



B.TECH – INFORMATION TECHNOLOGY

NM1051 – SERVICENOW ADMINISTRATOR LABORATORY

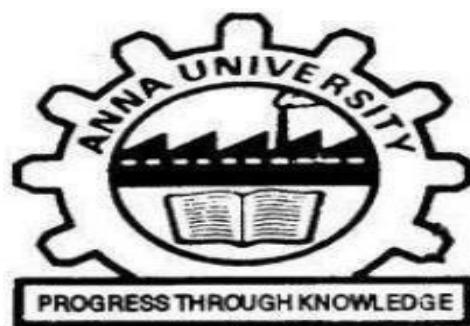
A Project on

EDUCATIONAL ORGANISATION USING SERVICENOW

Team ID : NM2025TMID02916

Submitted by

NAME	REGISTER NUMBER
GUNAVATHY.A	812022205017
HARINATH.V	812022205018
HARINI.S	812022205019
IRFAN AHAMED.A	812022205020



ANNA UNIVERSITY: CHENNAI 600025



CERTIFICATE

*This is to certify that the bonafide record of this work is done by
Selvan/Selvi: Reg.No..... Of IV-
Year VII- semester in **Information Technology For NM1051 – ServiceNow
Administrator Laboratory** during the academic Year 2025-2026.*

Faculty in Charge

HoD



Submitted for the University Practical Examination held on.....

INTERNAL EXAMINER

EXTERNAL EXAMINER

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ServiceNow in Educational Organizations: Digital Transformation and Operational Excellence

Executive Summary

Educational institutions worldwide are facing unprecedented operational complexity managing large student populations, intricate administrative processes, diverse departmental needs, and escalating cybersecurity threats. ServiceNow has emerged as a transformative digital platform enabling universities and colleges to consolidate disparate systems, automate critical workflows, and deliver seamless experiences to students, faculty, and staff. This comprehensive report explores how ServiceNow functions as a strategic enabler of digital transformation in the education sector, examining its capabilities, implementation strategies, measurable outcomes, and organizational benefits.

1. Introduction to ServiceNow and the Education Sector

1.1 Overview of ServiceNow Platform

ServiceNow is a cloud-based enterprise service management (ESM) platform that provides organizations with an integrated suite of applications for workflow automation, IT service management (ITSM), customer service management (CSM), IT asset management (ITAM), and compliance and risk management. The platform operates on the "Now Platform," a unified architecture enabling organizations to build custom applications, automate processes, and integrate systems through a single digital workspace.

For educational institutions, ServiceNow addresses a critical gap: the fragmentation created by legacy systems that operate in organizational silos. Universities typically maintain separate systems for student information management, IT help desks, human resources, facilities management, and financial operations. This fragmentation creates inefficiencies, duplicated efforts, inconsistent data, and frustrated end-users seeking seamless service experiences.

1.2 The Education Sector's Digital Challenges

Higher education institutions face distinct operational challenges that ServiceNow is uniquely positioned to address. These challenges include:

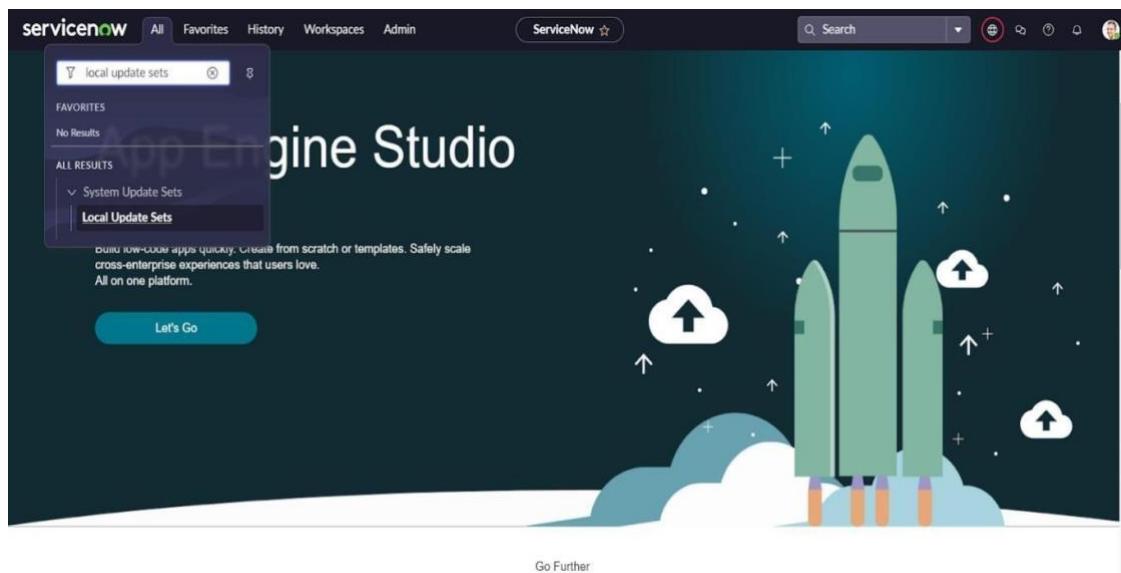
Siloed Systems and Data Fragmentation: Universities often rely on multiple disconnected

systems for admissions, student records, HR operations, IT services, and facilities management, leading to inefficiencies and poor collaboration

Manual and Paper-Based Processes: Despite technological advancement, many educational institutions still depend on manual workflows, email communication, and paper-based forms for critical processes—from enrollment to graduation

Rising User Expectations: Today's students and faculty expect seamless digital experiences comparable to

consumer technology platforms, demanding easy-to-use interfaces, self-service capabilities, and mobile accessibility



The screenshot shows the ServiceNow 'Table - New Record' interface. At the top, there are navigation links for 'All', 'Favorites', 'History', 'Workspaces', and 'Admin'. The title bar says 'Table - New Record'. On the right, there are buttons for 'Search', 'Submit', and 'Cancel'. A yellow banner at the top left says 'ServiceNow recommends creating custom tables in scoped applications. To learn more about creating scoped applications, click here.' Below it, a message says 'This form has annotations - click ⚡ to toggle them - (click here to never show this again)'. The main form area has fields for 'Label' (Admission), 'Name' (u_admission), and 'Extends table' (Salesforce). To the right, there are checkboxes for 'Create module' (checked), 'Create mobile module' (checked), and a dropdown for 'Add module to menu' set to 'Salesforce'. Below this, there's a section for 'Columns' with tabs for 'Controls' and 'Application Access'. It shows a table with columns for 'Table Columns', 'Column label', 'Type', 'Reference', 'Max length', 'Default value', and 'Display'. A search bar and a 'Dictionary Entries' link are also present. At the bottom are 'Submit' and 'Cancel' buttons.

IT Support Complexity: With expanding digital infrastructure and remote learning adoption, IT departments struggle to manage service requests, respond to cybersecurity threats, and maintain system uptime while managing constrained budgets

Compliance and Data Security Risks: Educational institutions handle sensitive data (financial records, personal information, research data) and must comply with regulations such as FERPA (Family Educational Rights and Privacy Act) and GDPR (General Data Protection Regulation) [1].

2. Strategic Applications of ServiceNow in Educational Organizations

2.1 IT Service Management (ITSM) Implementation

ServiceNow's ITSM capabilities address the core operational challenges of educational technology departments. Within the ITSM framework, educational institutions can:

Unified Helpdesk Operations: Students, faculty, and staff can submit IT requests through a single self-service portal, eliminating scattered email submissions and phone calls. This centralization dramatically improves request visibility and response tracking.

