Software Engineering

Design Document

Laboratory Management System

Submitted by:

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Submitted to:

Dr. Zeeshan Ramzan

Dated: 15th December, 2024

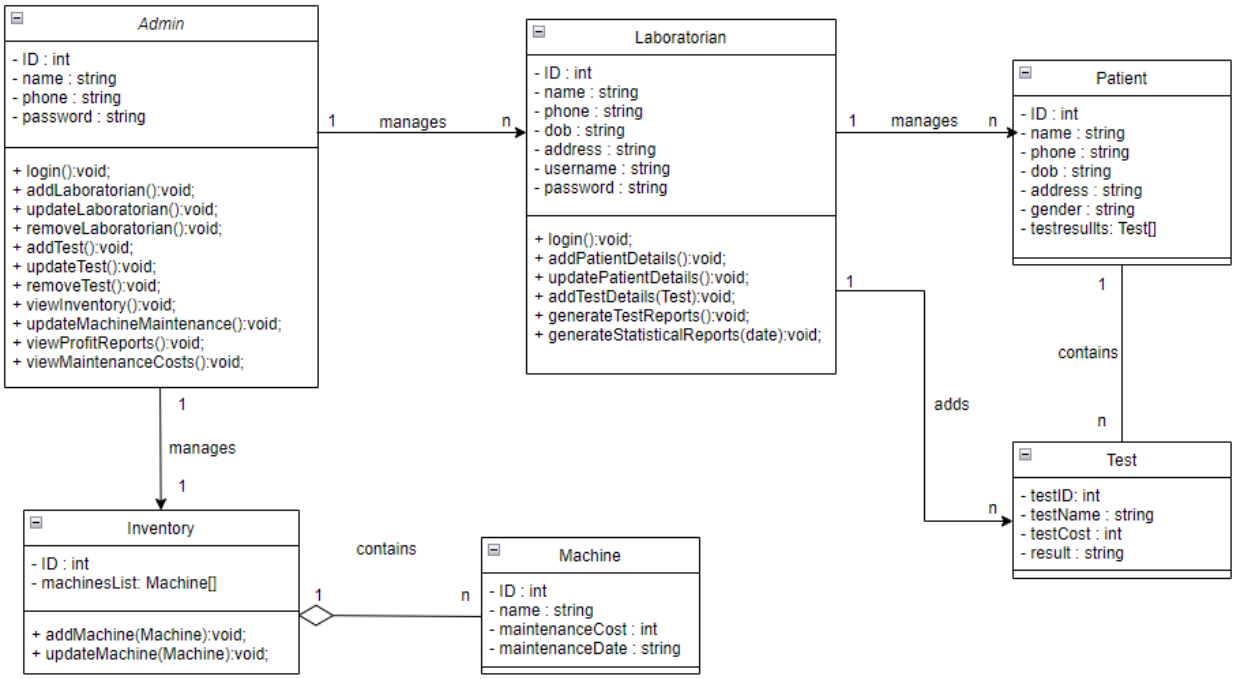
Department of Computer Science

