



## PET ENGINEERING COLLEGE

VALLIOOR - 627117



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**PROJECT TITLE :LAPTOP REQUEST CATALOG ITEM**

**College Code: 9632**

**Technology: Artificial Intelligence**

**Total number of student's in a group: 4**

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## **BONAFIDE CERTIFICATE**

Certified that this project report "**LAPTOP REQUEST CATLOG ITEM**" is the bonafide work of \_\_\_\_\_ who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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# LAPTOP REQUEST CATALOG ITEM

## 1. INTRODUCTION

### 1.1 Project Overview

The *Laptop Request Catalog Item* project aims to simplify and automate the process of requesting laptops within the organization through the ServiceNow Service Catalog. Instead of relying on manual forms or email-based approvals, this catalog item enables employees to submit laptop requests digitally, ensuring faster processing, transparency, and accurate tracking.

### 1.2 Purpose

The main purpose of this project is to create a user-friendly, standardized, and automated platform for employees to request laptops as per their project or role requirements. It reduces manual effort, minimizes approval delays, and ensures compliance with organizational IT asset policies. By implementing this catalog item, the organization aims to:

- Streamline the hardware request and approval process.
- Improve tracking and accountability for IT assets.
- Enhance employee satisfaction through faster service delivery.
- Maintain security and standardization across all issued laptops.

## 2 IDEATION PHASE

### 2.1 Problem Statement

The existing laptop request process in the organization is largely manual and time-consuming. Employees must contact the IT department through emails or physical forms, leading to delays, communication gaps, and lack of transparency. Approvals are often missed or delayed, and IT teams struggle to track asset allocation efficiently.

To address these challenges, a Laptop Request Catalog Item is proposed within the ServiceNow platform to automate the request, approval, and fulfillment workflow, ensuring smooth and efficient laptop provisioning.

- The manual laptop request process often results in **data inconsistency** and **missing information**, making it difficult for IT administrators to verify and fulfill requests correctly.
- There is **no centralized system** to monitor request history, asset allocation, or user-specific hardware records.
- **Approval bottlenecks** occur when requests get stuck with managers or IT teams due to lack of automated reminders.
- **Tracking and accountability** of issued laptops are poor, increasing the risk of asset mismanagement or loss.

- Employees experience **long waiting times** and uncertainty due to lack of visibility into request status.
- IT support staff face a **heavy workload** managing repetitive request tickets manually. **2.2 Empathy Canvas**

Aspect	Description
Who are we	Employees requesting laptops and IT support staff handling these empathizing with requests.
What do they need to	Employees need to quickly request laptops for project work; IT staff do? need to manage, approve, and track these requests efficiently.
request	Lengthy manual processes, delays in approval, lack of clarity on status, and inconsistent communication.
What do they see?	Colleagues complaining about slow laptop provisioning and unclear What approval workflows.
What do they hear?	Colleagues complaining about slow laptop provisioning and unclear What approval workflows.
What do they say and do?	They express frustration about waiting times and often follow up repeatedly via email or chat.
What do they think	They feel frustrated, undervalued, and less productive due to delays and inefficiencies in the process.

### 2.3 BrainStromming

During the brainstorming sessions, the project team collaborated to identify practical and innovative solutions to streamline the laptop request process. Multiple ideas were generated, analyzed, and refined to address pain points like delays, manual approvals, and poor tracking. The following key ideas were shortlisted and discussed in detail:

#### 1. Automated Catalog Workflow

To eliminate the dependency on manual communication and paperwork, the team proposed the development of an automated catalog workflow within **ServiceNow**.

This workflow would handle the entire process—from submission to approval to fulfillment—using preconfigured logic. Automation ensures faster processing, consistent approvals, and reduced human error, ultimately saving time for both employees and IT staff.

## **2. Role-based Laptop Options**

Employees in different roles have different technical and performance needs. To accommodate this, predefined laptop configurations would be created based on user roles (e.g., **Developer, Analyst, Manager**, etc.).

This approach ensures each employee receives the right device for their job function, improving performance, cost efficiency, and standardization across the organization.

