

License Management System - Knowledge Transfer Document

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System Overview

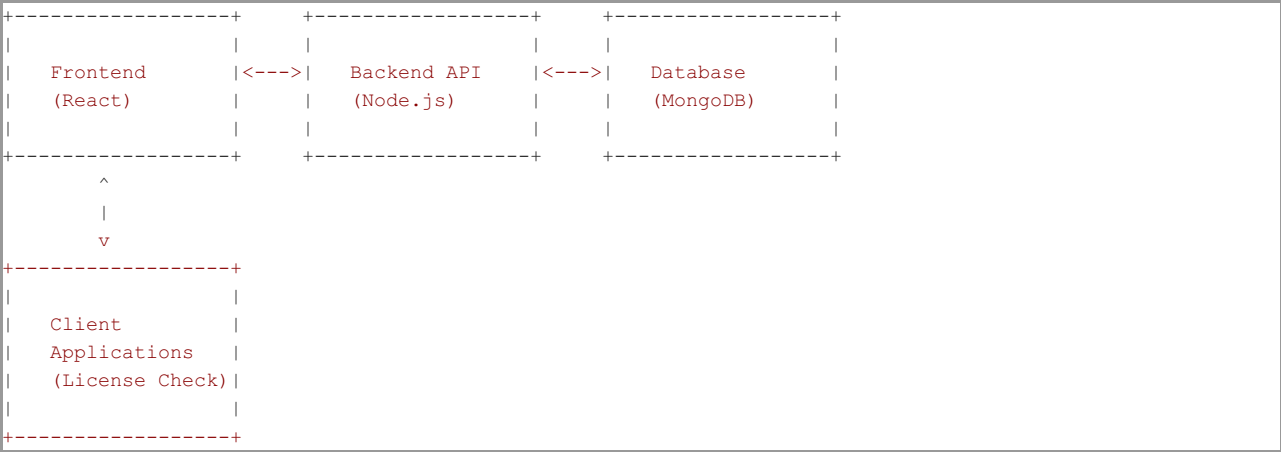
The License Management System (LMS) is a comprehensive solution designed to manage software licenses, user access, and product activations. The system provides a secure and scalable way to manage software distribution, track license usage, and ensure compliance with licensing agreements.

Key Features

- User authentication and authorization
- License key generation and management
- Product catalog management
- Purchase and activation tracking
- User and role management
- Dashboard and reporting
- License activation simulation

System Architecture

High-Level Architecture



Component Architecture

- 1. **Frontend (React.js)**
 - User Interface components
 - Dashboard and reporting
 - Admin console
 - User management interface
- 2. **Backend (Node.js/Express)**
 - RESTful API endpoints
 - Authentication service

- License management service
- Product management service
- User management service

3. Database (MongoDB)

- Users collection
- Products collection
- Licenses collection
- Purchases collection

4. Client Library

- License validation
- Machine binding
- Activation management

Technical Stack

Frontend

- **Framework:** React.js
- **State Management:** Redux/Context API
- **UI Components:** Material-UI
- **Routing:** React Router
- **HTTP Client:** Axios

Backend

- **Runtime:** Node.js
- **Framework:** Express.js
- **Authentication:** JWT (JSON Web Tokens)
- **Database:** MongoDB with Mongoose ODM
- **Validation:** Joi
- **Logging:** Winston

