

Technology Stack Template

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Team ID	NM2025TMID02331
Project Name	Lease management

Technical Architecture

The **Technical Architecture** defines the overall structure of the system, illustrating how different components and technologies interact to deliver the desired functionality. It represents the logical flow of data, application layers, and technology blocks that together ensure a seamless, scalable, and secure system.

1. Presentation Layer (User Interface Layer)

This layer acts as the **front-end of the system** and is responsible for user interaction.

Processes & Components:

- User authentication and login process
- Data input forms and dashboards
- Viewing and managing records (e.g., Lease, Incident, or Performance data)
- UI elements created using **Lightning Components / HTML / CSS / JavaScript**

Technology Used:

- Salesforce Lightning Components / Visualforce Pages
- HTML5, CSS3, JavaScript
- Bootstrap (for responsive design)

2. Application Logic Layer (Business Logic Layer)

This layer handles all **core processing, workflows, and system rules**. It processes the input from the user interface and communicates with the database layer to perform required actions.

Processes & Components:

- Data validation and business rule enforcement
- Automated workflows, approvals, and triggers
- Assignment and notification handling
- Performance testing, incident management, or lease process automation
- Integration with external APIs or services

Technology Used:

- **Apex Classes & Triggers** – Implement automation and backend logic
- **Salesforce Flow / Process Builder** – For workflow automation
- **APIs (REST / SOAP)** – For system integration
- **Validation Rules** – For enforcing business rules

3. Data Layer (Database / Storage Layer)

This layer is responsible for **storing, retrieving, and managing data** securely. It ensures that all transactions are consistent and data integrity is maintained.

Processes & Components:

- Data creation, update, retrieval, and deletion
- Record management for users, incidents, leases, or performance results
- Querying and reporting
- Data backup and recovery

Technology Used:

- **Salesforce Database (Objects & Fields)**
- **SOQL / SOSL Queries** – For data retrieval
- **Reports and Dashboards** – For data visualization

4. Integration Layer (Optional)

This layer enables **communication with third-party systems or external data sources**.

Processes & Components:

- Sending and receiving data via APIs
- Integration with cloud services or external platforms (e.g., ServiceNow, external databases)
- Data synchronization and mapping

Technology Used:

- **REST / SOAP APIs**
- **MuleSoft / Zapier / Middleware tools (if used)**

5. Security & Access Control

Security is applied across all layers to ensure that only authorized users can access or modify data.

Processes & Components:

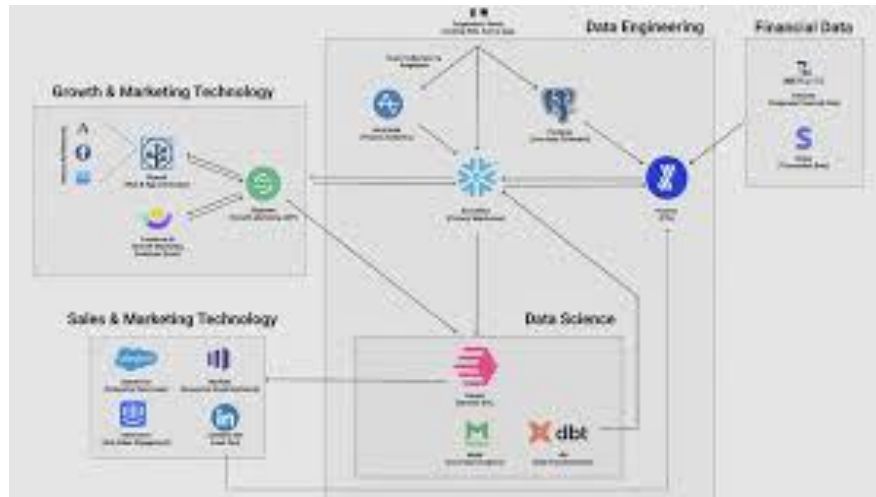
- Role-based access control
- Permission sets and profiles
- Data encryption and secure authentication

Technology Used:

- Salesforce Profiles and Permission Sets
- Authentication Mechanisms (OAuth 2.0, SSO)

6. Workflow Example (End-to-End Process Flow)

1. **User Interaction:** A user logs in and submits data (e.g., lease record or performance test input).
2. **Application Processing:** The system validates input and triggers automated workflows or rules.
3. **Data Storage:** Information is stored or updated in the Salesforce database.
4. **Notifications:** The system sends alerts or assigns records to users as per rules.
5. **Reporting:** The user can view performance reports or lease summaries through dashboards



System Components

The system is composed of several interconnected **components**, each responsible for specific functionality within the application. These components work together to ensure smooth operation, efficient data flow, and user satisfaction.