## **3. Real-time Status Tracking**

A major frustration identified during ideation was the lack of transparency. The solution proposed includes **real-time request tracking**, allowing users to view each stage of their request—such as *Submitted, Pending Approval, Approved, Fulfillment in Progress*, and *Delivered*.

This not only enhances user satisfaction but also reduces the number of follow-up emails and inquiries to the IT team.

## **4. Approval Notifications**

To prevent delays in the approval process, automatic notifications and reminders would be sent to managers and approvers via **ServiceNow notifications or email alerts**.

This ensures timely actions, avoids bottlenecks, and helps maintain accountability at each step of the process.

## **5. Integration with Asset Management**

To maintain accurate and up-to-date inventory data, the proposed solution integrates with the **IT Asset Management (ITAM)** module in ServiceNow.

Each approved laptop request automatically updates inventory records, tracks asset ownership, and maintains lifecycle details.

This integration enhances visibility, supports audits, and helps optimize future procurement decisions.

## **6. Feedback Collection.**

After the laptop delivery is completed, a **post-fulfillment feedback form** would be triggered automatically.

Employees can rate their experience and provide comments about the process or the device quality. The feedback helps IT teams identify process gaps, measure satisfaction levels, and continuously improve the overall service experience.

## **Outcome of Brainstorming**

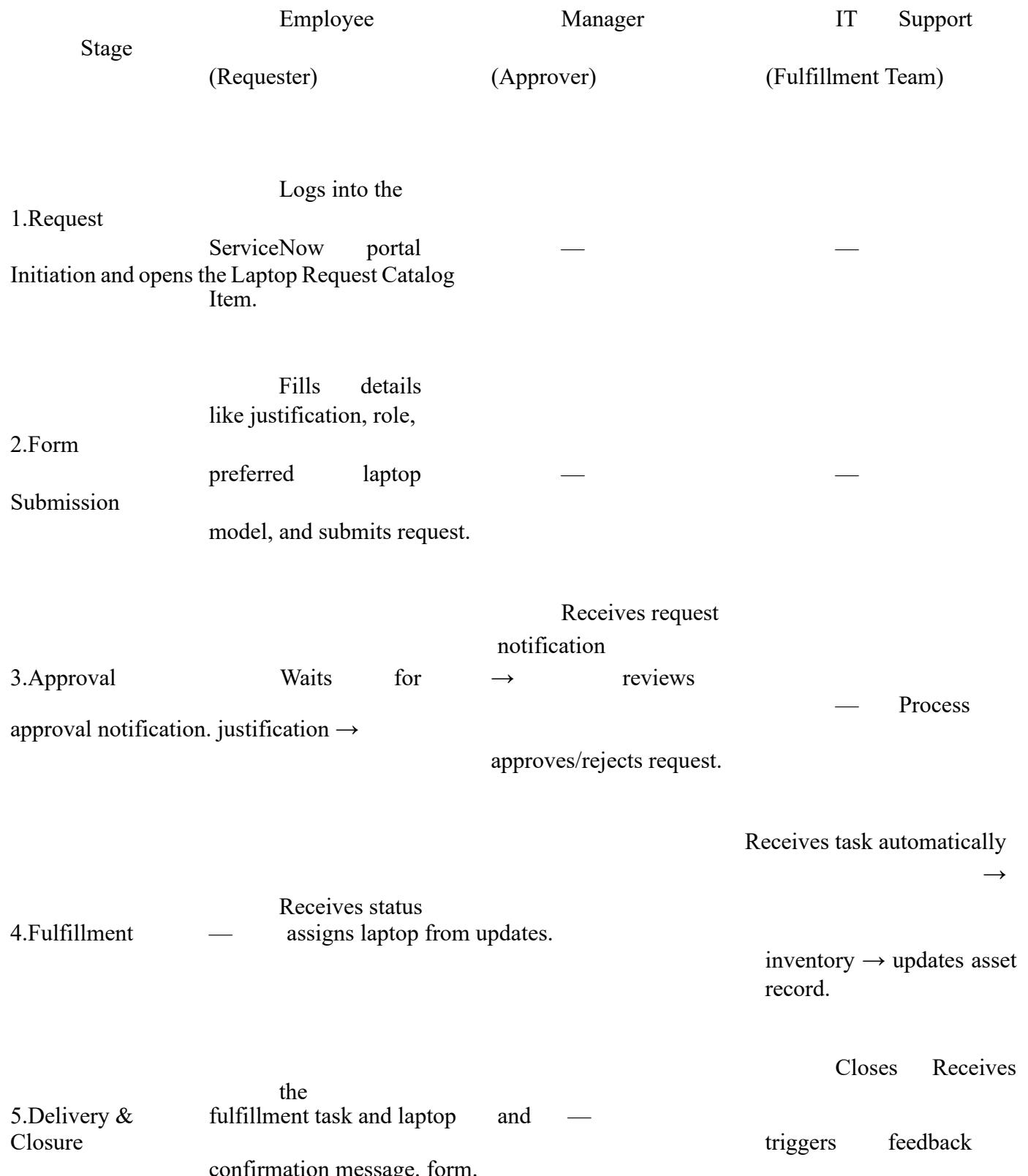
The brainstorming sessions concluded that implementing an automated, role-based, and integrated catalog item within ServiceNow would significantly enhance efficiency, reduce manual effort, and improve transparency in the laptop request process. The ideas generated formed the foundation for the subsequent **Requirement Phase** and **System Design** stages of the project.

