

CONTRACT MANAGEMENT SYSTEM
A MINI PROJECT REPORT

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In partial fulfillment for the award of the degree of
BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE
RAJALAKSHMI ENGINEERING COLLEGE (AUTONOMOUS)
THANDALAM
CHENNAI-602105

2023 – 24

BONAFIDE CERTIFICATE

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INTERNAL EXAMINER

EXTERNAL EXAMINER

ABSTRACT

The Contract Management System (CMS) project addresses the inefficiencies, errors, and risks associated with manual or decentralized handling of contracts within organizations. By offering a comprehensive solution for managing the entire contract lifecycle from creation and negotiation to approval, renewal, and termination, the CMS enhances visibility, control, and compliance, while reducing administrative burdens and mitigating risks.

A key feature of the CMS is its robust user authentication, ensuring secure login and logout functionalities for authorized access. The contract management module provides tools for viewing, filtering, adding, updating, deleting, and searching contracts, along with approval and signing processes. This module also includes advanced features such as collaboration tools, workflow automation, customizable templates, and contract renewal workflows.

Third-party integrations with electronic signature services, document management systems, payment gateways, and reporting tools streamline the contract management process, reducing the need for manual intervention.

The system supports various organizational roles, including contract managers, legal teams, procurement officers, finance teams, and executive leadership. Each role benefits from improved contract oversight, streamlined processes, and enhanced decision-making capabilities. Notifications and alerts for contract milestones, along with mobile accessibility, ensure that stakeholders are always informed and can manage contracts on-the-go.

By centralizing contract-related data and automating workflows, the CMS provides significant benefits, including greater efficiency, accuracy, and compliance in contract handling processes. This leads to better risk management, cost savings, and a strategic advantage for organizations. The deployment architecture ensures scalability, performance, and security, making the CMS a robust solution for modern contract management needs.

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OVERVIEW OF PROJECT

PROBLEM STATEMENT

Organizations face numerous challenges with manual or decentralized contract management processes. This includes challenges such as:

- Difficulty in tracking contract lifecycles and key milestones.
- Inefficient processes for creating, negotiating, and approving contracts.
- Lack of visibility into contract terms, obligations, and renewals.
- Increased risk of non-compliance and missed opportunities due to outdated or overlooked contracts.

DATA

Effective contract management requires comprehensive data handling capabilities including,

Contract metadata: Information about parties involved, contract type, effective dates, and key terms.

Contract documents: Actual copies of contracts and associated files

Audit Trails: Detailed logs of changes, approvals, and user activities for compliance and accountability.

BENEFIT TO THE USERS

Implementing a contract management system brings several benefits to users across different roles within an organization:

Contract Managers: Gain better control and oversight of the entire contract lifecycle, enabling proactive management of renewals, amendments, and terminations. They can also track compliance with contractual obligations and mitigate risks more effectively.

Legal Teams: Streamline contract drafting, negotiation, and approval processes through templates, version control, and automated workflows. This reduces the time spent on administrative tasks and ensures adherence to legal standards and regulatory requirements.

Procurement Teams: Improve vendor management and supplier relationships by centralizing contract information, facilitating better negotiation outcomes, and optimizing contract terms and pricing.

Finance Teams: Enhance financial planning and forecasting by having visibility into contractual commitments, payment terms, and revenue recognition schedules. This helps in managing cash flow, identifying cost-saving opportunities, and mitigating financial risks.

Executive Leadership: Gain insights into the organization's contractual obligations, liabilities, and performance metrics through customizable dashboards and reports. This supports strategic decision-making, risk management, and compliance initiatives.

KEY COMPONENTS

The contract management system encompasses several key components to address the outlined problems and deliver the aforementioned benefits:

Contract Repository: A centralized database for storing and managing all contracts and related documents.

Workflow Engine: Automated workflows for contract creation, review, approval, and renewal processes.

Reporting and Analytics Module: Tools for generating reports and dashboards to monitor contract performance and compliance.

Integration Layer: APIs and connectors for integrating with third-party systems like electronic signatures, document management, CRM, and ERP systems.

