



## **LAPTOP REQUEST CATELOG ITEM**

### **NM1051-SERVICE NOW ADMINISTRATOR**

**A Project Report Submitted by**

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## Abstract :

The Laptop Request Catalog Item project is designed to automate the process of requesting laptops within an organization through a digital self-service portal. Instead of relying on manual email communication or paperwork, this system allows employees to raise laptop requests online by filling out a structured catalog form. Once submitted, the request is automatically routed to the approving authority and then to the IT department for fulfillment. The system ensures transparency, faster processing, and proper tracking of each request through a centralized database. By implementing this project, organizations can reduce human error, improve operational efficiency, and enhance the overall user experience in IT asset management and service delivery.

This system eliminates the traditional manual and paper-based request process, which is prone to errors, delays, and miscommunication. Through this platform, users such as employees or students can easily view available laptop models, compare technical specifications, and submit requests based on their specific job or academic needs. The catalog also enables users to track their request approval status, ensuring transparency and convenience.

From the administrative perspective, the system ensures proper asset allocation and resource utilization. It maintains accurate records of laptop inventory, including issued devices, pending requests, damaged stock, and availability for future distribution. Additionally, the system helps administrators evaluate user requests based on priority and eligibility criteria, reducing unnecessary allocation and preventing equipment shortages.

The Laptop Request Catalog incorporates secure data handling, user authentication, and a well-structured database for maintaining the complete lifecycle of each laptop asset. This contributes to improved inventory management, reduced operational workload, and enhanced accountability within the organization. By integrating digital automation and streamlined workflow, this system ultimately enhances organizational efficiency, supports user productivity, and contributes to better decision-making in resource planning.

In conclusion, the Laptop Request Catalog System addresses the limitations of conventional request procedures and introduces a modern, reliable, and user-centric approach for managing laptop distribution in various institutions. Its implementation ensures accurate tracking, fast processing, and a smart inventory network that aligns with the growing demand for technological resources in today's world.

A service catalog is a means of centralizing all services that are important to the stakeholders of the enterprises which implement and use it. Given its digital and virtual implementation, via software, the service catalog acts, at a minimum, as a digital registry and a means for highly distributed enterprises to see, find, invoke, and execute services regardless of where they exist in the world. This means that people in one part of the world can find and

utilize the same services that people in other parts of the world use, eliminating the need to develop and support local services via a federated implementation model.

Centralizing services also acts as a means of identifying service gaps and redundancies that can then be addressed by the enterprise to improve itself

Service catalogs are implemented in a manner that facilitate the registration, discovery, request, execution, and tracking of desired services for catalog users. Each service within the catalog typically includes traits and elements such as:

Clear ownership of and accountability for the service (a person and often an organization).

A name or identification label for the service.

A description of the service.

A service categorization or type that allows it to be grouped with other similar services.

Related service request types.

Any supporting or underpinning services.

Who is entitled to request/view the service.

Associated costs (if any).

How to request the service and how its delivery is fulfilled.

Escalation points and key contacts.

The more descriptive the service details are, the easier it is for end users of the service catalog to find and invoke the services they desire.

## Introduction :

In most organizations, employees often need laptops for work-related purposes such as remote access, software development, or project execution. Traditionally, these requests are handled through emails, manual approvals, or paper-based forms, which can lead to delays, lack of transparency, and difficulties in tracking requests.

The Laptop Request Catalog Item project introduces a digital and automated solution to streamline this process. Through an online service catalog system (such as ServiceNow or a custom-built web application), employees can easily submit a laptop request form. Each request follows a predefined workflow that includes submission, approval, and fulfillment stages.

This system ensures that all requests are tracked in a centralized database, allowing administrators to monitor approvals, inventory, and delivery efficiently. By automating the process, the project aims to improve response times, reduce manual effort, and enhance overall IT service management within the organization.

In the fast-evolving digital world, laptops have become one of the most essential computing devices for individuals in educational institutions, corporations, and public service sectors. They provide flexibility, portability, and performance, allowing users to access information, complete tasks, and collaborate from

anywhere. As technology advances, institutions increasingly rely on laptops to improve workflow efficiency, enhance learning environments, and support innovative practices. However, with the growing number of users and varied operational needs, managing laptop distribution manually has become challenging and inefficient.

Traditionally, organizations follow a paper-based or verbal request process where users apply for laptops through written forms or direct communication with administrators. This manual method often creates a communication gap, leads to misplaced documents, delays approvals, inaccurate stock monitoring, and difficulty in tracking asset usage. These limitations highlight the necessity for a system that ensures streamlined, automated, and transparent management of laptops from request to issuance.

The Laptop Request Catalog System is designed to resolve these issues by providing a centralized digital platform where users can view different laptop models with detailed specifications such as processor type, memory size, storage capacity, graphics support, and suitability for specific tasks. Users can select the most appropriate laptop based on their work category—whether academic assignments, software development, design tasks, or administrative usage. The system also enables users to check real-time availability and track the progress of their requests, making the process highly convenient and user-friendly.