Incident and Problem Management: ServiceNow's incident lifecycle management enables prioritization of critical infrastructure issues, automated escalation procedures, and root cause analysis capabilities that reduce recurring problems.

Asset and Configuration Management: Universities can maintain comprehensive databases of IT hardware, software licenses, and campus infrastructure—critical for budget planning, compliance auditing, and lifecycle management.

Knowledge Management Integration: Self-service portals enriched with comprehensive knowledge articles enable users to resolve common issues independently, reducing help desk ticket volume and freeing technical staff for complex problems [2].

2.2 Student and Faculty Self-Service Portals

ServiceNow enables educational institutions to create unified service portals consolidating multiple departmental touchpoints into a single digital interface. Specific applications include:

Student Lifecycle Management: From admissions processing and course registration through degree progress tracking and transcript requests, ServiceNow automates the entire student journey [2]. Prospective students benefit from streamlined application processes with real-time status updates, while enrolled students access unified service portals for academic planning, financial aid management, and graduation verification.

Course Scheduling and Resource Management: Academic institutions utilize ServiceNow to manage complex course scheduling, manage classroom and laboratory resource bookings, handle room allocation conflicts, and streamline facility reservations.

Academic Advising and Support: Students can request advising appointments, access degree progress information, and receive personalized academic recommendations through automated workflows.

The screenshot shows the ServiceNow interface for creating a new record in a table. The top navigation bar includes 'servicenow', 'All', 'Favorites', 'History', 'Workspaces', and 'Admin'. The title bar says 'Table - New Record'. The main form has fields for 'Label' (Admission) and 'Name' (u_admission). A red box highlights the 'Extends table' field, which contains 'Salesforce'. Other settings shown include 'Application: Global', 'Create module: checked', 'Create mobile module: checked', and 'Add module to menu: Salesforce' (also highlighted with a red box). Below the form is a table configuration section with tabs for 'Columns', 'Controls', and 'Application Access'. The 'Columns' tab shows a table with columns for 'Column label', 'Type', 'Reference', 'Max length', 'Default value', and 'Display'. A red box highlights the 'Column label' column under 'Dictionary Entries'. At the bottom are 'Submit' and 'Cancel' buttons.

2.3 Human Resources Service Delivery

ServiceNow's HR Service Delivery (HRSD) module transforms how universities manage faculty and staff operations:

Onboarding and Offboarding Automation: New faculty and staff experience streamlined digital onboarding including account provisioning, training assignment, orientation documentation, and access credential distribution ^[1]. Similarly, exit processes are automated with checklist management, system access revocation, and knowledge transfer documentation

Performance Management Systems: ServiceNow enables tracking of faculty evaluations, promotion processes, and professional development initiatives through structured workflows with appropriate approval hierarchies

Leave and Benefits Management: Self-service portals enable employees to submit leave requests, access benefits enrollment processes, manage expenses, and review compensation information with automated workflows replacing manual HR intervention

2.4 Facilities and Campus Operations Management

Educational facilities management represents a significant operational burden that ServiceNow substantially optimizes:

Maintenance Request Management: Students, faculty, and staff can report maintenance issues (dorm repairs, classroom equipment malfunctions, facility problems) through mobile-accessible applications. Work orders are automatically routed to appropriate facilities teams, tracked through completion, and archived for pattern analysis

Space and Resource Allocation: ServiceNow manages complex space utilization scenarios including classroom scheduling, laboratory reservations, event bookings, and special facility requests—critical for multi-campus institutions managing hundreds of spaces

Energy and Sustainability Monitoring: Universities leveraging ServiceNow's facilities modules can track energy consumption patterns, optimize building operations for sustainability goals, and generate environmental impact report .

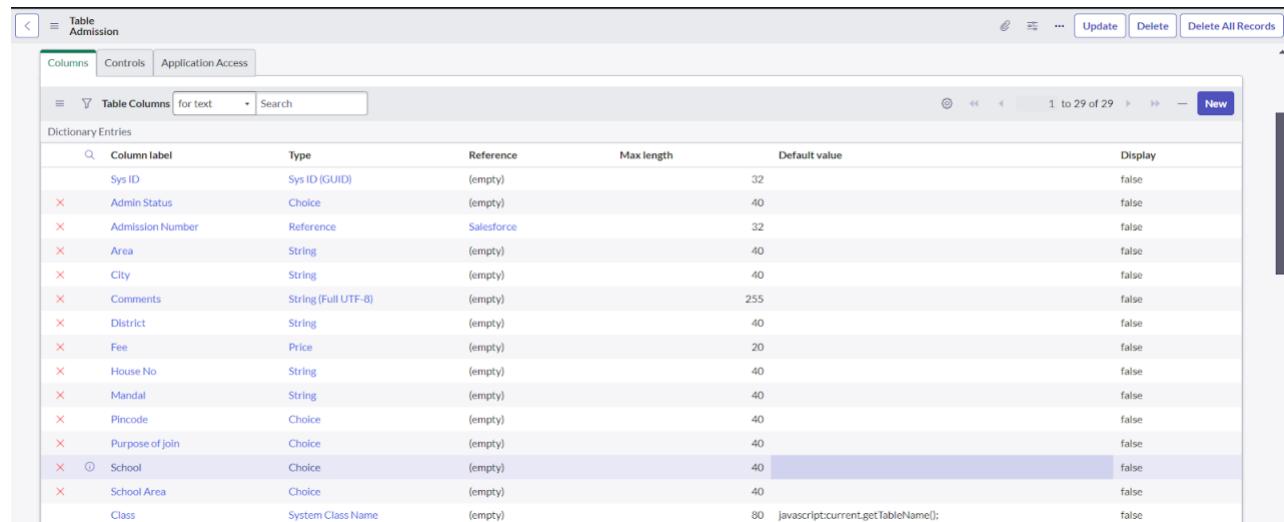
2.5 Compliance, Risk, and Security Management

Educational institutions operate within highly regulated environments requiring robust governance:

Compliance Automation: ServiceNow's governance, risk, and compliance (GRC) modules automate policy attestation, audit preparation, and regulatory reporting for standards including FERPA, HIPAA, GDPR, and institutional accreditation requirements

Incident Response and Security Operations: The platform's security incident management capabilities enable rapid response to cybersecurity threats, automated threat detection workflows, and incident documentation for audit purposes.

Data Privacy and Access Controls: ServiceNow's identity and access management (IAM) features ensure that sensitive student and research data is accessible only to authorized personnel, with audit trails documenting all data access



The screenshot shows the ServiceNow Table Editor interface for the 'Admission' table. The top navigation bar includes back, forward, and search buttons, along with tabs for 'Columns', 'Controls', and 'Application Access'. A search bar is present, and the bottom right corner has buttons for 'Update', 'Delete', and 'Delete All Records'. Below the header, a table titled 'Dictionary Entries' lists various columns with their properties. The columns include:

Column label	Type	Reference	Max length	Default value	Display
Sys ID	Sys ID (GUID)	(empty)	32		false
Admin Status	Choice	(empty)	40		false
Admission Number	Reference	Salesforce	32		false
Area	String	(empty)	40		false
City	String	(empty)	40		false
Comments	String (Full UTF-8)	(empty)	255		false
District	String	(empty)	40		false
Fee	Price	(empty)	20		false
House No	String	(empty)	40		false
Mandal	String	(empty)	40		false
Pincode	Choice	(empty)	40		false
Purpose of join	Choice	(empty)	40		false
School	Choice	(empty)	40		false
School Area	Choice	(empty)	40		false
Class	System Class Name	(empty)	80	javascript:current.getTableName();	false