### 3. REQUIREMENT PHASE

The Requirement Phase is a crucial stage of the project, where all functional and non-functional needs of the system are identified, analyzed, and documented. This ensures that the *Laptop Request Catalog Item* is designed to meet the expectations of end users, IT staff, and management while maintaining efficiency, security, and usability.

#### 3.1 User Journey Map

The **User Journey Map** helps visualize how different users interact with the catalog item throughout the process.



### **3.2 Functional Requirements**

No.	Requirement Description
FR1	Employees shall be able to submit laptop requests via the ServiceNow catalog.
FR2	The form shall include fields for employee details, justification, role, and laptop type.
FR3	The system shall provide predefined laptop models based on user role.
FR4	Requests shall be automatically routed to the approver.
FR5	Approvers shall be able to approve/reject requests via email or portal.
FR6	Fulfillment tasks shall be automatically generated for IT support.

### **3.3 Non-Functional Requirements**

No.	Requirement Description
NFR1	The system shall ensure data confidentiality and integrity.
NFR2	The catalog shall be available 24/7 via the organization portal.
NFR3	Form response and load time shall be under 3 seconds.
NFR4	The workflow shall scale for multiple simultaneous requests.
NFR5	The interface shall be intuitive and mobile-friendly.

### **3.4 Solution Requirements**

The proposed solution must:

- Enable employees to request laptops digitally with minimal input.
- Include automated approval routing based on reporting hierarchy
- Provide real-time tracking for users and IT staff.
- Integrate with ServiceNow IT Asset Management (ITAM) for inventory updates

### **3.5 Data Flow Diagram (DFD – Level 1 Explanation)**

The Data Flow Diagram represents how data moves within the system.

Entities:

- Employee (Requester)
- Manager (Approver)

- ServiceNow Catalog System
- IT Asset Management
- IT Fulfillment Team

### 3.6 Technology Stack

Component	Technology Used	Purpose
Platform	ServiceNow	To build the catalog item and workflows.
Frontend	Service Catalog UI (Service Portal / UI Builder)	For user interaction and form submission.
Backend Logic	Flow Designer / Workflow Editor	For automating approvals and fulfillment.
Database	ServiceNow CMDB & Asset Tables	For storing request, user, and asset data.
Notifications	Email & ServiceNow Notification Engine	For alerts and reminders.
Authentication	LDAP / SSO	For secure user login and access control.

## 4.PROJECT DESIGN

The Project Design Phase focuses on translating the requirements into a practical, implementable design. This phase defines how the *Laptop Request Catalog Item* will work, including the system architecture, workflows, data handling, and UI design.