For administrators, the system plays an important role in optimizing inventory management. It allows them to easily verify requests, approve or decline based on eligibility, and maintain a complete log of allocated laptops, return status, and maintenance history. With automated data storage and retrieval, the system reduces human errors and improves decision-making related to asset purchasing and replacement planning. It also ensures accountability by preventing unauthorized usage and excessive distribution.

Additionally, the Laptop Request Catalog System promotes sustainability by reducing paperwork and unnecessary resource consumption. It supports digitization goals, improves information accessibility, and enhances operational transparency within the organization. The introduction of such a system directly contributes to productivity growth, timely support for users, and smooth functioning of the institution's digital infrastructure.

Therefore, this project aims to develop a reliable, secure, and user-centric system that addresses the shortcomings of conventional methods while adopting advanced technology for superior asset management. It ensures fairness in resource distribution, simplifies administrative workflows, and ultimately helps organizations meet the rising technological demands of the modern era.

A service catalog is commonly structured in a manner where its registered services are categorized. A large percentage of Categories for services are derived from the areas of an enterprise and the functions it performs, such as Information Technology, Operations, and Fulfillment. Examples of common service categories include Marketing Services, Product Development Services, Fulfillment Services, and Support Services, which are consumed and performed by most businesses.

The purpose of categorization of services is to facilitate service curation, such as how books may be curated in a library.

A user goes to a website to search for a specific service, such as requesting a new laptop, requesting a change in benefits, or adding a new employee to a department. The service catalog site groups services by category and allows for searching (especially when hundreds or thousands of services are available). The user selects a desired service and sees the description and details. The user enters any pertinent information (contact information, service-specific questions) and submits the request for service. The request requires approval, and goes through routing, service-level management, and other processes necessary to fulfill the request. The user may return to the site later to check on the status of a request, or to view overall metrics on how well the organization is performing the services it provides.

## Methodology :

The methodology adopted for the development of the Laptop Request Catalog System follows a systematic and structured approach to ensure that the final product is reliable, user-friendly, and meets the objectives of the organization. The Software Development Life Cycle (SDLC) Waterfall Model has been chosen due to its clarity in phase-by-phase execution and suitability for academic system development projects. Each phase focuses on specific operations that help in building the system efficiently.

The use of a service catalog for cloud computing services is an integral part of deploying services on private and public clouds. Users wishing to consume cloud services would use a cloud service catalog to view what cloud services are available, their function, and know the technologies used to provide the services.

Users would also see the available different service level options based on latency and reliability. With this knowledge, users are able to change the configuration of the technologies used to deliver the services based on cost, performance and technology improvements.

By seeing and understanding the different services available through the cloud users can better appreciate what is available to them, compared to traditional IT whereby one group of users or business unit may be unaware of the technologies available to another unit.

Accessed by self-service portals, service catalogs contain a list of cloud services from which cloud consumers select for self-provisioning of cloud services. This removes the need for users to work through various IT departments in order to provision a cloud service, nor are users required to provide detailed IT specifications. They are only required to provide business and organization requirements.

To make selection easier and to speed service deployment, service definitions are often standardized in cloud service catalogs. This presents three benefits: improved capacity planning, particularly if standard components are used; quicker service provisioning; and better buying forecasts which helps to lower costs.

Automation is an aspect of cloud service catalog that has been noted. Cloud service catalogs have been described as enabling “cloud on auto-pilot” enabling cloud users to build cloud services based on pre-built templates selected from catalogs.

## 1. Requirement Analysis

This is the foundational stage where detailed analysis was conducted to understand the problems associated with the current laptop request method. Various data collection techniques such as interviews with administrators, observation of existing work processes, and document analysis were utilized. The major point of focus was identifying user requirements like:

Viewing laptop models

Submitting laptop request forms

Tracking request status

Inventory and allocation management

The findings helped classify functional and non-functional requirements, making the system's goals clear.

## 2. System Design

In this phase, the complete architecture of the system is planned. System modules, user interface layout, database structure, and data flow were designed with consistent navigation and usability concepts. Tools such as Data Flow Diagrams (DFD), Entity-Relationship Diagrams (ERD), and structured charts were used. Care was taken to ensure:

A simple interface for users

Efficient laptop allocation handling for administrators

Secure data storage with proper validation

## 3. Implementation / Development

During implementation, coding was carried out based on the system design. Separate modules for users and administrators were developed. Key features include:

Secure login and user authentication

Laptop catalog display with configuration details

Online request submission form

Status updates and notifications

Inventory and approval management dashboard

Programming languages, database tools, and web technologies were selected for efficiency, scalability, and performance.

#### 4. Testing

After implementation, various testing strategies were applied to ensure system reliability:

Unit Testing for checking every module in isolation

Integration Testing to verify data flow among modules

System Testing to ensure the overall functionality meets requirements

User Acceptance Testing (UAT) where real users test the system and give feedback

Errors, logical faults, and interface issues were corrected accordingly.