University of Engineering and Technology Lahore, New Campus

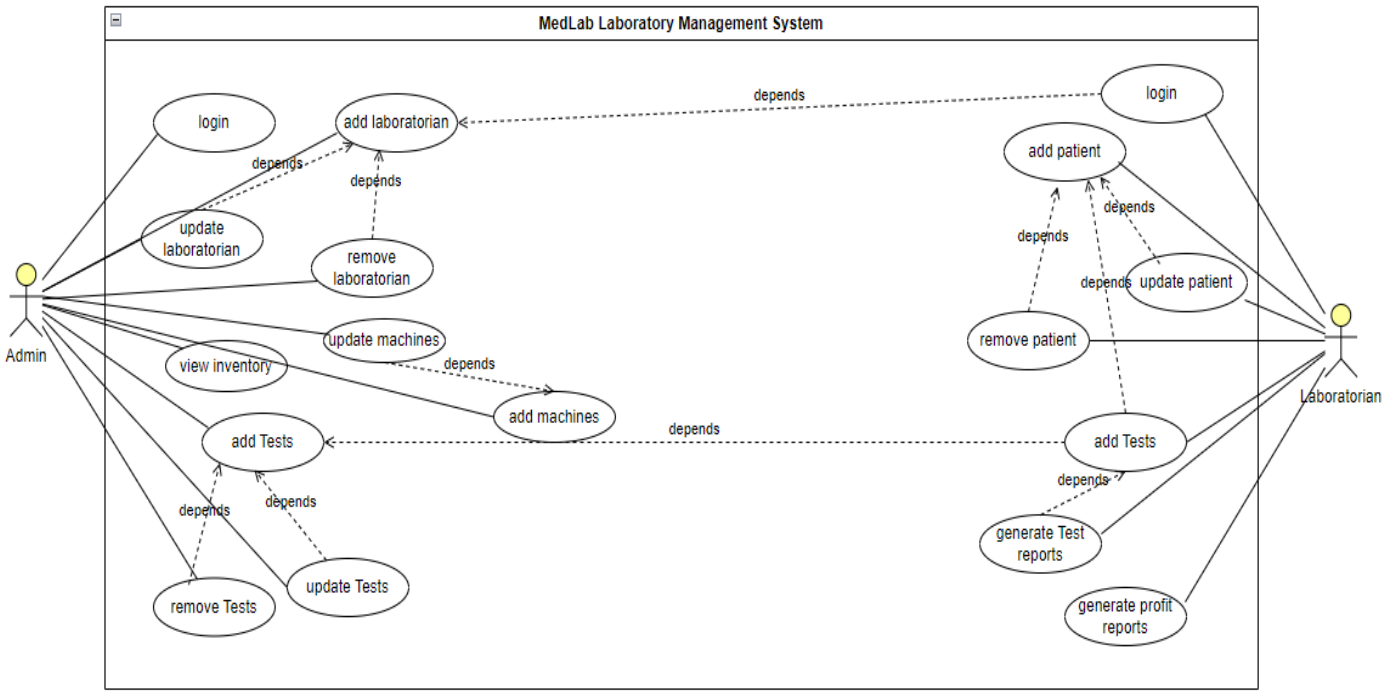
Laboratory Management System

Design Document

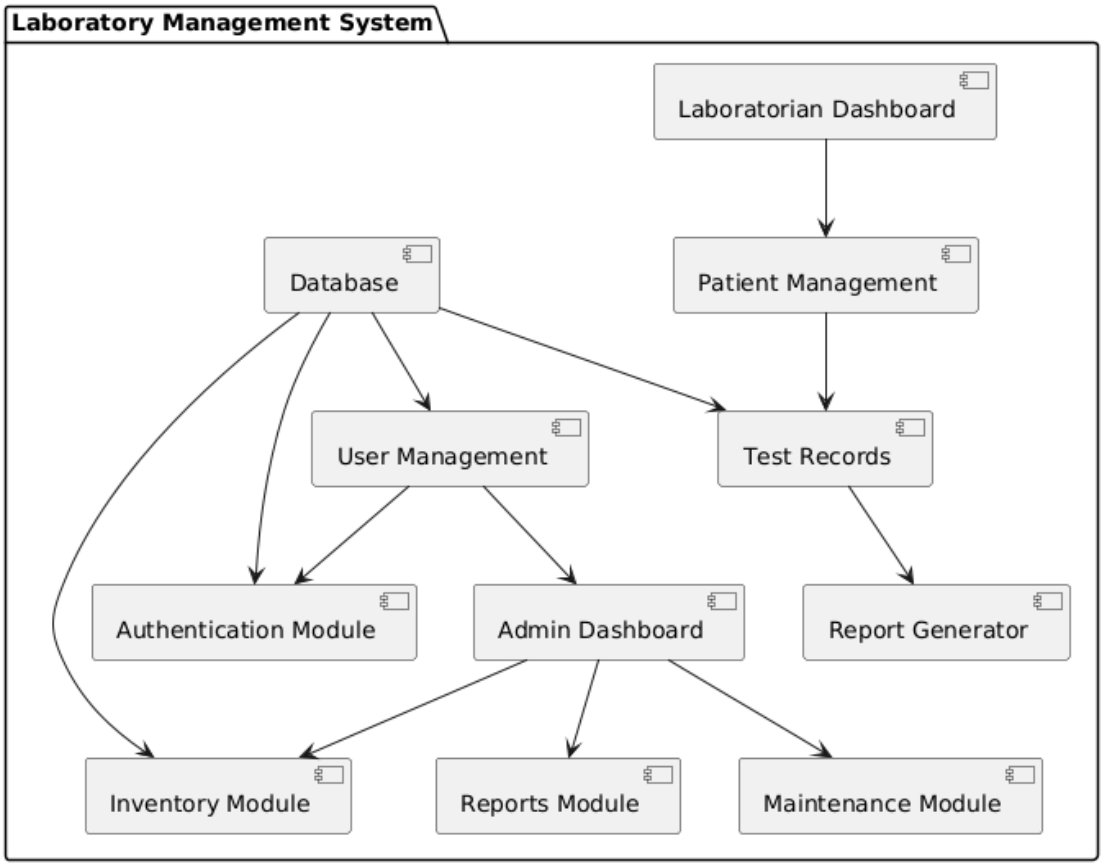
Class Diagram



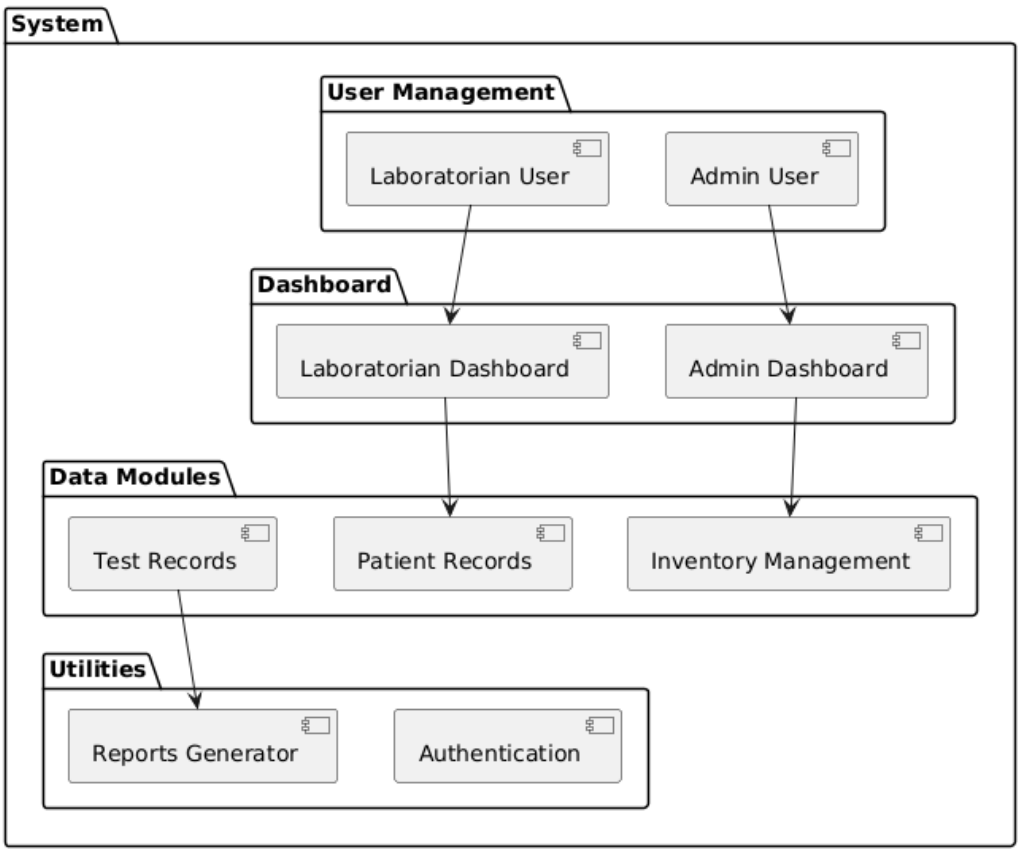
Use Case Diagram