Client Library

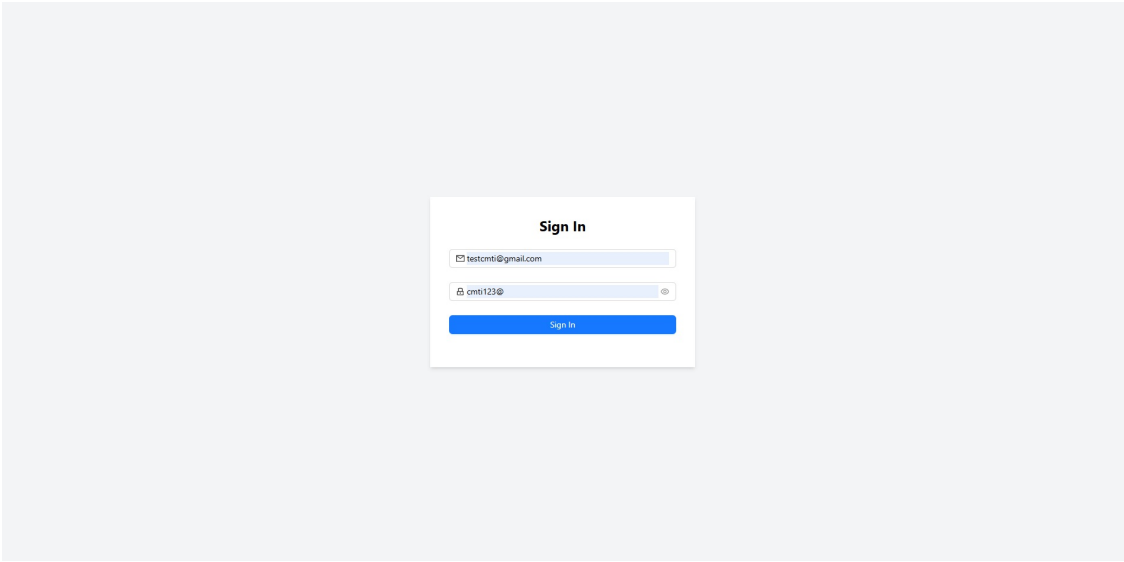
- **Language:** JavaScript/Node.js
- **Cryptography:** crypto-js
- **HTTP Client:** Axios
- **Persistence:** File system for local storage