#### 5. Deployment

Once testing was successful, the system was deployed into the working environment. Users such as students or employees were provided with login access, while administrators received training on using the approval and inventory modules. Deployment ensures real-time operation of the system.

#### 6. Maintenance & Enhancement

Post-deployment, continuous support is ensured to handle bug fixes, database backups, and performance improvements. Maintenance also includes upgrading features based on user feedback, adapting to technological changes, and ensuring system security over time.

## ⌚ Proposed system:

The Laptop Request Catalog Item System proposes a modern, automated solution that replaces the traditional manual laptop request process. This system enables employees to request laptops online through a structured

digital form available on a self-service portal. Once a request is submitted, it automatically follows a predefined workflow involving approval, assignment, and fulfillment.

The Proposed Laptop Request Catalog System is developed to completely transform the traditional paper-based and communication-dependent method of laptop allocation into a digitally automated and well-organized process. The existing system faces numerous challenges such as delayed approvals, miscommunication, and difficulty in tracking available devices. The proposed system resolves these issues by providing a centralized and secure platform that manages laptop requests from submission to issuance efficiently.

Since the 1970s introduction of portable computers, their forms have changed significantly, resulting in a variety of visually and technologically differing subclasses. Excepting distinct legal trademark around terms (notably Ultrabook), hard distinctions between these classes were rare, and their usage has varied over time and between sources. Since the late 2010s, more specific terms have become less commonly used, with sizes distinguished largely by the size of the screen.

#### Smaller and larger laptops

Main articles: Notebook computer, Subnotebook, and Desktop replacement computer

There were in the past a number of marketing categories for smaller and larger laptop computers; these included “notebook” and “subnotebook” models, low cost “netbooks”, and “ultra-mobile PCs” where the size class overlapped with devices like smartphone and handheld tablets, and “Desktop replacement” laptops for machines notably larger and heavier than typical to operate more powerful processors or graphics hardware. All of these terms have fallen out of favor as the size of mainstream laptops has gone down and their capabilities have gone up; except for niche models, laptop sizes tend to be distinguished by the size of the screen, and for more powerful models, by any specialized purpose the machine is intended for, such as a “gaming laptop” or a “mobile workstation” for professional use.

See also: Gaming computer § Gaming laptop computers, and Mobile workstation

Convertible, hybrid, 2-in-1

#### Main article: 2-in-1 PC

The latest trend of technological convergence in the portable computer industry spawned a broad range of devices, which combined features of several previously separate device types. The hybrids, convertibles, and 2-in-1s emerged as crossover devices, which share traits of both tablets and laptops. All such devices have a touchscreen display designed to allow users to work in a tablet mode, using either multi-touch gestures or a stylus/digital pen.

Convertibles are devices with the ability to conceal a hardware keyboard. Keyboards on such devices can be flipped, rotated, or slid behind the back of the chassis, thus transforming from a laptop into a tablet. Hybrids have a keyboard detachment mechanism, and due to this feature, all critical components are situated in the part with the display. 2-in-1s can have a hybrid or a convertible form, often dubbed 2-in-1 detachable and 2-in-1 convertibles respectively, but are distinguished by the ability to run a desktop OS, such as Windows 10. 2-in-1s are often marketed as laptop replacement tablets. As with nearly all of these distinctions, they are

marketing terms first and technical distinctions secondarily, and vendors are not consistent in using a single name for a given type of device.

2-in-1s are often very thin, around 10 millimetres (0.39 in), and light devices with a long battery life. 2-in-1s are distinguished from mainstream tablets as they feature an x86-architecture CPU (typically a low- or ultra-low-voltage model), such as the Intel Core i5, run a full-featured desktop OS like Windows 10, and have a number of typical laptop I/O ports, such as USB 3 and Mini DisplayPort.

2-in-1s are designed to be used not only as a media consumption device but also as valid desktop or laptop replacements, due to their ability to run desktop applications, such as Adobe Photoshop. It is possible to connect multiple peripheral devices, such as a mouse, keyboard, and several external displays to a modern 2-in-1.

Microsoft Surface Pro-series devices and Surface Book are examples of modern 2-in-1 detachable, whereas Lenovo Yoga-series computers are a variant of 2-in-1 convertibles. While the older Surface RT and Surface 2 have the same chassis design as the Surface Pro, their use of ARM processors and Windows RT do not classify them as 2-in-1s, but as hybrid tablets.

The distinction between a “tablet with a keyboard” and a 2-in-1 laptop generally rests on the operating system; if they run a mobile operating system, such as Android or IOS, they are generally marketed as tablets, while if they run a general purpose operating system like Windows or MacOS, they are generally marketed as laptops.

#### Rugged laptop

Main article: Rugged computer

A rugged laptop is designed to reliably operate in harsh usage conditions such as strong vibrations, extreme temperatures, and wet or dusty environments. Rugged laptops are bulkier, heavier, and much more expensive than regular laptops,[46] and thus are seldom seen in regular consumer use.

