Project Report Form

INTRODUCTION

Titil : Prevent User Deletion If Assigned To An Incident

Project Overview :

This project aims to implement a business rule or script in ServiceNow that prevents a user from being deleted if they are assigned to an active incident. The goal is to maintain data integrity and ensure that incidents are not left without a valid assignee.

Purpose :

1. **Reduced Errors:** Minimizes errors from orphaned incidents.
2. **Better Incident Resolution:** Ensures incidents are resolved efficiently.
3. **Data Consistency:** Ensures incident assignments remain valid and consistent.
4. **Improved Auditing:** Preserves incident history and user assignments.
5. **Risk Reduction:** Minimizes risk of unattended incidents.

IDEATION PHASE

Problem Statement :

In an IT Service Management environment, users are frequently assigned to incidents for issue resolution and tracking. However, the current system lacks a validation mechanism to prevent the deletion of a user who is still actively assigned to incidents. This can lead to broken data references, loss of accountability, and disruption in workflow continuity.

There is a need to implement a safeguard that prevents such deletions unless all assigned incidents are closed or reassigned.

Objectives :

The primary objectives of preventing user deletion when they are assigned to an incident are multifaceted, aiming to maintain data integrity, operational efficiency, compliance, and effective knowledge management within an organization's IT service management (ITSM) framework.

Challenges :

1.**Data Integrity:** Ensuring data consistency and accuracy when preventing user deletion.
2. **System Complexity:**Implementing logic to check incident assignments and prevent deletion.
3. **User Experience:** Displaying clear error messages and providing alternatives.
4. **Edge Cases:** Handling scenarios like completed incidents or reassigned tasks.
5. **Performance Impact:** Potential impact on system performance due to additional checks.

Solutions :

1.**Validation Check**: Implement a validation check to verify if a user is assigned to an incident before deletion.
2. **Warning Message**: Display a warning message to administrators when attempting to delete a user assigned to an incident.
3. **Reassignment Option**: Provide an option to reassign incidents before deleting a user.
4. **Automated Reassignment**: Automatically reassign incidents to another user or group.
5. **Role-Based Access**: Restrict user deletion privileges based on roles.

REQUIREMENTS ANALYSIS

Solution Requirements :

DATE	
TEAM ID	LTVIP2025TMID30962
PROJECT NAME	Prevent User Deletion if Assigned to an Incident

1.Functional Requirements:

Following are the functional requirements of the proposed solution.

FR NO.	FUNCTIONAL REQUIREMENTS	SUB REQUIREMENTS
FR-1	User Creation	**1. Create User Account**: System allows

		creation of new user accounts. **2. Assign Roles**: System enables assignment of roles and permissions. **3. Validate User Input**: System validates user input data (e.g., email, name). **4. Generate Username**: System generates unique usernames. **5. Set Password**: System allows setting and managing user passwords. **6. Store User Data**: System stores user information securely.
FR-2	Assign Incident To User	**1. Incident Selection**: System allows selection of incidents to assign. **2. User Selection**: System enables selection of users to assign incidents to. **3. Assignment Notification**: System notifies assigned users of new incidents. **4. Incident Status Update**: System updates incident status upon assignment. **5. Assignment Tracking**: System tracks incident assignments and history. **6. Validation**: System validates assignment rules (e.g., user availability, incident priority).
FR-3	Business Rule Creation	**1.Rule Definition**: System allows definition of business rules (e.g., incident assignment, escalation). **2. Condition Specification**: System enables specification of conditions for rule application. **3. Action Specification**: System allows definition of actions to take when rules are triggered. **4. Rule Validation**: System validates business rules for correctness and consistency.

		5. Rule Prioritization: System enables prioritization of business rules. **6. Rule Activation/Deactivation**: System allows activation and deactivation of business rules.
FR-4	Test Deletion	**1.Validation Check**: System checks if the test is in use or has dependencies. **2.Confirmation Prompt**: System prompts for confirmation before deleting the test. **3. Deletion Logging**: System logs test deletion for auditing purposes. **4. Dependent Object Handling**: System handles dependent objects (e.g., test results, history). **5. Authorization Check**: System verifies user authorization for test deletion.
FR-5	Test With Unassigned User	**1. User Selection**: System allows selection of unassigned users for testing. **2. Test Assignment**: System enables assignment of tests to unassigned users. **3. Notification**: System notifies unassigned users of test assignments. **4. Tracking**: System tracks test assignments and user status. **5. Validation**: System validates user assignment and test status.

2. Non-Functional Requirements:

Following are the non- functional requirements of the proposed solution.

NFR NO.	NON-FUNCTIONAL REQUIREMENTS	DESCRIPTION
NFR-1	Usability	Users clearly understand why deletion is blocked, receive guidance on resolving the issue, and can take corrective actions

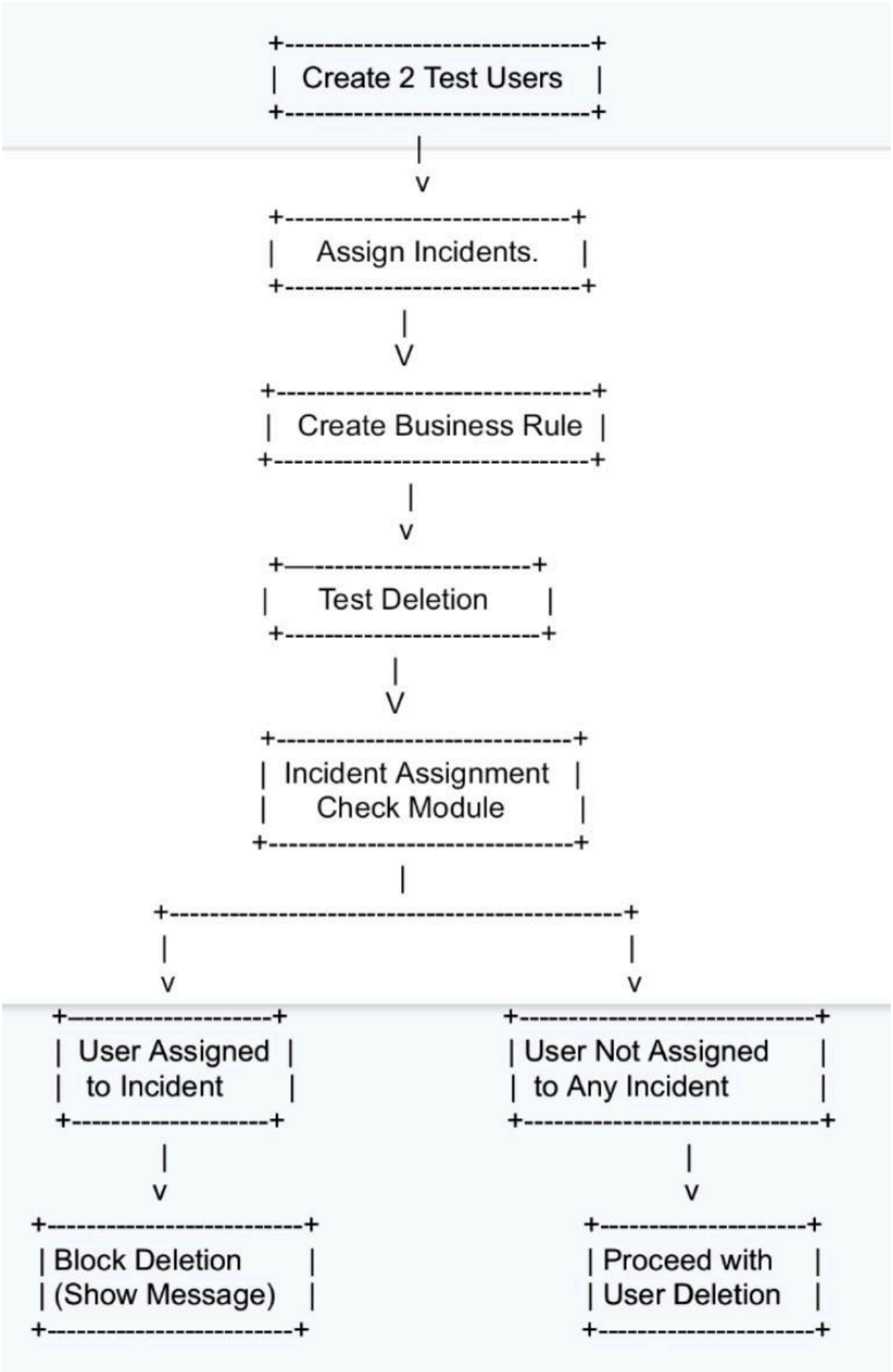
		easily, leading to a smoother and more intuitive user experience.
NFR-2	Security	This security measure ensures that users cannot be deleted from the system if they are currently assigned to any active or historical incident records. It helps maintain data integrity and traceability by preserving critical incident associations and preventing orphaned records.
NFR-3	Reliability	This feature enhances system reliability by ensuring that essential user-incident relationships remain intact. By preventing the deletion of users linked to incidents, it avoids data inconsistencies and ensures accurate historical records for auditing and reporting.
NFR-4	Performance	This feature is optimized to quickly check user-incident associations before allowing deletion. It ensures minimal impact on system performance while maintaining real-time validation, enabling smooth and efficient user management without delays.
NFR-5	Availability	This control supports system availability by ensuring that incident data remains complete and accessible. By preventing the deletion of users tied to incidents, it helps avoid system errors or disruptions caused by missing references, maintaining continuous access to accurate incident information.
NFR-6	Scalability	The feature is designed to scale efficiently with growing data. It can handle increasing numbers of users and incidents without performance degradation, ensuring consistent enforcement of deletion rules as the system expands.