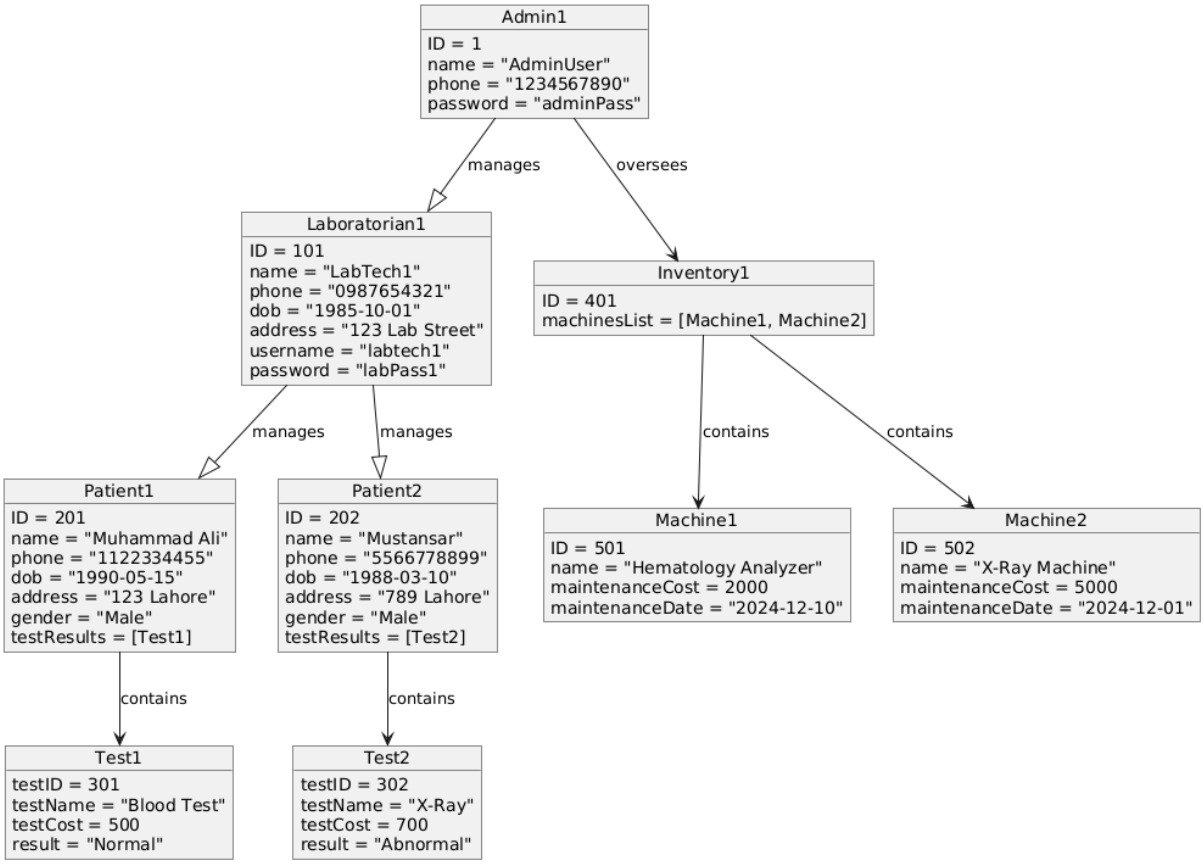
Component Diagram



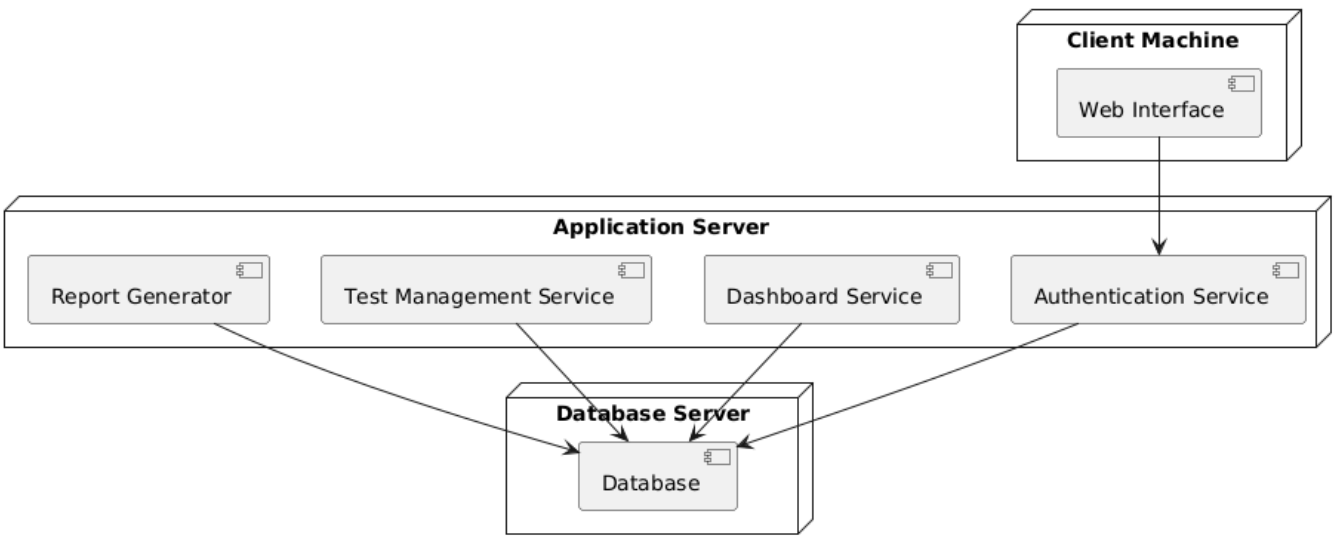
Package Diagram



Object Diagram

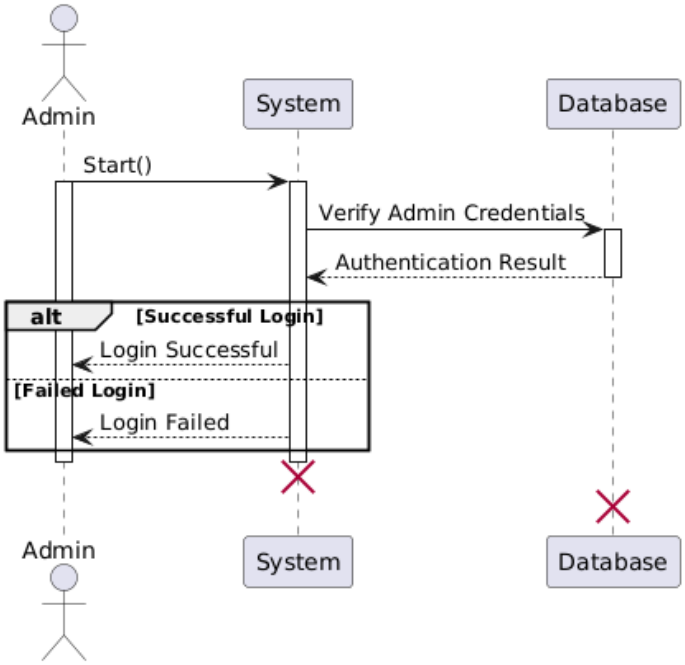


Deployment Diagram

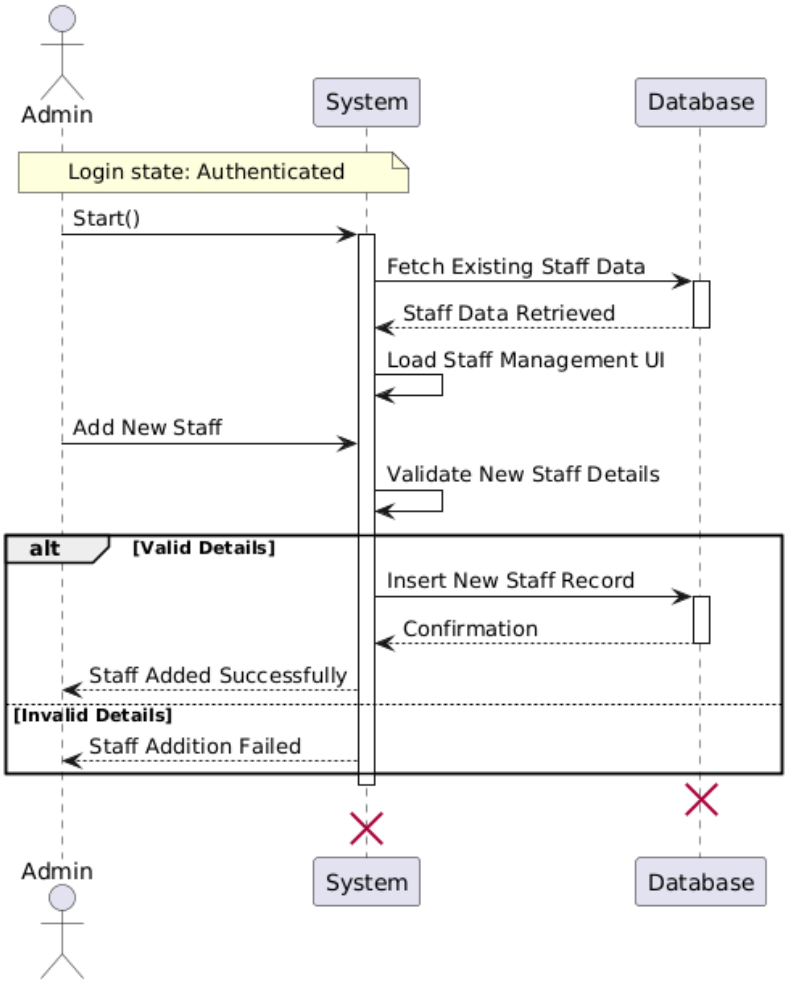


Sequence Diagrams (Admin)