This system allows users such as students, staff, or employees to log in securely and browse a categorized catalog of laptops based on different configurations and performance levels. Each laptop model displayed includes detailed specifications like CPU, RAM, storage, display size, battery performance, and graphics capability. This helps users make informed decisions according to their academic or professional needs. Users can easily submit a request form online and receive notifications regarding the approval or rejection of their request, bringing convenience and transparency to the process.

For administrators, the system acts as a powerful inventory and request management tool. The admin dashboard allows authorized personnel to review submitted laptop requests, check stock availability in real-time, and approve or decline requests based on eligibility rules. Once the laptop is issued, the system updates the inventory automatically and maintains a log of device assignment history. This improves accountability and minimizes asset misuse.

The system also supports efficient asset lifecycle management. It tracks issued devices, monitors return dates, and records laptops sent for maintenance or repair. This data helps administrators plan future procurement and ensure continuous availability of functional devices. Moreover, the system supports proper documentation and record-keeping, reducing the chances of data loss and misplacement that commonly occur in manual processes.

To ensure strong system reliability, secure login authentication and role-based access control are implemented. Data is stored and managed using a structured relational database, which improves data consistency and simplifies access control. The architecture is scalable, enabling the system to expand with additional features such as device replacement modules, budget tracking, and automated notifications in future upgrades.

With this proposed system, the overall workflow becomes smoother, faster, and highly efficient. It minimizes human errors, saves time, and reduces the workload for administrators while providing a better service experience for users. The digital nature of the system also supports institutional sustainability goals by eliminating unnecessary paper usage and promoting environmentally friendly practices.

The utilization of service catalogs allow enterprises to allocate and track resources, both human and systemic, which are required for successful service delivery, operations, and support. This allows enterprises to understand where resources are allocated, whether there are too many or too few resources allocated, and whether or not the resources allocated are adequate for purpose. It also allows an understanding of what resources are shared between multiple services versus those that are fully dedicated to a single service.

The proposed system Integrates multiple functionalities to improve efficiency and transparency:

*Automated Workflow:* Each laptop request is automatically routed to the concerned approver and IT department without manual intervention.

*User-Friendly Interface:* Employees can easily fill out and submit the laptop request form through a webbased interface.

*Real-Time Tracking:* Users can check the current status of their request — whether it is pending, approved, or fulfilled.

*Centralized Database:* All request data is stored in a single database, allowing for easy record management, reporting, and audit tracking.

*Email Notifications:* Automatic alerts are sent to users and approvers at every stage of the process (submission, approval, completion).

*Administrator Dashboard:* The IT department can monitor all requests, manage approvals, and update inventory through an admin panel.

Certainly! Here is an expanded and more detailed Proposed System section — suitable for a full project chapter:

#### Enhanced Benefits of Proposed System

Fully automated laptop request and approval process

Centralized data storage ensuring quick access and recovery

Advanced inventory monitoring for real-time status updates

Reduced communication gaps and resource mismanagement

Highly user-friendly graphical interface suitable for all users

Supports scalability and future system enhancements

Increased transparency and accountability in laptop distribution

## EXISTING SYSTEM

In many educational institutions and organizations, the process of issuing laptops to students or employees is still carried out manually. Individuals who require a laptop must fill out paper-based request forms or directly communicate with an administrative authority. This manual method results in poor coordination and delays in processing the request. Often, users do not receive proper updates regarding the status of their request, leading to confusion and repeated follow-ups.

Have additional security elements added, including biometric security components such as Windows Hello or Touch ID.

Software such as GadgetTrak and Find My Mac have been engineered to help people locate and recover their stolen laptops in the event of theft. Setting one's laptop with a password on its firmware (protection against going to firmware setup or booting), internal HDD/SSD (protection against accessing it and loading an operating system on it afterward), and every user account of the operating system are additional security measures that a user should do. Fewer than 5% of lost or stolen laptops are recovered by the companies that

own them, however, that number may decrease due to a variety of companies and software solutions specializing in laptop recovery. In the 2010s, the common availability of webcams on laptops raised privacy concerns. In *Robbins v. Lower Merion School District* (Eastern District of Pennsylvania 2010), school-issued laptops loaded with special software enabled staff from two high schools to take secret webcam shots of students at home, via their students' laptops.[

#### Ergonomics and health effects

##### Wrists

Prolonged use of laptops can cause repetitive strain injury because of their small, flat keyboard and trackpad pointing devices.[Usage of separate, external ergonomic keyboards and pointing devices is recommended to prevent injury when working for long periods of time; they can be connected to a laptop easily by USB, Bluetooth or via a docking station. Some health standards require ergonomic keyboards at workplaces.

##### Neck and spine

A laptop's integrated screen often requires users to lean over for a better view, which can cause neck or spinal injuries. A larger and higher-quality external screen can be connected to almost any laptop to alleviate this and to provide additional screen space for more productive work. Another solution is to use a computer stand.

