Phase 4: Process Automation (Admin)

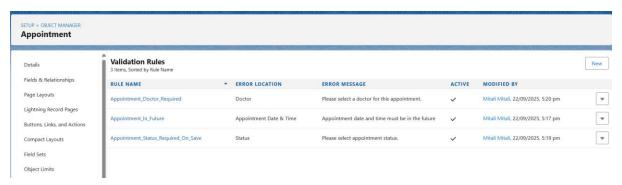## AI-Enabled Hospital & Pharmacy Management System

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Goal: The goal of this phase is to design and implement intelligent automation within the hospital management system using Salesforce's declarative tools. By leveraging validation rules, workflow rules, process builder, approval processes, flows, email alerts, field updates, tasks, and custom notifications, this phase aims to eliminate manual effort, enforce data accuracy, streamline approval cycles, and deliver real-time communication.
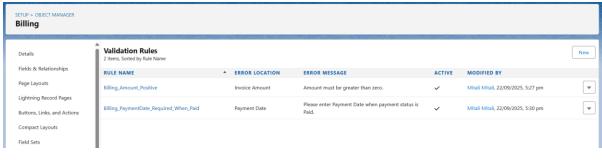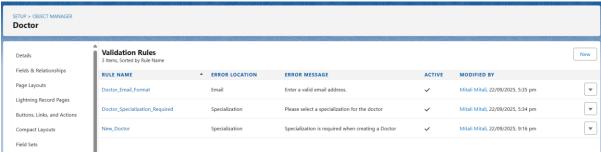
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Tasks in Phase 4:

- Validation Rules
- Workflow Rules
- Process Builder
- Approval Process
- Flow Builder (Screen, Record-Triggered, Scheduled, Auto-launched)
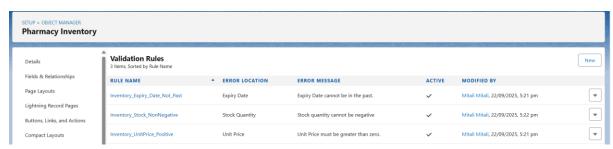- Email Alerts
- Field Updates
- Tasks
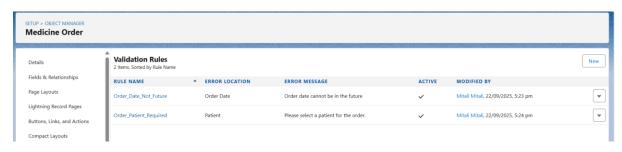- Custom Notifications

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Validation Rules

I implemented validation rules to maintain data accuracy across objects. For Patients, the age cannot be negative; for Billing, a record cannot be saved without a Payment Status; and for Medicine Orders, completion is restricted if quantity is zero. These checks prevent invalid records from being stored. Validation rules helped improve reliability by enforcing clean data at the time of entry, reducing downstream errors and ensuring accurate hospital records.

RULE NAME	ERROR LOCATION	ERROR MESSAGE	ACTIVE	MODIFIED BY
Appointment_Doctor_Required	Doctor	Please select a doctor for this appointment.	✓	Mitali Mitali, 22/09/2025, 5:20 pm
Appointment_In_Future	Appointment Date & Time	Appointment date and time must be in the future	✓	Mitali Mitali, 22/09/2025, 5:17 pm
Appointment_Status_Required_On_Save	Status	Please select appointment status.	✓	Mitali Mitali, 22/09/2025, 5:19 pm

Billing

Validation Rules
2 Items, Sorted by Rule Name

New

RULE NAME	ERROR LOCATION	ERROR MESSAGE	ACTIVE	MODIFIED BY	
Billing_Amount_Positive	Invoice Amount	Amount must be greater than zero.	✓	Mitali Mitali, 22/09/2025, 5:27 pm	▼
Billing_PaymentDate_Required_When_Paid	Payment Date	Please enter Payment Date when payment status is Paid.	✓	Mitali Mitali, 22/09/2025, 5:30 pm	▼

Details
Fields & Relationships
Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts
Field Sets

Doctor

Validation Rules
3 Items, Sorted by Rule Name

New

RULE NAME	ERROR LOCATION	ERROR MESSAGE	ACTIVE	MODIFIED BY	
Doctor_Email_Format	Email	Enter a valid email address.	✓	Mitali Mitali, 22/09/2025, 5:35 pm	▼
Doctor_Specialization_Required	Specialization	Please select a specialization for the doctor	✓	Mitali Mitali, 22/09/2025, 5:34 pm	▼
New_Doctor	Specialization	Specialization is required when creating a Doctor	✓	Mitali Mitali, 22/09/2025, 9:16 pm	▼

Details
Fields & Relationships
Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts
Field Sets

Pharmacy Inventory

Validation Rules
3 Items, Sorted by Rule Name

New

RULE NAME	ERROR LOCATION	ERROR MESSAGE	ACTIVE	MODIFIED BY	
Inventory_Expiry_Date_Not_Past	Expiry Date	Expiry Date cannot be in the past.	✓	Mitali Mitali, 22/09/2025, 5:21 pm	▼
Inventory_Stock_NonNegative	Stock Quantity	Stock quantity cannot be negative	✓	Mitali Mitali, 22/09/2025, 5:22 pm	▼
Inventory_UnitPrice_Positive	Unit Price	Unit Price must be greater than zero.	✓	Mitali Mitali, 22/09/2025, 5:21 pm	▼

