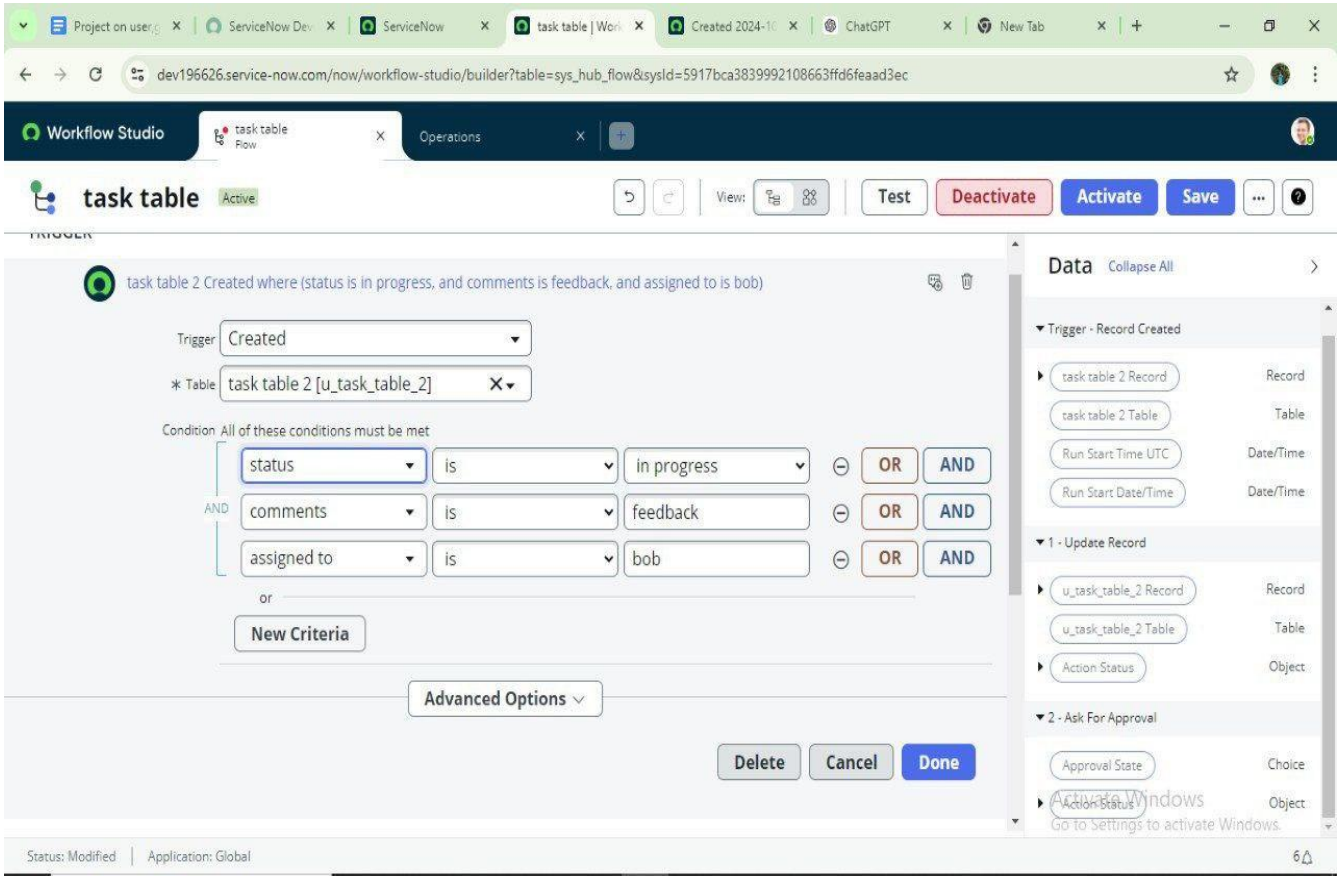

servicenow
All
Favorites
History
Workspaces
Admin
Group - project team
Search
groups
FAVORITES
No Results
ALL RESULTS
Activity Subscriptions
Configuration
Activity Groups
Business Calendar
Business Calendar Groups
Dynamic Schema
Dynamic Attribute Groups
Employee Center
Action Framework
Action Groups
Now Experience Framework
Declarative Actions
Form Action Layout Groups
List Action Groups
Platform Analytics Administrat...
Indicators
Group
project team
Update
Delete
Name
project team
Group email
Manager
Parent
Description
Roles
Group Members (2)
Groups
User
Search
Actions on selected rows...
New
Edit...
Group = project team
User
Bob p
alice p
1 to 2 of 2