##### Possible effect on fertility

A study by State University of New York researchers found that heat generated from laptops can increase the temperature of the lap of male users when balancing the computer on their lap, potentially putting sperm count at risk. The study, which included roughly two dozen men between the ages of 21 and 35, found that the sitting position required to balance a laptop can increase scrotum temperature by as much as 2.1 °C (4 °F). However, further research is needed to determine whether this directly affects male sterility.[88] A later 2010 study of 29 males published in *Fertility and Sterility* found that men who kept their laptops on their laps experienced scrotal hyperthermia (overheating) in which their scrotal temperatures increased by up to 2.0 °C (4 °F). The resulting heat increase, which could not be offset by a laptop cushion, may increase male infertility.

Laptop cooler (silver) under laptop (white), preventing heating of lap and improving laptop airflow

A common practical solution to this problem is to place the laptop on a table or desk or to use a book or pillow between the body and the laptop.[citation needed] Another solution is to obtain a cooling unit for the laptop. These are usually USB powered and consist of a hard thin plastic case housing one, two, or three cooling fans – with the entire assembly designed to sit under the laptop in question – which results in the laptop remaining cool to the touch, and greatly reduces laptop heat buildup.

Opened bottom covers allow replacement of RAM and storage modules (Lenovo G555)

Some of the components of earlier models of laptops can easily be replaced without opening completely its bottom part, such as the keyboard, battery, hard disk, memory modules, and CPU cooling fan.

Some of the components of recent models of laptops reside inside. Replacing most of its components, such as the keyboard, battery, hard disk, memory modules, CPU cooling fan, etc., requires the removal of either the top or bottom part, the removal of the motherboard, and returning them.

In some types, solder and glue are used to mount components such as RAM, storage, and batteries, making repairs additionally difficult.

## Obsolete features

A modem PCMCIA card on a 1990s ThinkPad. The card would normally fully insert into the socket. Features that certain early models of laptops used to have that are not available in more recent models include:

- Reset (“cold restart”) button in a hole (needed a thin metal tool to press)
- Instant power off button in a hole (needed a thin metal tool to press)
- Integrated charger or power adapter inside the laptop
- Dedicated Media buttons (Internet, Volume, Play, Pause, Next, Previous)
- Floppy disk drive
- Serial port
- Parallel port
- Modem
- IEEE 1394 port
- Docking port
- Shared PS/2 input device port
- IrDA
- S-video port
- S/PDIF audio port
- PC Card / PCMCIA slot
- ExpressCard slot
- CD/DVD Drives (starting with 2013 models)
- VGA port (starting with 2013 models)
- USB-A (starting with some 2022 models)
- HDMI port (starting with some 2022 models)
- Full size SD Card slot (starting with some 2022 models)
- Dedicated charging port (starting with some 2022 models)

The existing system highly depends on physical documentation and human involvement for approval and inventory tracking. These documents may get misplaced or damaged, which can lead to data loss and improper allocation of laptops. Administrators need to maintain multiple registers and logs to record issued laptops, available stock, and returned devices. This becomes challenging when the number of laptop requests increases, especially during peak academic or project seasons.

Additionally, there is no proper mechanism for users to check laptop availability before submitting a request. The lack of a centralized database makes it difficult to monitor resource usage efficiently. Coordinating between different departments also becomes time-consuming. Inventory mismanagement is a common issue, as maintaining up-to-date information manually often results in incorrect entries and difficulty in preparing system usage reports.

Communication between users and administrators is also a major limitation in the existing approach. Without an automated notification system, the user is unaware of when the laptop will be issued or whether the request was approved or rejected. Delays occur frequently due to manual verification procedures and dependency on the availability of responsible staff members.

Human errors such as duplicate entries, incorrect data entry, and missing approvals further reduce process reliability. There is also no secure authentication process, making the system vulnerable to unauthorized or fraudulent requests. The absence of digital records prevents quick analysis, auditing, and retrieval of information when required.

#### Drawbacks of Existing System

Manual request submission and processing leads to delays

Lack of real-time information on laptop availability

High chances of data loss or damaged documents

No proper request tracking system for users

Inventory management becomes difficult and inaccurate

Increased human errors and miscommunication

No digital security or authentication mechanism

Time-consuming and inefficient workflow

## System Requirements:

The System Requirements describe the hardware and software configurations essential. For the successful development and implementation of the Laptop Request Catalog System. To ensure smooth functioning, reliability, and user accessibility, the system is designed to operate within commonly available computing environments. The requirements classified into two major categories: Hardware Requirements and Software Requirements.