3. Measurable Outcomes and Business Results

3.1 Case Study: Griffith University Digital Transformation

Griffith University, a major Australian institution with over 45,000 students, provides a compelling case study of ServiceNow transformation outcomes. Prior to implementation, Griffith relied on two separate service management systems creating operational friction . The university struggled with distributed information across 28 separate portals, with data hosted across more than 9,000 web pages and 70,000 SharePoint sites, making information discovery extremely difficult for users

Griffith partnered with ServiceNow implementation partner Nexon Asia Pacific to deploy a comprehensive enterprise service management platform. Using a phased four-year approach, the university systematically onboarded library services, then parking and facilities, followed by IT services, and subsequently corporate functions including finance, HR, and legal operations

Quantified Results:

- **Ticket Resolution:** 126,000 tickets resolved with 89% closed at first contact, representing a 43% improvement in first-contact resolution rates [2]
- **Self-Service Adoption:** Self-service rates increased 87% within the first six months post-launch, while IT self-service specifically improved from 21% to 63% [2]
- **Support Efficiency:** Call volume declined 31%, email inquiries decreased 46%, - and walk-in requests dropped 26%
- **Customer Satisfaction:** Average customer satisfaction scores reached 4.5 to 5.0 out of 5 [2]
- **Knowledge Articulation:** Over 1,400 knowledge articles populated the portal, enabling rapid information discovery

Label	Value	Language	Sequence	Inactive	Updated
New	New	en	1	false	2024-04-02 21:10:25
Join in progress	In progress	en	2	false	2024-04-02 21:11:03
Joined	Joined	en	3	false	2024-04-02 21:11:26
Rejected	Rejected	en	4	false	2024-04-02 21:12:00
Closed	Closed	en	5	false	2024-04-02 21:13:05
Rejoined	Rejoined	en	6	false	2024-04-02 21:13:08
Cancelled	Cancelled	en	7	false	2024-04-02 21:13:27

<input type="checkbox"/>	Admission Number	Reference	Salesforce	32	false
<input type="checkbox"/>	English	String	(empty)	40	false
<input type="checkbox"/>	Hindi	String	(empty)	40	false
<input type="checkbox"/>	Maths	String	(empty)	40	false
<input type="checkbox"/>	Percentage	String	(empty)	40	false
<input type="checkbox"/>	Result	String	(empty)	40	false
<input type="checkbox"/>	Science	String	(empty)	40	false
<input type="checkbox"/>	Social	String	(empty)	40	false
<input type="checkbox"/>	Telugu	String	(empty)	40	false
<input type="checkbox"/>	Total	String	(empty)	40	false

3.2 Case Study: American University Unified Service Portal

American University, with over 14,300 students and 4,500 faculty and staff members, selected ServiceNow to consolidate disparate tools and create a unified service delivery experience. The institution chose Customer Service Management (CSM), Strategic Portfolio Management, IT

Operations Management (ITOM), and IT Service Management (ITSM) products to deliver holistic service operations [4].

American University developed a unified service portal (help.american.edu/help) providing students, staff, faculty, parents, and prospective students with consolidated access to campus-wide information and service requests. This integration eliminated information discovery challenges and created a single point of contact for service delivery across the entire institution [4].

3.3 Case Study: University of Canterbury Service Transformation

The University of Canterbury, like many institutions, had accumulated operational inefficiencies through nine years of traditional ticketing systems for IT service requests. The university recognized that many requests were unrecorded because staff and students preferred to email requests directly or seek assistance in person rather than use the legacy system.

This screenshot shows the configuration of a Client Script named 'Auto populate' for the 'Admission [u_admission]' table. The UI Type is set to 'Mobile / Service Portal' and the Type is 'onChange'. The field name is 'Admin Number'. The application is set to 'Global'. The script is defined as follows:

```
1 function onChange(control, oldValue, newValue, isLoading, isTemplate) {
2     if (!isLoading || newValue === '') {
3         return;
4     }
5     //Type appropriate comment here, and begin script below
6
7 }
```

This screenshot shows the configuration of a Client Script named 'Total Update' for the 'Student Progress [u_student_progress]' table. The UI Type is 'All' and the Type is 'onChange'. The field name is 'Social'. The application is set to 'Global'. The script is defined as follows:

```
1 function onChange(control, oldValue, newValue, isLoading, isTemplate) {
2     if (!isLoading || newValue === '') {
3         return;
4     }
5     //Type appropriate comment here, and begin script below
6
7 if (newValue){
8     var a = parseInt(g_form.getvalue('u_telugu'));
9     var b = parseInt(g_form.getvalue('u_hindi'));
10    var c = parseInt(g_form.getvalue('u_english'));
11    var d = parseInt(g_form.getvalue('u_maths'));
12    var e = parseInt(g_form.getvalue('u_science'));
13    var f = parseInt(g_form.getvalue('u_social'));
14    var total = parseInt(a+b+c+d+e+f);
15    g_form.setvalue('u_total', total);
16
17 }
```

The screenshot shows the 'Client Script Disable Fields' configuration page in ServiceNow. The form includes fields for Name ('Disable Fields'), Table ('Student Progress [u_student_progress]'), UI Type ('All'), and Type ('onLoad'). It also has sections for Application ('Global'), Active (checked), Inherited (unchecked), and Global (checked). The 'Script' section contains the following code:

```

1 function onLoad() {
2     //Type appropriate comment here, and begin script below
3     g_form.setDisabled('u_total',true);
4     g_form.setDisabled('u_percentage',true);
5     g_form.setDisabled('u_result',true);
6 }

```

Following ServiceNow implementation with support from EY New Zealand, the university deployed an integrated IT Service Management platform enabling employees and students to easily raise or track service requests through a single service portal. The transformation eliminated the "requests disappearing" problem, as ServiceNow ensured that all requests were actioned and maintained with complete visibility through SLAs and tracking ^[5].

3.4 Return on Investment Metrics

Educational institutions implementing ServiceNow typically achieve measurable financial and operational returns:

Cost Reduction: Automation of manual tasks—particularly administrative workflows previously handled through email, spreadsheets, and paper forms—generates significant labor cost savings

Productivity Gains: Consolidated self-service portals reduce "swivel-chairing" between multiple systems, and IT service desk performance improvements reduce incident resolution time

Efficiency Improvements: Faster incident resolution times decrease overall system downtime impact on teaching and learning activities

Adoption and Engagement: Higher adoption rates indicate successful implementation, as organizations measuring 60%+ active user engagement realize proportionally higher ROI benefits

4. Implementation Strategies and Best Practices

4.1 Assessment and Requirements Gathering

Successful ServiceNow implementation in educational environments requires comprehensive understanding of institutional requirements. Effective assessment processes include:

Multi-Stakeholder Interviews: Implementation teams should conduct structured interviews with diverse institutional stakeholders including faculty members, students, administrative leadership (presidents, VPs, HODs), marketing teams, operations personnel, and finance teams [9]. This diverse input ensures that implemented solutions address cross-functional requirements rather than optimizing individual department processes

Pain Point Identification: Systematic documentation of current process inefficiencies, manual workarounds, system integration challenges, and user frustrations provides the foundation for prioritized solution design

Benchmarking and Comparative Analysis: Understanding peer institution experiences and industry benchmarks for key metrics (incident resolution time, self-service adoption rates, customer satisfaction scores) enables institutions to establish realistic improvement targets [9].