Security and Compliance Framework: Measures to ensure data security, access control, and compliance with regulatory requirements.

IMPORTANT FEATURES

The contract management system includes several important features to streamline contract processes and improve efficiency:

Notification and Alerts: Automated notifications for upcoming contract renewals, expirations, or important milestones.

Version Control: Maintains a history of contract versions, allowing users to track changes and revert to previous versions if needed.

Collaboration Tools: Enables users to collaborate on contracts by sharing comments, notes, or updates with stakeholders.

Workflow Automation: Automates processes like approval routing, notifications, and reminders, reducing manual tasks.

Mobile Accessibility: Provides mobile-friendly access to manage contracts on-the-go.

Customizable Templates: Standardizes the contract creation process with customizable templates.

Contract Renewal Workflow: Automates the renewal process, including notifications, renegotiations, and updates.

Compliance Monitoring: Ensures contracts adhere to regulatory requirements and internal policies.

Advanced Reporting and Analytics: Delivers insights into contract performance and trends to support data-driven decisions.

Audit Trail: Tracks all activities and changes made to contracts for transparency and accountability.

BUSINESS ARCHITECTURE

BUSINESS NEED

A contract management system is required to streamline the contract lifecycle, improve collaboration, ensure compliance, and enhance efficiency in managing contracts.

CURRENT PROCESS

The current process may involve manual methods such as using spreadsheets or email to create, track, and manage contracts. This manual process can be time-consuming, error-prone, and lacks centralized control and visibility.

Current Process (Manual):

- 1. Contract Creation:** Contracts are created manually using templates or drafted from scratch.
- 2. Review and Approval:** Contracts are circulated via email for review and approval, leading to delays and version control issues.
- 3. Signing:** Once approved, contracts are printed, signed manually, and scanned back for storage.
- 4. Storage and Retrieval:** Signed contracts are stored in physical or digital files, making retrieval difficult.
- 5. Renewal and Termination:** Contract renewal or termination dates are manually tracked, often leading to missed deadlines or oversights.

PERSONAS AND THEIR ROLES

1. Contract Manager:

- Responsible for creating, managing, and tracking contracts.
- Deals with contract negotiation, approval, and renewal.
- Needs access to contract templates, approval workflows, and reporting tools.

2. Legal Team:

- Reviews contracts for legal compliance and risk assessment.
- Provides legal advice and ensures contracts meet regulatory requirements.

3. Sales Team:

- Initiates contract creation and negotiation with clients.
- Needs visibility into contract status and client information.

4. Finance Team:

- Monitors contract terms related to payment and billing.
- Requires access to financial reports and contract data for invoicing and revenue recognition.

5. Clients:

- Interact with the system to review, approve, and sign contracts.
- Need a user-friendly interface for contract negotiation and collaboration.

BUSINESS PROBLEM:

1. Manual Process Inefficiency:

- Time-consuming contract creation and approval process.
- Lack of centralized control and visibility leads to errors and delays.
- Difficulty in tracking contract status, renewal dates, and compliance.

2. Version Control Issues:

- Circulating contracts via email leads to version control problems and confusion.

3. Compliance Risks:

- Manual tracking of compliance requirements increases the risk of non-compliance.

4. Limited Collaboration:

- Lack of collaboration tools hinders communication and slows down the contract lifecycle.

5. Poor Reporting and Analysis:

- Inability to generate comprehensive reports leads to limited insights for decision-making.

REQUIREMENTS AS USER STORIES

FUNCTIONAL REQUIREMENTS

1. Contract Creation and Management:

- * Ability to create, view, update, and delete contracts.
- * Support for customizable contract templates.
- * Metadata management for tracking contract details (parties involved, contract type, effective dates, key terms).
- * Document management for storing and retrieving contract files.

2. Approval Workflows:

- * Define and automate approval workflows.
- * Notify stakeholders of pending approvals and status updates.
- * Track approval history and maintain an audit trail.