A laptop computer or notebook computer, also known as a laptop or notebook, is a small, portable personal Computer (PC). Laptops typically have a clamshell form factor with a flat-panel screen on the inside of the upper lid

And an alphanumeric keyboard and pointing device on the inside of the lower lid. Most of the computer's internal hardware is in the lower part, under the keyboard, although many modern laptops have built-in webcam at the top of the screen, and some even feature a touchscreen display. In most cases, unlike tablet computers which run

Mobile operating systems, laptops tend to run on desktop operating systems, which were originally developed for desktop computers

A variety of laptops. Clockwise from top left: A 2021 MacBook Pro by Apple Inc.; a 2019 Microsoft Surface Pro 7 with detachable hinge (left) and a 2018 Dell XPS 15 9570 with 360 degree hinge (right); a 2014 ThinkPad Helix by Lenovo with detachable screen; and a 2014 Acer Chromebook 11

Laptops are used in a variety of settings, such as at work (especially on business trips), in education, for playing games, content creating, web browsing, for personal multimedia, and for general home computer use. They can run on both AC power and built-in rechargeable batteries, and can be folded shut for convenient storage and transportation, making them suitable for mobile use. Laptops combine essentially the same input/output components and capabilities of a desktop computer into a single unit, including a display screen (usually 11–17 in or 280–430 mm in diagonal size), small speakers, a keyboard, and a pointing device (usually touchpads). Hardware specifications may vary significantly between different types, models, and price points

Design elements, form factors, and construction can also vary significantly between models depending on the intended use. Examples of specialized models of laptops include 2-in-1 laptops, with keyboards that either be detached or pivoted out of view from the display (often marketed having a “laptop mode”), and rugged laptops, for use in construction or military applications. Portable computers, which later developed into modern laptops, were originally considered to be a small niche market, mostly for specialized field applications, such as in the military, for accountants, or travelling sales representatives. As portable computers evolved into modern laptops, they became widely used for a variety of purposes

## 1. Hardware Requirements

Hardware specifications needed for developing and running the system include:

For Server / Administrator System

Component	Minimum Specification	Recommended Specification
-----------	-----------------------	---------------------------

Processor	Intel Core i3 or equivalent	Intel Core i5 or higher
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RAM	4 GB	8 GB or above
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Hard Disk	250 GB	500 GB or SSD
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Display	1024 × 768 resolution	Full HD resolution
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For Client / User System

#### Component Minimum Requirement

Processor	Any modern system capable of running a browser
RAM	2 GB or above
Storage	100 MB free storage for browser cache
Input Devices	Keyboard & Mouse / Touch support
Network	Stable Internet connection

A LAN or Wi-Fi connection is required for accessing the system online within the organization.

## 2. Software Requirements

The software environment required to deploy and execute the system includes:

Operating System

Windows 7 / 10 / 11

Linux Ubuntu / MacOS (for web access platforms)

Front-End Technologies

HTML5

CSS3

JavaScript

Bootstrap (or similar UI framework)

Back-End Technology

PHP / Java / Python (any selected development language)

Server-side scripting for form submission and authentication

Database

MySQL / SQL Server / Oracle

(MySQL recommended for academic projects)

Development Tools

XAMPP / WAMP / LAMP (for local hosting)

VS Code / NetBeans / Sublime Text

Browser: Chrome / Firefox / Edge

Other Tools (optional but useful)

ER Diagram & DFD Design Software (e.g., Draw.io, StarUML)

Git for version control

System documentation support (MS Word / PDF editor)

Non-Functional Requirements

Non-functional aspects ensure smooth performance and usability:

RequirementDescription

Performance The system should process user requests quickly with minimal loading time

Security Login authentication and secure database handling

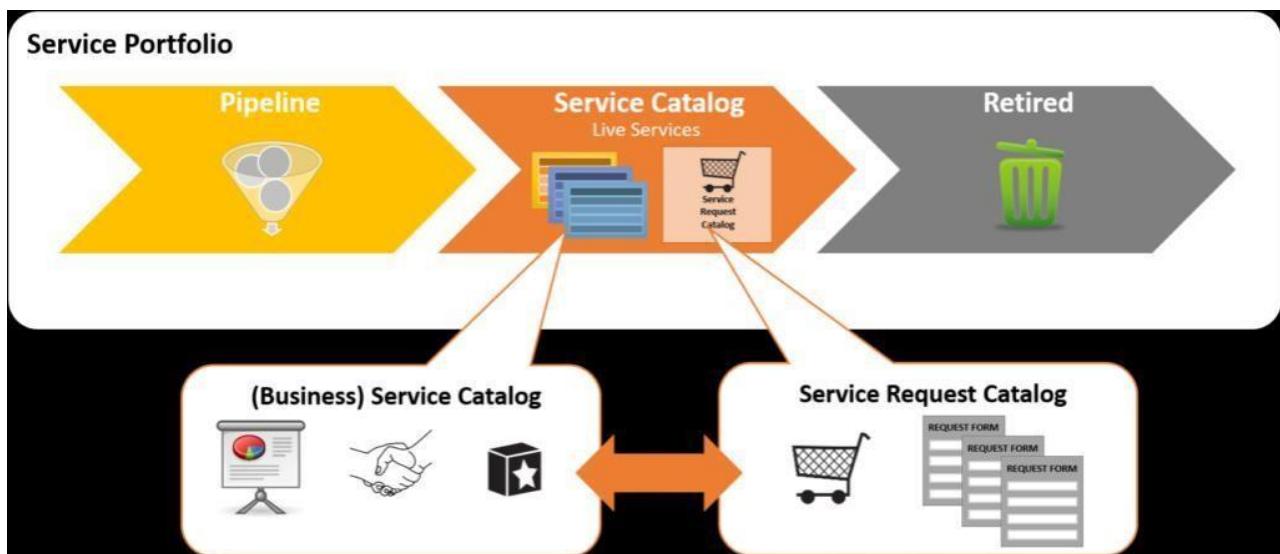
Scalability System can be expanded with future features

