

# Phase 4: Process Automation (Admin)

## AI-Enabled Hospital & Pharmacy Management System

**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.

### 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

### 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.

SETUP > OBJECT MANAGER

Appointment

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Validation Rules

3 Items, Sorted by Rule Name

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	▼

New

SETUP > OBJECT MANAGER

Billing

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

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	▼

SETUP > OBJECT MANAGER

Doctor

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

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	▼

SETUP > OBJECT MANAGER

Pharmacy Inventory

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

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	▼

SETUP > OBJECT MANAGER

Medicine Order

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

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	▼

SETUP > OBJECT MANAGER

Order Line Item

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

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	▼

## 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.

SETUP

Workflow Rules

Document was last saved: Just now

Help for this Page

Go with the flow! With Flow Builder, the future of low-code automation, you can do everything you do with workflow rules — and more! Salesforce plans to retire workflow rules and recommends building automation in Flow Builder.  
[Tell Me More](#) | [Migrate your workflow rules to flows](#)

Configure your organization's workflow by creating workflow rules. Each workflow rule consists of:

- Criteria that cause the workflow rule to run.
- Immediate actions that execute when a record matches the criteria. For example, Salesforce can automatically send an email that notifies the account team when a new high-value opportunity is created.
- Time-dependent actions that queue when a record matches the criteria, and execute according to time triggers. For example, Salesforce can automatically send an email reminder to the account team if a high-value opportunity is still open ten days before the close date.

View: All Workflow Rules

Create New View

New Rule

Action	Rule Name	Description	Object	Active
<a href="#">Edit</a>   <a href="#">Del</a>   <a href="#">Activate</a>	Appointment_Reminder_Task		Appointment	<input type="checkbox"/>
<a href="#">Edit</a>   <a href="#">Del</a>   <a href="#">Activate</a>	Auto_Payment_Date		Billing	<input type="checkbox"/>
<a href="#">Edit</a>   <a href="#">Del</a>   <a href="#">Activate</a>	Doctor_Appointment_Notification		Doctor	<input type="checkbox"/>
<a href="#">Edit</a>   <a href="#">Deactivate</a>	Low_Stock_Alert		Pharmacy Inventory	<input checked="" type="checkbox"/>
<a href="#">Edit</a>   <a href="#">Del</a>   <a href="#">Activate</a>	Order_Completed_Email		Medicine Order	<input type="checkbox"/>
<a href="#">Edit</a>   <a href="#">Del</a>   <a href="#">Activate</a>	Patient_Welcome_Email		Patient	<input type="checkbox"/>

Quick Tips

- [Useful Sample Workflow Rule](#)
- [Video Tutorial \(English Only\)](#)
- [Troubleshooting Workflow](#)

## 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.

Setup

Home

Object Manager

Go with the flow! With Flow Builder, the future of low-code automation, you can do everything you do with Process Builder—and more! Salesforce plans to retire Process Builder and recommends building automation in Flow Builder.  
[Try Flow Builder](#) | [Use Migrate to Flow Tool](#)

Process Builder

Back To Setup

Help

My Processes

6 items

New

PROCESS	DESCRIPTION	OBJECT	PROCESS TYPE	LAST MODIFIED	STATUS	ACTIONS
<a href="#">Appointment_Reminder</a>		Appointment	Record Change	22/09/2025	Active	
<a href="#">Appointment Notification</a>		Appointment	Record Change	23/09/2025	Active	
<a href="#">Billing_Auto_PaymentDate</a>		Billing	Record Change	22/09/2025	Active	
<a href="#">Inventory_LowStock</a>	to notify when stock falls below threshold	Pharmacy Inventory	Record Change	23/09/2025	Active	
<a href="#">MedicineOrder_CompletedNotify</a>		Medicine Order	Record Change	23/09/2025	Active	
<a href="#">OrderLineItem_DecreaseStock</a>	Updates Pharmacy Inventory stock when Order Line It...Order Line Item		Record Change	23/09/2025	Inactive	

## 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.

The screenshot shows the 'Approval Processes' setup page in Salesforce. At the top, there's a 'SETUP' header and a 'Approval Processes' title. Below this is a 'Manage Approval Processes For:' dropdown menu set to 'Medicine Order'. A yellow box contains a numbered list of steps: 1. Read the help topic, 2. View the checklist, 3. Create a case, 4. Create email, 5. Create an approval process using either the Jump Start or Standard Wizard, 6. Add Approval History Related List to all page layouts, 7. Activate the process to deploy to your users. Below this, there's a 'Create New Approval Process' button. The main section is titled 'Active Approval Processes' and contains a table with one entry: 'MedicineOrder\_HighValue\_Approva' with a description 'Approval for medicine orders > 1000'. There's also a section for 'Inactive Approval Processes' which is currently empty.