Details
Fields & Relationships
Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts

Medicine Order

Validation Rules
2 Items, Sorted by Rule Name

New

RULE NAME	ERROR LOCATION	ERROR MESSAGE	ACTIVE	MODIFIED BY	
Order_Date_Not_Future	Order Date	Order date cannot be in the future	✓	Mitali Mitali, 22/09/2025, 5:23 pm	▼
Order_Patient_Required	Patient	Please select a patient for the order.	✓	Mitali Mitali, 22/09/2025, 5:24 pm	▼

Details
Fields & Relationships
Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts

Order Line Item

Validation Rules
2 Items, Sorted by Rule Name

New

RULE NAME	ERROR LOCATION	ERROR MESSAGE	ACTIVE	MODIFIED BY	
LineItem_Quantity_DoesNotExceed_Stock	Quantity Ordered	Quantity ordered cannot exceed available stock.	✓	Mitali Mitali, 22/09/2025, 5:26 pm	▼
LineItem_Quantity_Positive	Quantity Ordered	Quantity ordered must be greater than zero.	✓	Mitali Mitali, 22/09/2025, 5:26 pm	▼

Details
Fields & Relationships
Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
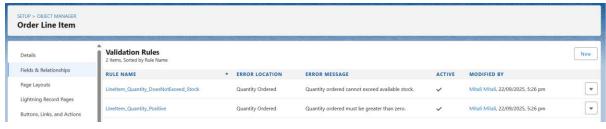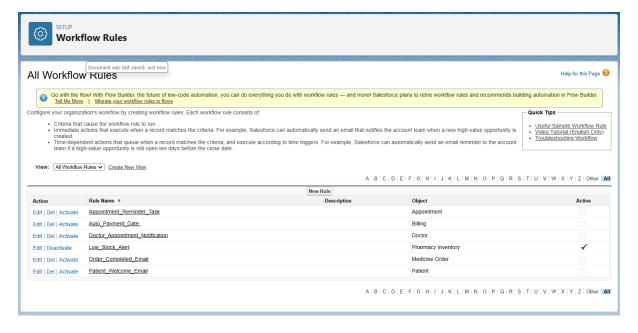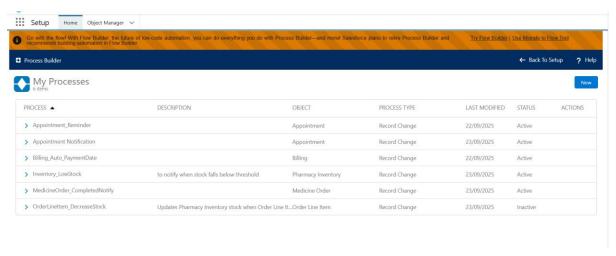
Workflow Rules

Workflow rules were used to automate frequent actions. For example, an email is sent to the doctor when an appointment is created, and in Billing, the Payment Date is automatically updated when status is set to "Paid." These rules removed repetitive manual steps and ensured timely actions without user intervention. This improved operational efficiency and created a smoother user experience.
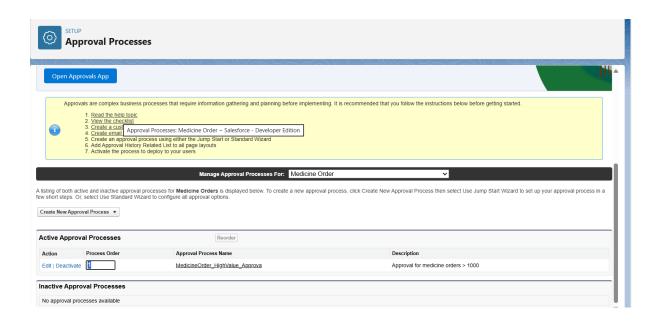

Process Builder

I created processes to handle multi-step workflows. For Appointments, a process triggered both an email alert and a task for the doctor when a new record was created. For Medicine Orders, when the status was updated to "Completed," patients received an automated email. Process Builder gave me flexibility to link multiple actions, ensuring smooth communication and improved accountability.

Approval Process

When a Medicine Order has Total_Order_Amount__c greater than 1000, the order must be submitted for approval. While pending approval, the record is locked. If approved → status = Approved and a Billing record is created (or flagged). If rejected → status = Rejected and submitter is notified.

You can adapt thresholds/actions to Billing, Appointments, etc.