Data Flow Diagrams :

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear OFD can depict the right amount of the system requirement graphically. It shows how data ettere and leaves the system, what changes the information, and where data is stored.

Uses :

1. **Visualize System Processes**:
DFDs help visualize the processes and data flows involved in preventing user deletion.
2. **Identify Data Dependencies**: DFDs identify dependencies between user data and incident assignments.
3. **Design System Logic**: DFDs aid in designing the system logic for preventing user deletion.
4. **Improve System Understanding**: DFDs facilitate understanding of the system's data processing and validation.
5. **Detecting Potential Issues:** DFDs help detect potential issues or bottlenecks in the system.


Create 2 Test Users
Assign Incidents.
Create Business Rule
Test Deletion
Incident Assignment Check Module
User Assigned to Incident
User Not Assigned to Any Incident
Block Deletion (Show Message)
Proceed with User Deletion

Technology Stack :

Service now :

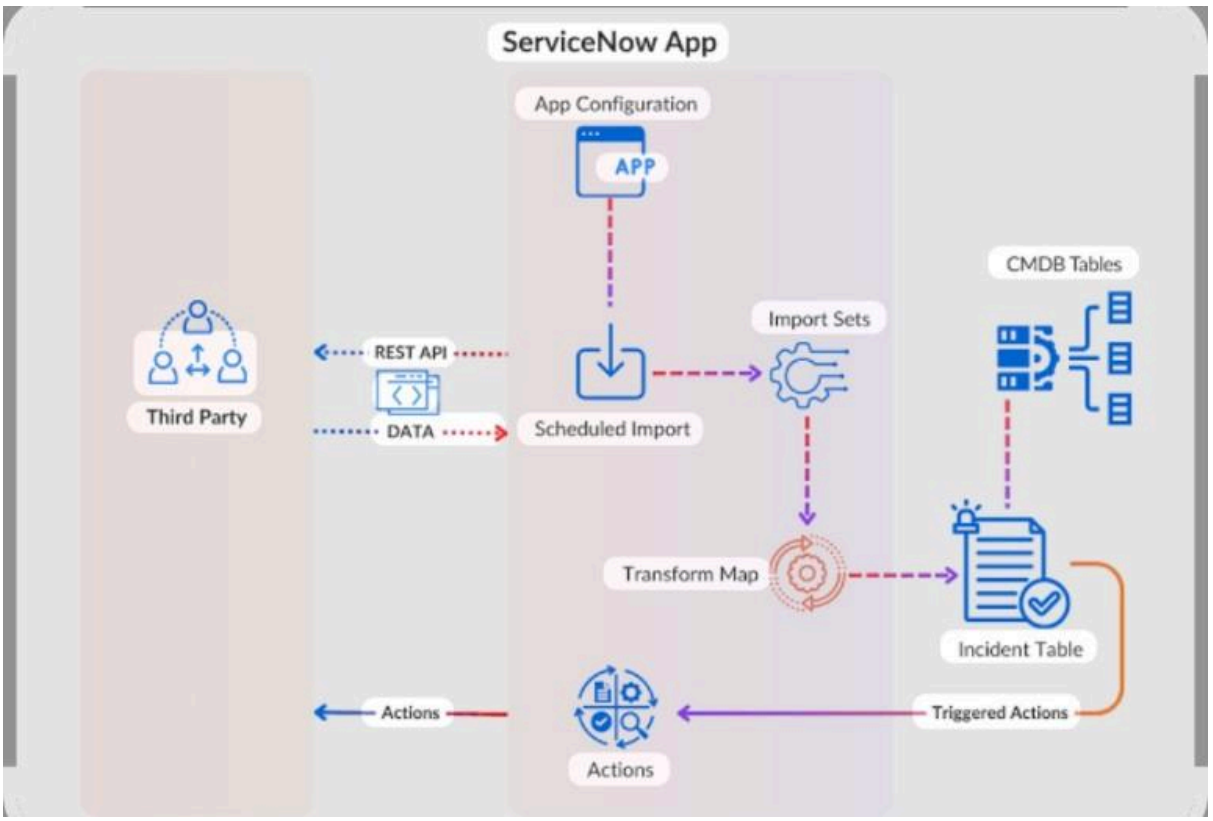
1. **Incident Management**: Automate incident detection, assignment, and resolution.
2. **Change Management**: Manage changes to IT infrastructure and services.
3. **Problem Management**: Identify and resolve root causes of incidents.
4. **Reporting and Analytics**: Provide insights into IT operations and performance.
5. **Security and Compliance**: Ensure data security and compliance with regulations.
6. **User Experience**: Provide an intuitive and user-friendly interface.

Architecture of serviceNow:

ServiceNow's architecture is a robust and flexible cloud-based platform designed to automate and manage enterprise workflows. It's often described as a "Platform as a Service" (PaaS) and a "System of Action."

Uses :

1. **Scalability**: Supports growing user bases and increasing data volumes.
2. **Flexibility**: Allows customization and integration with other systems.
3. **Reliability**: Ensures high availability and minimal downtime.
4. **Security**: Provides robust security features to protect data.
5. **Integration**: Enables integration with other tools and systems.



PROJECT PLANNING & SCHEDULING

Project Planning :

Planing of the project Schedule

Assign Roles & Responsibilities to Team

Proceed to Workspace

User Creation

Create Test Users

× Puvvala Swathi

Assign Incident to User

Assign Incidents

× Puvvala Swathi

Business Rule Creation

Create Business Rule

× Suvvari Uma Devi

Test Deletion

Attempt to Delete Assigned User

× Savara Sailaja

Test With Unassigned User

Attempt to Delete Unused User

× Tankala Gayatri

Use the below template to create product backlog and sprint schedule.