User Workflows

Admin Workflow

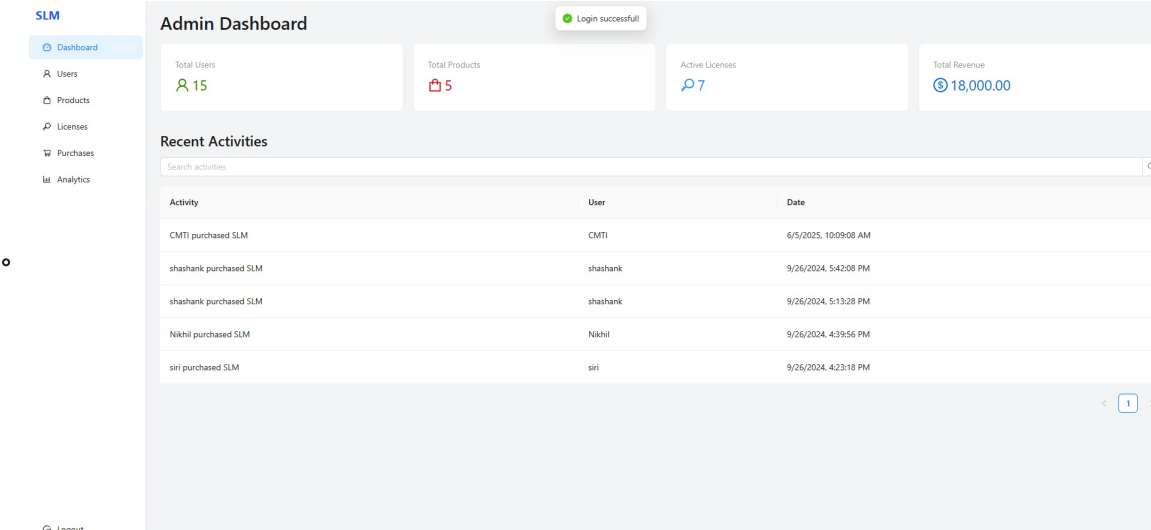
1. Login

- Access admin dashboard with elevated privileges



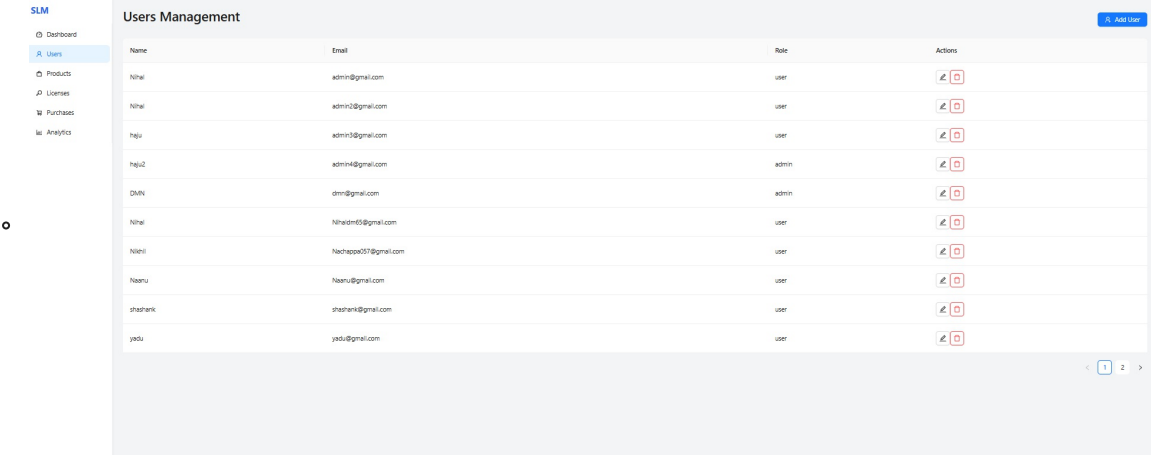
2. Dashboard

- Overview of system metrics
- Quick access to key functions



3. User Management

- View and manage all users
- Assign roles and permissions



4. Product Management

- Add/Edit/Remove products
- Configure product details and licensing options

SLM

- Dashboard
- Users
- Products
- Licenses
- Purchases
- Analytics

Products Management

+ Add Product

Name	Description	Version	Price	Actions
GerBINDIA	sadasdadaw		\$200.00	Edit Delete
test	asdasd	1	\$200.00	Edit Delete
SLM	asdasdasdas	1	\$20000.00	Edit Delete
SLM	License Management Software: Streamline Your Software Licensing License Management Software is a solution designed to help organizations effectively track, manage, and optimize their software licenses. This ensures compliance with vendor agreements, reduces costs associated with over-licensing or under-licensing, and provides better control over software deployments. Key Features: License Inventory: Automatically discover and track all software licenses across the network, including both physical and virtual environments. License Usage Monitoring: Monitor real-time license usage and identify any discrepancies between allocated and consumed licenses. Compliance Management: Ensure compliance with vendor agreements and avoid potential penalties for non-compliance. Automated License Renewal: Receive alerts for expiring licenses and automate the renewal process to prevent disruptions. Reporting and Analytics: Generate detailed reports on license usage, cost, and compliance to gain valuable insights and optimize licensing strategies. License Optimization: Identify opportunities to reclaim unused licenses and consolidate licenses to reduce costs. Centralized Management: Manage all software licenses from a single, centralized platform, simplifying administration and control. Integration with Existing Systems: Integrate with existing IT infrastructure, such as Active Directory and ServiceNow, for seamless data exchange. Benefits: Reduced Software Costs: Optimize license utilization and avoid overspending on unnecessary licenses. Improved Compliance: Ensure compliance with vendor agreements and avoid potential penalties. Enhanced Security: Control access to software and prevent unauthorized usage. Increased Efficiency: Streamline license management processes and reduce administrative overhead. Better Visibility: Gain a clear understanding of software license usage and optimize deployment.	2	\$100000.00	Edit Delete
sadasd		2	\$200.00	Edit Delete

Logout

SLM

- Dashboard
- Users
- Products
- Licenses
- Purchases
- Analytics

Products Management

Name

Description

Version

Price

Actions

GerBINDIA

sadasdadaw

\$200.00

[Edit](#)

test

asdasd

1

\$200.00

[Edit](#)

SLM

asdasdasdas

1

\$20000.00

[Edit](#)