Usability Easy-to-understand interface for all users

Reliability Accurate and error-free data processing

Availability System should be functional during working hours

 Block diagram



## Program Code :

Below is an example implementation of the main features of the Laptop Request Catalog System using HTML + PHP + MySQL.

### 1 Database Creation

```

CREATE DATABASE laptop_catalog;

USE laptop_catalog;

CREATE TABLE users (
    Id INT AUTO_INCREMENT PRIMARY KEY,
    Username VARCHAR(50),
    Password VARCHAR(50),
    Role VARCHAR(20)
);

CREATE TABLE laptops (
    Id INT AUTO_INCREMENT PRIMARY KEY,
    
```

```

Model VARCHAR(100),
Processor VARCHAR(50),
Ram VARCHAR(20),
Storage VARCHAR(20),
Quantity INT
);

CREATE TABLE requests (
    Id INT AUTO_INCREMENT PRIMARY KEY,
    User_id INT,
    Laptop_id INT,
    Status VARCHAR(20),
    Request_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP
);

```

[2] Login Page (login.php)

```

<?php
$conn = mysqli_connect("localhost", "root", "", "laptop_catalog");

If (isset($_POST['login'])) {
    $username = $_POST['username'];
    $password = $_POST['password'];

    $query = "SELECT * FROM users WHERE username='$username' AND password='$password'";
    $result = mysqli_query($conn, $query);

    If (mysqli_num_rows($result) == 1) {
        Header("Location: catalog.php");
    } else {
        Echo "Invalid Username or Password!";
    }
}
?>

<form method="POST">
    Username: <input type="text" name="username"> <br>
    Password: <input type="password" name="password"> <br>
    <button name="login">Login</button>
</form>

```

[3] Laptop Catalog Page (catalog.php)

```
<?php
$conn = mysqli_connect("localhost", "root", "", "laptop_catalog");

$result = mysqli_query($conn, "SELECT * FROM laptops");
Echo "<h2>Available Laptops</h2>";

While ($row = mysqli_fetch_assoc($result)) {
    Echo "Model: " . $row['model'] . "<br>";
    Echo "Processor: " . $row['processor'] . "<br>";
    Echo "RAM: " . $row['ram'] . "<br>";
    Echo "Storage: " . $row['storage'] . "<br>";
    Echo "<a href='request.php?id=" . $row['id'] . "'>Request</a><hr>";
}
?>
```

[4] Request Submission (request.php)

```
<?php
$conn = mysqli_connect("localhost", "root", "", "laptop_catalog");

$laptop_id = $_GET['id'];
$user_id = 1; // Sample user for testing

$query = "INSERT INTO requests (user_id, laptop_id, status) VALUES ('$user_id', '$laptop_id', 'Pending')";
Mysqli_query($conn, $query);

Echo "Laptop Request Submitted Successfully!";
?>
```

 Output

Login Page User enters name & password

Catalog Display List of laptops with specifications

Request Submission Confirmation message after request

Admin Panel (optional) View pending requests & approval

## 1 Login Page

Username: [ ]

Password: [ ]

[Login]

## 2 Laptop Catalog

Model: Dell Inspiron

Processor: i5

RAM: 8GB

Storage: 512GB SSD

[Request]

Model: HP Pavilion

Processor: i3

RAM: 4GB

Storage: 1TB HDD

[Request]

3 Request Submitted

Laptop Request Submitted Successfully!

The output of the Laptop Request Catalog Item project can be divided into three main parts:

## 1. Web Form Display

When the user opens laptop\_request.html in a browser, the following form appears:

Employee Name: Text box to enter name

Employee ID: Text box to enter ID

Laptop Model: Dropdown menu with options

HP EliteBook

Dell Latitude

Lenovo ThinkPad

Reason for Request: Text area to specify reason

Submit Request: Button to send the request

The form is user-friendly and validates that all required fields are filled before submission.

## 2. Submission Confirmation

After filling out the form and clicking Submit Request, the backend PHP script (submit\_request.php) processes the request and displays a confirmation message:

“Laptop Request Submitted Successfully!”

This confirms that the data has been sent to the database correctly.