The screenshot shows the ServiceNow Global application edit screen for a 'Result' record. The top navigation bar includes 'Client Script' and 'Result'. A message at the top left says 'You are editing a record in the Global application (cancel)'. The main form has fields for 'Name' (Result), 'Table' (Student Progress (u_student_progress)), 'UI Type' (All), 'Type' (onChange), and 'Field name' (Percentage). To the right, there are tabs for 'Application' (Global), 'Active' (checked), 'Inherited' (unchecked), and 'Global' (checked). Below the form are 'Description' and 'Messages' fields. At the bottom is a 'Script' editor containing the following JavaScript code:

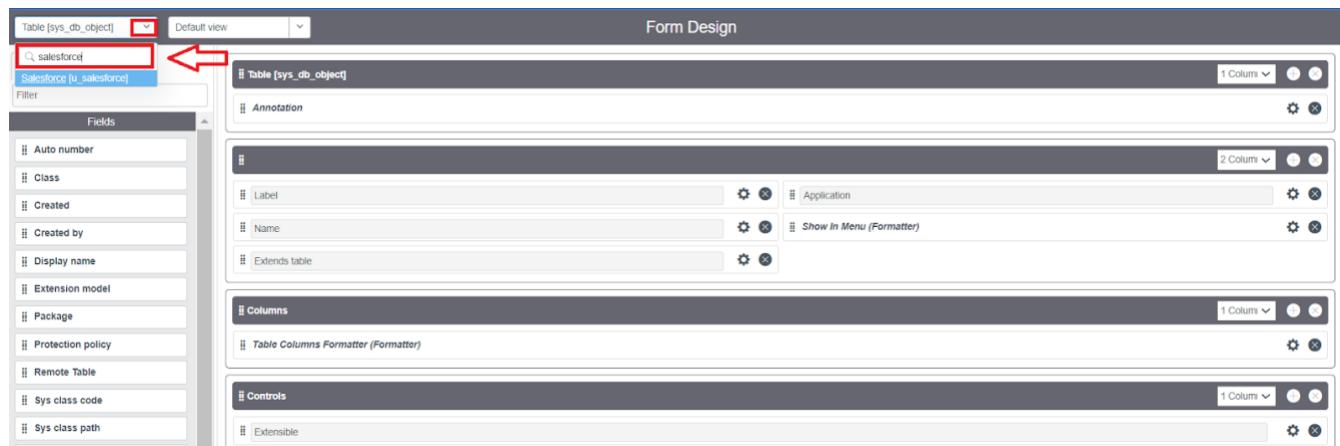
```
1 function onChange(control, oldValue, newValue, isLoading, isTemplate) {
2     if (isLoading || newValue === '') {
3         return;
4     }
5
6     //Type appropriate comment here, and begin script below
7     if(newValue >= 0 && newValue <= 50){
8         var a = parseInt(g_form.getValue('u_percentage')); // Convert the value to an integer for comparison
9         if(a >= 0 && a <= 50){
10             g_form.setValue('u_result','Fail');
11         } else if(a >= 60 && a <= 100) {
12             g_form.setValue('u_result','Pass');
13         } else {
14             g_form.setValue('u_result','Warning');
15         }
16     }
17 }
```

4.2 Phased Implementation Approach

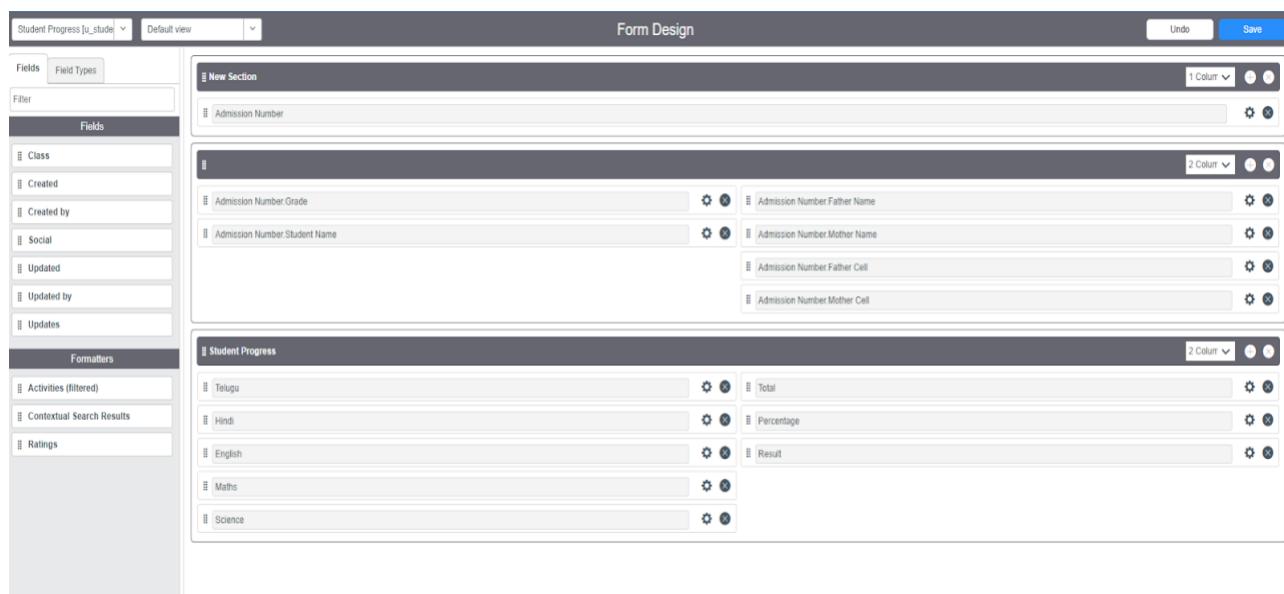
Rather than attempting comprehensive simultaneous implementation of all modules, higher education institutions achieve better outcomes through staged deployment:

Phase Prioritization: Institutions should begin with high-impact, lower-complexity modules (often IT Service Management), then progressively onboard related services (facilities management, HR operations, student services) [2]. This phased approach allows organizational change management, staff training, and knowledge transfer to occur in manageable cycles

Pilot Programs: Initiating



This screenshot shows a 'Form Design' interface for a table named 'Table [sys_db_object]'. On the left, there's a sidebar with a search bar containing 'salesforce' (highlighted with a red arrow). Below the search bar is a 'Filter' section. The main area is titled 'Form Design' and contains several sections: 'Table [sys_db_object]', 'Annotation', 'Label', 'Name', 'Extends table', 'Columns', 'Table Columns Formatter (Formatter)', and 'Controls'. Each section has configuration options and a 'Save' button.



This screenshot shows a 'Form Design' interface for a table named 'Student Progress [u_stude...'. Similar to the previous interface, it features a sidebar with a search bar containing 'salesforce' (highlighted with a red arrow). The main 'Form Design' area includes sections for 'New Section', 'Admission Number', 'Admission Number Grade', 'Admission Number Student Name', 'Admission Number Father Name', 'Admission Number Mother Name', 'Admission Number Father Cell', and 'Admission Number Mother Cell'. Below these is a 'Student Progress' section with fields for Telugu, Hindi, English, Maths, and Science, each paired with a 'Total', 'Percentage', and 'Result' field. The interface includes a 'Save' button at the top right.



implementation with specific departments or campus locations enables refinement of processes, identification of integration challenges, and development of institutional expertise before broader rollout

Feedback Integration: Each phase should include structured feedback collection from end-users, enabling continuous refinement of configurations, workflow designs, and portal usability before subsequent phases

4.3 Data Migration and Integration Strategy

Educational institutions typically maintain critical data in legacy systems requiring careful migration to ServiceNow:

Historical Data Preservation: Critical historical data must be migrated accurately to maintain audit trails, compliance documentation, and institutional record

System Integration Planning:

ServiceNow must be integrated with institutional systems including Student Information Systems (SIS), Enterprise Resource Planning (ERP) systems, financial applications, and learning management systems (LMS)

Data Quality Assurance: Pre-migration data cleansing, validation, and reconciliation ensure that migrated information maintains integrity and accuracy .