SLM

License Management Software: Streamline Your Software Licensing
License Management Software is a solution designed to help organizations effectively track, manage, and optimize their software licenses. This ensures compliance with vendor agreements, reduces costs associated with over-licensing or under-licensing, and provides better control over software deployment time license usage and identify any discrepancies between allocated and consumed licenses. License Monitoring: Monitor real-time license usage and identify any discrepancies between allocated and consumed licenses. Compliance Management: Ensure compliance with vendor agreements and avoid potential penalties for non-compliance. Automated License Renewal: Receive alerts for expiring licenses and automate the renewal process to prevent disruptions. Reporting and Analytics: Generate detailed reports on license usage, cost, and compliance to gain valuable insights and optimize licensing strategies. License Optimization: Identify opportunities to reclaim unused licenses and consolidate licenses to reduce costs. Centralized Management: Manage all software licenses from a single, centralized platform, simplifying administration and control. Integration with Existing Systems: Integrate with existing IT infrastructure, such as Active Directory and ServiceNow, for seamless data exchange. Benefits: Reduced Software Costs: Optimize license utilization and avoid overspending on unnecessary licenses. Improved Compliance: Ensure compliance with vendor agreements and avoid potential penalties. Enhanced Security: Control access to software and prevent unauthorized usage. Increased Efficiency: Streamline license management processes and reduce administrative overhead. Better Visibility: Gain a clear understanding of software license usage and optimize deployment.

2

\$100000.00

[Edit](#)

sadasd

asdasdasd

2

\$200.00

[Edit](#)

Add New Product

Name

Description

Version

Price

Features (comma-separated)

System Requirements

Download URL

Documentation URL

Add License Type

License Agreement

Add Product

5. License Management

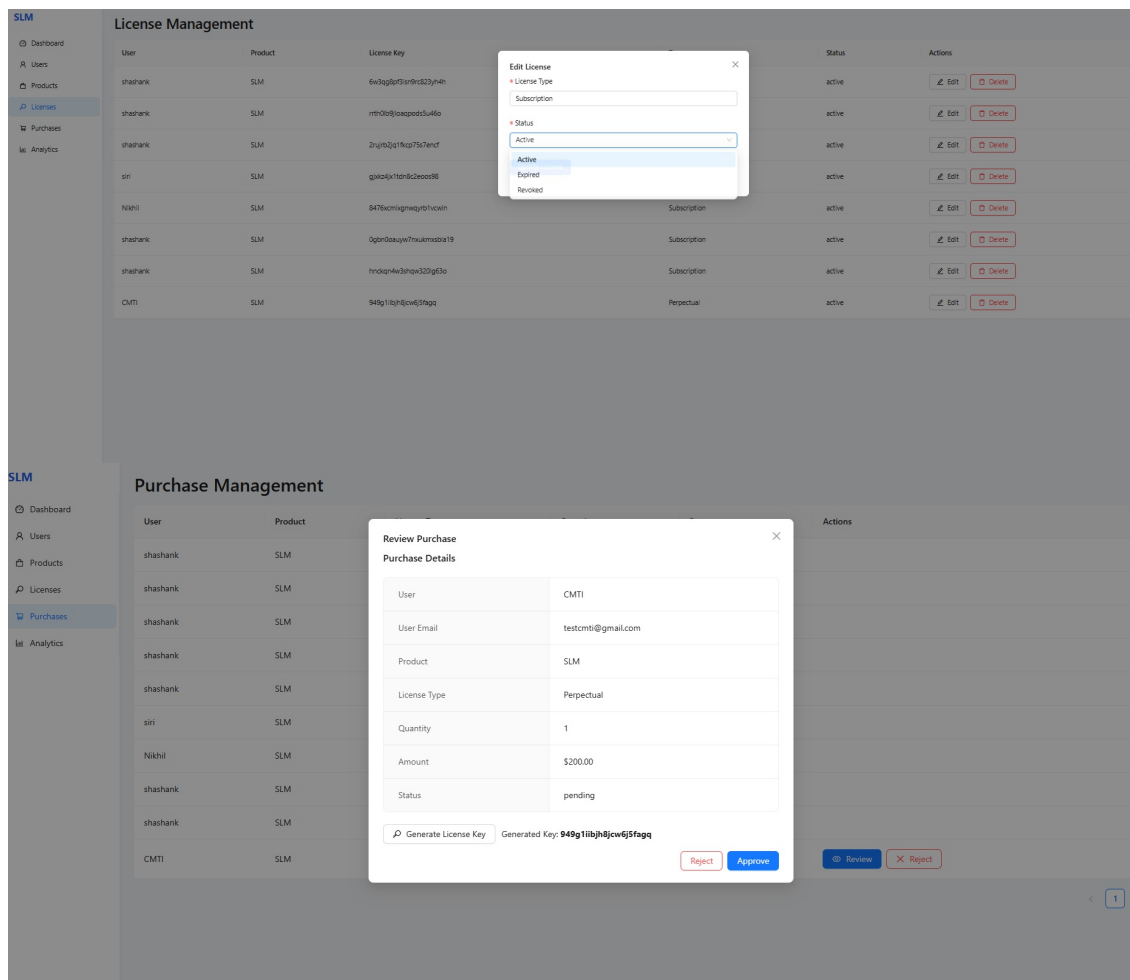
- Generate and manage license keys
- View activation status
- Revoke/reactivate licenses