Functional Requirements	User story	No. Of Activities	Team Members
User Creation	As a system administrator, I want to create a new user in the system, So that they can access the platform and perform their assigned tasks based on their role.	1	P. Swathi
Assign incident to User	As a service desk agent (or incident manager), I want to assign an incident to a specific user or technician, So that the appropriate person can take ownership and resolve the issue efficiently.	1	P. Swathi
Business Rules Creation	As a system administrator or workflow designer, I want to create business rules based on conditions and actions, So that the system can automatically perform actions (like assigning incidents, sending notifications, or updating fields) without manual intervention.	1	S.Umadevi
Test Deletion	As a test manager, I want to delete test cases or test data from the system, So that I can keep the test suite clean and remove outdated or irrelevant tests.	1	S. Sailaja
Test With Unassigned User	As a tester, I want to execute a test case that has not yet been assigned to a specific user, So that I can perform ad-hoc testing or pick up unassigned tests based on availability or priority.	1	T. Gayatri

PROJECT DESIGN

Proposed Solution Template :

Project team shall fill the following information in the proposed solution template

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Users can be deleted from the system even if they are assigned to active incidents, leading to data inconsistencies, disruptions in incident management workflows, and potential security risks. This can result in inaccurate incident records, delayed resolution times, and compromised accountability.
2.	Idea/Solution description	Implement a validation check to prevent users from being deleted if they are assigned to active incidents. When a user deletion request is made, the system will verify if the user is assigned to any incidents. If assigned, the deletion request will be blocked, and an error message will be displayed, informing the administrator of the assignment.
3.	Novelty/Uniqueness	**1. Context-Aware Validation**: The system validates user deletion requests based on incident assignments, ensuring data consistency and workflow integrity. **2. Proactive Prevention**: The solution proactively prevents user deletion if assigned to incidents, reducing errors and disruptions. **3. Incident-Centric Approach**: The project focuses on incident management workflows, ensuring that user deletion doesn't compromise incident resolution or accountability.
4.	Social Impact/Customer Satisfaction	**1. Improved Incident Resolution**: Ensures incident resolution processes are not disrupted due to user deletion. **2. Enhanced Collaboration**: Promotes collaboration among team members by

		maintaining accurate incident assignments. **3. Reduced Errors**: Minimizes errors caused by deleted users, leading to better incident management.
5.	Business Model (Revenue Model)	**1. Subscription-Based**: Offer the incident management platform as subscription-based service, with the prevention feature included in the premium tier. **2. Per-User Licensing**: Charge customers based on the number of users, with discounts for larger enterprises. **3. Custom Implementation**: Offer customized implementation services for enterprises with complex incident management workflows.
6.	Scalability of the Solution	**1**. **Efficient Database Queries**: Optimized queries to quickly check user assignments. **2**. **Caching**: Cache frequently accessed incident assignments. **3**. **Distributed Architecture**: Designed to handle increased traffic and data volume. **4**. **Cloud-Based Infrastructure**: Scalable resources to match growing demands.

Project Name: Prevent User Deletion If Assigned To An Incident

Milestone-1: User Creation

User Creation: User creation refers to the process of adding a new user account to a system, application, or platform. This process typically involves defining who the user is and what they are allowed to do within that system.

Purpose of User Creation: The purpose of user creation typically depends on the context, but in general, it serves to:

1.Identity Management: Assign a unique identity to each user in a system.

2. Assign Roles & Responsibilities: Grant access to specific features and functionalities based on user roles.

3. Communication: Associate contact info with the account for customer support or system alerts. Enable direct communication (e.g., notifications, emails).

4. **Access Control:** Determine what resources a user can access.

5. Audit and Security:

a.Track actions taken by each user (e.g., logs for auditing or troubleshooting).

b.Increase accountability and system security

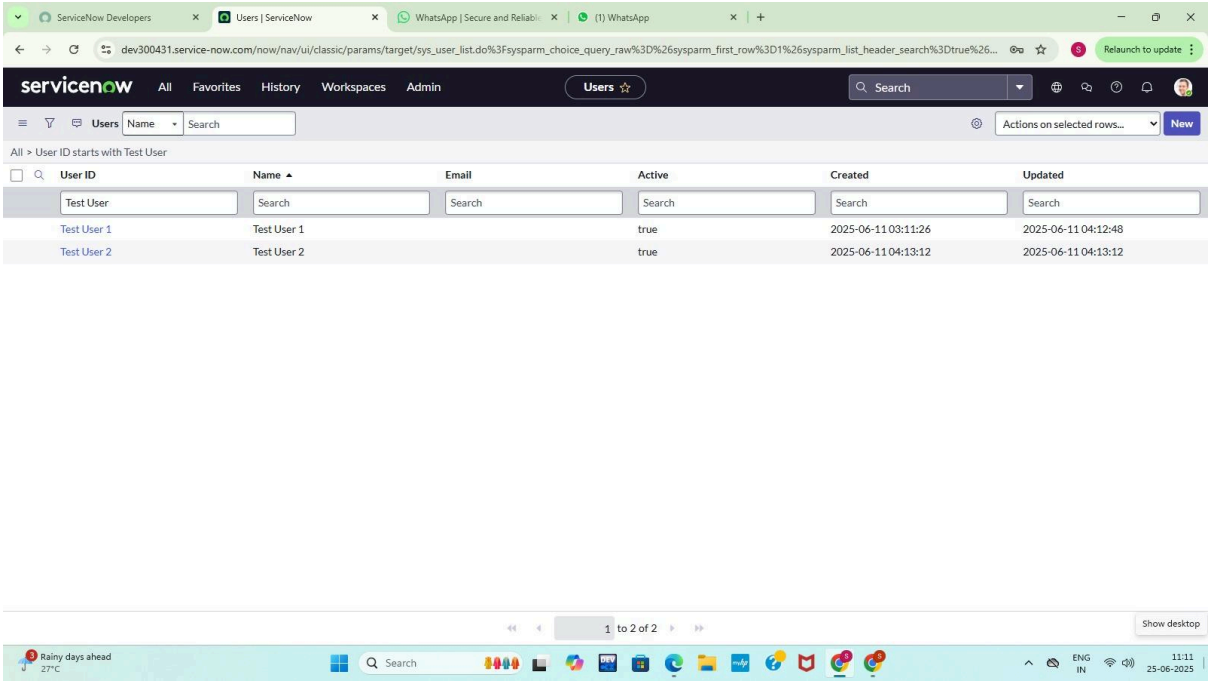
Steps :

1.Go to ServiceNow ? All ? Users (under System Security)

2.Click on New

3.Create two users (e.g., kiran123,ajaykumar)

4. Submit and verify user records.



Milestone-2: Assign Incident

Assign Incident : The action of allocating a reported issue or incident to a specific individual, team, or group for resolution, particularly in IT service management, customer support, or security operations.

Purpose of Assigning an Incident :

1.Ownership and Responsibility : Ensures someone is accountable for investigating and resolving the incident.