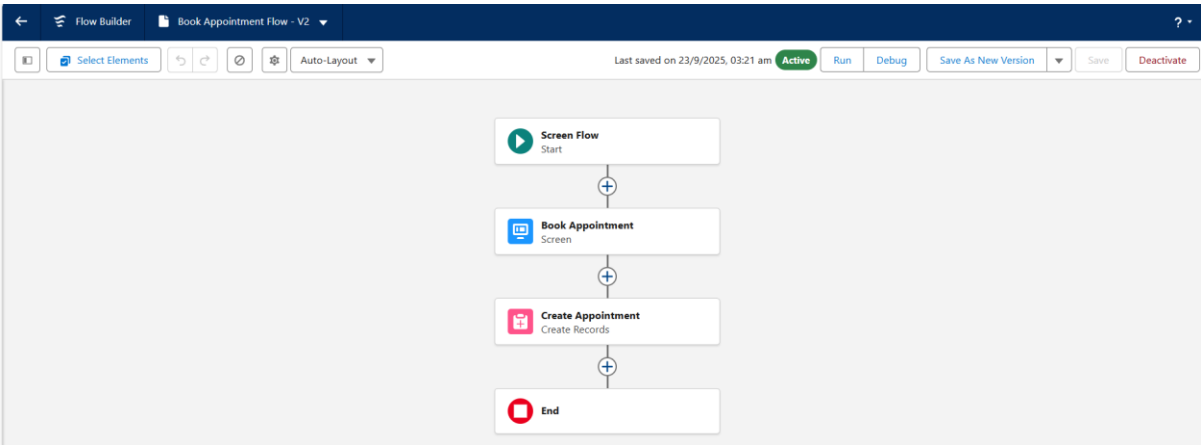
Action	Process Order	Approval Process Name	Description
<a href="#">Edit</a>   <a href="#">Deactivate</a>	1	MedicineOrder_HighValue_Approva	Approval for medicine orders > 1000

## 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.

The screenshot shows the 'Flows' page in Salesforce. It has a table with columns: Name, Type, Status, and Last Modified By. The first row is 'Book Appointment Flow', which is a 'Screen Flow' and is 'Unmanaged'. It was last modified by 'Mitali Mitali' on '23/09/2025, 3:21 am'.

Name	Type	Status	Last Modified By	Last Modified
Book Appointment Flow	Screen Flow	Unmanaged	Mitali Mitali	23/09/2025, 3:21 am



## 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.

SETUP Email Alerts				
All Email Alerts				
Email alerts are used to send emails from a flow or other automation.				
View: All Email Alerts Create New View				
All Email Alerts ~ Salesforce - Developer Edition				
New Email Alert				
Action	Description	Email Template Name	Object	Last Modified Date
Edit   Del	Alert pharmacist when stock is below threshold.	Low Stock Alert	Pharmacy Inventory	22/09/2025
Edit   Del	Alert pharmacist when stock is below threshold.	Your Medicine Order is Ready	Medicine Order	22/09/2025
Edit   Del	Medicine Order Approval Notification	Approval Notifications	Medicine Order	23/09/2025
Edit   Del	Medicine order approval notifications	Approval Notifications	Medicine Order	23/09/2025
Edit   Del	Medicine Order Final Approval Notification	Approval Notification	Medicine Order	23/09/2025
Edit   Del	Medicine Order Final Rejection Notification	Rejection Notification	Medicine Order	23/09/2025
Edit   Del	Medicine Order Rejection Notification	Rejection Notification	Medicine Order	23/09/2025
Edit   Del	Medicine order rejection notifications	Rejection Notification	Medicine Order	23/09/2025
Edit   Del	MedicineOrder_Approval_Request	Approval Request	Medicine Order	23/09/2025
Edit   Del	Notify Admin when a new doctor is created	Welcome Doctor	Doctor	22/09/2025
Edit   Del	Notify Admin when a new doctor is created	Notify Admin when a New Patient is Created	Patient	22/09/2025
Edit   Del	Notify Patient when Medicine Order is Completed	Your Medicine Order is Ready	Medicine Order	23/09/2025
Edit   Del	Send Appointment Confirmation Email	Appointment Confirmation Email	Appointment	22/09/2025
Show me fewer records per list page				

## 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.

SETUPField Updates

All Workflow Field Updates

Help for this Page

Field updates allow you to automatically change a field value to one that you specify. Field updates are actions associated with workflow rules and approval processes.

View: All Workflow Field Updates Edit Create New View

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Other All

Action	Name +	Field to Update	Operation	Value	Last Modified Date
<a href="#">Edit</a> <a href="#">Del</a>	Approved	Opportunity: Discount Percent Status	Value	Approved	19/09/2025
<a href="#">Edit</a> <a href="#">Del</a>	Changes the case priority to high	Case: Priority	Value	High	05/09/2025
<a href="#">Edit</a> <a href="#">Del</a>	Not Approved	Opportunity: Discount Percent Status	Value	Not Approved	19/09/2025
<a href="#">Edit</a> <a href="#">Del</a>	Payment Date	Billing: Payment Date	Formula	Today()	22/09/2025
<a href="#">Edit</a> <a href="#">Del</a>	Update Status Approved	Medicine Order: Status	Value	Completed	23/09/2025
<a href="#">Edit</a> <a href="#">Del</a>	Update Status Rejected	Medicine Order: Status	Value	Cancelled	23/09/2025

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Other All

## 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.

SETUPTasks

All Tasks

Help for this Page

Tasks are the templates that will be used to create tasks to users.

View: All Tasks Create New View

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Other All

Action	Subject +	Due Date	Priority	Status	Assigned To	Notify Assignee	Type
<a href="#">Edit</a> <a href="#">Del</a>	Upcoming Appointment	Appointment: Appointment Date	Normal	Not Started	User : Doctor Doctor	<input type="checkbox"/>	Appointment

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Other All

## 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.

SETUP

Custom Notifications

When you create and use custom notifications, the title and body of the custom push notification may be saved to and processed by Google, Microsoft and/or Apple. Salesforce is not responsible for the privacy and security practices of third-party systems or applications like Google Cloud Messaging or Apple Push Notification Service.

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

FALSE

IMMEDIATE ACTIONS

Send custom notific...

+ Add Action

SCHEDULED ACTIONS

Set Schedule

+ Add Action

STOP

## 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.