1. User Interface (UI) Component

Purpose:

Acts as the front-end interface where users interact with the application.

Functions:

- Provides input forms, dashboards, and data visualization
- Allows users to create, view, update, and delete records
- Displays reports and analytics

Technologies Used:

- Salesforce Lightning Components / Visualforce Pages
- HTML5, CSS3, JavaScript
- Bootstrap (for responsive design)

2. Application Logic Component

Purpose:

Handles all **business rules and processing logic** of the system. It serves as the core functional engine.

Functions:

- Validates user input
- Executes workflows, triggers, and approval processes
- Assigns incidents or test tasks to users automatically
- Performs calculations and updates related records

Technologies Used:

- Apex Classes and Triggers
- Salesforce Flows and Process Builder
- Validation Rules and Business Logic Scripts

3. Database Component

Purpose:

Manages the **storage and retrieval of application data** in a secure and organized manner.

Functions:

- Stores information related to users, incidents, tests, or leases
- Handles queries, updates, and data relationships
- Supports reporting and analytics

Technologies Used:

- Salesforce Database (Standard & Custom Objects)
- SOQL / SOSL Queries
- Reports & Dashboards

4. Integration Component

Purpose:

Ensures smooth communication between the system and external services or platforms.

Functions:

- Connects Salesforce with other systems (e.g., ServiceNow, external APIs)

- Synchronizes and exchanges data securely
- Automates data transfer between multiple applications

Technologies Used:

- REST / SOAP APIs
- MuleSoft / Zapier / External Connectors

5. Security Component

Purpose:

Protects data integrity, ensures confidentiality, and manages user access levels.

Functions:

- Controls user permissions and access rights
- Manages authentication and authorization
- Prevents unauthorized data modification

Technologies Used:

- Salesforce Profiles & Permission Sets
- Role Hierarchies
- OAuth 2.0 / SSO (if integrated)

6. Testing Component

Purpose:

Ensures that the system performs accurately and meets functional requirements.

Functions:

- Executes test cases and validates expected outcomes
- Performs performance, functional, and integration testing
- Identifies and logs errors or failures

Technologies Used:

- Salesforce Apex Test Classes
- Postman (for API Testing)
- Selenium (for automated testing, if applicable)

7. Reporting & Analytics Component

Purpose:

Generates detailed insights and reports from stored data.

Functions:

- Displays analytical charts and key performance indicators (KPIs)
- Provides summaries for incidents, performance results, or leases
- Assists in data-driven decision-making

Technologies Used:

- Salesforce Reports and Dashboards
- Lightning Charts and Visual Reports

8. Notification Component

Purpose:

Handles automated communication and alerts between the system and users.

Functions:

- Sends email or in-app notifications for assigned tasks or workflow updates
- Provides reminders for pending approvals or actions

Technologies Used:

- Salesforce Email Alerts
- Workflow Notifications
- Lightning Notification Builder

Application Characteristics:

Characteristic	Description
Scalability	The system is designed to handle an increasing number of users, data, and transactions without performance degradation.
Reliability	Ensures consistent performance, minimal downtime, and accurate data processing through automated checks.
Security	Implements robust authentication, authorization, and encryption mechanisms to protect data.

Characteristic	Description
Usability	Features an intuitive user interface that is simple to navigate and responsive across devices.
Maintainability	Modular components allow easy updates, debugging, and system enhancements.
Interoperability	Supports integration with third-party platforms and APIs for data exchange and extended functionality.
Performance Efficiency	Optimized workflows, triggers, and database queries ensure quick response times.
Flexibility	Can be customized for different organizational needs, such as lease management or performance tracking.
Cloud-Based Accessibility	Being hosted on Salesforce Cloud, the application is accessible from anywhere with secure login.
Automation	Reduces manual effort by automating repetitive tasks like assignments, approvals, and status updates.