SLM

- Dashboard
- Users
- Products
- Licenses
- Purchases
- Analytics

License Management

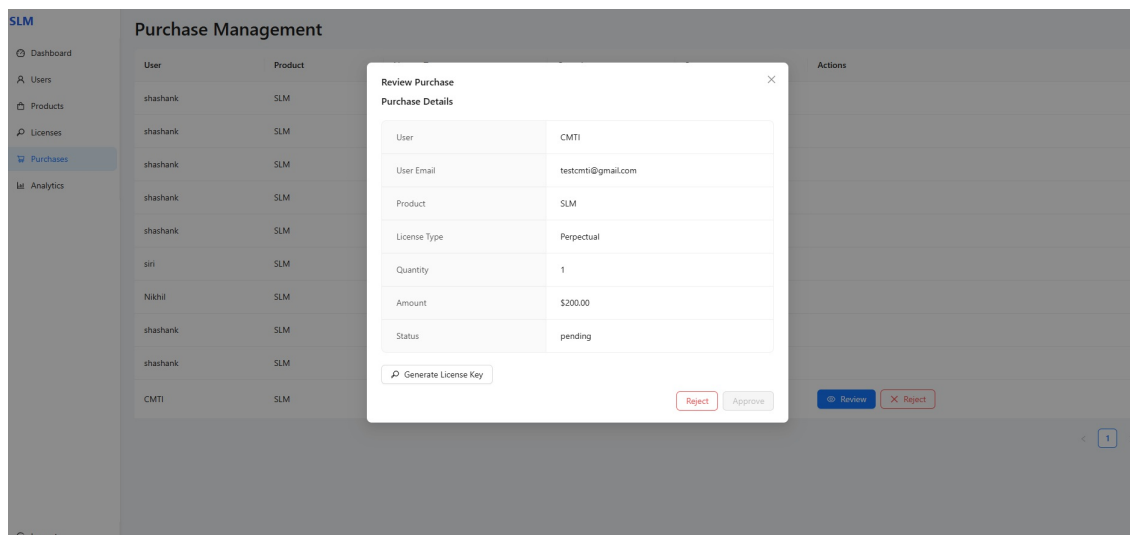
User	Product	License Key	Type	Status	Actions
shashank	SLM	6w0qg5u9sr9h323yh4h	Subscription	active	Edit Delete
shashank	SLM	rnf030t0aapad5u46o	Subscription	active	Edit Delete
shashank	SLM	2n9h3q21fcp75r7enf	Subscription	active	Edit Delete
pih	SLM	gikw4jy1tdr6Qeeo98	Subscription	active	Edit Delete
Nilesh	SLM	8478kcm9wqgr5tvcwn	Subscription	active	Edit Delete
shashank	SLM	0p9n0oaupw7mukms0ta19	Subscription	active	Edit Delete
shashank	SLM	hndcp4w3hnpv320g68o	Subscription	active	Edit Delete
CMIT	SLM	948g118p8@w6j58gq	Perpetual	active	Edit Delete