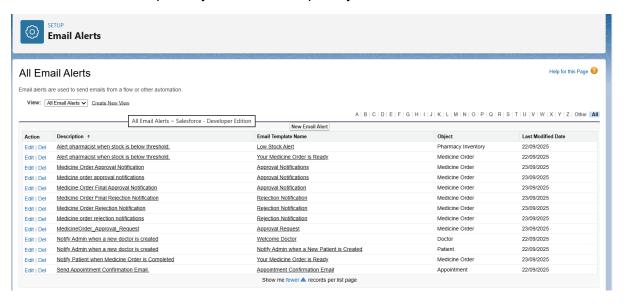## Flow Builder (Screen, Record-Triggered, Scheduled, Auto-launched)

Different flows were built for automation and guided experiences. A Screen Flow allowed users to book appointments by selecting patient, doctor, and date. A Record-Triggered Flow updated stock in Pharmacy Inventory when a medicine order was placed. A Scheduled Flow sent daily reminders for appointments, and an Autolaunched Flow generated billing records after completed appointments. Flows gave flexibility to automate both background and user-facing tasks.
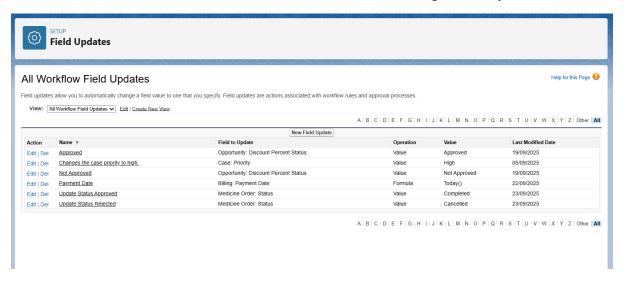
Email Alerts

I designed email templates and connected them with workflows, processes, and approvals. Alerts included appointment confirmations, medicine order notifications, and approval/rejection outcomes. These alerts ensured patients, doctors, and admins were promptly informed without manual communication. Automated email alerts improved coordination and transparency across the hospital system.
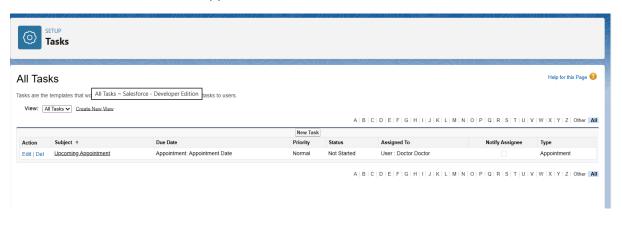
Field Updates

Field updates were added to auto-change record values. Medicine Order status was updated to "Approved" or "Rejected" based on approval outcomes, and Billing records automatically captured the Payment Date when status was "Paid." These automated updates minimized manual edits and ensured data reflected the correct workflow stage instantly.
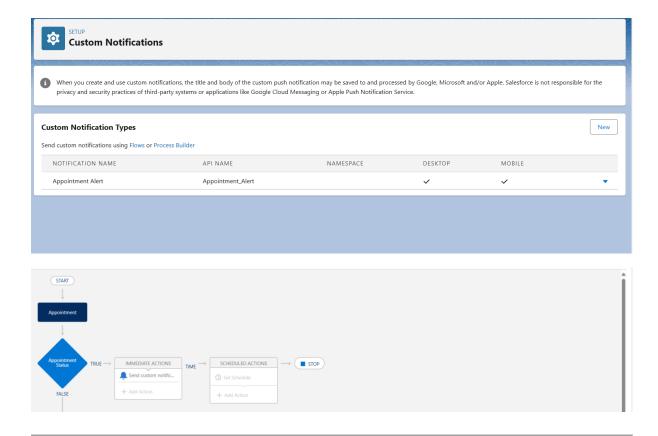

Tasks

I configured automated tasks to assign responsibilities to doctors. For instance, when an appointment was created, a task titled "Upcoming Appointment" was automatically assigned to the doctor. This reminded doctors to prepare for visits and improved accountability. Automated tasks ensured no appointments were overlooked.

Custom Notifications

I created a custom notification type called "Appointment Alert" and linked it to a process. Whenever a new appointment was scheduled, a notification was pushed to the doctor's Salesforce app (desktop/mobile). This gave real-time visibility of patient bookings directly within Salesforce, reducing reliance on email and enabling faster response.

Custom Notification Types

New

Send custom notifications using Flows or Process Builder

NOTIFICATION NAME	API NAME	NAMESPACE	DESKTOP	MOBILE	
Appointment Alert	Appointment_Alert		✓	✓	▼

START

Appointment

Appointment Status

TRUE → IMMEDIATE ACTIONS 🔔 Send custom notific... + Add Action

TIME → SCHEDULED ACTIONS 🕐 Set Schedule + Add Action → ■ STOP

FALSE

Conclusion

In Phase 4, I successfully implemented Salesforce automation tools including Validation Rules, Workflow Rules, Process Builder, Approval Processes, Flows, Email Alerts, Field Updates, Tasks, and Custom Notifications. Each of these contributed to reducing manual effort, ensuring data accuracy, and improving communication across the hospital management system. By automating patient appointments, medicine orders, billing processes, and approval cycles, the system became more reliable and user-friendly. These implementations not only streamlined hospital workflows but also demonstrated the practical use of Salesforce declarative tools to build a real-time, efficient, and scalable solution.