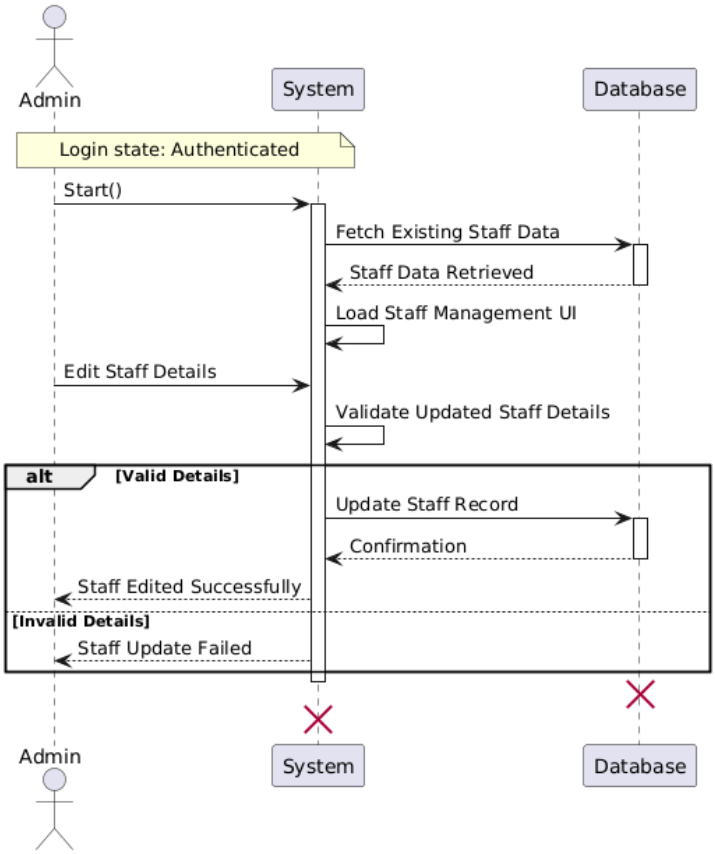
Admin Login



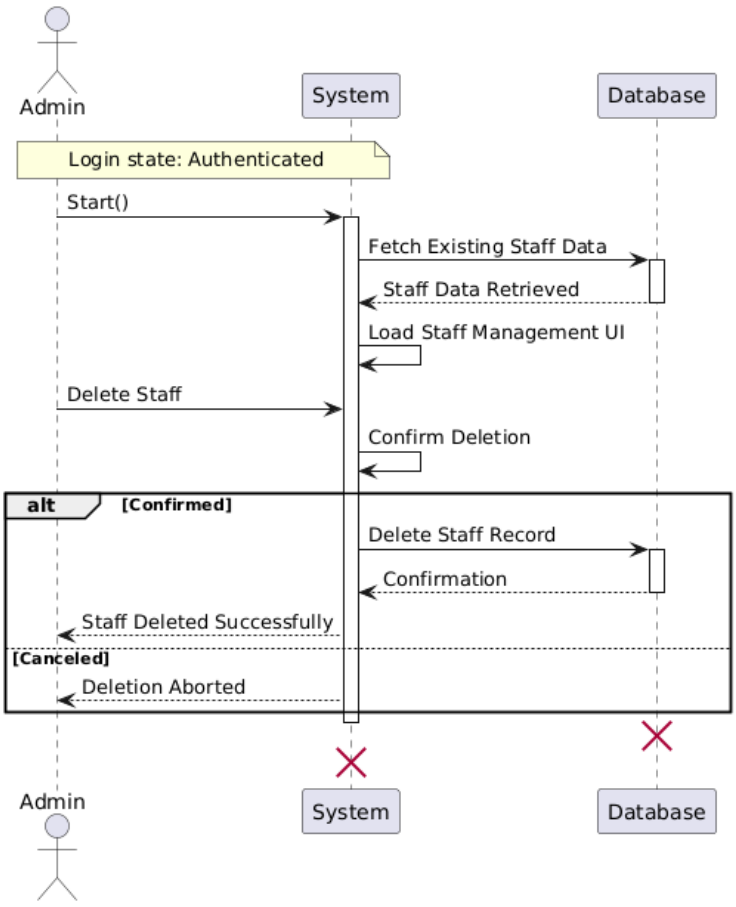
Admin Add Laboratorian



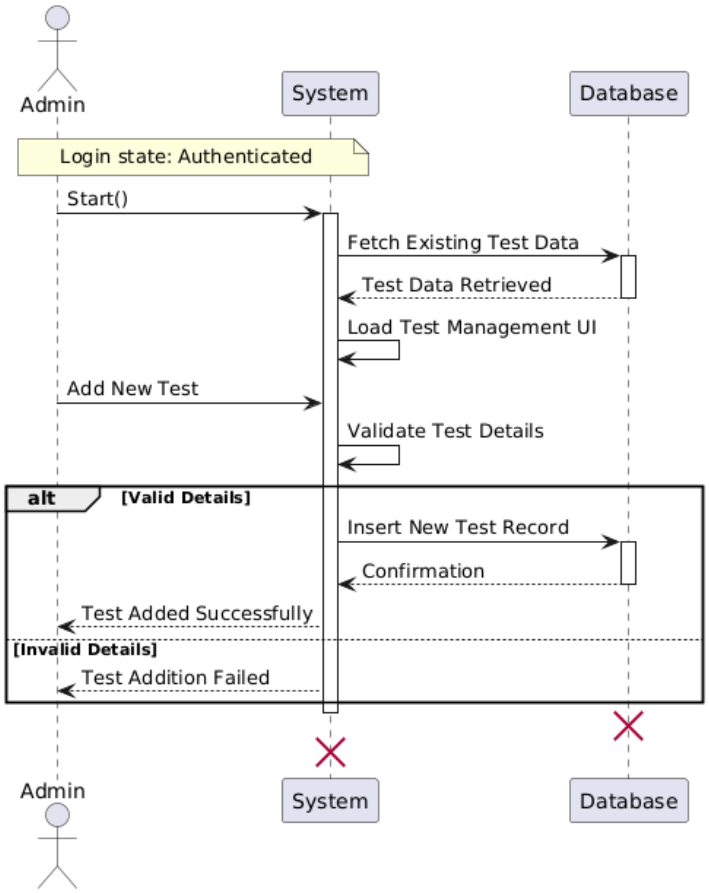
Admin Update Laboratorian



Admin Delete Laboratorian



Admin Add Test



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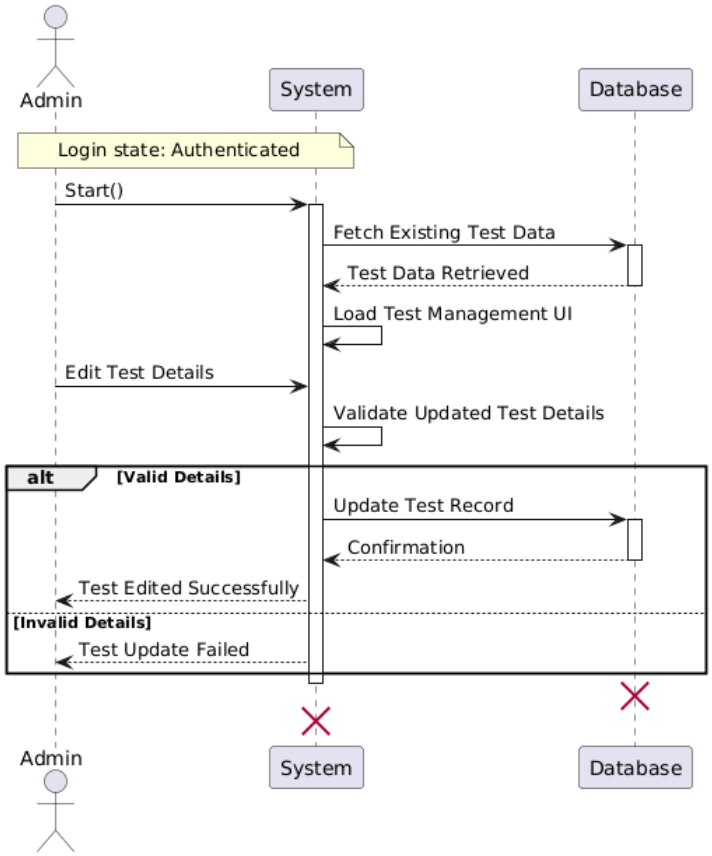