4.4 Organizational Change Management

The human dimension of ServiceNow implementation frequently determines success or failure:

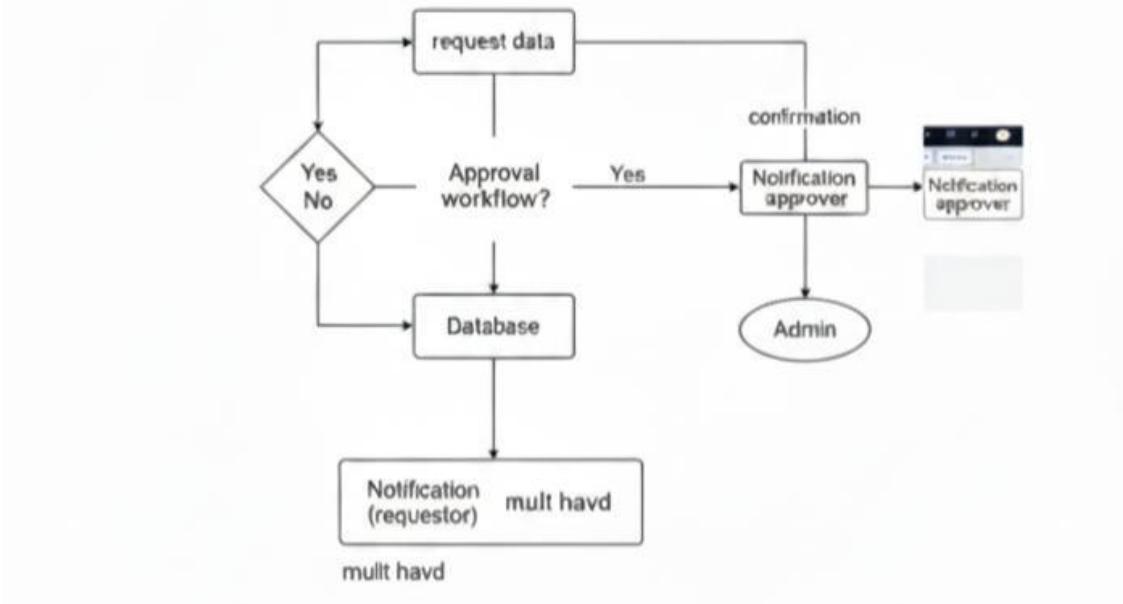
Comprehensive Communication Strategy: Regular communications regarding implementation timelines, capability benefits, training opportunities, and go-live preparation help reduce anxiety and build organizational readiness ^[10].

Gamification and Engagement Activities: Naming competitions for service portals, early adopter recognition programs, and incentive-based adoption challenges generate enthusiasm and widespread engagement

Training and Knowledge Transfer:

Comprehensive training programs, from administrator-level system configuration training through end-user self-service portal training, ensure that diverse organizational constituencies can effectively utilize new capabilities

Change Management Leadership: Executive sponsorship and visible commitment from institutional leadership demonstrates prioritization and legitimizes the transformation effort



4.5 Governance and Control Frameworks

Robust governance prevents common post-implementation challenges including uncontrolled demand, technical debt accumulation, and quality degradation:

Change Control Processes: Structured procedures for assessing, approving, and implementing configuration changes ensure that modifications align with architectural principles and organizational standards [10] [11]. **Demand Prioritization:** As ServiceNow deployment matures and organizational awareness of capabilities increases, demand for customizations and new applications often exceeds delivery capacity [10]. Establishing formal prioritization processes—categorizing requests as "must have," "should have," and "nice to have"—enables rational allocation of development resources [10]. **Architecture and Design Standards:** Documented standards for configuration approaches, customization patterns, integration methods, and naming conventions provide consistency and maintainability [10] [11].

5. Common Implementation Challenges and Mitigation Strategies

5.1 User Adoption Challenges

Challenge: Despite powerful capabilities, ServiceNow implementations frequently encounter resistance from faculty, staff, and students accustomed to existing processes and tools.

Mitigation Strategies: Organizations should invest explicitly in change management activities beyond technical deployment

Early user involvement in requirements definition, iterative user testing, and intuitive interface design substantially improve adoption rates [10]. Pilot programs with early adopters who advocate for benefits help overcome resistance among late-majority users [10].

5.2 Customization Complexity and Technical Debt

Challenge: Educational institutions frequently require customization of ServiceNow to accommodate unique institutional processes, leading to complex configurations that become difficult to maintain and upgrade

Mitigation Strategies: A senior ServiceNow architect should oversee solution design, ensuring realistic and maintainable approaches. Organizations should leverage out-of-the-box capabilities whenever possible rather than customizing standard functionality. Code review processes involving senior developers help identify inefficient approaches and coaching less experienced developers builds organizational capability

5.3 Integration Complexity with Legacy Systems

Challenge: Educational institutions typically maintain numerous legacy systems (SIS, financial systems, library systems) that must integrate with ServiceNow

Mitigation Strategies: Careful integration architecture planning, including identification of integration patterns and standardized data exchange formats, prevents point-to-point integration complexity. Organizations should prioritize phased integration of critical systems, allowing integration expertise development before expanding integration scope

5.4 Weak Governance and Escalating Demand

Challenge: Without strong governance, ServiceNow implementations can spiral into chaos

as organizational awareness of capabilities expands demand beyond delivery capacity

Mitigation Strategies: Organizations must establish clear governance structures including change advisory boards, demand management processes, and prioritization frameworks from the outset. Explicit budget allocation for change management, governance establishment, and ongoing platform optimization is critical.

Form Design

Fields Field Types Filter

Fields

- Admin Number
- Class
- Created
- Created by
- Updated
- Updated by
- Updates

Formatters

- Activities (filtered)
- Contextual Search Results
- Ratings

Process Flow (Formulas)

Admission [u_admission]

Admission Number	1 Date	Admin Date
Purpose of join	1 Date	Grade
Student Name	1 Date	Fee
Father Name	1 Date	Father Cell
Mother Name	1 Date	Mother Cell
	1 Date	Admin Status

Comments

School Details

School Area	1 Date	School
-------------	--------	--------

Address

Pincode	1 Date	Area
Ward	1 Date	City
House No	1 Date	District

Form Design

Undo Save

Fields Field Types Filter

Fields

- Class
- Created
- Created by
- Updated
- Updated by
- Updates

Formatters

- Activities (filtered)
- Contextual Search Results
- Ratings

2 Column

Salesforce [u_salesforce]

Admin Number	X	Father Name	X
Admin Date	X	Mother Name	X
Grade	X	Father Cell	X
Student Name	X	Mother Cell	X

5.5 Inadequate Training and Knowledge Transfer

Challenge: Insufficient investment in training and knowledge transfer results in underutilization of platform capabilities and high support burden

Mitigation Strategies: Comprehensive training programs should be tailored to different user constituencies (administrators, support staff, end users). Documentation development, including admin guides, user guides, and training materials based on user stories and requirements, enables ongoing learning and reduces support demands [11].