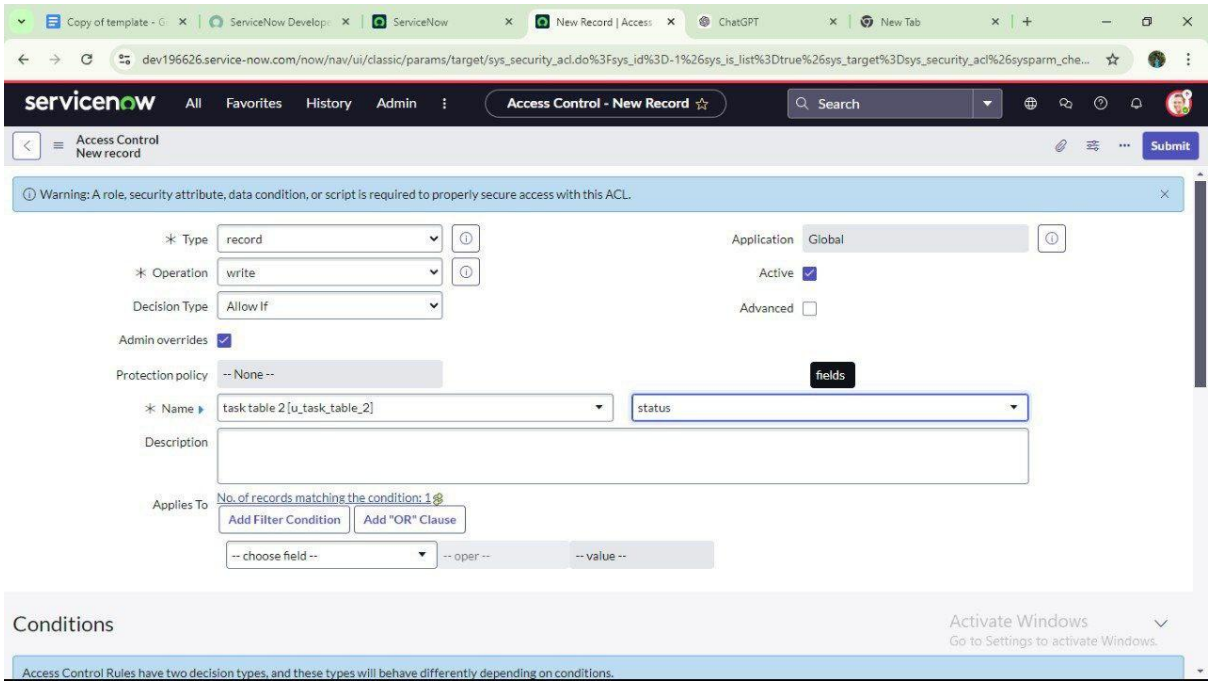
Milestone 4: Implement Approval Actions

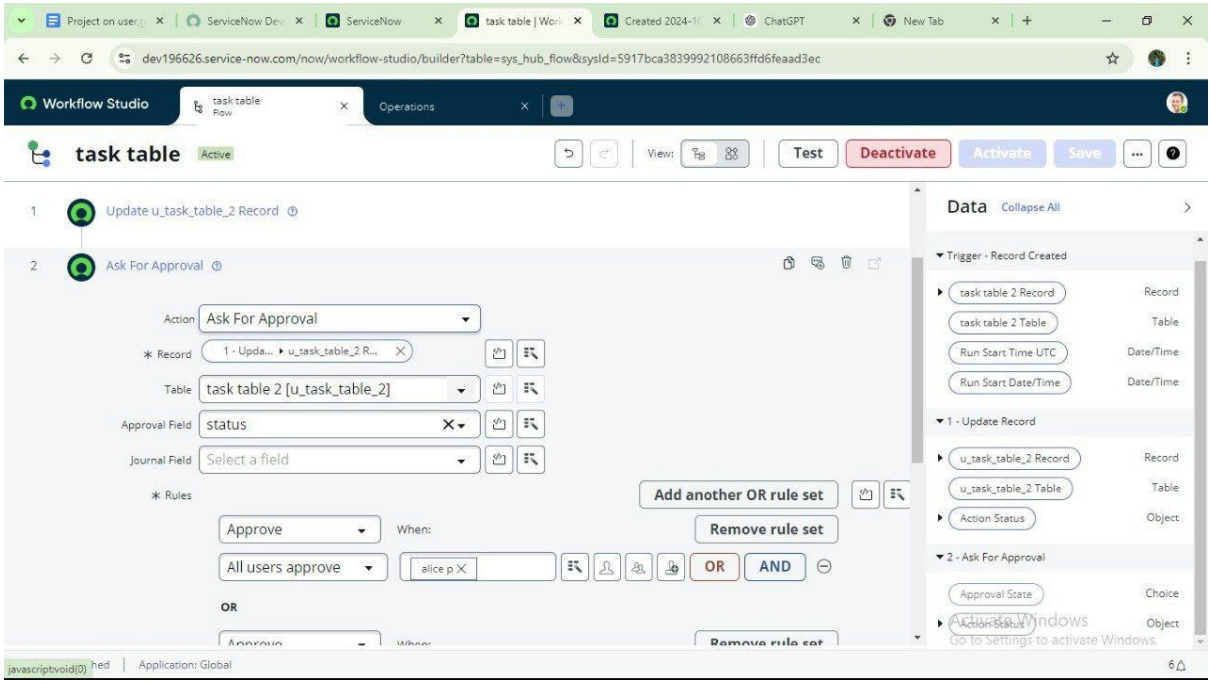
Define action to update access task status to “completed” upon task completion.

Create “Ask for Approval” actions routed to approvers (e.g., Alice P).

Test approval and rejection scenarios.




servicenow
All
Favorites
History
Admin
Access Control - New Record
Search
Access Control
New record
Submit
Warning: A role, security attribute, data condition, or script is required to properly secure access with this ACL.
Type
record
Application
Global
Operation
write
Active
Decision Type
Allow If
Advanced
Admin overrides
Protection policy
-- None --
fields
Name
task table 2 [u_task_table_2]
status
Description
Applies To
No. of records matching the condition: 1
Add Filter Condition
Add "OR" Clause
-- choose field --
-- oper --
-- value --
Conditions
Activate Windows
Go to Settings to activate Windows.
Access Control Rules have two decision types, and these types will behave differently depending on conditions.


Workflow Studio
task table
Flow
Operations
task table
Active
View:
Test
Deactivate
Activate
Save
1
Update u_task_table_2 Record
2
Ask For Approval
Action
Ask For Approval
Record
1 - Upda... u_task_table_2 R...
Table
task table 2 [u_task_table_2]
Approval Field
status
Journal Field
Select a field
Rules
Add another OR rule set
Approve
When:
Remove rule set
All users approve
alice p
OR
AND
OR
Data
Collapse All
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
u_task_table_2 Record
Record
u_task_table_2 Table
Table
Action Status
Object
2 - Ask For Approval
Approval State
Choice
Action Status
Object
Activate Windows
Go to Settings to activate Windows.
Application: Global

Milestone 5: Configure Task and Approval Management

Create task tables and approval interfaces for requesters and approvers.

Enable tracking of task statuses from initiation through approval.

Milestone 6: Enable Audit Logs and Compliance Reporting

Enable detailed logging of all access-related changes.

Design reports and dashboards supporting compliance audits and reviews.

Example Workflow

User requests for access trigger workflow actions updating task statuses.

Approval requests are sent to designated approvers via automated notifications.

Approvers review and approve/reject access requests.

Approved requests automatically provision access; rejected requests are logged.

System maintains audit trails for compliance.

Conclusion :

This project demonstrates a comprehensive solution for streamlined and secure management of users, groups, and roles. Through RBAC and workflow automation, it addresses security risks, operational inefficiencies, and compliance challenges. The system is scalable to meet organizational growth, reduces administrative overhead, and improves user productivity.