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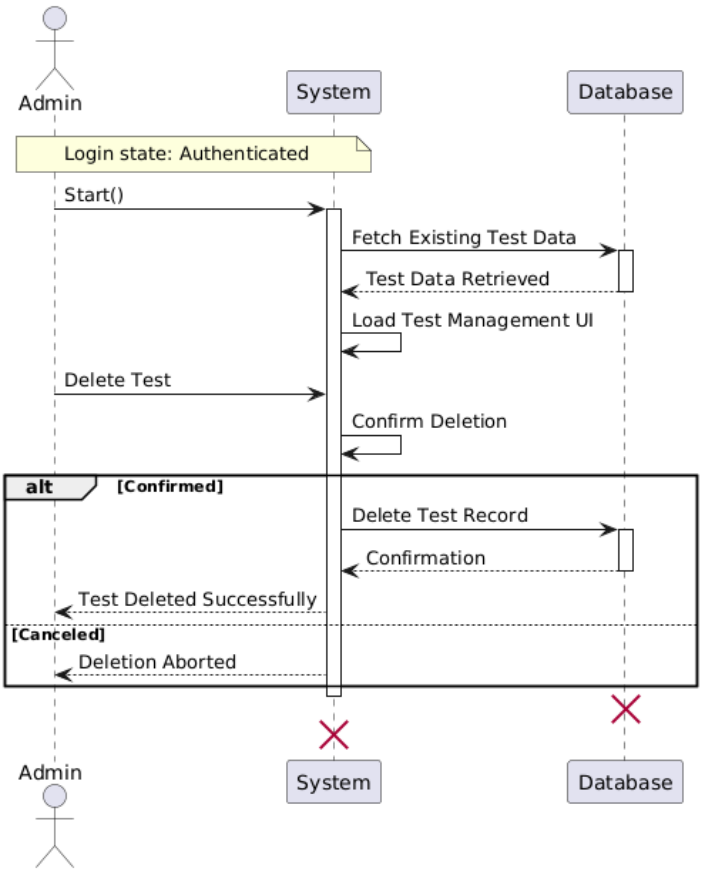
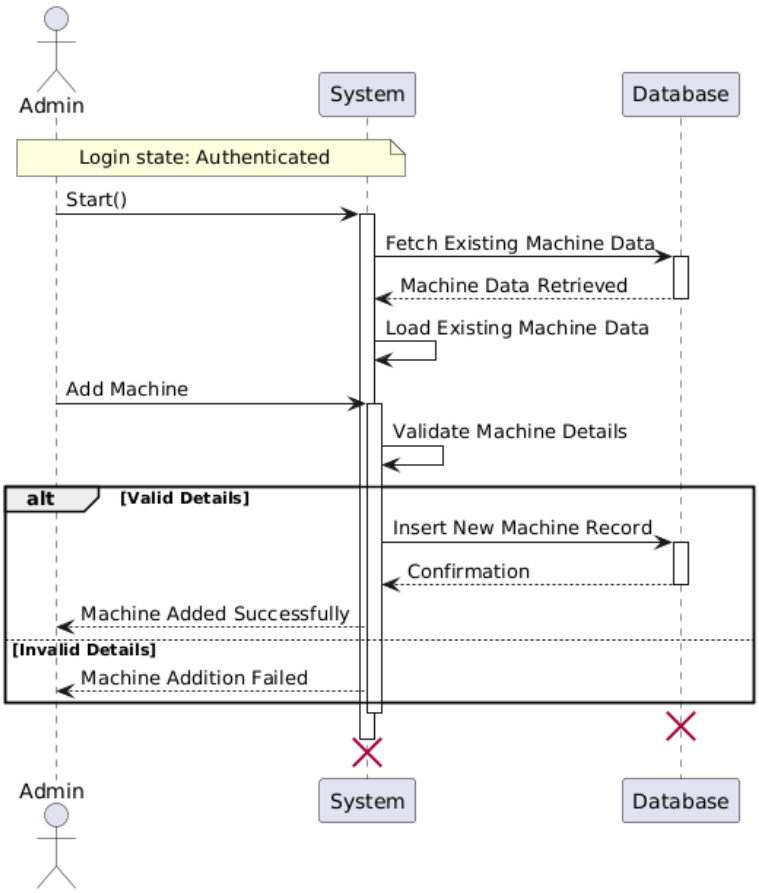


Admin Add Machine



