### INTRODUCTION

#### a) project overview

This project aims to prevent the accidental or unauthorized deletion of users who are currently assigned to active incidents within a system. This is achieved by implementing checks and restrictions that prevent user deletion while they are linked to an ongoing incident. This safeguards incident resolution and data integrity by ensuring that critical personnel and information are not inadvertently removed during an active incident investigation or resolution process.

#### b) purpose

The primary purpose of preventing user deletion when they are assigned to an incident is to maintain data integrity and prevent loss of information related to that incident. If a user assigned to an incident is deleted, it can lead to orphaned records, difficulty in tracking the incident's history, and potential complications in incident management processes.

#### **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.

#### **Challenges**

• Striking a balance between maintaining data integrity and allowing necessary user management operations.

- Additional validation checks (like scanning for incident assignments) before user deletion can affect system performance.
- Older records or improperly closed incidents might still be linked to users, preventing legitimate deletions.
- Users may be related to multiple modules (e.g., incidents, tasks, approvals), complicating the logic.

#### **Objectives**

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.

## REQUIREMENT ANALYSIS

#### a) Solution requirement

**Team Id** : LTVIP2025TMID30649

**Project name:** prevent user deletion if assigned to an incident

#### **Functional requirements**

FR no.	Functional requirements	Sub-requirements
FR 1	User creation	To maintain data integrity by ensuring that no new user account is created for an identity already involved in incident workflows, unless the linkage is resolved or transformed correctly.
FR 2	Assign incident to user	Assigning an incident involves designating a specific user (e.g., support agent, engineer, analyst) to take ownership of an issue or service disruption.
FR 3	Business rule creation	Before a new user record is inserted, the rule searches incident records to see if the provided

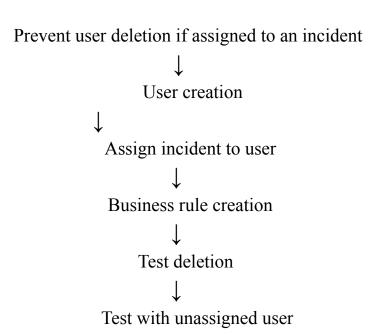
		email, username, or ID is already assigned to any active incidents.
FR 4	Test deletion	Test deletion refers to removing temporary or dummy data (like test users or test incidents) created for the purpose of testing business rules or logic.
FR 5	Test with unassigned user	To verify that user creation is allowed when the user (or identity) is not assigned to any incident, ensuring that the business rule only blocks creation when necessary.

# Non-functional requirements:

FR No.	Non-functional requirements	Description	
NFR-1	Usability	The admin interface must display a clear message explaining why the user cannot be deleted (e.g., "Cannot delete user:assigned to Incident INC12345").	
NFR-2	Security	The system must validate user roles and permissions before performing deletion checks.	
NFR-3	Reliability	The system must consistently prevent deletion of any user assigned to an incident, with zero false positives or negatives.	
NFR-4	Performance	The check to determine if a user is assigned to any incident must be completed within 2 seconds to avoid delay	

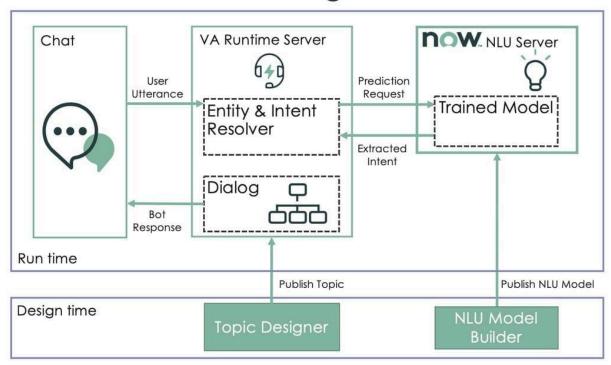
		in admin operations.
NFR-5	Availability	The feature must be available 99.9% of the time as part of the user management system.
NFR-6	Scalability	The system must support checking user assignments efficiently, even when there are thousands of users and incidents.