2. Workflow Management : Helps track progress and enforce service-level agreements (SLAs).

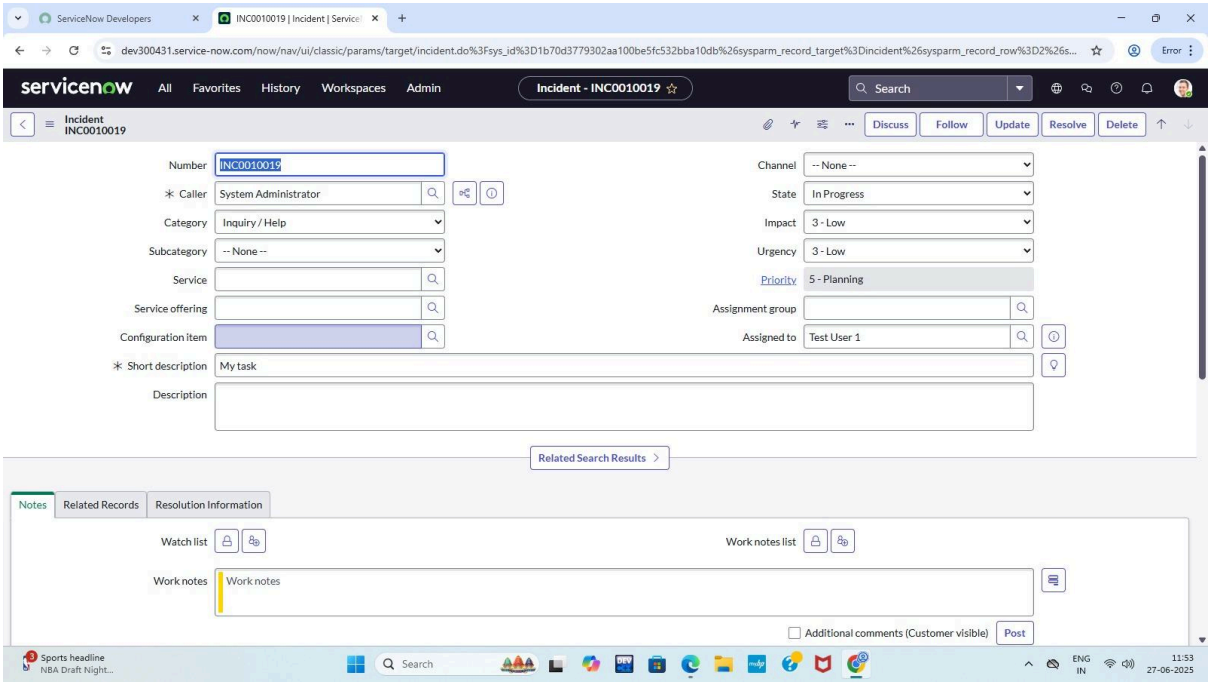
3. Communication : Keeps relevant parties informed (e.g., assigner, assignee, requester).

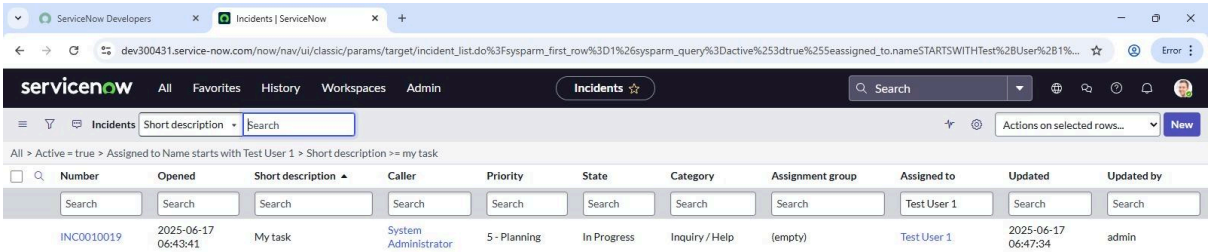
Steps:

1.Navigate to the Incident table.

2.Create a new incident and assign it to one of the created users (e.g., kiran123)

3.Keep the incident Active = true and State = In Progress.





Milestone-3: Business Rule Creation

Business Rule Creation : Business rule creation involves defining and configuring rules within the system (e.g., ServiceNow) to enforce specific logic or validation.

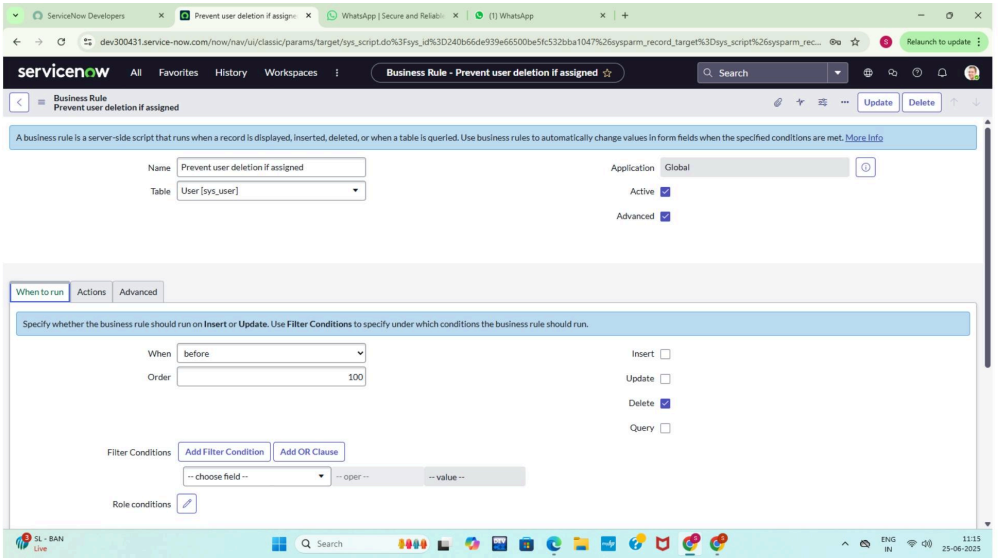
Purpose of Business Rules :

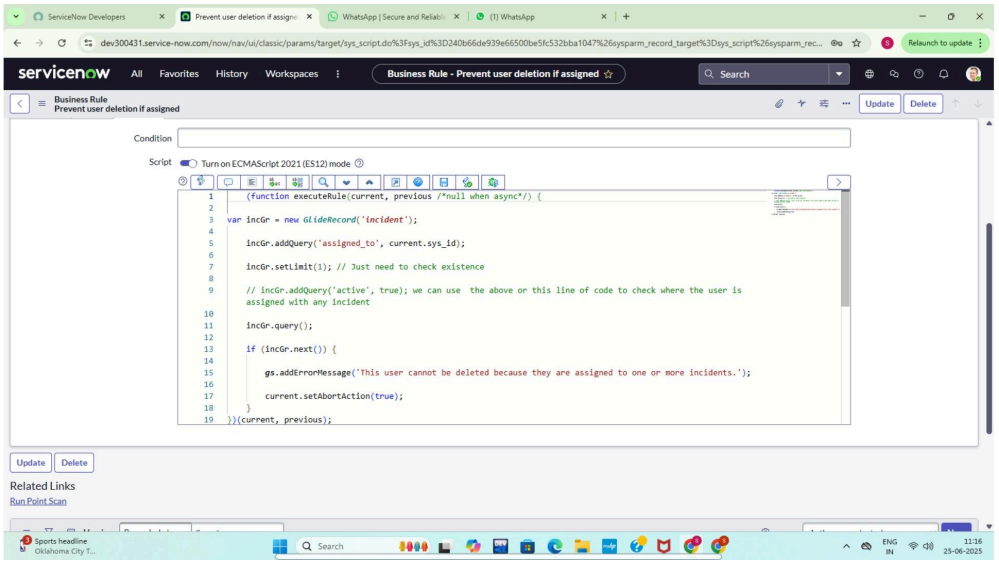
1. **Check for Incident Assignment**:
Verify if a user is assigned to an active incident.
2. **Prevent Deletion**: Block user deletion if assigned to an incident.
3. **Display Error Message**: Show an informative error message to the administrator.