6. Purchase Management

- Track purchases and subscriptions
- Process refunds/upgrades

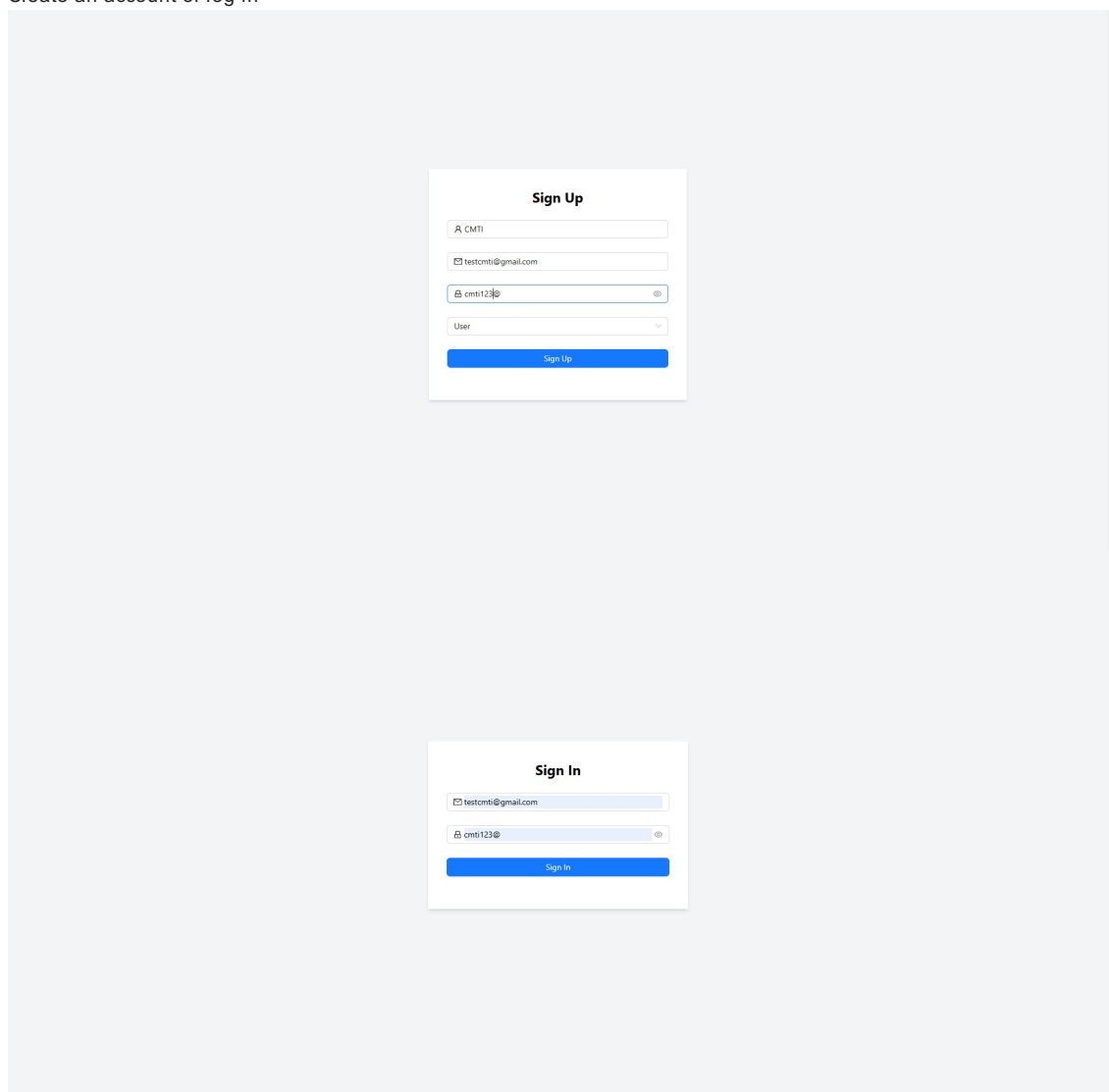
User	Product	License Type	Quantity	Status	Actions
shashank	SLM	Subscription	1	approved	
shashank	SLM	Subscription	1	approved	
shashank	SLM	Subscription	1	approved	
shashank	SLM	Subscription	1	approved	
shashank	SLM	Subscription	1	approved	
siri	SLM	Subscription	1	approved	
Nikhil	SLM	Subscription	1	approved	
shashank	SLM	Subscription	1	approved	
shashank	SLM	Subscription	1	approved	
CMTI	SLM	Perpetual	1	pending	Review Reject