### 4.1 System Architecture

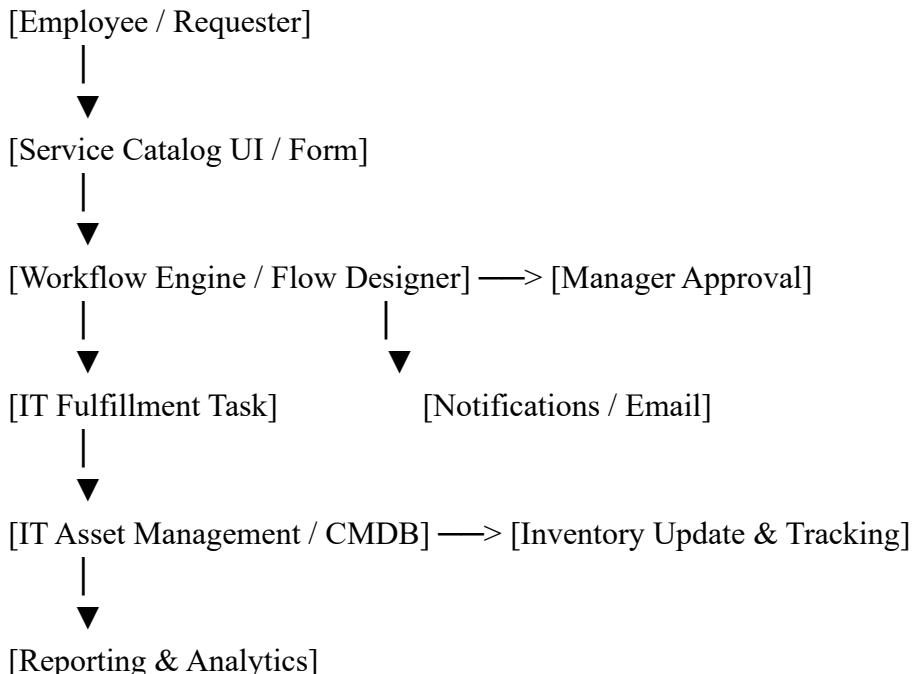
The system architecture ensures a clear structure of all components and their interactions. For this project, a **ServiceNow-based client-server architecture** is used:

**Components:**

1. **User Interface (UI):** Service Catalog portal / UI Builder for employees to submit requests.

2. **Workflow Engine:** ServiceNow Flow Designer manages approvals, notifications, and fulfillment tasks.
3. **Business Logic Layer:** Automates role-based laptop selection, approvals, and inventory updates.
4. **Database Layer:** ServiceNow CMDB and Asset Management tables store request, user, and laptop data.
5. **Integration Layer:** REST APIs connect workflows with IT Asset Management and notification systems.
6. **Reporting & Analytics:** Dashboards and reports for IT admins and managers

#### **Textual Architecture Diagram:**



#### **4.2 Workflow Design**

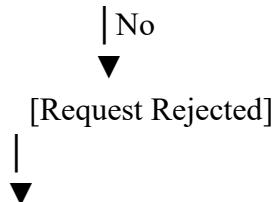
The **workflow** represents the complete process from request submission to laptop delivery:

1. **Request Submission:** Employee fills the catalog form with role, justification, and laptop type
2. **Approval Stage:** Request is routed automatically to the employee's manager. Manager approves or rejects
3. **Notification:** Notifications are sent to requesters and IT team at every stage.
4. **Fulfillment:** Approved requests generate IT tasks for laptop allocation and delivery.

5. **Asset Update:** IT Asset Management records are updated automatically.
6. **Feedback Collection:** Employee receives a post-delivery feedback form.
7. **Reporting:** Dashboard reflects request status, approvals, and fulfillment metrics.

#### **Workflow Diagram (Textual Version for Report):**

[Submit Request] → [Manager Approval] → [Approved?] —Yes—> [IT Fulfillment]



[Update Asset Management] → [Notify Employee] → [Collect Feedback] → [Generate Reports]

### **4.3 Form Design**

The **Laptop Request Form** is a key part of the catalog item. It should be **simple, intuitive, and rolespecific**.