Steps :

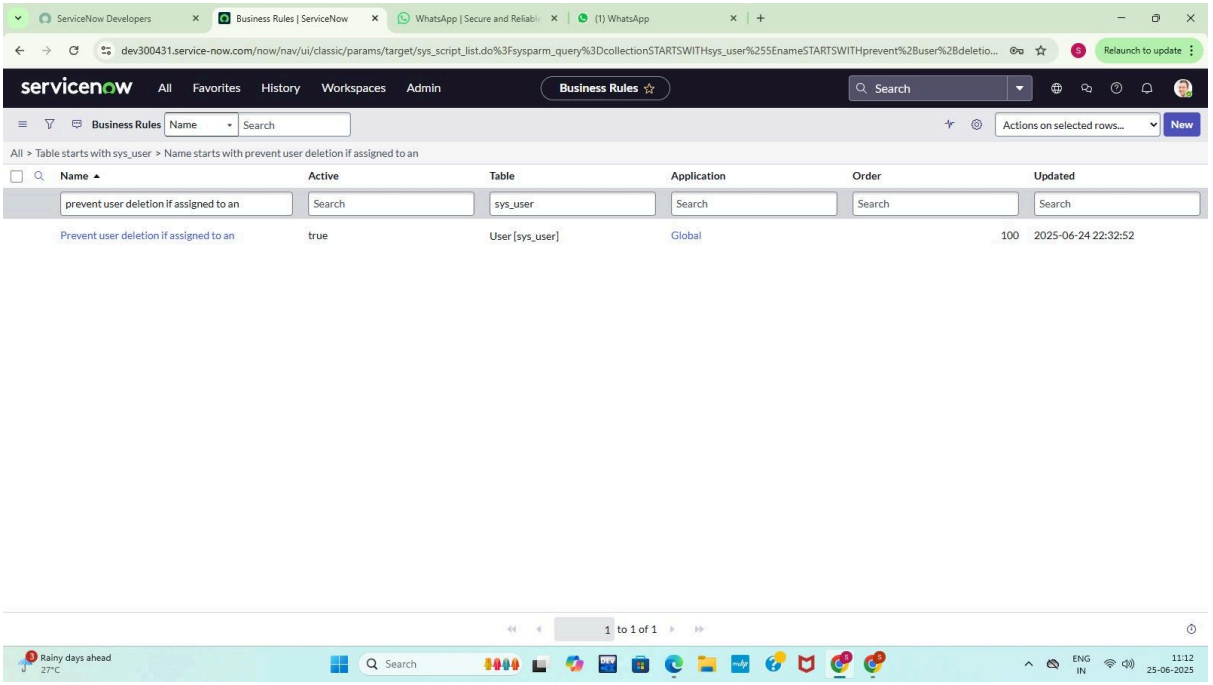
1. Go to System Definition ? Business Rules
2. Click on New
3. Fill in:
4. Name: Prevent User Deletion if Assigned to an Incident
5. Table: sys_user
6. When: Before
7. Delete: Checked
8. Script:

```
(function executeRule(current, previous /*null when async*/) {
var incGr = new GlideRecord('incident');
    incGr.addQuery('assigned_to', current.sys_id);
    incGr.setLimit(1); // Just need to check existence
    // incGr.addQuery('active', true); we can use  the above or this line of code to check where the user is assigned with any incident
    incGr.query();
    if (incGr.next()) {
        gs.addErrorMessage('This user cannot be deleted because they are assigned to one or more incidents.');
        current.setAbortAction(true);
    }
// Add your code here
})(current, previous);
```





9.Click Submit



Milestone-4: Test Deletion

Test Deletion : The process of removing test data or test records from a system, database, or application—usually after testing is complete or to clean up a test environment.

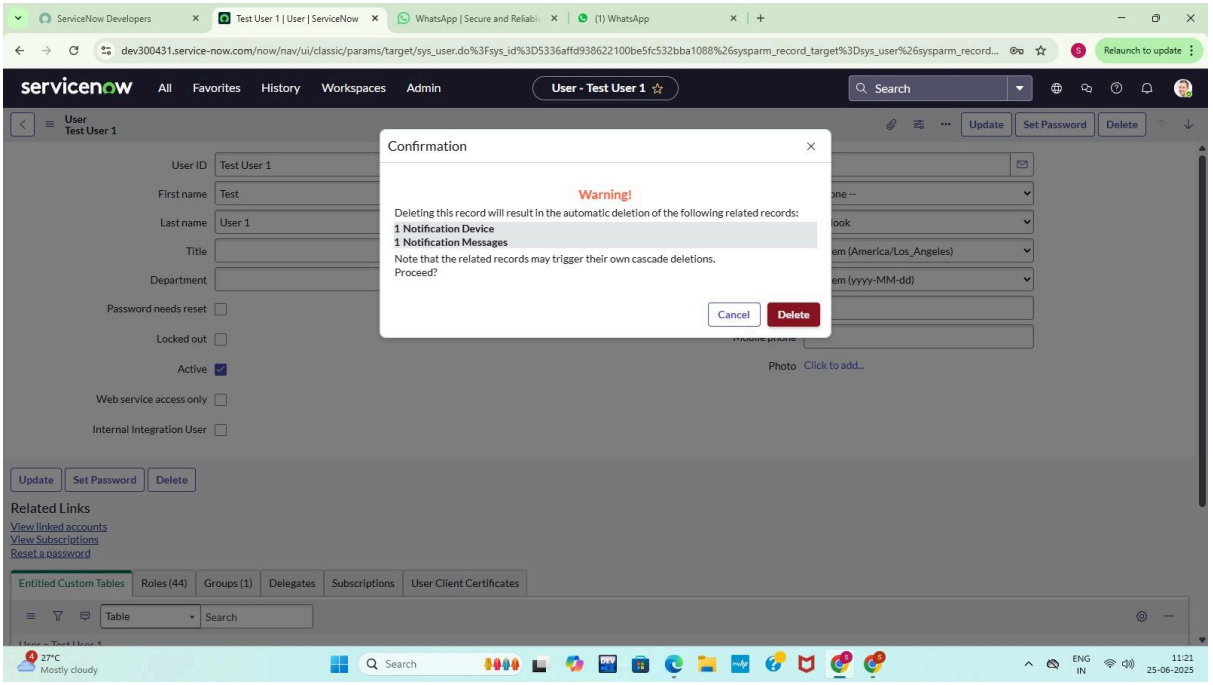
Purpose of Test Deletion :