### b) data flow Diagram



### c) Technology stake

# ServiceNow Virtual Agent Architecture



### **PROJECT DESIGN**

### a) proposed solution

Sno	Parameters	Description
1	Problem statement	In the current system, users can be deleted without checking whether they are actively assigned to ongoing incidents.
2	Idea	The idea is to enhance data integrity and operational reliability by adding a validation rule that checks if a user is linked to any open or historical incidents before allowing deletion.

3	Novelty	The novelty of this idea lies in introducing intelligent dependency checks before allowing user deletion—going beyond traditional user management.	
4	Social Impact	Ensures every incident retains a clear record of who was responsible. This promotes a culture of ownership and responsibility, which is vital for building trust within teams and with stakeholders.	
5	Business Model	The business model for this idea focuses on delivering value through system integrity, risk reduction, and operational efficiency.	
6	Scalability of solution	The solution is highly scalable and adaptable across various organizational sizes, ITSM platforms, and incident management frameworks.	

#### Prevent user deletion if assigned to an incident

MILESTONE-1: user creation

**PURPOSE**: The primary purpose of creating a test user account is to prevent accidental deletion or modification of critical data, especially when that user is associated with an active incident or task. By designating a separate test user, you ensure that routine operations, such as user deletion, don't inadvertently disrupt ongoing investigations or processes.

USES: To prevent the accidental deletion of users, particularly in a system where user accounts are linked to critical incidents, a combination of strategies is recommended. These include implementing robust access controls, using "soft deletes" or archival systems, and leveraging testing and validation processes. Testing should be integrated throughout the system lifecycle, including creating test users to simulate real-world scenarios and identify potential vulnerabilities before they impact live data.

**ACTIVITY-1** : create test users

#### 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.

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ervicenow A	all Favorites History	Workspaces : Users {	<b>?</b>	Application scope: Global	⊕ & ② ♀
∇			<u>*</u>	Opdate set: Default [Global]	ns on selected rows v
Q User ID	Name	Email	Active	Created	Updated ▼
Search	Search	Search	Search	Search	Search
Ajay	Ajay kumar	ajay@example.com	true	2025-04-18 06:19:51	2025-04-18 06:19:51
kiran	kiran 123	kiran@example.com	true	2025-04-18 04:16:04	2025-04-18 04:16:04
sim_admin	SIM Admin		true	2021-04-29 10:40:45	2025-04-17 18:30:02
itadmin	IT Admin	itadmin@example.com	true	2026-03-17 17:10:29	2025-04-17 18:30:01
hradmin	HR Admin	hradmin@example.com	true	2019-04-24 17:11:10	2025-04-17 18:30:01
Hanah.Facio	Hanah Facio		true	2025-04-15 00:01:18	2025-04-17 18:30:01
joanna.pilfer	Joanna Pilfer	joanna.pilfer@example.com	true	2023-04-30 14:14:08	2025-04-17 18:30:01
Bartie.Hachey	Bartie Hachey		true	2025-04-15 00:00:16	2025-04-17 18:30:01
peter.foss	Peter Foss	peter.foss@example.com	true	2020-02-21 10:20:24	2025-04-17 18:30:00
Matthew.Robinson	Matthew Robinson	matthew.robinson@example.com	true	2025-04-13 16:26:07	2025-04-17 18:30:00

#### MILESTONE-2 : Assign incident to user

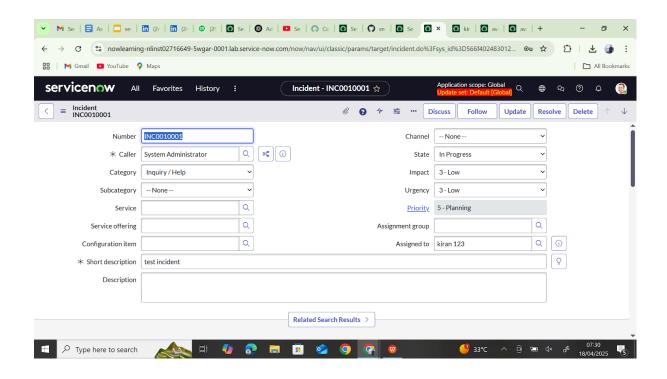
**PURPOSE**: Assigning incidents in an efficient manner prevents user deletion by ensuring that the appropriate personnel are notified and involved in the resolution process, thereby avoiding unnecessary or accidental deletion of incidents. This process also helps in tracking the incident's lifecycle and ensuring that all necessary actions are taken to resolve it.