#### **Fields to Include:**

- Employee Name (auto-populated)
- Employee ID / Department (auto-populated)
- Role (Developer / Analyst / Manager)
- Justification for Laptop Request
- Laptop Type / Configuration (predefined based on role)
- Project Name / Assignment (optional)
- Delivery Location

#### **Form Behavior:**

- Required fields must be validated before submission.
- Role-based dropdown dynamically filters available laptop models.
- Form triggers workflow automation upon submission.
- Feedback option appears after fulfillment completion.

## 4.4 Data Flow Design

### Data Flow Overview:

1. Employee submits request → data stored in request table.
2. Workflow triggers manager approval → decision recorded.
3. Approved request → IT task generated → asset table updated.
4. Status updates and notifications sent → request visible on dashboard.
5. Feedback stored for reporting and analytics.

### Security & Access Control Design

- Employees have **read/write access** to their own requests.
- Managers have access to **requests pending their approval**.
- IT admins have access to **all requests, asset updates, and reports**.
- Role-based access ensures compliance with **organization security policies**.

## 5.PROJECT PLANNING & SCHEDULING:

Phase	Key Tasks	Duration
Design	Architecture, workflow, form & security	9 hrs
Development	Form, workflow, integration, feedback setup	14 hrs
Testing	Functional, performance, UAT, fixes	14 hrs
Deployment & Go-Live	Deploy, monitor, feedback	6 hrs
Post-Deployment Support	Monitoring & reporting	Ongoing

## **6.FUNCTIONAL AND PERFORMANCE TESTING**

Testing ensures that the Laptop Request Catalog Item works as expected, meets all functional requirements, and performs efficiently under different conditions. Both functional testing and performance testing are essential before deployment.

### **6.1 Functional Testing**

- Verifies that all features and workflows function correctly.
- Ensures that role-based laptop selection, approvals, notifications, and asset updates work as intended.
- Checks form validations and feedback collection after fulfillment.

### **6.2. Performance Testing**

- Measures system response time under normal and peak loads.
- Ensures that multiple users submitting requests simultaneously do not cause delays.
- Verifies that dashboards and status tracking remain accurate under load

## **7.RESULTS**

1. Create a local update set
2. Create Service Catalog Items
  - Add Variables
3. Creating Catalog UI Policy
4. Create UI Action
5. Export update changes
6. Login To Another Instance
  - Retrieving the update set
7. Testing
8. Conclusion