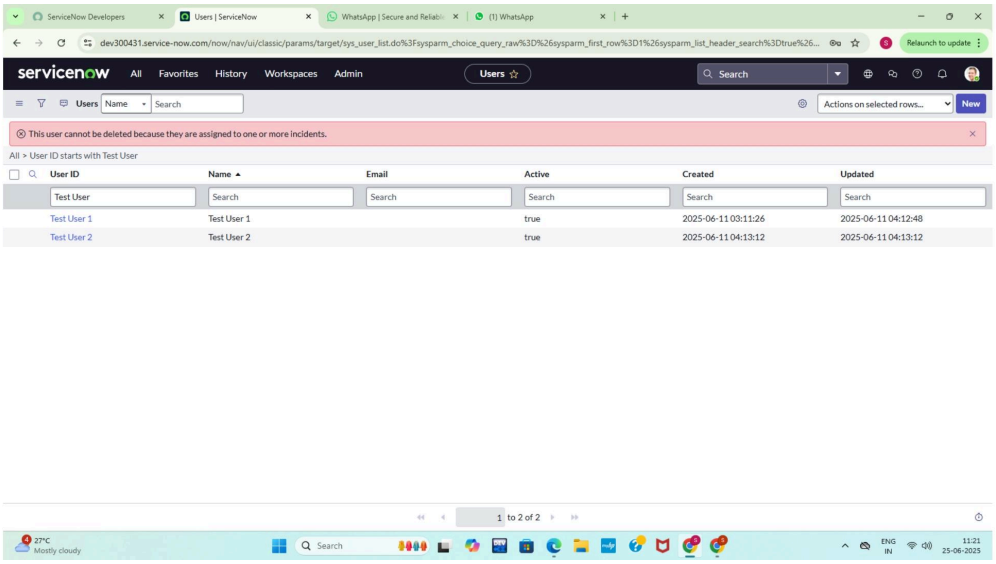
1. **Clean Up Test Data** : Remove data that was created during development, testing, or QA phases.
2. **Maintain Database Integrity** : Keep the database size manageable and remove unnecessary clutter.
3. **Improve Performance** : Especially in large systems, test data can slow down queries and reports.
4. **Ensure Security & Privacy**:

Remove any test records that might contain dummy or real user data

Steps :

1. Go to the user record (kiran123)
2. Click Delete
3. Verify that deletion is blocked with an error message





Milestone-5: Test With Unassigned User

Test With Unassigned User : A testing scenario where a system process, function, or workflow is evaluated using a user who is not assigned to any active role, task, or record especially in systems like ITSM (e.g., ServiceNow), CRM, or custom applications.

Purpose of Testing with an Unassigned User :

1.Validate Business Rules : Ensure rules behave correctly when a user is not assigned to anything (e.g., an incident or task).

Example: A business rule might allow deletion of a user only if they are not assigned to any incident.

2. **Verify Error Handling**: Check how the system behaves if an action (like notification, task assignment) is attempted on a user who isn't assigned.

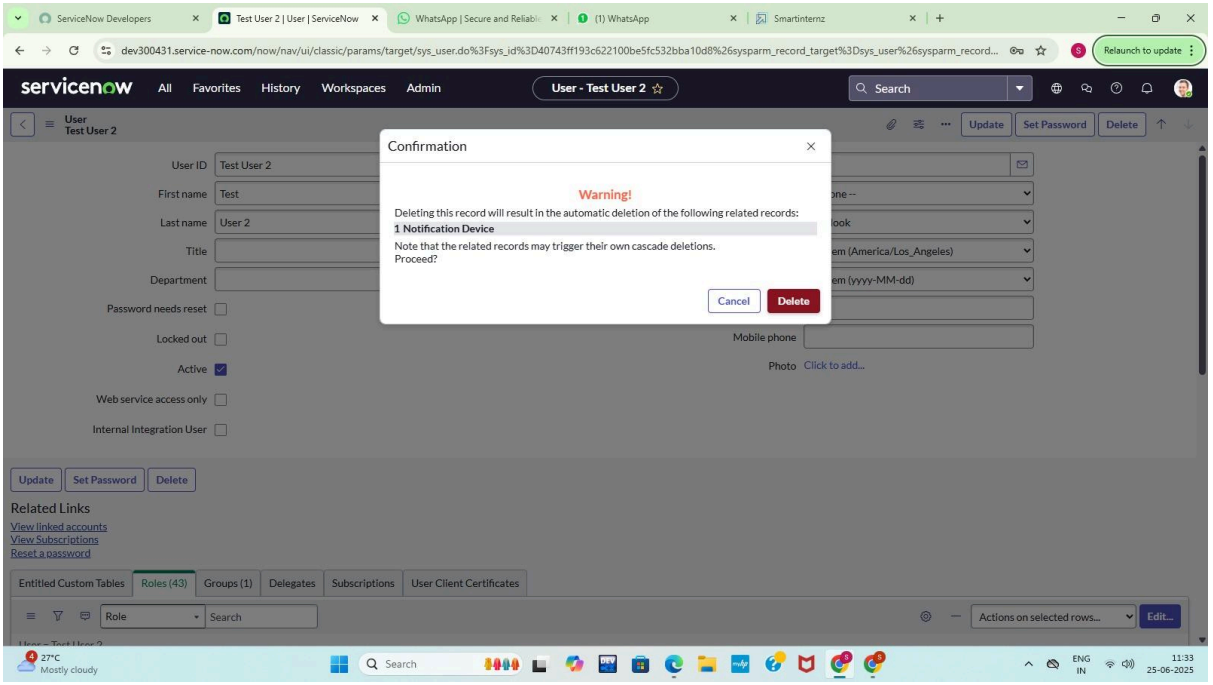
3.Test Security and Access: Make sure users with no role or assignment can't access restricted features or data.

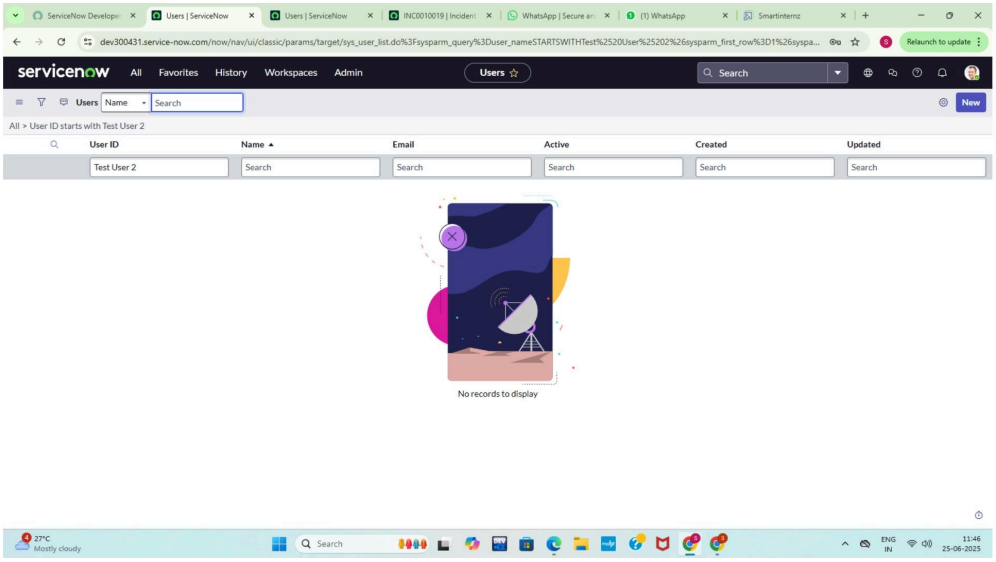
4.Check Workflow Logic : See how automated workflows respond when they encounter an unassigned user (e.g., rerouting logic, fallback conditions).

Steps :

1.Try deleting the second user (Ajaykumar) who is not assigned to any active incidents.

2.Deletion should succeed.