Layer	Technology / Tool	Purpose
Frontend	ServiceNow Service Portal	Interface for users to submit laptop requests
Backend	ServiceNow Platform (Glide System)	Handles business logic, workflows, and automation
Database	ServiceNow Data Tables	Store request, user, and approval records
Automation Tools	Flow Designer / Workflow Editor	Automates approval and fulfillment
Scripting	JavaScript (Client Scripts, UI Policies)	Controls form behavior and validation
Notifications	ServiceNow Email Notification Engine	Sends automated messages to stakeholders

Layer	Technology / Tool	Purpose
Deployment	Update Sets	Package and migrate configurations
Tracking	Audit Logs & Change History	Ensures transparency and compliance

6. Advanced Capabilities and Future Directions

6.1 Artificial Intelligence and Predictive Analytics

ServiceNow's AI and machine learning capabilities offer substantial additional value for educational institutions:

Predictive Student Intervention: AI-powered analytics can identify at-risk students based on engagement patterns, course performance, and application behavior, enabling proactive academic and support interventions

Intelligent Automation: Machine learning can automate complex repetitive tasks including scheduling optimization, resource allocation decisions, and intelligent workflow routing

Virtual Assistants: AI-driven chatbots capable of handling 24/7 student inquiries, providing instant responses to common questions, and intelligently escalating complex issues to human agents can dramatically reduce support costs while improving satisfaction

Predictive Case Deflection: ServiceNow's machine learning capabilities suggest that AI agents will deflect approximately 10% of future cases while reducing incident resolution time by up to 25% [2].

6.2 Continuous Improvement and Platform Evolution

Educational institutions implementing ServiceNow must adopt a continuous improvement mindset:

Performance Monitoring: Regular analysis of key performance indicators (KPIs) including incident resolution times, self-service adoption rates, customer satisfaction scores, and cost metrics enables identification of optimization opportunities [8].

Benchmark Comparisons: Regular comparison against industry benchmarks and peer institution metrics provides context for performance assessment and improvement target-setting

Feature Adoption and Release Management: As ServiceNow releases new capabilities and features, institutions should periodically assess opportunities to leverage new functionality for additional value

7. Conclusion and Strategic Recommendations

ServiceNow represents a transformational platform for educational organizations seeking to modernize operations, enhance service delivery experiences, and optimize resource utilization. The platform's comprehensive capabilities address the interconnected challenges facing higher education

—siloed systems, manual workflows, user experience deficits, and regulatory complexity.

Strategic Recommendations for Educational Organizations

- 1. Assess and Plan Comprehensively:** Conduct thorough assessment of institutional pain points, requirements, and readiness. Develop detailed implementation plans with phased approaches, realistic timelines, and adequate resource allocation
- 2. Prioritize Change Management:** Recognize that organizational adoption represents the critical success factor, not technical capability. Invest explicitly in communication, training, engagement activities, and governance structures that enable successful adoption
- 3. Establish Strong Governance:** From inception, establish change control processes, demand prioritization frameworks, and architectural standards that prevent technical debt accumulation and maintain solution quality
- 4. Leverage Peer Experiences:** Learn from peer institutions' implementation experiences. Griffith University's phased approach, American University's multi-module consolidation, and University of Canterbury's workflow transformation provide valuable insights for planning and execution
- 5. Measure and Communicate Value:** Establish clear baseline metrics prior to implementation and systematically track benefits realization. Communicate quantified outcomes to stakeholders to maintain organizational confidence in the transformation investment
- 6. Plan for Continuous Evolution:** ServiceNow implementations should not be viewed as project endpoints but as platforms for ongoing optimization. Regular review of emerging capabilities, organizational needs, and operational metrics should drive continuous enhancement

MODULE 1 - Introduction to Generative AI

In this course, I have learned about the history of AI, how deep learning plays a pivotal role in generative AI (gen-AI), and how gen-AI works and is applied to various industries. I also learned how to create algorithms, and gain hands-on experience writing code using popular programming languages.

After completing this module, I was able to:

Explain how generative artificial intelligence (gen-AI) works

Define what foundation models are and their role in machine learning

Understand how transformers models are used to solve various language-related tasks

Describe how prompt engineering improve generative AI models

Perform common programming tasks using Python's built-in functions and libraries

Create scripts and code for solving real-world problems and automating routine tasks

The screenshot shows a module completion interface. On the left, there's a sidebar with a navigation menu. At the top of the sidebar, it says "100% COMPLETE". The menu items include "MODULE OVERVIEW", "About this module" (with a checkmark), "Learning objectives" (with a checkmark), "Course design" (with a checkmark), "LESSON 1: INTRODUCTION TO GENERATIVE AI", "About this lesson: Introduction to generative AI" (with a checkmark), "What is generative AI?" (with a checkmark), and "Evolution of generative AI" (with a checkmark). In the center, the main content area has a blue header with the text "Module completion" and "Section 21 - References" above it. There's a "EXIT COURSE" button in the top right corner. Below the header, the text "Congratulations!" is displayed. At the bottom of the main content area, there's a note: "Confirm that module completion shows as 100% at the top of the navigation menu. If module completion is not 100%, go to any page that does not have a check mark beside it and select the Next button. You can then close this window and return to IBM SkillsBuild to continue your learning journey." A vertical scrollbar is visible on the right side of the main content area.

MODULE 2- Crafting Precision Prompts with Generative AI

This was an activity-based course. I learned about AI language models and the rules to follow when giving instructions, or prompting, an AI language model. I walked-through a guided activity that demonstrates how to write effective prompts for an AI language model to help plan a travel itinerary. Finally, I participated in an activity to apply what I learned to effectively write prompts for an AI language model to create my own custom music playlist.

After completing this course, I was able to:

Describe an AI language model

Explain how an AI language model understands and responds to humans

Identify the rules to follow to write effective prompts to generate focused and accurate results from an AI language model

List the steps to sign up for a ChatGPT account

Follow the steps to effectively write and refine a series of prompts for ChatGPT for a travel itinerary scenario

Demonstrate the steps to effectively write and refine a series of prompts for ChatGPT to create a custom music playlist

The screenshot shows a module completion screen. At the top left, there's a sidebar with the course title 'Crafting Precision Prompts with Generative AI' and a '100% COMPLETE' badge. The main area has a blue header with the text 'Module completion'. Below it, a large white box contains the word 'Congratulations!' in bold. To the right of the text, there's a vertical scroll bar. On the left side of the main content area, there's another vertical scroll bar. The sidebar also lists other sections like 'About this module', 'Learning objectives', 'Course design', and 'Lesson 1: Prompt Engineering Basics' with checkmarks next to them.

MODULE 3- Coding Simplified with Generative AI

In this course, I had learned the basics of scripting, understand its distinctions from traditional programming, and explore how generative AI models are used to simplify and

streamline code generation. Through hands-on labs, I also learned how to create algorithms and apply my skills using widely used programming languages.

After completing this module, I was able to:

Define scripting and how it works

Explain the differences between scripting and traditional programming and when each approach is used

Describe how Python is used to perform various tasks

77Create a working Python application using IBM watsonx Code Generation

CONCLUSION

The Generative AI in Action program provided a solid foundation in understanding the core principles and practical applications of generative artificial intelligence. Through the three modules—Introduction to Generative AI, Crafting Precision Prompts with Generative AI, and Coding Simplified with Generative AI—I developed a deep understanding of how AI models such as foundation and transformer models function, and how prompt engineering enhances their effectiveness. The hands-on activities improved my ability to craft accurate prompts, automate coding tasks, and generate creative as well as technical outputs using Python and AI-assisted tools. Overall, this program strengthened my knowledge of AI-driven innovation, improved my coding proficiency, and equipped me with essential skills to apply generative AI techniques in real-world scenarios across multiple industries

Practice Scenarios for ServiceNow Admin

1. Create a new user for a contractor, assign them to an "IT Support" group, and ensure they can only access the *Incident* application.