3. Reporting and Analytics:

- * Generate reports on contract performance metrics (e.g., financial summary, contract status, upcoming renewals).
- * Customizable dashboards for different user roles.
- * Advanced analytics to identify trends and insights from contract data.

4. Integration with Third-party Services:

- * Seamless integration with electronic signature services (e.g., DocuSign).
- * Integration with document management systems for organized storage.
- * Connectivity with CRM systems to link contracts with customer profiles.
- * API support for integration with ERP systems and other enterprise applications.

NON FUNCTIONAL REQUIREMENTS

1. Performance:

- * The system should handle a high volume of contracts and user interactions efficiently.
- * Response times should be under 2 seconds for most operations.

2. Security:

- * Implement robust data encryption for sensitive contract information.
- * Role-based access control to ensure that users only access information relevant to their roles.
- * Regular security audits and compliance checks.

3. Scalability:

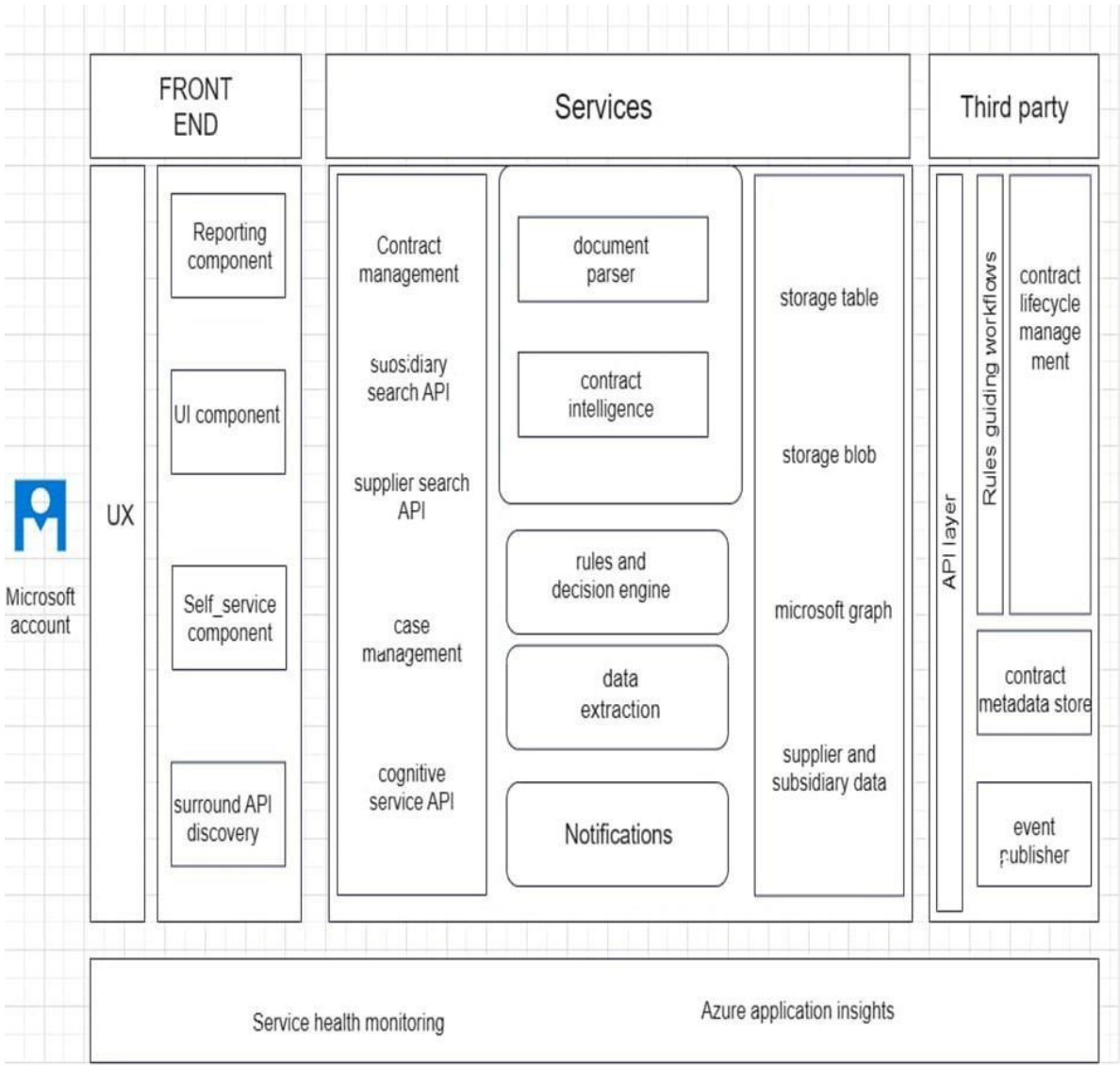
- * The system should be scalable to accommodate an increasing number of users and contracts.