USES :Assigning incidents efficiently prevents user deletion by ensuring that only authorized personnel can take action on critical incidents, thus mitigating the risk of accidental or malicious deletion. This structured approach to incident management, with clearly defined roles and responsibilities, also allows for better tracking, accountability, and timely resolution.

**ACTIVITY-1** : Assign incidents

#### 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



**Note:** To assign any user the user should have at least one role so assigned a role to the user before assigning incident

**MILESTONE-3**: Business rule creation

**PURPOSE**: The primary purpose of creating a business rule to prevent user deletion when assigned to an incident is to maintain data integrity and avoid orphaned records. This ensures that critical information related to incidents remains associated with active users and prevents issues like broken links or inaccurate reporting.

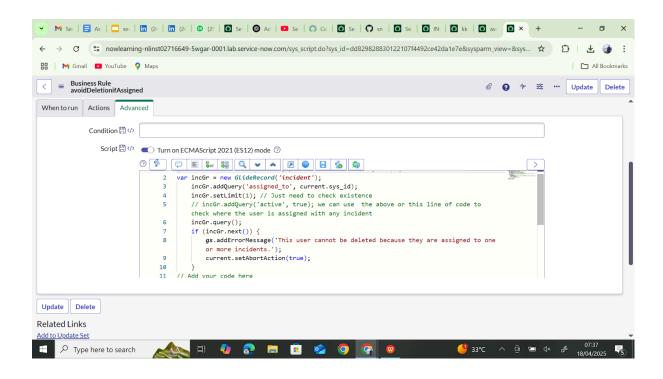
Uses : Business rules can be effectively used to prevent the deletion of users who are currently assigned to active incidents. This ensures data integrity and prevents orphaned incident records. By creating a "before delete" business rule on the user table, you can check if the user is linked to any open incidents. If a user is found to be assigned to an active incident, the deletion can be prevented, and an informative message can be displayed to the user attempting the deletion.

**ACTIVITY-1** : Create business rules

#### 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

**ACTIVITY-1** : Attempt to delete assigned user

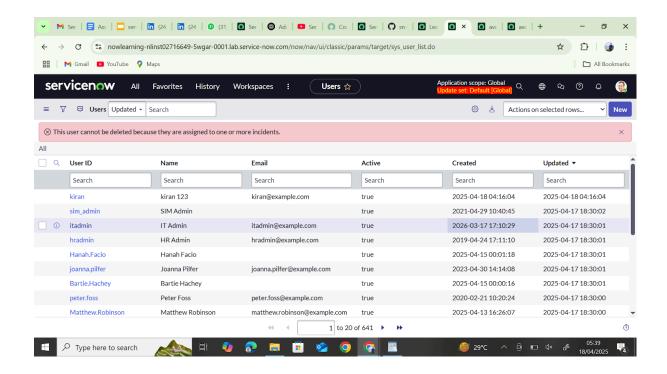
**PURPOSE**: The purpose of preventing user deletion when assigned to an incident is to ensure data integrity and prevent the loss of crucial information related to the incident. If a user is associated with an incident, deleting that user could lead to incomplete or inaccessible data, making it difficult to track the incident's history, analyze its cause, or fulfill audit requirements.

**Uses**: In incident management systems, test deletion functionality is crucial for ensuring that users cannot accidentally delete incidents, especially when those incidents are actively being worked on. This prevents data loss and disruption to incident resolution processes.