Solution:

- Create the Contractor User
- Navigate to Users → *User Administration > Users*.
- Click New.
- Fill in details:
 - User ID: contractor1
 - First name / Last name: Contractor User
 - Email: contractor1@gmail.com
 - Active: Checked.
- Save.
- Assign the User to the "IT Support" Group
- On the user record, scroll to Groups (related list).
- Click Edit.
- Add to the IT Support group.
- Save.
- Restrict Access to Only the Incident Application

Now we need to make sure this contractor can only work with Incident.

Option A: Role-Based Control (Mostly Preferred)

- By default, Incident application requires itil role.
- Instead of giving full itil access (which gives too much), do the following:
 - Create a new custom role, ex: incident_contractor.
 - Assign this role only to permissions needed for Incident (using ACLs).
 - Assign the new role to your contractor user.
 - Do not give itil or other broad roles.

Option B: Application Menu Restriction

- Go to System Definition > Application Menus.
- Open the Incident application menu.
- In the Roles field, add your custom role (incident_contractor).
 - This ensures only users with this role can see the Incident.
- Verify Access
- Impersonate the contractor user.
- Check:
 - They should only see the Incident application in the left nav.
 - They can open/create/edit incidents (based on the ACLs you configured).
 - They cannot access other apps (like Change, Problem, etc.).

2. Assign a role to a new group so members can read *Knowledge Articles* but cannot create or edit them.

- Create a New Group
- Navigate to User Administration > Groups.
- Click New.
- Enter a Name for the group (e.g., Knowledge Readers).
- Optionally, add a Description.
- Click Submit.
 - Assign the Appropriate Role

To allow read-only access to Knowledge Base articles, assign the knowledge role:

- Open the newly created group.
- Scroll to the Roles related list.
- Click Edit.
- Add the role: knowledge
 - This role allows users to view published articles.
- Click Save.

****Do NOT assign roles like knowledge_admin or knowledge_manager, which grant create/edit permissions.**

- Add Users to the Group
- In the group record, scroll to the Group Members related list.
- Click Edit.
- Select users you want to add.
- Click Save.
 - Verify Access
- Log in as one of the group members.
- Navigate to Knowledge > Articles.
- Confirm they can view articles.
- Try creating or editing an article — they should not have access.

3. Configure a UI Policy that hides the "Work Notes" field unless the state is "In Progress".

Solution:

- Navigate to UI Policies
- Go to Application Navigator → type UI Policies → click System UI > UI Policies.
- Create a New UI Policy
- Click New.
- Select the Table → e.g., *Incident* (or whichever table you're working on).
- Provide a Name (e.g., *Hide Work Notes unless In Progress*).
- In the Conditions section, set:
 - Field = *State*
 - Operator = *is*
 - Value = *In Progress*.
- Check the box Active.
- Save the record.

- Add a UI Policy Action
- In the same UI Policy record, scroll to UI Policy Actions (Related List).
- Click New.
- Configure the action:
 - Field name = *Work notes*
 - Visible = *True* (since you want it visible only when the condition is met).
- Submit the action

4. Configure a UI Policy to hide Notes section in incident, when state is In Progress.

Solution:

- Navigate to UI Policies
- Go to Application Navigator → type UI Policies → click System UI > UI Policies.
- Create a New UI Policy
- Click New.
- Select the Table → e.g., *Incident* (or whichever table you're working on).
- Provide a Name (e.g., *Hide Work Notes unless In Progress*).
- In the Conditions section, set:
 - Field = *State*
 - Operator = *is*
 - Value = *In Progress*.
- Check the box Active.
- Save the record.
- Make Run Script box True
- Just write one line of code:
 - `g_form.setSectionDisplay('notes',false);`
- Submit the action

5. Configure a response SLA, the SLA should pause, when the incident state is in On Hold vice versa.

- Create or Modify an SLA Definition
- Navigate to Service Level Management > SLA Definitions.
- Click New or open an existing SLA (e.g., "Response SLA").
- Fill in the basic details:
 - Name: Response SLA
 - Table: Incident
 - Type: Response
 - Duration: Set your desired time (e.g., 1 hour)
- Set SLA Conditions
- Under the Start Condition:
 - Example: State is New
- Under the Stop Condition:
 - Example: State is Resolved or Closed
- Under the Pause Condition:
 - Add: State is On Hold

This ensures the SLA timer pauses when the incident is moved to On Hold, and resumes when it returns to another New state

- Test the SLA Behavior
- Create a test incident.
- Confirm SLA starts when an incident is created.
- Change state to On Hold — SLA should pause.
- Change back to Active — SLA should resume.
- Resolve the incident — SLA should stop.

6. Configure an email notification that alerts the assigned group whenever a new *Change Request* is created.

Solution:

- Navigate to Notifications
- In the Application Navigator, type Notifications.
- Go to System Notification > Email > Notifications.
- Create a New Notification
 1. Click New.
 2. Fill in the basic details:
 - a. Name: *New Change Request Assigned Group Alert*
 - b. Table: *Change Request [change_request]*
 - c. Active: Checked
- Define When to Send
 1. Under When to send, configure:
 - a. When to send: *Insert* (since you want this when a new record is created).
- Define Who Will Receive
 1. In the Recipients tab:
 - a. Under Users/Groups in fields, choose Assigned to group (or the field name for assigned group).
 - b. This ensures the entire assigned group gets the email.
- Define What Will Contain
- In the What it will contain tab:
 - Subject: New Change Request Created - \${number}

Message HTML (sample):

A new Change Request has been created.

- Number: \${number}
- Short Description: \${short_description}
- Requested By: \${requested_by}
- Assignment Group: \${assignment_group}

- State: \${state}

Please review and take necessary action.

- Save & Test
- Save the Notification.
- Create a new Change Request record, assign it to a group.
- Verify that the email goes out to all members of the Assigned Group.

7. Create a report showing the number of incidents opened by each department in the last 30 days.

- Navigate to Reports
- Go to Reports > Open Reports Modules.
- Click Create a Report.
- Define Report Source
- Name: Incidents by Department - Last 30 Days
- Source Table: Incident
- Set Conditions
- Under Filter, add:
 - Opened At → on or after → Today - 30 days
 - Department → is not empty (*optional, to exclude unassigned*)
- Choose Report Type
- Select Type: Bar Chart or Pie Chart (or List if you prefer tabular view)
- Configure Grouping
- Under Group By, select: Department
- Under Aggregation, choose: Count
- Save and Run
- Click Save.
- Click Run to view the report.

8. Build a dashboard for Service Desk Managers showing KPIs like incidents by priority, created within a week, state wise also.

Step 1: Create Individual Reports

You'll need to create three separate reports first:

- Incidents by Priority
- Go to: Reports > Create New
- Name: Incidents by Priority
- Source Table: Incident
- Type: Bar Chart or Pie Chart
- Group By: Priority
- Aggregation: Count
- Filter: Opened At → on or after → Today - 30 days
- Incidents Created Within a Week
- Name: Incidents Created - Last 7 Days
- Source Table: Incident
- Type: Time Series or Bar Chart
- Filter: Opened At → on or after → Today - 7 days
- Group By: Opened At (Daily)
- Aggregation: Count
- Incidents by State
- Name: Incidents by State
- Source Table: Incident
- Type: Bar Chart or Pie Chart
- Group By: State
- Aggregation: Count
- Filter: Opened At → on or after → Today - 30 days

Step 2: Create a Dashboard

- Go to Self-Service > Dashboards.
- Click Create New Dashboard.
- Name: Service Desk Manager KPIs
- Add a Proper Description
- Click Submit.

Step 3: Add Reports to the Dashboard

1. Open the newly created dashboard.
2. Click Edit Content.
3. Use Add Reports to include:
 - Incidents by Priority
 - Incidents Created - Last 7 Days
 - Incidents by State
4. Arrange the widgets as needed for clarity.