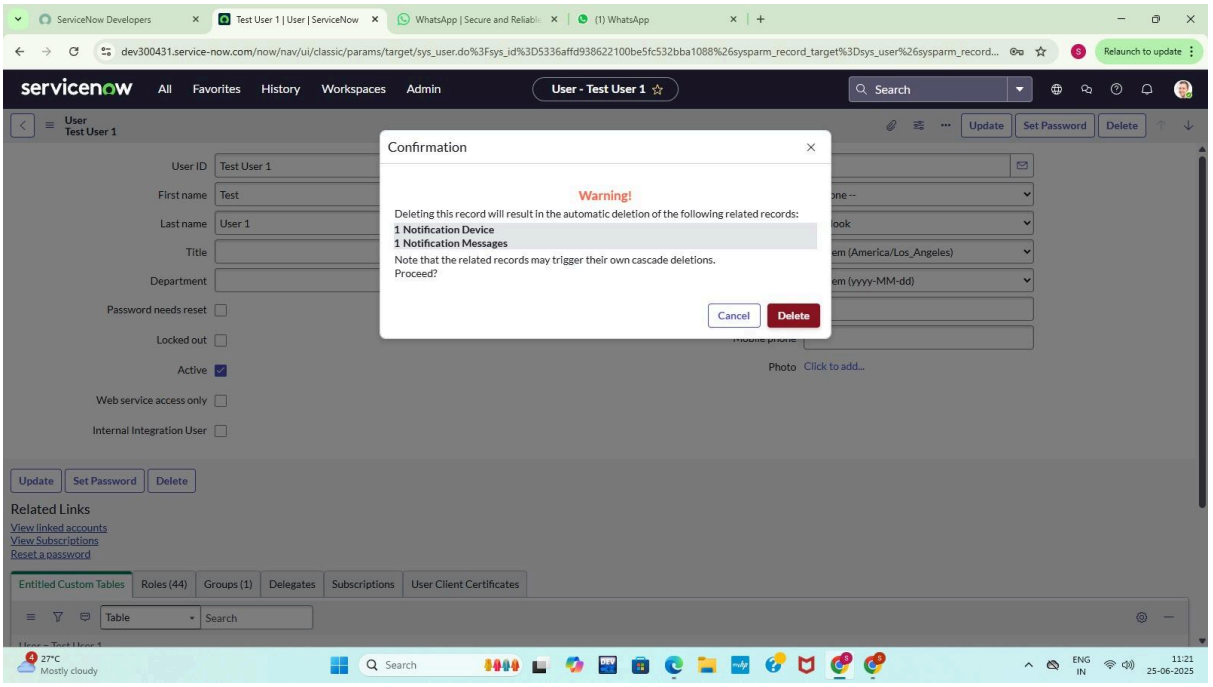
FUNCTIONAL AND PERFORMANCE TESTING

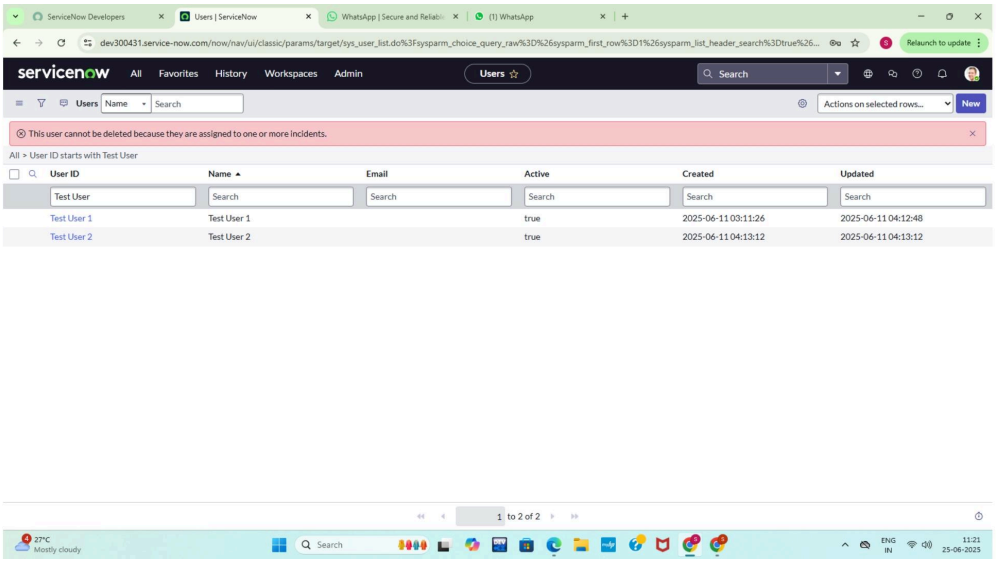
Performance Testing :

Milestone-4: Test Deletion

Steps :

