REQUIREMENT ANALYSIS PHASE

Date	2nd November 2025
Team ID	NM2025TMID01898
Project Name	Laptop request catalog item

1. Data Flow Diagrams and User Stories

The Data Flow Diagram (DFD) helps visualize how information moves through the system — from the user raising a request to the final laptop assignment. The DFD is divided into two levels:

1.1. Level 0 – Context Diagram:

This diagram shows the overall interaction between the system and external entities.

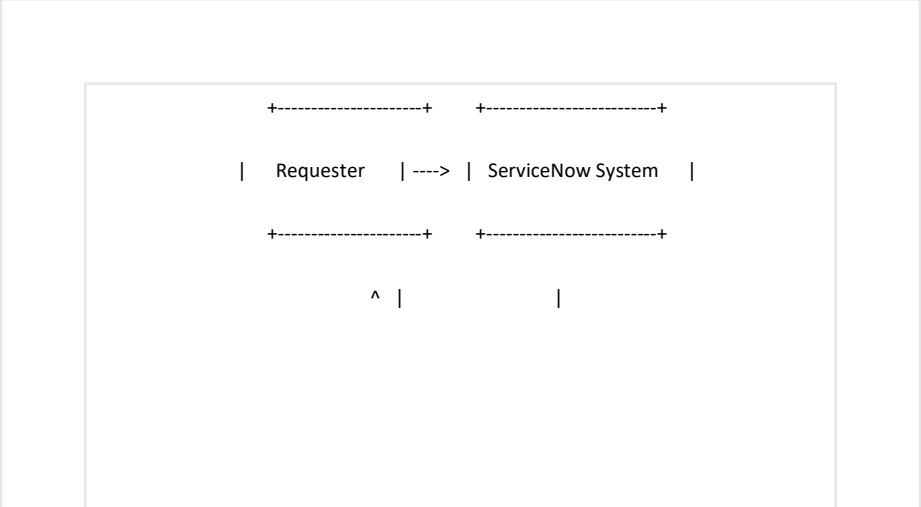
External Entities:

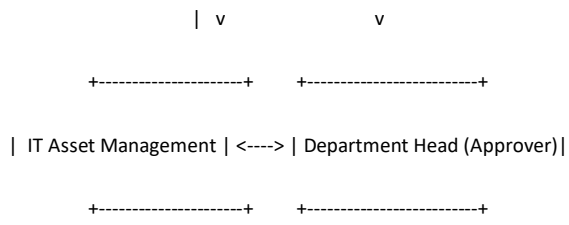
- Requester (Employee/Student)
- Department Head (Approver)
- IT Asset Management Team
- ServiceNow System

Flow Description:

1. The requester submits a laptop request.
2. The Department Head reviews and approves/rejects.
3. Approved requests go to IT Asset Management for fulfillment.
4. Notifications are sent back to the requester at each stage.

Diagram:





1.2. Level 1 – Detailed Process Flow

This level breaks down the internal process flow of the ServiceNow system.

Main Processes:

1. Submit Request: User enters form details.
2. Approval Processing: Manager receives and acts on the request.
3. Asset Verification: System checks asset stock.
4. Assignment & Update: Asset is allocated to requester.
5. Notifications: Automatic emails sent to all parties.

1.3. User Stories

User stories describe the system's behavior from each user's perspective.

User Role	User Story	Acceptance Criteria
Employee / Student (Requester)	As a user, I want to raise a laptop request online, so I don't have to email IT manually.	The form should auto-fill my details and allow me to select a laptop model.
Department Head (Approver)	As a manager, I want to approve or reject requests with one click, so I can manage approvals easily.	The system should notify me immediately when a request is pending.
I'm IT Asset Management	As an IT staff member, I want to view approved requests and update asset status to "Assigned."	The asset table should automatically update with the new owner.
Administrator	As an admin, I want to generate reports of requests and assignments.	The dashboard should display daily and monthly request summaries.

2. Solution Requirements

The Solution Requirements outline the expected functionalities (what the system should do) and quality constraints (how it should perform).

2.1. Functional Requirements:

Requirement ID	Description	Priority	Module
FR01	The system shall allow users to request laptops through a catalog item.	High	Service Catalog
FR02	The system shall route the request to the Department Head for approval.	High	Flow Designer
FR03	The system shall integrate with the Asset Management module to verify stock.	High	Asset Management
FR04	The system shall send email notifications for submission, approval, and assignment.	Medium	Notification Engine
FR05	The system shall maintain an SLA for approval and fulfillment times.	Medium	SLA Management
FR06	The system shall allow IT staff to mark requests as “Fulfilled.”	High	Service Desk
FR07	The system shall generate summary reports for administrators.	Medium	Performance Analytics

2.2. Non-Functional Requirements:

Requirement ID	Description	Type
NFR01	The system should load the catalog form within 3 seconds.	Performance
NFR02	All user and asset data must be securely stored with role-based access.	Security
NFR03	The interface should be accessible on both desktop and mobile browsers.	Usability
NFR04	Notifications must trigger within 10 seconds after any workflow update.	Efficiency
NFR05	The system must handle up to 500 concurrent users without lag.	Scalability
NFR06	SLA compliance data must be available for audit within 24 hours.	Reliability

3. Technology Stack (Architecture)

The system leverages ServiceNow’s cloud-based ITSM architecture, which provides scalability, automation, and low-code customization.

3.1. Architecture Overview:

The Laptop Request Catalog Item System follows a four-layered architecture:

Layer	Description	Technologies Used

Presentation Layer	The Service Portal interface where users submit requests and view status.	HTML, CSS, ServiceNow UI Builder
Application Layer	Handles workflows, approvals, and notifications.	Flow Designer, Service Catalog
Data Layer	Manages records, requests, and asset information.	ServiceNow Tables (sc_request, alm_asset, sys_user)
Integration Layer	Enables communication between catalog, asset management, and notification systems.	REST APIs, Notification Engine

3.3. Tools and Technologies

Category	Tool / Technology	Purpose
Platform	ServiceNow Developer Instance	Core ITSM & Catalog configuration
Workflow Engine	Flow Designer	Automates request approvals and notifications
Data Management	CMDB / Asset Tables	Stores and tracks laptop details
Reporting	Performance Analytics	Generates SLA and activity reports
Security	Role-Based Access Control (RBAC)	Protects sensitive records
Notification	ServiceNow Email Engine	Sends automated messages

3.4. Benefits of the Chosen Stack:

- Cloud-Based: Accessible anywhere, anytime.
- Low-Code: Reduces development time and complexity.
- Secure: Data encryption and access control are built-in.
- Scalable: Can handle additional catalog items and workflows easily.
- Integrated: Works seamlessly with ServiceNow's asset and workflow modules.

Conclusion:

The Requirement Analysis phase clearly defines the functional scope, data flow, and technology setup for the project.

By leveraging ServiceNow's modular design and automation features, this solution ensures that laptop requests are processed efficiently, securely, and transparently — setting the foundation for a fully operational digital service workflow.