9. Restrict the ability to delete records in the *Change Request* table so only users with the "admin" role can do so.

- Navigate to Access Control (ACLs)
- In the Application Navigator, type Access Control.
- Go to System Security > Access Control (ACL).
- Create a New ACL Rule
- Click New.
- Fill in details:
 - Type: *record*
 - Operation: *delete*
 - Table: *Change Request [change_request]*
 - Name: *(auto-populates when you pick table + operation)*
- Define the Condition / Role

In the Requires role field, add: admin

- This ensures only users with the admin role can delete records.
- Save & Test
- Save the ACL.
- Test with a non-admin user → they should not see the delete option (or get a permission error if they try via URL).
- Test with an admin user → delete should work normally.

10. Create a custom table and create two reference fields (ex: assignment group and assigned to). Display the users based on selection of assignment group.

- Create a Custom Table
 1. In the Application Navigator, type Tables.
 2. Go to System Definition > Tables.
 3. Click New.
 - Name: *u_custom_task*
 - Label: *Custom Task*.
 - Save.
- Add Fields
 1. Open your table and go to the Columns tab.
 2. Add two reference fields:
 - Assignment Group → Type = *Reference*, Table = *sys_user_group*.
 - Assigned To → Type = *Reference*, Table = *sys_user*.
- Configure Reference Qualifier on "Assigned To"
- We need to filter "Assigned To" users based on the selected Assignment Group.

Using Reference Qualifier

- Right click on the Assigned To field, click on Configure Dictionary.
- Go to Dependent Section, give the name of the Assignment Group(ex: *u_ass_group*)
- Update and Test the functionality.

11. How to auto assign incidents when user selects a category as network, the same incident be assigned to Network group.

Solution:

1. Go to Flow Designer → Designer.
2. Click New Flow.
 - Name: Assign Incident by Category
 - Trigger: Created or Updated → Table = Incident
3. Add a If action (Condition) with expression:
 - Select Trigger Record Category is Network
4. Under the If branch, add Action → Update Record:
 - Record: Trigger → Incident(Trigger Record)
 - Set field Assignment group → Network
5. Save and Activate the flow.
6. Test the Flow.

12. HR Groups members are only able to see HR Related Records in servicenow?

Solution:

Step 1: Create a Role for HR Access

Navigate to:

User Administration → Roles → New

1. Enter:
 - Name: hr_access
 - Description: Role to allow access to HR Cases
2. Click Submit.

Step 2: Assign the Role to HR Group

1. Navigate to:
User Administration → Groups
2. Open your HR group record.

3. In the Roles tab → click Edit.
4. Move hr_access from Available → Selected.
5. Click Save.

Now all members of the HR group have the hr_access role.

Step 3: Create Access Control (ACL) for Viewing HR Cases

1. Navigate to:
System Security → Access Control (ACL)
2. Click New.

Fill in:

Field	Value
Type	record
Operation	read
Table	Your HR Case table
Active	True

Step 4: Define Access Condition (No Script)

Scroll down to the Requires role section:

- Add the Role hr_access.

This means only users with the hr_access role can read/view HR Case records.

Step 5: Save and Test

1. Click Submit or Update to save the ACL.
2. Impersonate a non-HR user:
 - Go to your profile → click Impersonate User → choose a user *not in the HR group*.

- Try opening an HR Case record → You should see a “Security constraints prevent access to requested page” message.

3. Now impersonate an HR group member:

- They should be able to open HR Cases normally

13. When the Incident state changes to In Progress, Child incident related list should be hidden.

Solution:

1. Navigate to System UI → UI Policies → New.
2. Fill the header:
 - Name: Hide related lists when State is In Progress
 - Table: Incident
 - Active: checked
 - Global: checked
3. Condition: State is In Progress
(Use the exact label used in your instance for the In Progress state.)
4. Submit the UI Policy record.
5. In the UI Policy record click New under UI Policy Actions.

Set:

- Field name: select the related list—Child incident
- Visible: false
- Read only: optional
- Save and Test the UI Policy Action.

14. How to Display Incident number while loading the incident form

Solution:

1. Navigate to System UI → Client Scripts → New.

2. Fill the header:

- Name: Show Incident Number on Load
- Table: Incident
- Type: onLoad
- Active: True

3. Add this script:

```
function onLoad() {  
    // Get the Incident number field value  
    var incNum = g_form.getValue('number'); // 'number' is the field name  
    alert('Incident Number: ' + incNum);  
}
```

15. When the Incident state changes to In Progress, description should be hidden and short description should be mandatory.

Solution:

Step 1 — Navigate to Client Scripts

1. Go to:

System UI → Client Scripts → New

2. Fill the header:

- Name: Hide Description and Make Short Description Mandatory
- Table: Incident
- Type: onChange
- Field name: state
- Active: checked

Step 2 — Add the Client Script Code

```
function onChange(control, oldValue, newValue, isLoading) {  
    if (isLoading) return;
```

```

if(newValue === '2') {
    g_form.setDisplay('description', false);
    g_form.setMandatory('short_description', true);
} else {
    g_form.setDisplay('description', true);
    g_form.setMandatory('short_description', false);
}
}

```

- Click Submit or Update to save.

15. If the description field is empty in the incident table, prevent the form submission.

Solution:

Step 1 — Navigate to Client Scripts

1. Go to:

System UI → Client Scripts → New

2. Fill the header:

- Name: Prevent Submit if Description Empty
- Table: Incident
- Type: onSubmit
- Active: checked

Step 2 — Add the Client Script Code

```

function onSubmit() {
    var description = g_form.getValue('description');
    if(description == "") {
        g_form.addErrorMessage('Description cannot be empty');
        return false;
    } else {
        return true;
    }
}

```

```
}
```

```
}
```

16. Users can not change the state field values in the incident list.

Solution:

Step 1 — Navigate to Client Scripts

3. Go to:

System UI → Client Scripts → New

4. Fill the header:

- Name: Prevent State Inline Edit
- Table: Incident
- Type: onCellEdit
- Field name: state
- Active: checked

Step 2 — Add the Client Script Code

```
if(newValue==2){  
    alert('You can not edit this value');  
    saveAndClose=false;  
}  
else{  
    saveAndClose=true;  
}
```

17. How to set the Caller to Logged in user automatically in the incident table.

Solution:

1. Navigate: System Definition → Business Rules → New

2. Fill the details:

- Name: Set Caller on Incident Create
- Table: Incident
- When: before
- Insert/update: checked
- Advanced: true

3. Script:

```
current.caller_id = gs.getUserID();
```

18. When a user updates an incident record, priority should change to Critical automatically.

Solution:

1. Navigate: System Definition → Business Rules → New

2. Settings:

- Name: Set Priority field
- Table: Incident
- When: before
- Update:checked

3. Script:

```
current.impact = 1;
```

```
current.urgency = 1;
```

19. Create a button on the Incident form that allows users to mark an Incident as Resolved with a single click.

Solution:

1. Navigate: System UI → UI Actions → New

2. Settings:

- Name: Resolve Incident

- Table: Incident
- Action type: Form button
- Active: checked

3. Script:

- current.state = 6;
- current.update();
- action.setRedirectURL(current);

20. Create a button on the incident table that copies the Short Description value into the Description field.

Solution:

1. Navigate: System UI → UI Actions → New

2. Settings:

- Name: Copy Short Description
- Table: Incident
- Action type: Form button
- Active: checked

3. Script:

- current.description = current.short_description;
- current.update();
- action.setRedirectURL(current);