**ACTIVITY-1** : Attempt to delete assigned user

#### 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

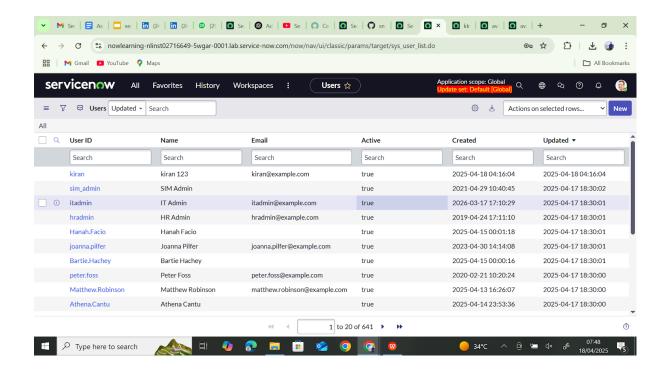
**PURPOSE**: The test, attempting to delete a user who is assigned to an incident, is designed to verify that the system prevents the deletion of users who are actively involved in ongoing incidents. This prevents data loss, ensures incident continuity, and maintains system integrity.

Uses : To prevent the deletion of a user who is currently assigned to an incident, a system should implement a check before allowing deletion. This check verifies if the user is associated with any open incidents. If they are, the deletion should be prevented, and an appropriate message or notification should be displayed to the user attempting the deletion.

**ACTIVITY** : Attempt to delete unused user

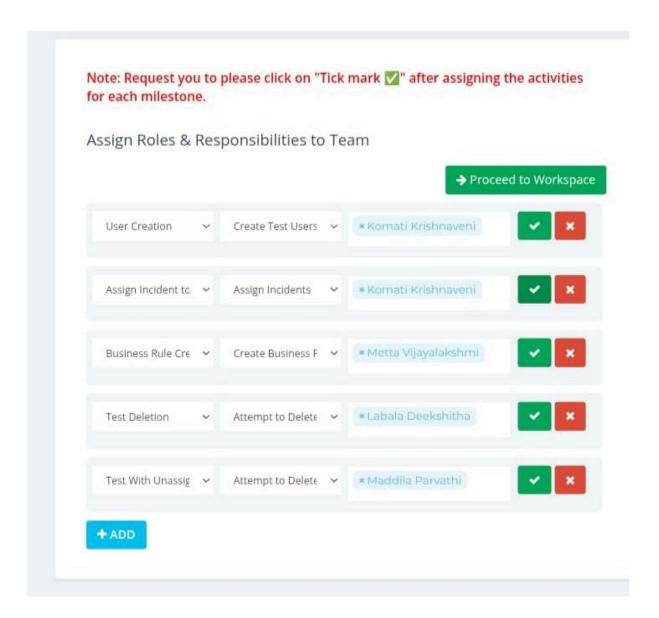
#### Steps :

- 1. Try deleting the second user (Ajaykumar) who is not assigned to any active incidents.
- 2. Deletion should succeed.



### PROJECT PLANNING & SCHEDULING

a) Project planning



Functional requirements	User story	No of activity	Team members
User creation	As a system administrator, I want to prevent users from being deleted if they are currently assigned to an open incident, so that critical incident information is not lost and the incident can be	1	K. Krishnaveni

	resolved properly."		
Assign incident to user	implement a check within your user deletion process that verifies if the user is associated with any active incidents.	1	K. Krishnaveni
Business rule creation	a "before delete" business rule should be created. This rule will check if the user is associated with any active incidents before allowing the deletion.	1	M. Vijayalakshmi
Test deletion	To prevent the deletion of a user record when it is assigned to an incident, you can implement a "before delete" business rule that checks for associated incidents	1	L. Deekshitha
Test with unassigned user	that checks for this assignment before allowing deletion. This can be achieved by using a before delete business rule on the user table that checks for any active incidents assigned to the user.	1	M. Parvathi

# **FUNCTIONAL & PERFORMANCE TESTING**

MILESTONE-5 : Test with unassigned user

**ACTIVITY** : Attempt to delete unused user

**PURPOSE** : The test, attempting to delete a user who is assigned to an incident, is designed to verify that the system prevents the deletion of users who are actively involved in ongoing incidents. This prevents data loss, ensures incident continuity, and maintains system integrity.