End User Workflow

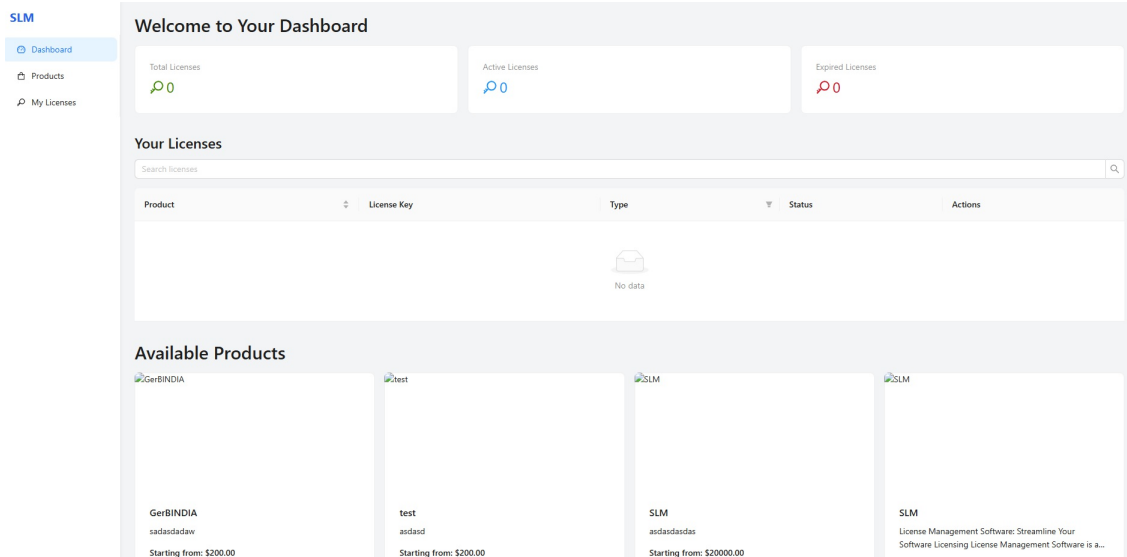
1. Registration/Login

- Create an account or log in



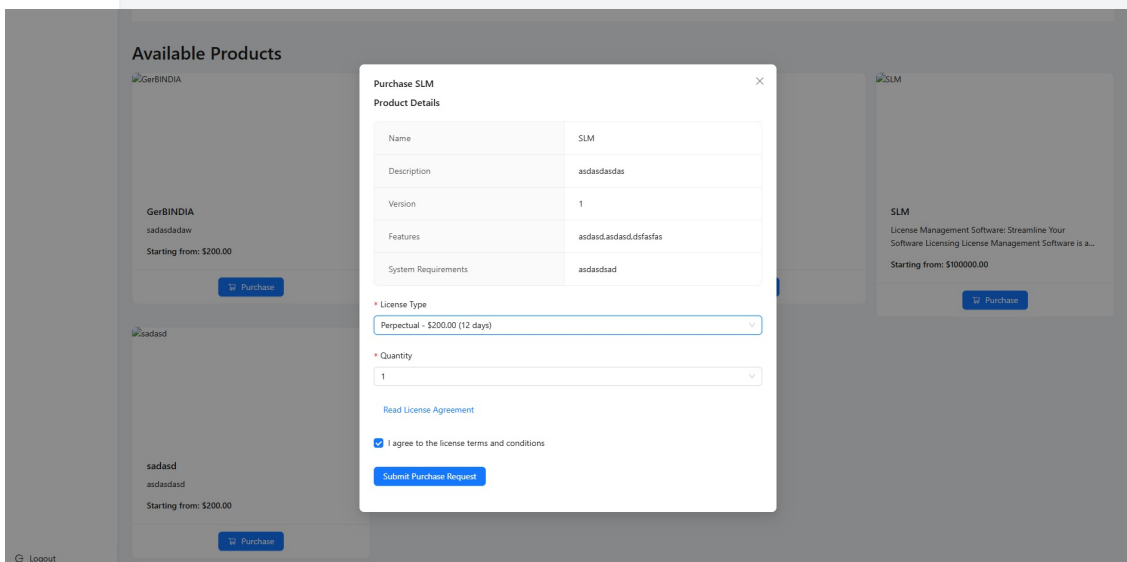
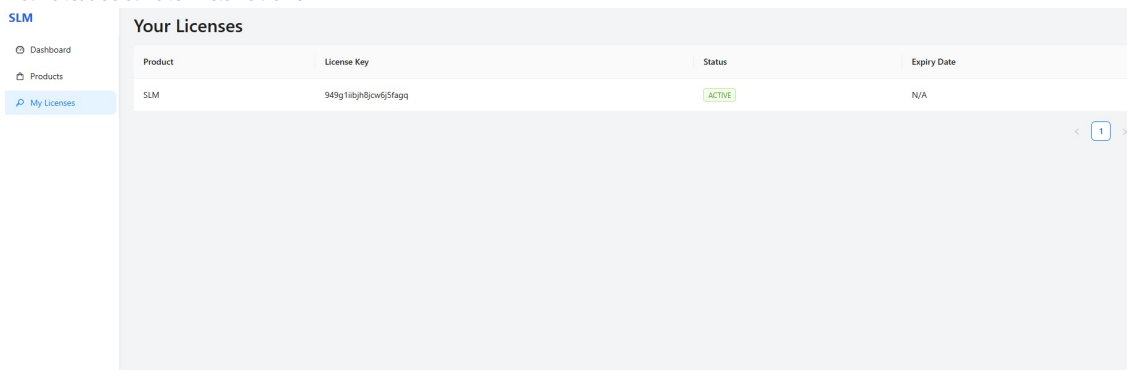
2. User Dashboard