* Support for horizontal scaling to maintain performance during peak loads.

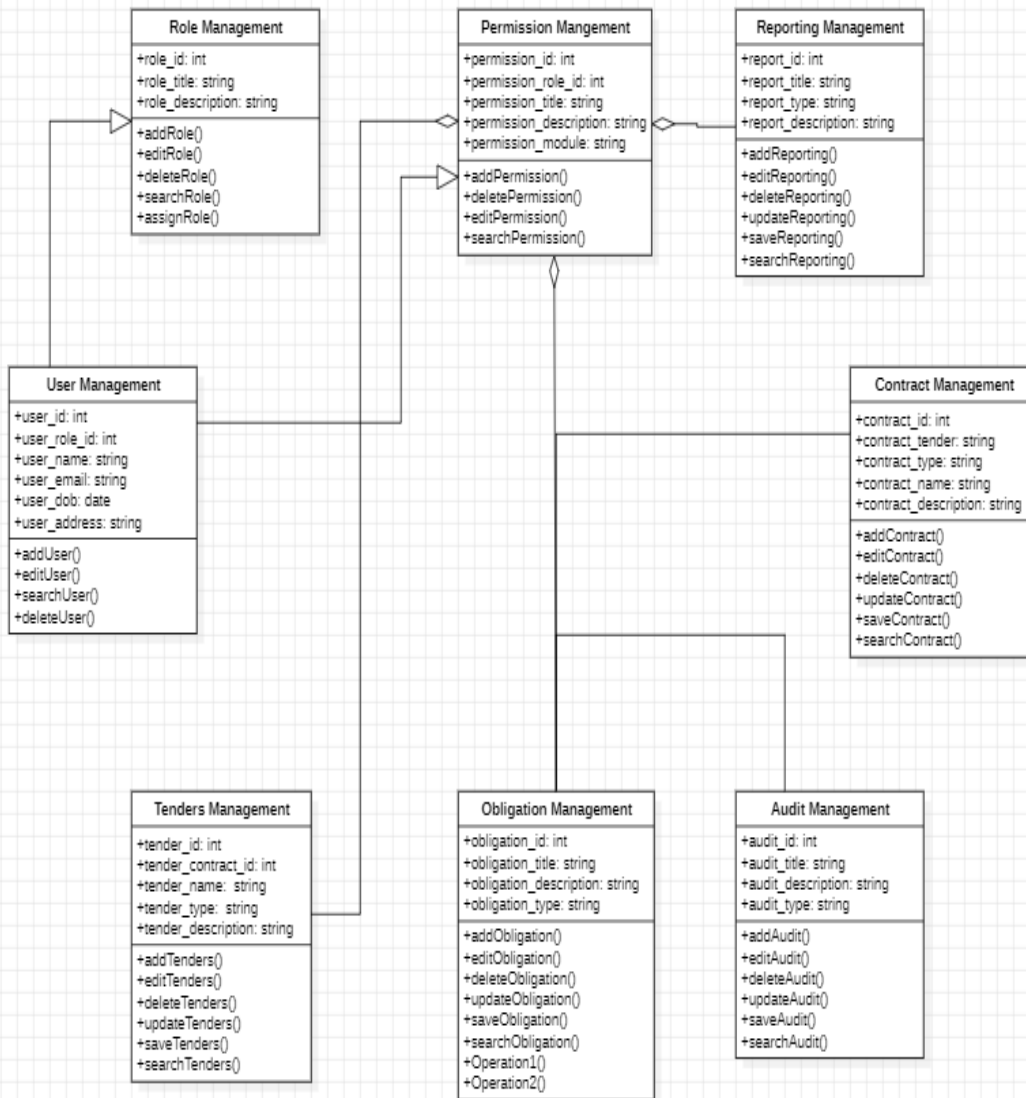
USER STORIES

1. As a Contract Manager, I want to create a new contract template, so that I can quickly draft new contracts based on standardized terms and conditions.
2. As a Legal Team member, I want to review and approve contract drafts online, ensuring compliance with legal standards and company policies.
3. As a Procurement Officer, I need to track vendor contracts and receive automated notifications for contract renewals, so that I can avoid service disruptions and negotiate favorable terms.
4. As a Finance Team member, I want to generate invoices automatically based on contract terms and milestones, streamlining the billing process and ensuring accurate revenue recognition.
5. As an Executive, I need real-time dashboards and reports on contract performance metrics, such as revenue generated, upcoming renewals, and compliance status, to make informed strategic decisions.
6. As a Contract Manager, I want to set up approval workflows for contract changes and amendments, ensuring proper authorization and audit trail.
7. As a Legal Team member, I need version control and document tracking features to manage changes and revisions in contract drafts effectively.
8. As a Procurement Officer, I want to integrate the contract management system with supplier databases and ERP systems for seamless data exchange and vendor performance monitoring.
9. As a Contract Administrator, I need to archive and retrieve expired contracts and related documents for compliance and audit purposes.
10. As a System Administrator, I want to configure role-based access controls and permissions to ensure data security and compliance with privacy regulations.