1. Go to the user record (kiran123)
2. Click Delete
3. Verify that deletion is blocked with an error message



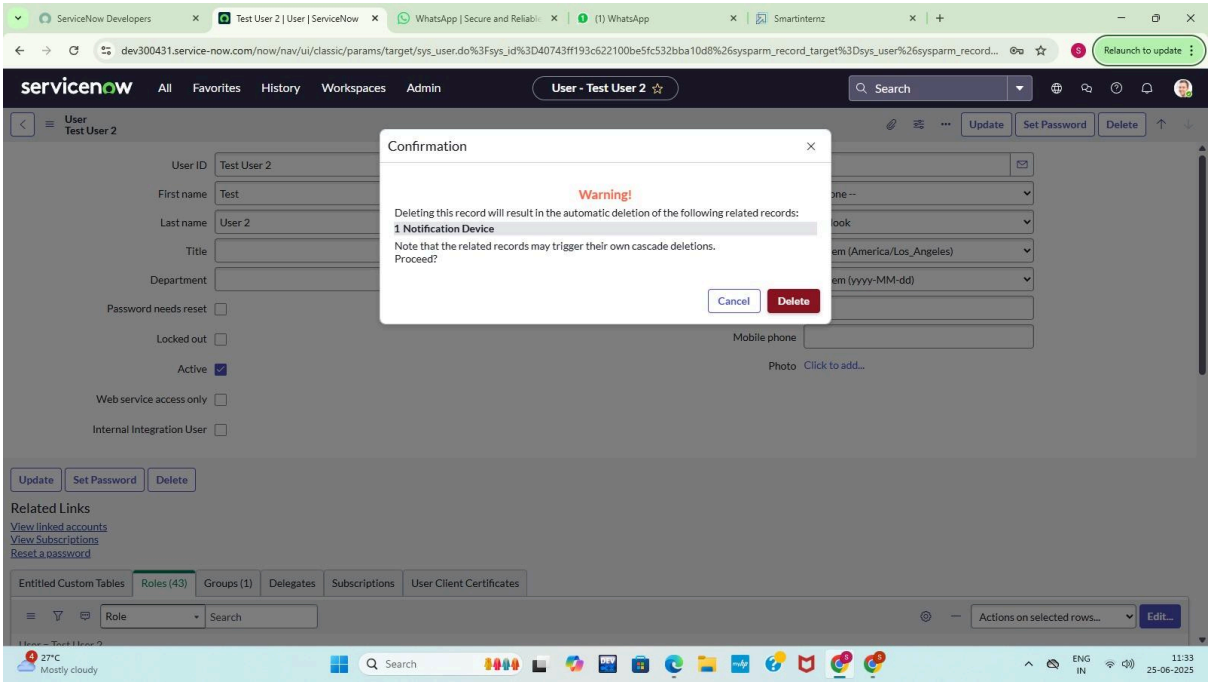


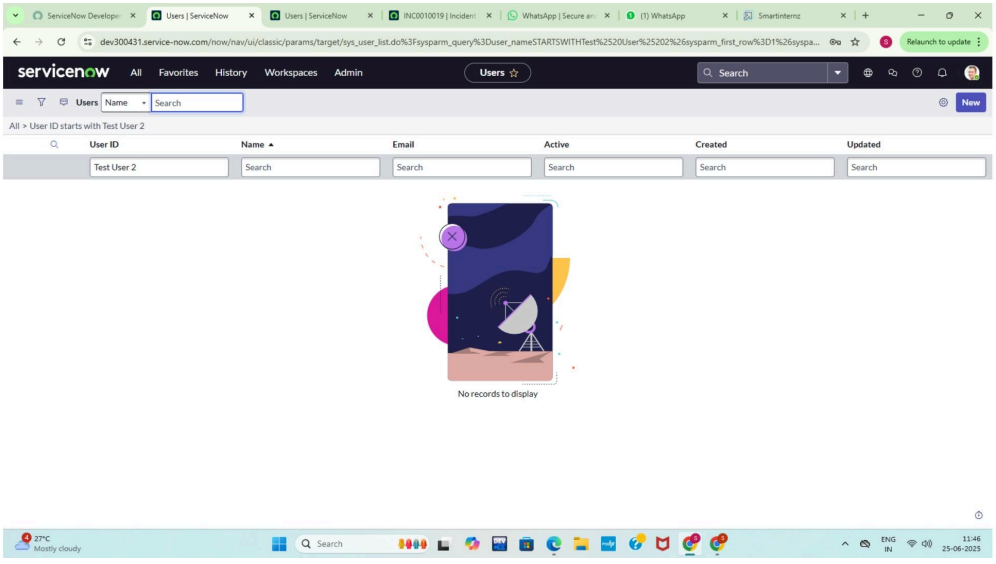
Milestone-5: Test With Unassigned User

Steps :

1.Try deleting the second user (Ajaykumar) who is not assigned to any active incidents.

2.Deletion should succeed.

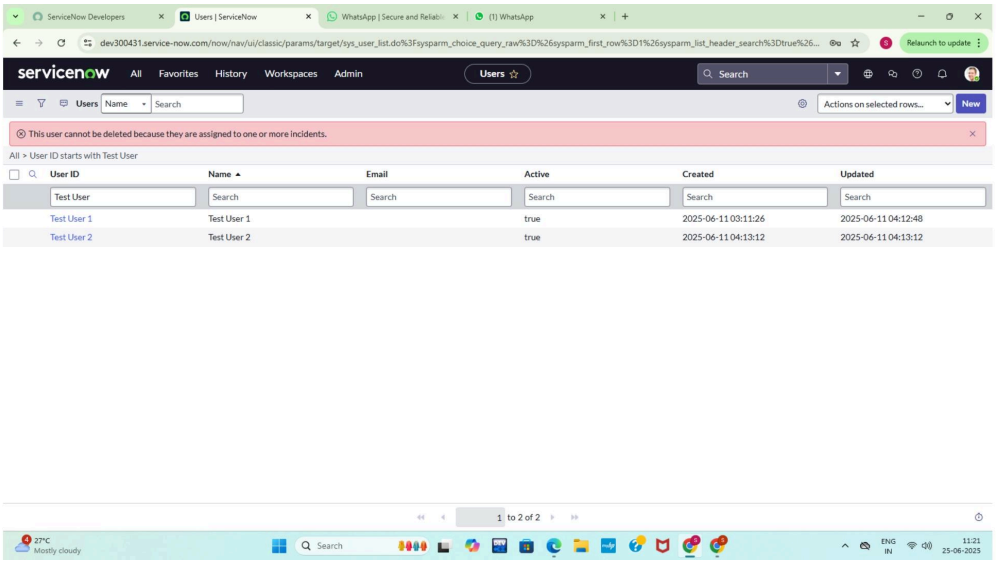




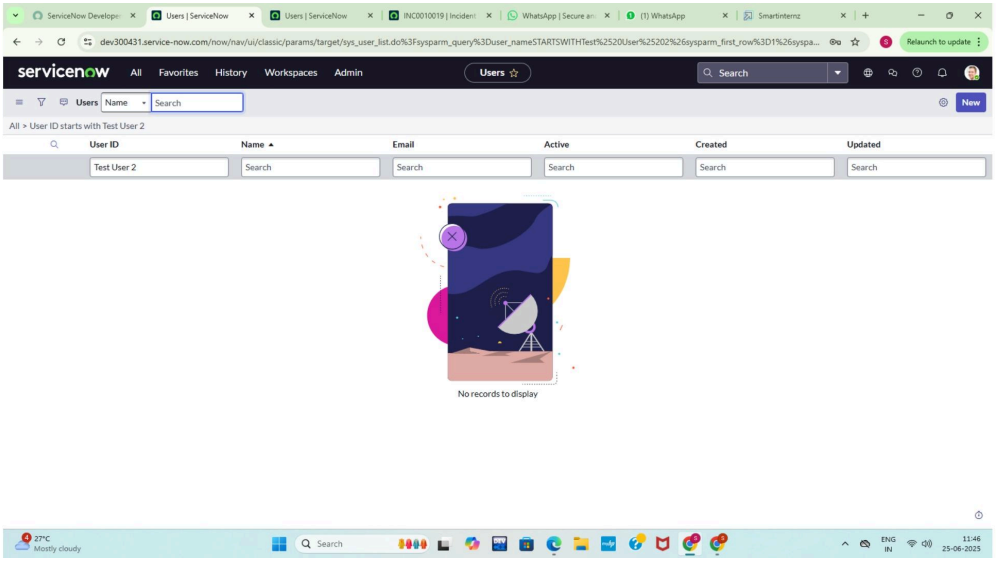
RESULTS

Output Screenshots :

- First User Output :



- Second User Output :



ADVANTAGES & DISADVANTAGES OF PROJECT

Advantages :

1. Data Integrity
- Prevents loss of critical links between users and assigned incidents.

2. Accurate Audit Trails
- Supports audit and compliance requirements by retaining complete incident histories.

3. Avoids Orphan Records
- Prevents incidents from having no assigned user (null Assigned to field), which could:
    - Break workflows
    - Mislead reporting

4. Improves Reporting & Analytics
- Ensures dashboards and performance metrics (e.g., MTTR, ticket ownership) remain accurate.
- Avoids data gaps in reports where the assignee is unknown or missing.

5. Encourages Proper Offboarding
- Promotes proper process:
- Reassign open tickets
- Close or document ongoing tasks

6. Supports SLA Enforcement
- If a deleted user is still tied to SLA-bound tickets, deletion could disrupt SLA tracking.
- Preserves ownership accountability and workflow continuity.

Disadvantages :

1. Blocked User Offboarding
- Can delay or complicate HR offboarding processes if users can't be deleted due to open or historical incident links.
- May require coordination between IT, HR, and service desk teams.

2. Administrative Overhead
- Requires manual reassignment or resolution of incidents before deletion.
- Adds complexity to bulk deletion or automated user cleanup scripts.

3. Scalability Concerns
- In large organizations, users may be assigned to hundreds of tickets—reviewing and reassigning all can be time-consuming.
- Can slow down mass user data purging or migrations.

4. User Experience Frustration

- Admins may be confused or frustrated when deletion fails without a clear explanation.
- Requires clear error messages and documentation to guide them.

5.Implementation Complexity

- If not implemented carefully, the business rule might:
- Block deletions incorrectly
- Miss edge cases (e.g., reassigned tickets)

CONCLUSION

Implementing a restriction to prevent the deletion of users who are currently assigned to active or historical incidents is a critical control for maintaining data integrity, accountability, and operational continuity. This measure ensures that incident records remain complete, auditable, and traceable to responsible individuals. By enforcing this safeguard, organizations can reduce the risk of data loss, ensure proper incident resolution, and uphold compliance with internal policies and external regulations.

This project provides a safeguard mechanism against accidental or improper deletion of users who are still involved in active incidents. By using a Business Rule on the sys_user table, ServiceNow administrators can ensure that incident ownership and workflow integrity remain intact. This solution upholds data consistency and promotes operational continuity within the IT service process.