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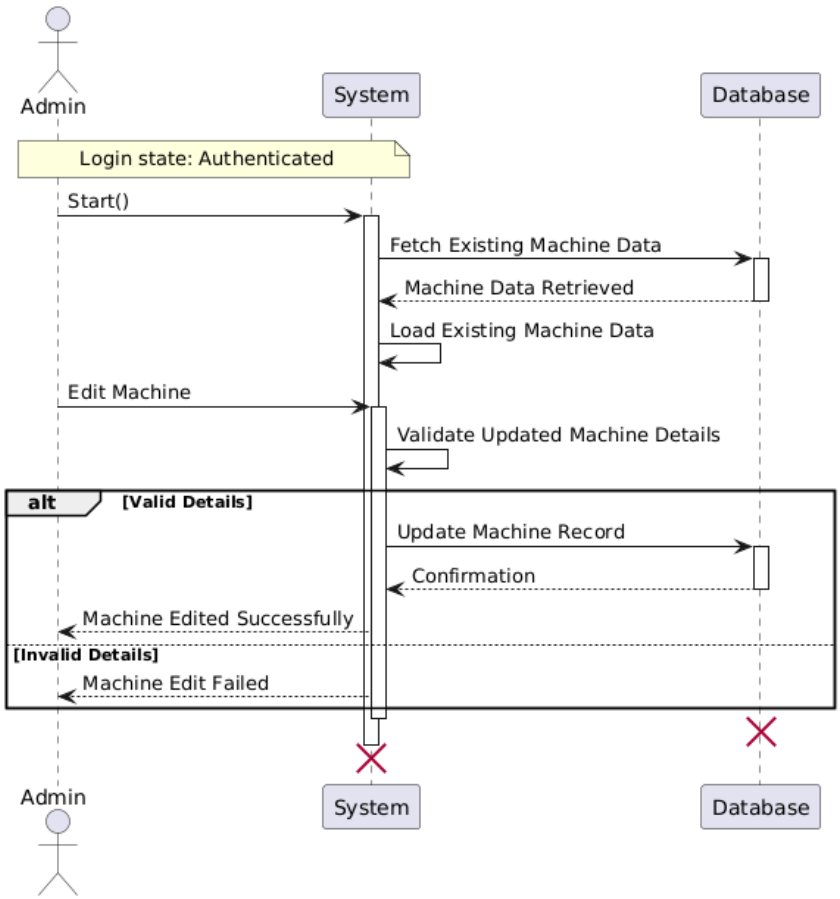
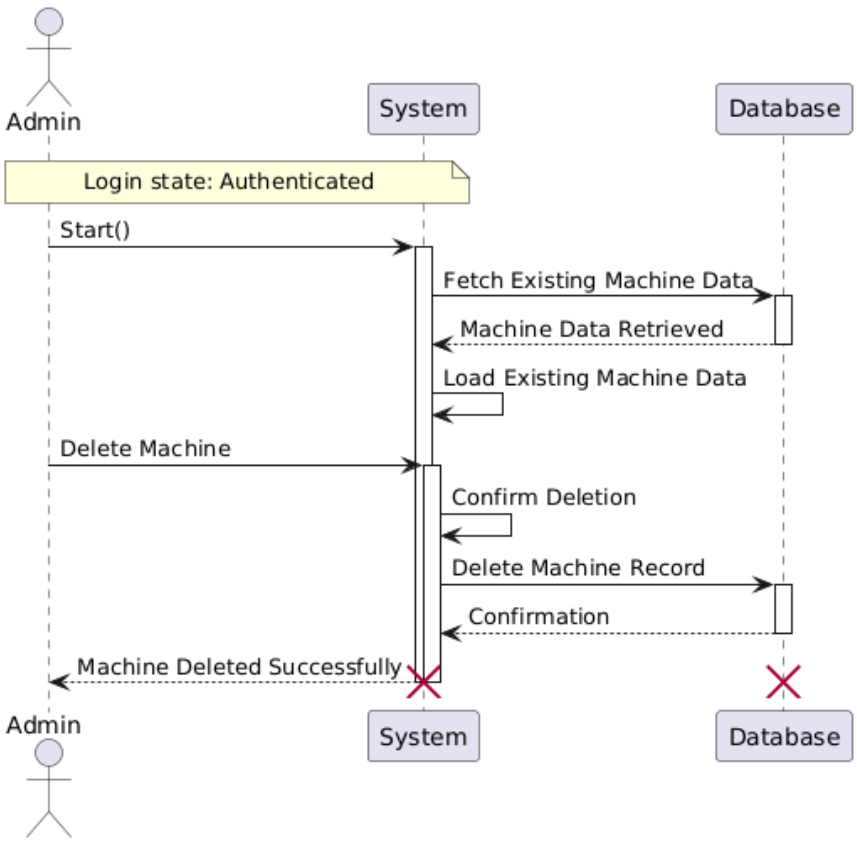
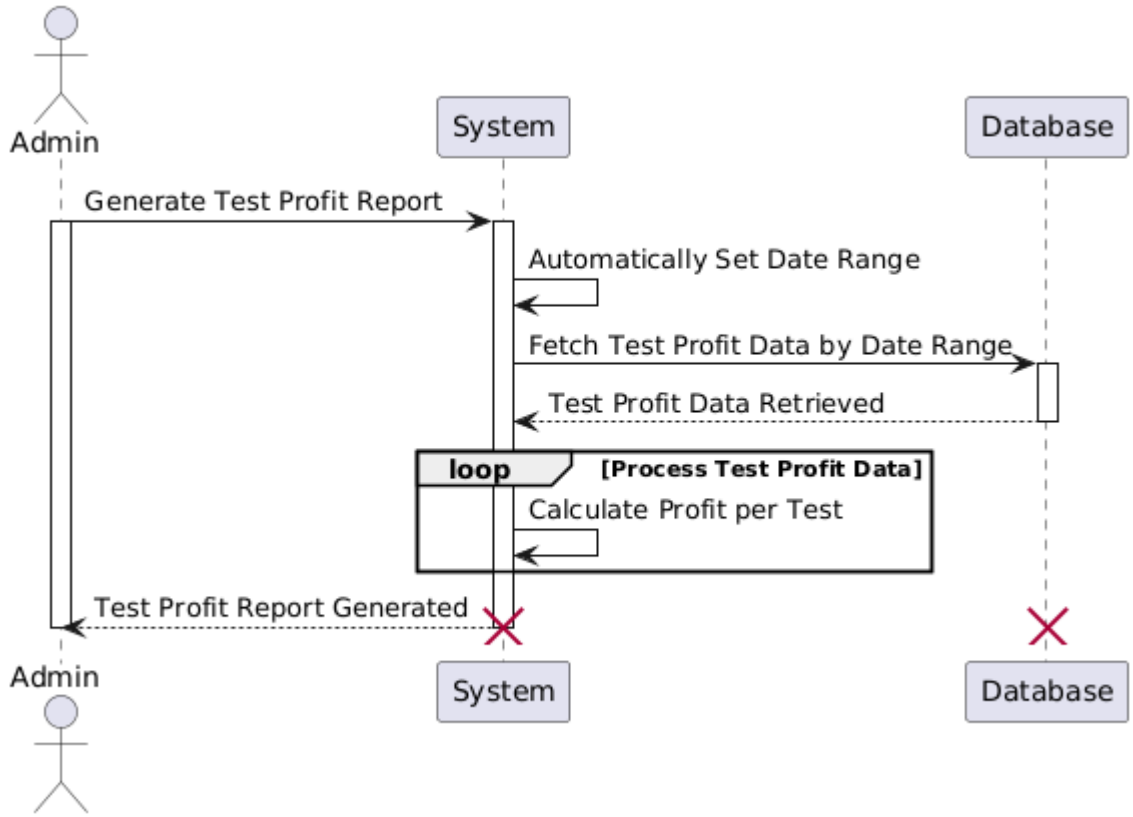