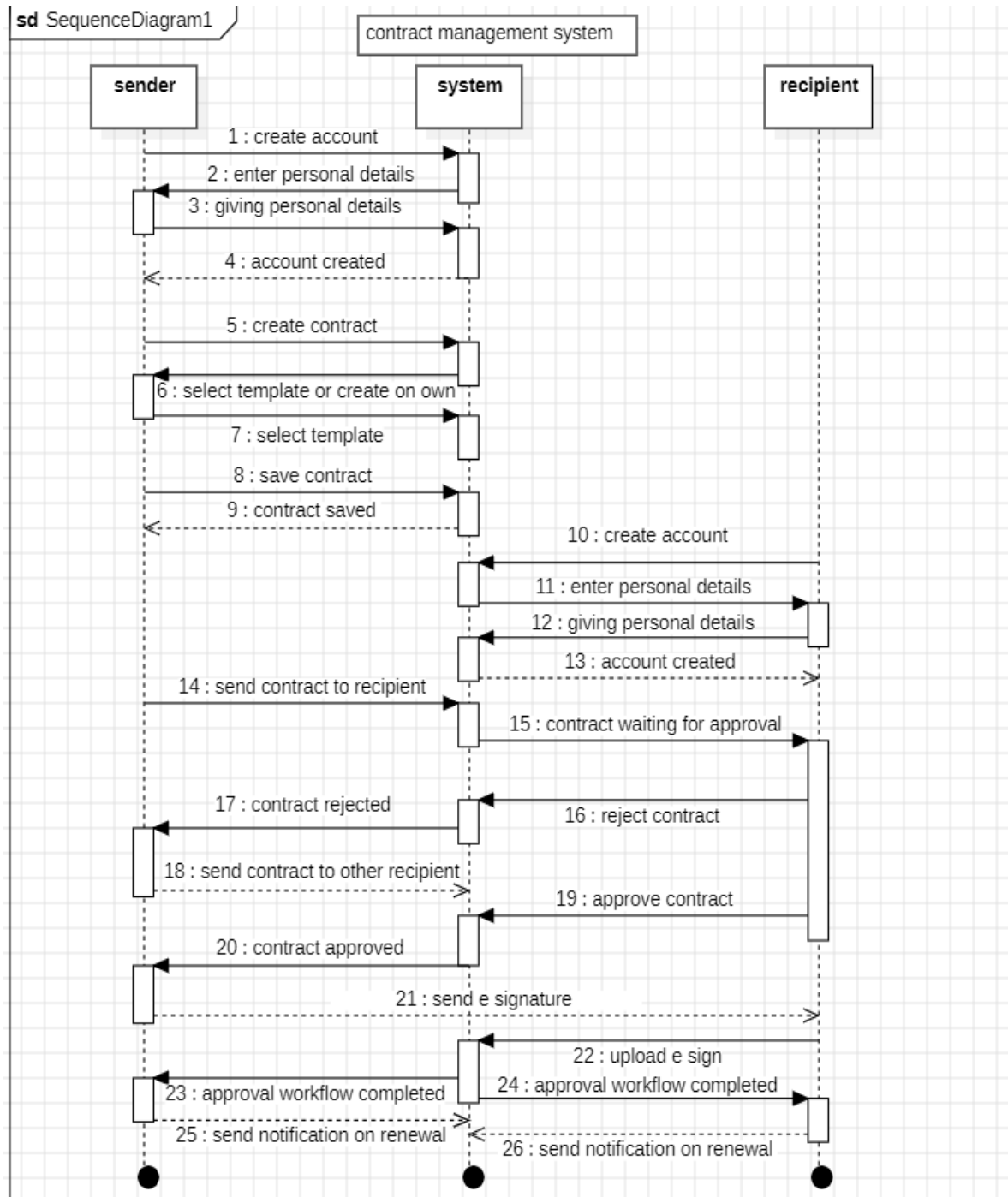
ARCHITECTURE DIAGRAM



CLASS DIAGRAM



SEQUENCE DIAGRAM



TEST STRATEGY

TEST PLANS

Objective: Ensure the contract management system meets functional and non-functional requirements, providing a seamless user experience and robust performance.

Test Plan 1: Functional Testing

Scope: Validate the functionality of key features according to user stories and acceptance criteria.

Testing Approach:

- **Unit Testing:** Validate individual components and modules.
- **Integration Testing:** Ensure seamless interaction between different modules.
- **System Testing:** Validate end-to-end functionality and user workflows.

Test Plan 2: Performance Testing

Scope: Evaluate system performance under different load conditions to ensure scalability and responsiveness.

Testing Approach:

- **Load Testing:** Assess system behavior under expected and peak loads.
- **Stress Testing:** Determine system's breaking point and scalability limits.

Metrics: Response time, throughput, and resource utilization.

TEST CASES

User Story 1: Create Contract Template

1. Happy Path:

- Input valid contract template details.
- Verify template is successfully created and saved.

2. Error Scenario:

- Input invalid or incomplete contract template details.
- Verify appropriate error message is displayed.

User Story 2: Review and Approve Contracts

1. Happy Path:

- Receive contract draft notification.

- Review contract details and terms.
- Approve contract.

2. Error Scenario:

- Encounter discrepancy in contract terms.
- Reject contract with comments.
- Verify rejection notification is sent to Contract Manager.

User Story 3: Track Vendor contracts

1. Happy Path:

- Receive automated notification for contract renewal.
- Negotiate renewal terms.
- Finalize and update contract status.

2. Error Scenario:

- Miss automated renewal notification.
- Verify contract renewal process can be initiated manually.

User Story 4: Generate Invoices Automatically

1. Happy Path:

- Contract milestone reached.
- System automatically generates invoice based on contract terms.
- Verify invoice details are accurate.

2. Error Scenario:

- Contract milestone not captured.
- Manual intervention required to generate invoice.
- Verify manual invoice creation process.

User Story 5: Real-time Dashboards and Reports

1. Happy Path:

- Access real-time dashboard.
- View contract performance metrics.
- Generate customized reports.

2. Error Scenario:

- Dashboard fails to load or update.
- Verify error handling and retry mechanisms.

DEPLOYMENT ARCHITECTURE OF THE APPLICATION