## OUTPUT SCREENSHOTS

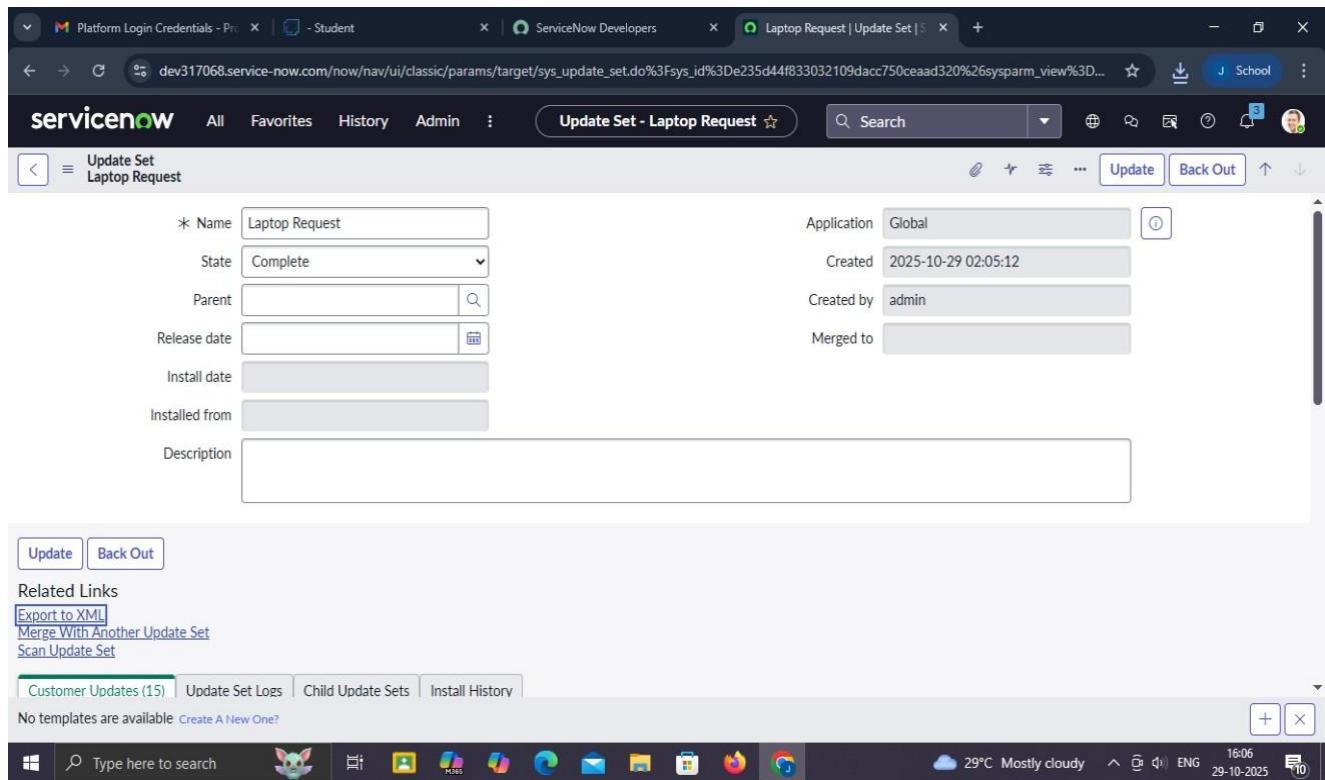
### *Creation of local update set*

The screenshot shows the ServiceNow Catalog Item - Laptop Request page. At the top, there are tabs for All, Favorites, History, Admin, and Catalog Item - Laptop Request. Below the tabs, there are buttons for Copy, Try It, Update, and Edit in Catalog Builder. A search bar is present. The main content area displays a table of questions with their types and descriptions. The table has columns for Type, Question, and Order. The questions listed are Single Line Text (Laptop Model, Order 100), Multi Line Text (Justification, Order 200), CheckBox (:Additional Accessories, Order 300), and Multi Line Text (Accessories Details, Order 400). Below the table, a message indicates "1 to 4 of 4". The bottom of the screen shows the Windows taskbar with various pinned icons and the system tray.