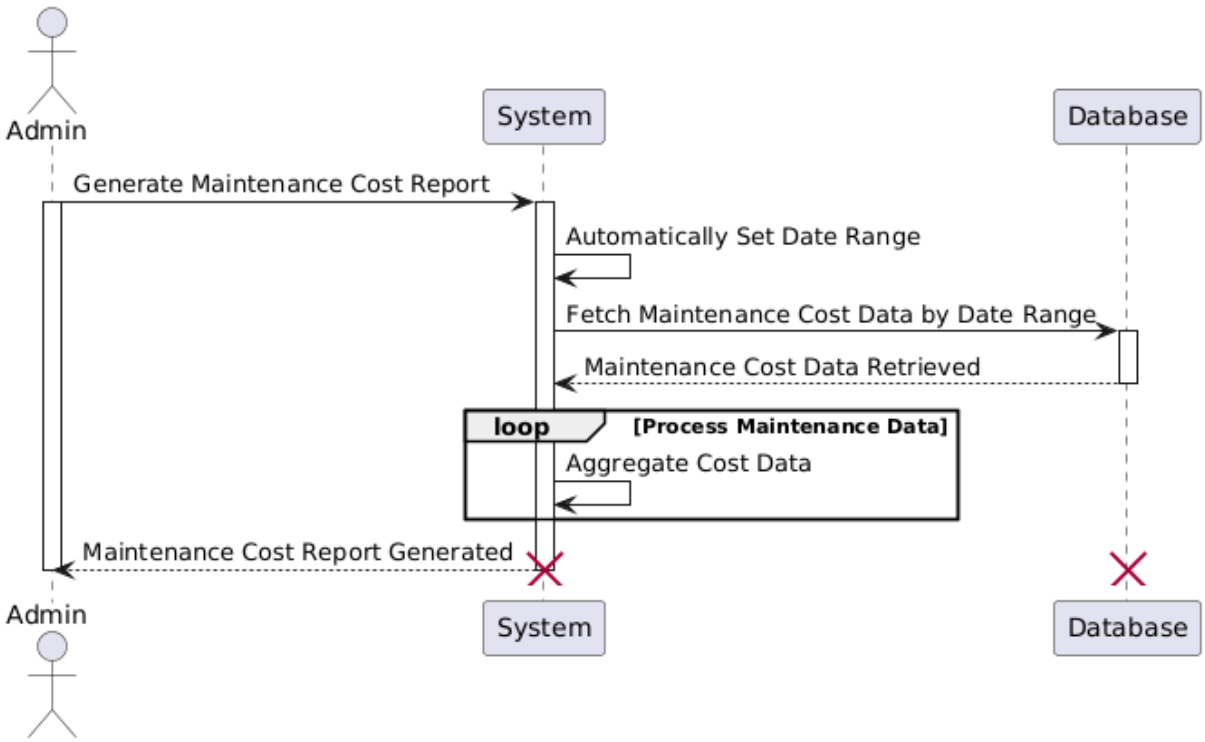
Admin Delete Machine



Admin Generate Profit Report

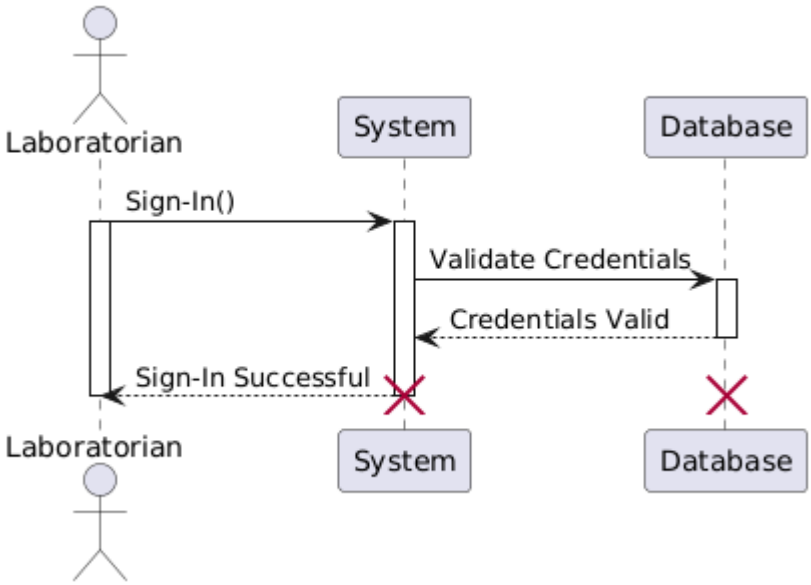


Admin Generate Maintenance Cost Report

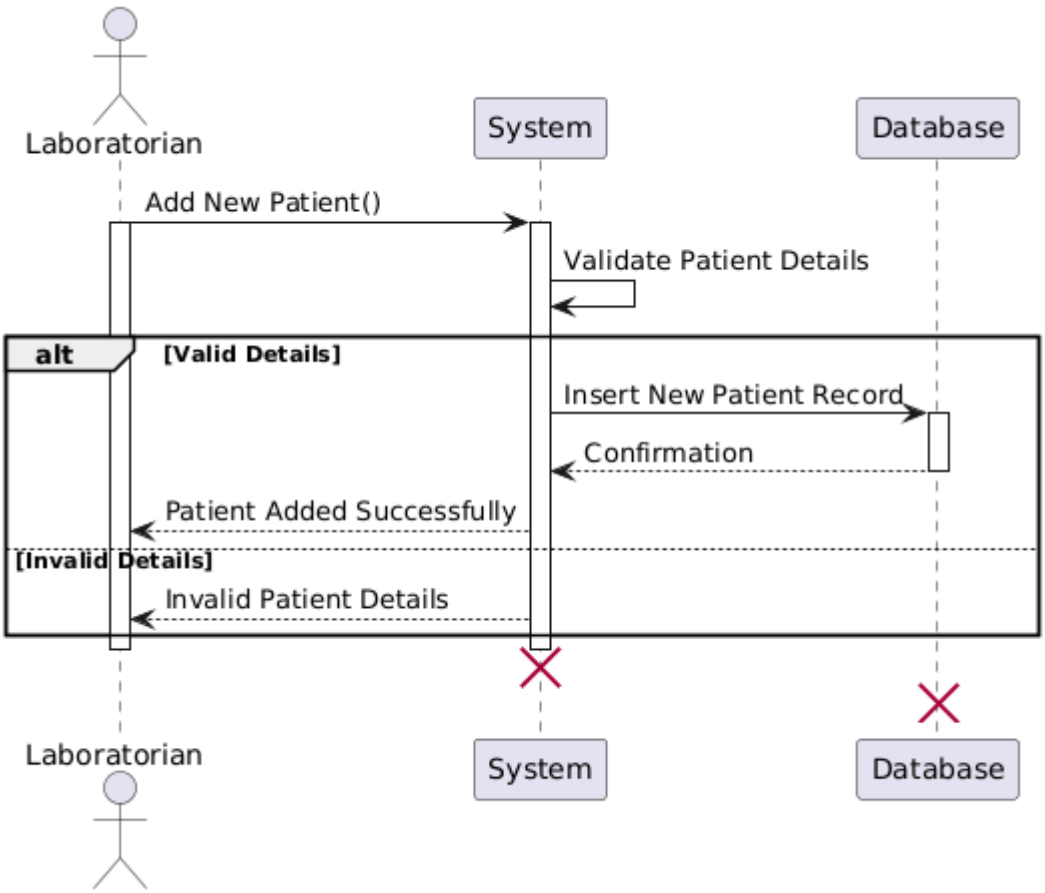


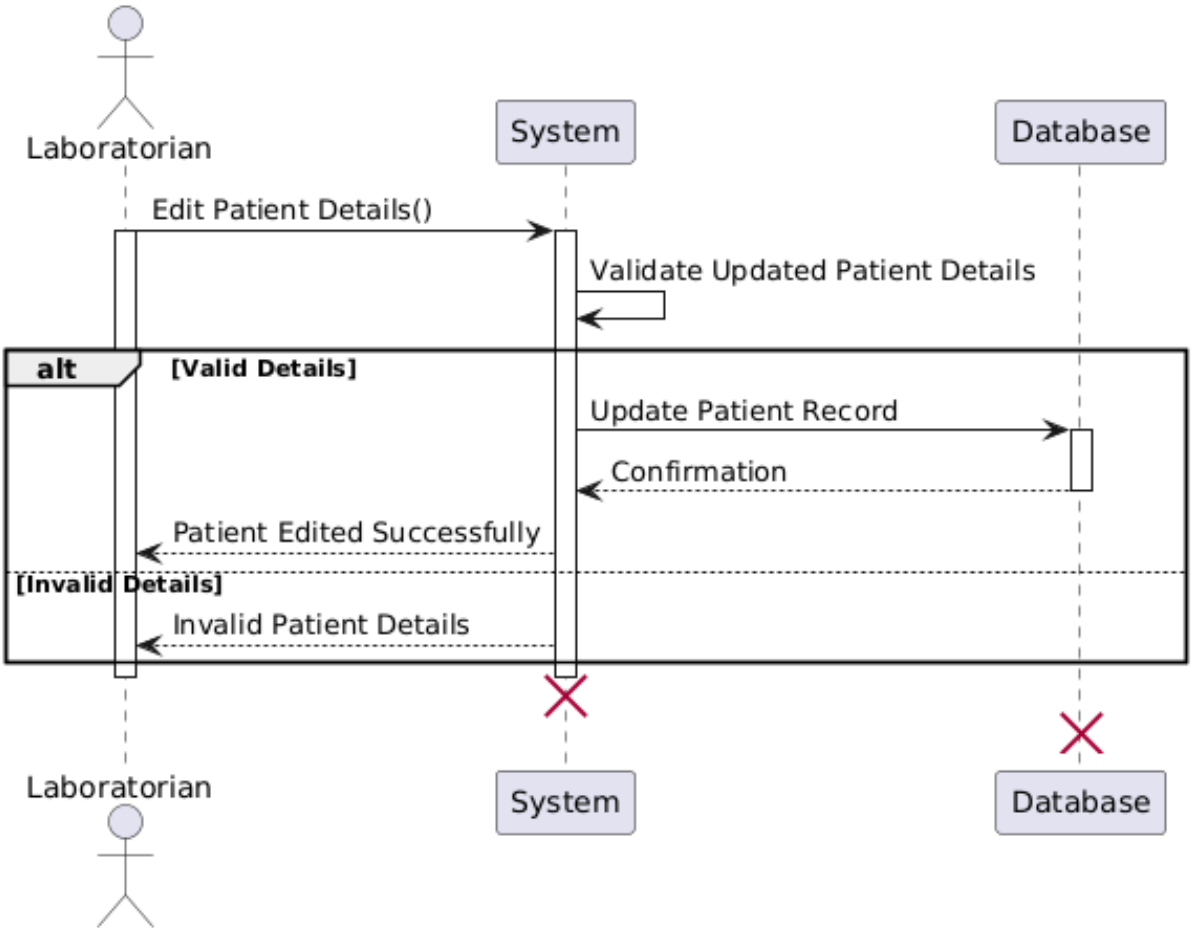
Sequence Diagram (Laboratorian)