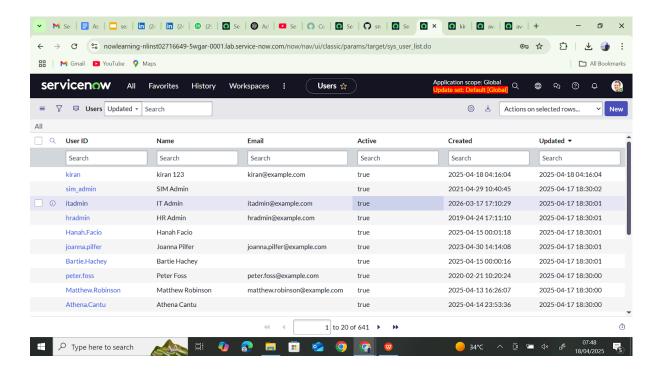
**Uses** : To prevent the deletion of a user who is currently assigned to an incident, a system should implement a check before allowing deletion. This check verifies if the user is

associated with any open incidents. If they are, the deletion should be prevented, and an appropriate message or notification should be displayed to the user attempting the deletion.

**ACTIVITY** : Attempt to delete unused user

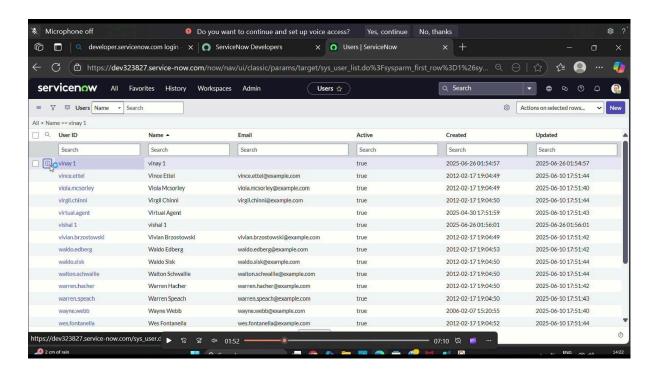
#### Steps

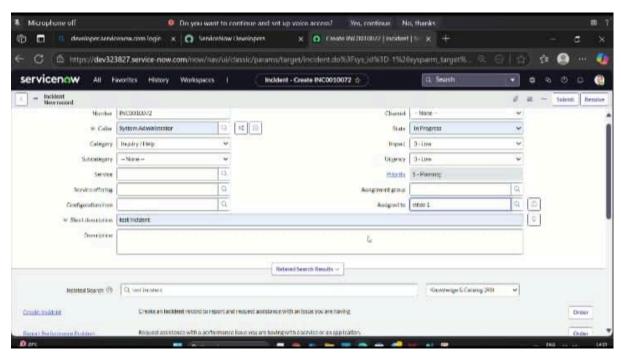
- 1. Try deleting the second user (Ajaykumar) who is not assigned to any active incidents.
- 2. Deletion should succeed.