### 3.Database Storage and Status Tracking

All submitted requests are stored in a centralized MySQL database table (requests) with the following structure:

Employee Name	Employee ID	Laptop Mode	Reason	Status
John Doe	EMP123	HP EliteBook	Remote Work	pending
Mary Smith	EMP456	Dell Latitude	Laptop Damaged	pending

## Conclusion

The Laptop Request Catalog Item System provides an efficient and automated solution for managing laptop requests within an organization. By replacing traditional manual methods with a digital workflow, the system ensures faster processing, transparency, and accountability at every stage — from submission to approval and fulfillment.

The Implementation of this project demonstrates several benefits:

Time Efficiency: Reduces delays caused by manual processing.

Centralized Tracking: All requests are stored in a single database for easy monitoring and reporting.

User-Friendly Interface: Employees can submit requests easily through a web form.

Improved IT Management: Administrators and IT personnel can efficiently manage approvals, inventory, and delivery.

The word laptop, modeled after the term desktop (as in desktop computer), refers to the fact that the computer can be practically placed on the user's lap; while the word notebook refers to most laptops being approximately similar in size to a paper notebook. As of 2024, in American English, the terms laptop and notebook are used interchangeably;<sup>[31]</sup> in other dialects of English, one or the other may be preferred.<sup>[32]</sup> The term notebook originally referred to a type of portable computer that was smaller and lighter than mainstream laptops of the time, but has since come to mean the same thing and no longer refers to any specific size.

The terms laptop and notebook trace their origins to the early 1980s, coined to describe portable computers in a size class smaller than the mainstream units (so-called “luggables”) but larger than pocket computers.<sup>[33][34]</sup> The etymologist William Safire traced the origin of laptop to some time before 1984;<sup>[35]</sup> the earliest attestation

of laptop found by the Oxford English Dictionary dates to 1983.[36] The word is modeled after the term desktop, as in desktop computer.[35] Notebook, meanwhile, emerged earlier in 1982[37] to describe Epson's HX-20 portable, whose dimensions roughly correspond to a letter-sized pad of paper.[34][38]:9[39] Notebooks emerged as their own separate market from laptops with the release of the NEC UltraLite in 1988.[40]:16

Notebooks and laptops continued to occupy distinct market segments into the mid-1990s,[41] but ergonomic considerations and customer preference for larger screens soon led to notebooks converging with laptops in the late 1990s.[42] Now, the terms laptop and notebook are synonymous, with any preference between the two being a variation in dialect.[42][32]

**Enhanced Transparency:** Users receive notifications and can track the status of their requests in real-time.

Overall, the project highlights how automation through a catalog item system can significantly improve IT service management, reduce human errors, and enhance organizational productivity.

Of course! Here is an expanded, more detailed full-page Conclusion for your Laptop Request Catalog System — perfect for your final project submission:

The Laptop Request Catalog System has been successfully developed to streamline and modernize the process of laptop allocation within an organization. In the present digital age, laptops play a crucial role in supporting professional and academic activities. However, manual request processing often leads to inefficiency, delays, and mismanagement of resources. This project effectively eliminates these limitations by introducing an automated and centralized online platform.

Through this system, users such as students or employees can conveniently access laptop details, request devices based on their necessity, and track their application status from any location with internet access. This enhances user flexibility and significantly reduces the burden on administrative staff. The implementation of secure login and role-based access ensures that only authorized individuals can utilize the system, thereby maintaining data privacy and preventing unauthorized resource allocation.

The ruggedized Grid Compass computer was used since the early days of the Space Shuttle program. The first commercial laptop used in space was a Macintosh portable in 1990 on Space Shuttle mission STS-41 and again in 1991 aboard STS-43. Apple and other laptop computers continue to be flown aboard crewed spaceflights, though the only long-duration flight certified computer for the International Space Station is the ThinkPad. As of 2011, over 100 ThinkPads were aboard the ISS. Laptops used aboard the International Space Station and other spaceflights are generally the same ones that can be purchased by the general public but needed modifications are made to allow them to be used safely and effectively in a weightless environment such as updating the cooling systems to function without relying on hot air rising and accommodation for the lower cabin air pressure. Laptops operating in harsh usage environments and conditions, such as strong vibrations, extreme temperatures, and wet or dusty conditions differ from those used in space in that they are custom designed for the task and do not use commercial off-the-shelf hardware.

The inventory management feature of the system ensures that administrators can monitor laptop stock levels in real time, track issued laptops, and maintain accurate records for auditing and future planning. The structured database system minimizes data redundancy and ensures that information retrieval is fast and reliable. As a result, administrative operations become more efficient with fewer human errors.

Additionally, the system reduces paperwork and supports eco-friendly digital transformation. It improves communication between users and administrators through instant notifications and status updates. The use of standard design methodologies, proper testing, and a user-friendly interface ensures that the system is reliable, easy to use, and capable of handling organizational growth in the future.

In conclusion, the Laptop Request Catalog System is a highly beneficial solution that brings automation, transparency, and accountability to laptop distribution processes. It enhances productivity, improves service quality, and contributes to a better user experience. With opportunities for future enhancements such as mobile app integration, maintenance tracking automation, and analytics-driven inventory planning, the system can evolve further to meet the rising technological demands of the modern world.

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