### *Creation of servicenow catalog Item*

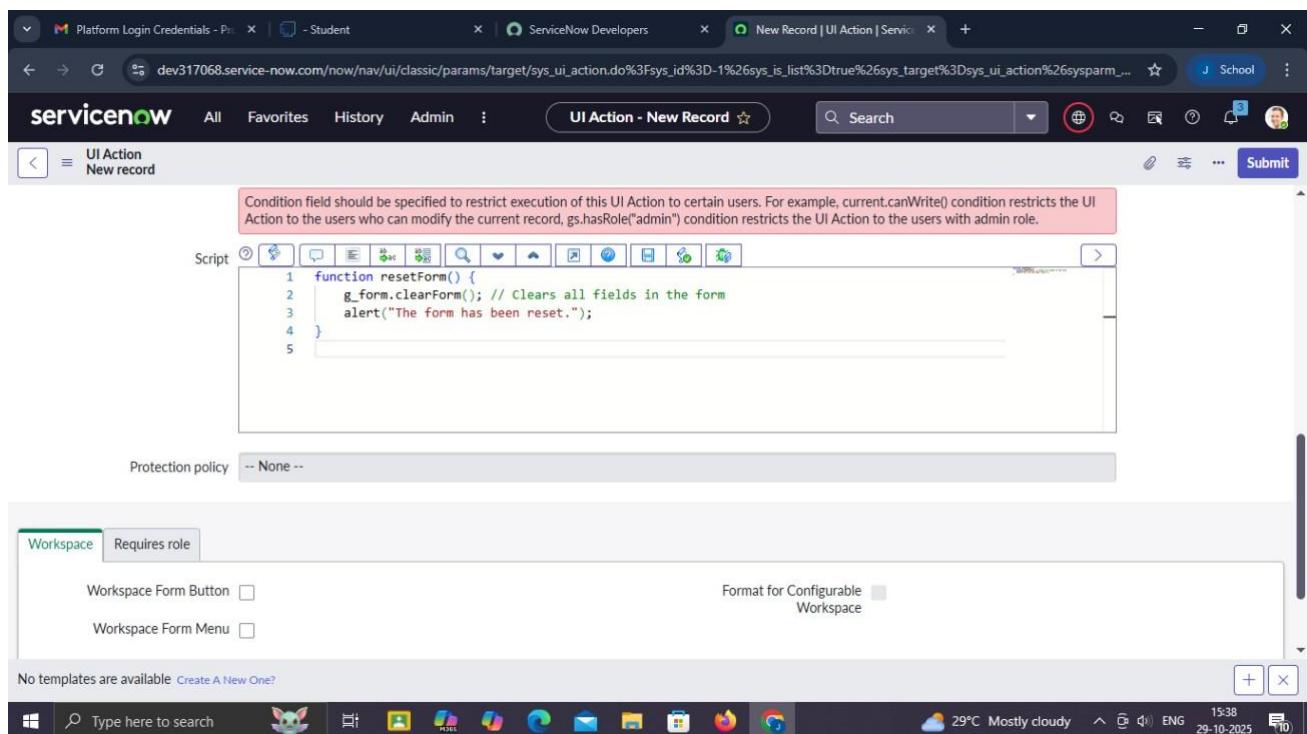
The screenshot shows the ServiceNow Catalog Item - Laptop Request page. The interface is similar to the previous screenshot, with tabs for All, Favorites, History, Admin, and Catalog Item - Laptop Request. The Catalog Item - Laptop Request tab is active. Below the tabs, there are buttons for Copy, Try It, Update, and Edit in Catalog Builder. A search bar is present. The main content area displays a table of questions with their types and descriptions. The table has columns for Type, Question, and Order. The questions listed are Single Line Text (Laptop Model, Order 100), Multi Line Text (Justification, Order 200), CheckBox (:Additional Accessories, Order 300), and Multi Line Text (Accessories Details, Order 400). The bottom of the screen shows the Windows taskbar with various pinned icons and the system tray.

## Creation of UI Action



The screenshot shows the ServiceNow Update Set - Laptop Request screen. The form contains fields for Name (Laptop Request), State (Complete), Application (Global), Created (2025-10-29 02:05:12), and Created by (admin). Other fields include Parent, Release date, Install date, Installed from, and Description. Buttons at the bottom include Update and Back Out. Below the form, Related Links include Export to XML, Merge With Another Update Set, and Scan Update Set. A navigation bar at the bottom shows Customer Updates (15), Update Set Logs, Child Update Sets, and Install History. The Windows taskbar at the bottom right shows the date as 29-10-2025.

## Creation of Catalog UI Policy



The screenshot shows the ServiceNow UI Action - New Record screen. A red box highlights a warning message: "Condition field should be specified to restrict execution of this UI Action to certain users. For example, current.canWrite() condition restricts the UI Action to the users who can modify the current record, gs.hasRole('admin') condition restricts the UI Action to the users with admin role." Below this is a Script editor containing the following code:

```
1 function resetForm() {
2     g_form.clearForm(); // Clears all fields in the form
3     alert("The form has been reset.");
4 }
```

The Protection policy dropdown is set to "None". At the bottom, there are tabs for Workspace and Requires role, and checkboxes for Workspace Form Button and Workspace Form Menu. The Windows taskbar at the bottom right shows the date as 29-10-2025.