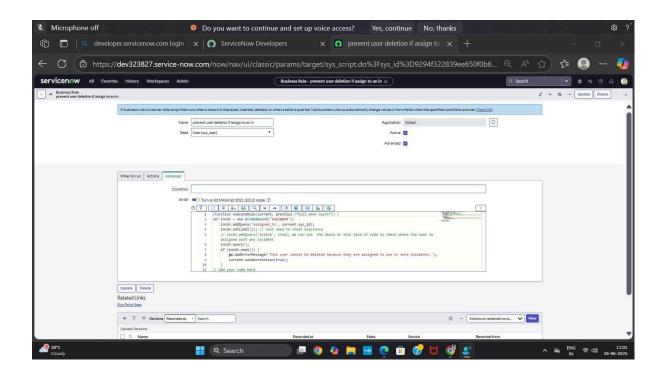


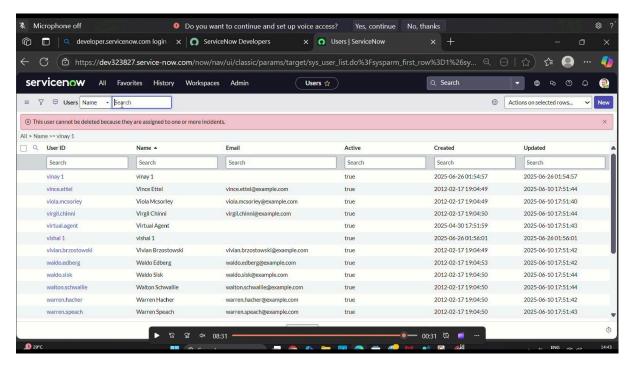
### **RESULTS**

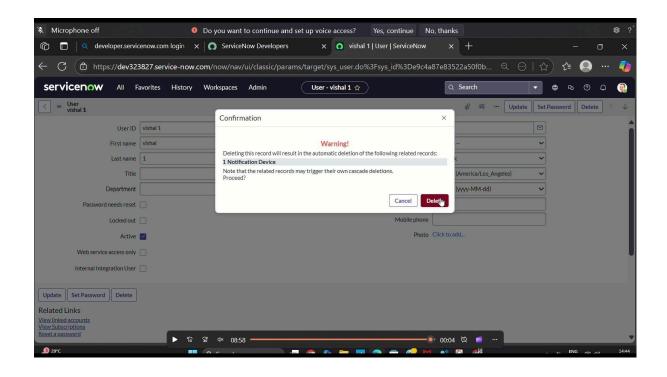
### **Output Screenshots**











#### ADVANTAGES & DISADVANTAGES

Preventing the deletion of users assigned to an active incident offers advantages like maintaining a clear audit trail and ensuring accountability during the incident response process. However, it can also lead to challenges like delayed user management and potential disruptions if the assigned user needs to be removed for legitimate reasons unrelated to the incident.

#### Advantages:

#### **Maintains Audit Trail:**

Preventing user deletion ensures that all actions and communications related to the incident involving that user are preserved. This is crucial for post-incident analysis, identifying root causes, and improving future incident response strategies.

#### **Ensures Accountability:**

By preventing deletion, the system can track who was involved in the incident response at specific times, making it easier to assign responsibility and ensuring that actions are properly documented.

#### **Supports Continuity:**

During an incident, it's vital to maintain a clear understanding of who is involved and their roles. Preventing deletion helps maintain continuity in the incident response process.

#### **Reduces Risk of Accidental Deletion:**

In the midst of an incident, accidental or unauthorized deletion of user accounts can be detrimental. Preventing deletion reduces this risk.

#### **Disadvantages:**

#### **Delayed User Management:**

If a user needs to be removed for legitimate reasons (e.g., job change, termination), preventing deletion can cause delays in user management processes.

#### **Potential for Workarounds:**

Users might find ways to circumvent the restriction, potentially compromising the integrity of the audit trail and accountability.

#### **Increased Complexity:**

If the restriction is not implemented carefully, it can lead to increased complexity in user management and potentially impact other systems.

#### **False Sense of Security:**

While preventing deletion is a good practice, it doesn't guarantee complete protection. Organizations still need to implement robust security measures and incident response plans.

#### **CONCLUSION**

Implementing a rule to prevent user deletion when they are assigned to an incident is a crucial step toward maintaining data integrity and accountability within an incident management system. This approach ensures that critical information is not lost, incident histories remain traceable, and the overall workflow remains uninterrupted. While it introduces an added layer of control, the benefits in terms of system reliability, auditability, and operational continuity far outweigh the potential administrative overhead. This measure ultimately supports a more secure, stable, and transparent IT support environment.

This ensures the integrity of the incident's investigation and resolution process, preventing the loss of crucial information or the premature closure of the incident. Preventing user deletion when assigned to an active incident is a critical aspect of incident management.

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 IT service processes.