- View purchased licenses
- Access download links



3. License Management

- View and manage licenses
- Activate/deactivate installations



4. License Activation

- Activate software using license key
- Manage activated devices

```

PS D:\Naanu\Codes\CMTI\License_management\LMS_Simulation> node activation.js
🔥 Starting license activation process...
Checking for existing license...
No existing license file found, attempting to activate...
Attempting to activate license: an10ypfuzg8zhki92twrm
Entering activateLicense function
Request body: {
  licenseKey: 'an10ypfuzg8zhki92twrm',
  machineId: '151366df81d31c39409b87692204905c3cdf766af53b74612ec0a7c0aba70838'
}
License activation response: {
  message: 'License activated successfully',
  license: {
    _id: '68412508d60b36487ad6757a',
    userId: '68411f11d60b36487ad67468',
    productId: '66e96eeb7a7149dee0d6f4fd',
    licenseKey: 'an10ypfuzg8zhki92twrm',
    type: 'perpetual',
    startDate: '2025-06-05T05:03:04.826Z',
    status: 'active',
    activations: [ [Object] ],
    createdAt: '2025-06-05T05:03:04.827Z',
    updatedAt: '2025-06-05T05:03:58.031Z',
    __v: 1
  }
}
License data saved successfully
✅ License activated successfully. Access granted to the application.
🔥 Application started successfully!

```

Integration Points

API Endpoints

- **Authentication:** /api/auth/*
- **Users:** /api/users/*
- **Products:** /api/products/*
- **Licenses:** /api/licenses/*
- **Purchases:** /api/purchases/*

Webhooks

- License activation events
- Purchase notifications
- System alerts

Client Integration

```

const LicenseManager = require('./licenseManager');
const license = new LicenseManager(API_URL, LICENSE_FILE_PATH);

// Check license
const isValid = await license.verifyLicense();

// Activate license
await license.activateLicense(LICENSE_KEY);

```

Troubleshooting Guide

Common Issues

1. **Activation Fails**

- Verify internet connection
- Check license key validity
- Ensure machine ID hasn't changed

2. Login Issues

- Reset password if necessary
- Check account status (active/suspended)

3. License Validation Failures

- Check system date/time
- Verify license expiration
- Check for blacklisted keys

4. API Connectivity

- Verify API endpoint URL
- Check CORS configuration
- Verify network connectivity

FAQs

General

Q: How do I reset my password?

A: Use the "Forgot Password" link on the login page.

Q: How many devices can I activate?

A: This depends on your license type. Check your license details.

Licensing

Q: What happens if I change my hardware?

A: Contact support to reset your activations if you've reached your limit.

Q: How do I upgrade my license?

A: Navigate to the upgrade section in your dashboard.

Technical

Q: How do I integrate the license check in my application?

A: Include the client library and follow the integration guide.

Q: What data is collected during activation?

A: Only machine ID and license details are collected for validation.