## Exporting update changes

The screenshot shows the ServiceNow Update Set - Laptop Request page. At the top, there are fields for Parent, Release date, Install date, Installed from, and Description. Below these are buttons for 'Update' and 'Back Out'. A 'Related Links' section includes links to 'Export to XML', 'Merge With Another Update Set', and 'Scan Update Set'. A navigation bar at the bottom includes 'Customer Updates (15)', 'Update Set Logs', 'Child Update Sets', and 'Install History'. A search bar and a filter dropdown ('Created') are also present. A 'Recent download history' modal is open on the right side, listing several PDF files with their names, sizes, and creation dates. The system status bar at the bottom shows '29°C Mostly cloudy', 'ENG', '16:06', and the date '29-10-2025'.

## Retrieving the update set

The screenshot shows the ServiceNow Retrieved Update Set - Laptop Request page. It displays various details about the update set, such as Name (Laptop Request), Application (Global), and State (Committed). It also shows metrics like Committed (2025-10-29 03:54:35), Inserted (0), Updated (14), Deleted (0), Collisions (1), and Total (15). A 'Description' field is present, and an 'Application name' field is set to Global. Below the form are 'Update' and 'Delete' buttons. A 'Related Links' section includes 'Show Commit Log' and 'Show All Preview Records'. A search bar and system status bar are at the bottom.

## Tesing

The screenshot shows the ServiceNow Service Catalog home page. At the top, there's a navigation bar with links for 'All', 'Favorites', 'History', 'Workspaces', and a 'Catalog' button. A search bar is also present. On the left, there's a sidebar with sections for 'Services', 'Can We Help You?', 'Office', and 'Peripherals'. The main area contains cards for 'Hardware', 'Software', 'Desktops', and 'Mobiles'. A 'Top Requests' sidebar lists items like 'Request email alias', 'Access', 'Cisco jabber softphone', 'Standard Laptop', and 'Pixel 4a'. A 'Shopping Cart' sidebar indicates it's empty. The bottom of the screen shows a Windows taskbar with various icons and system status.

The screenshot shows a 'Laptop Request' form within the ServiceNow interface. The title bar says 'Laptop Request | ServiceNow'. The form includes fields for 'Laptop Model' (with a placeholder 'Type here'), 'Justification' (a large text area), and 'Additional Accessories' (a checkbox). There's also a section for 'Accessories Details' with a text area. On the right, there's a sidebar for ordering with fields for 'Quantity' (set to 1), 'Delivery time' (set to 2 Days), and buttons for 'Order Now' and 'Add to Cart'. A 'Shopping Cart' sidebar shows it's empty. The bottom of the screen shows a Windows taskbar with various icons and system status.

## **8. ADVANTAGES & DISADVANTAGES**

### **Advantages**

- Automates the entire laptop request and approval process.
- Saves time and reduces manual effort.
- Provides role-based laptop allocation for accuracy.
- Enables real-time request tracking and status updates

### **Disadvantages**

- Requires initial setup and configuration time.
- Depends on ServiceNow platform and network availability.
- Needs basic user training for first-time users.
- Requires periodic maintenance and updates
- Complex workflows may need scripting support.

## **9. CONCLUSION**

The **Laptop Request Catalog Item** project successfully streamlines and automates the laptop procurement process within the organization using ServiceNow. It replaces traditional manual procedures with a **digital, role-based, and transparent workflow**, improving efficiency and reducing delays..

## **10. FUTURE SCOPE**

- Extend the catalog to include **other IT assets** such as monitors, accessories, and mobile phones.
- Integrate with **HR onboarding** so laptop requests are auto-generated for new employees.
- **Add AI or predictive analytics** to suggest the best laptop models based on job role and project type

## **11. APPENDIX**

- **Source code** : NO External code used Servicenow platform
- **Dataset Link**: Not applicable
- **GitHub link & Project Demo**: <https://github.com/mercy182022-source/LAPTOP-REQUEST-CATALOG-ITEM.git>