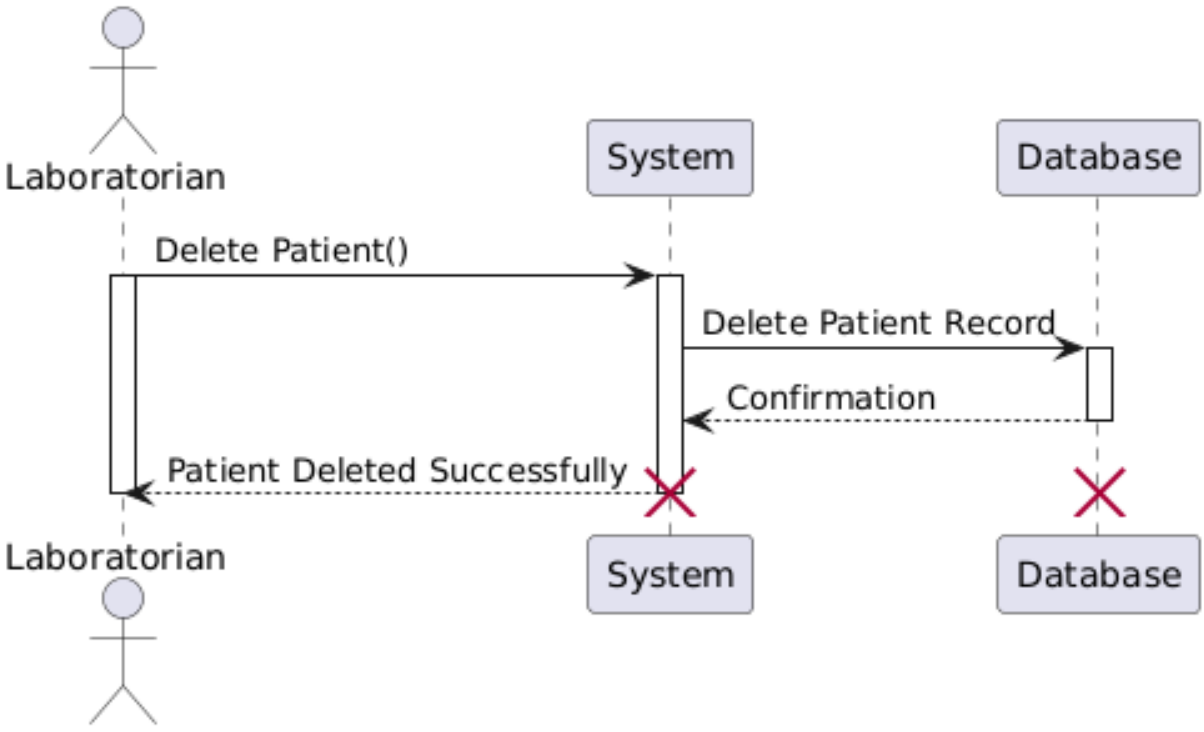
Laboratorian Login



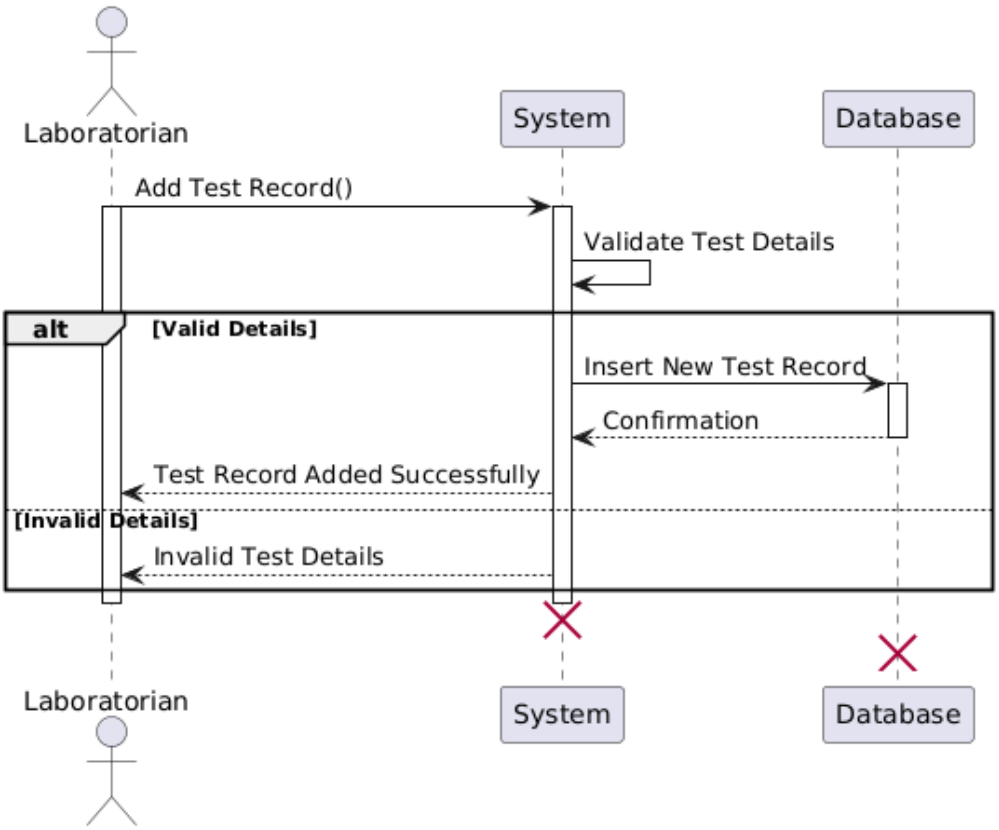
Laboratorian Add/Edit/Delete Patient

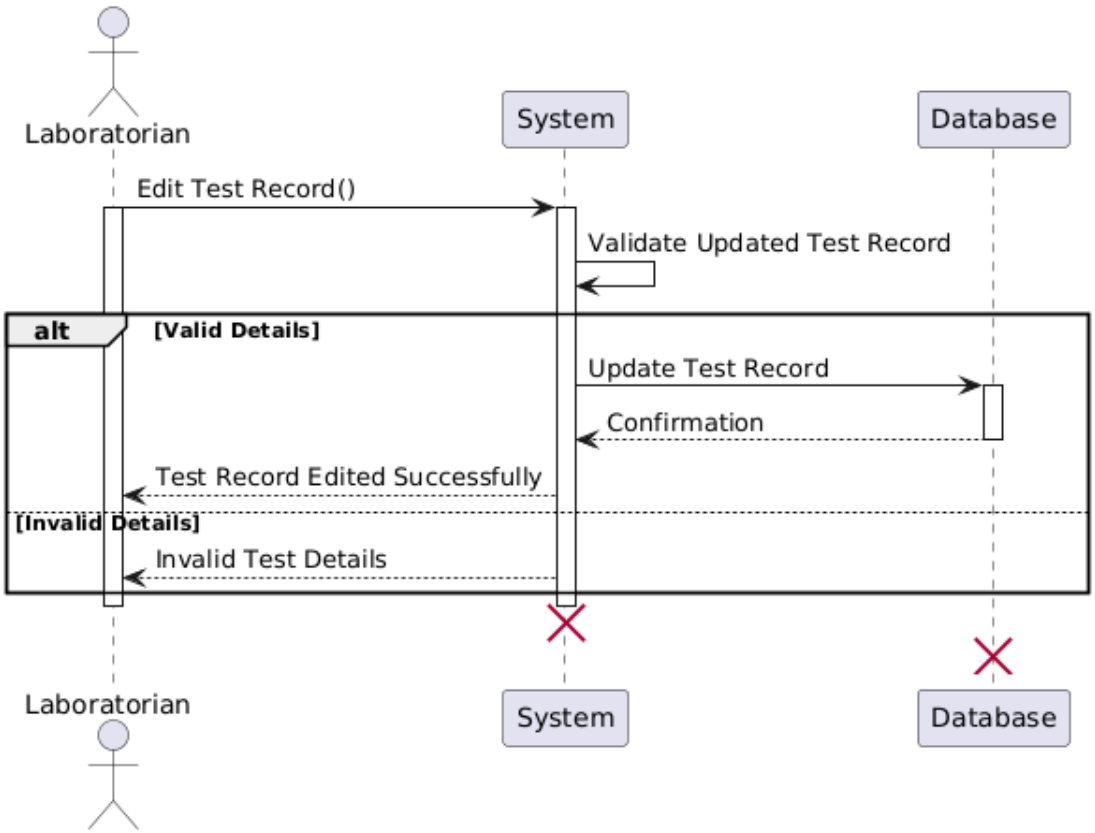


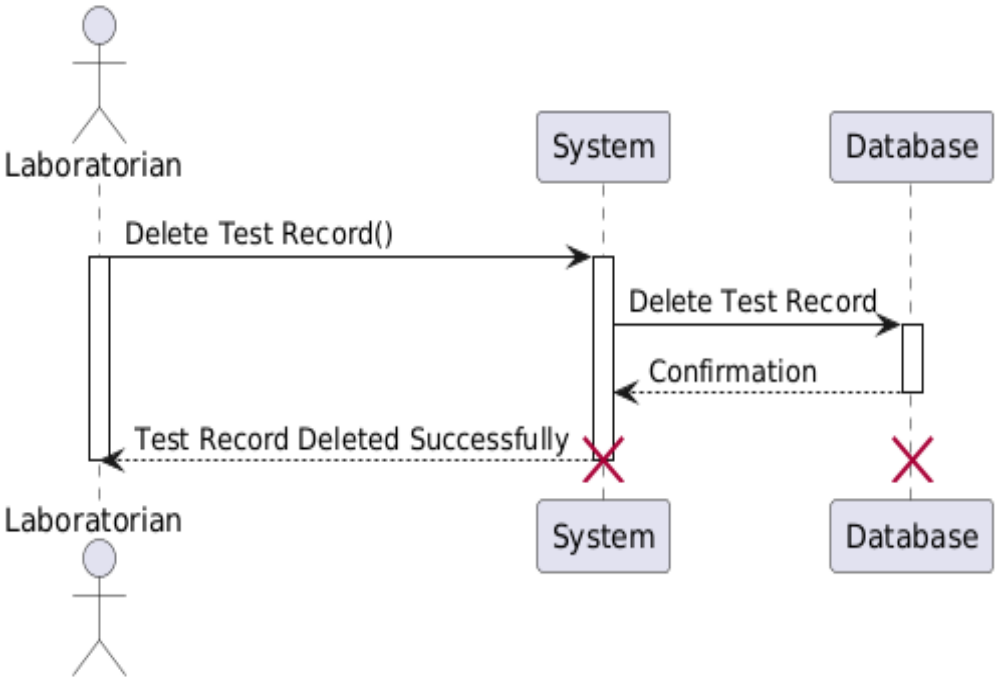

Laboratorian
System
Database
Edit Patient Details()
Validate Updated Patient Details
alt
[Valid Details]
Update Patient Record
Confirmation
Patient Edited Successfully
[Invalid Details]
Invalid Patient Details
Laboratorian
System
Database


Laboratorian
System
Database
Delete Patient()
Delete Patient Record
Confirmation
Patient Deleted Successfully
Laboratorian
System
Database

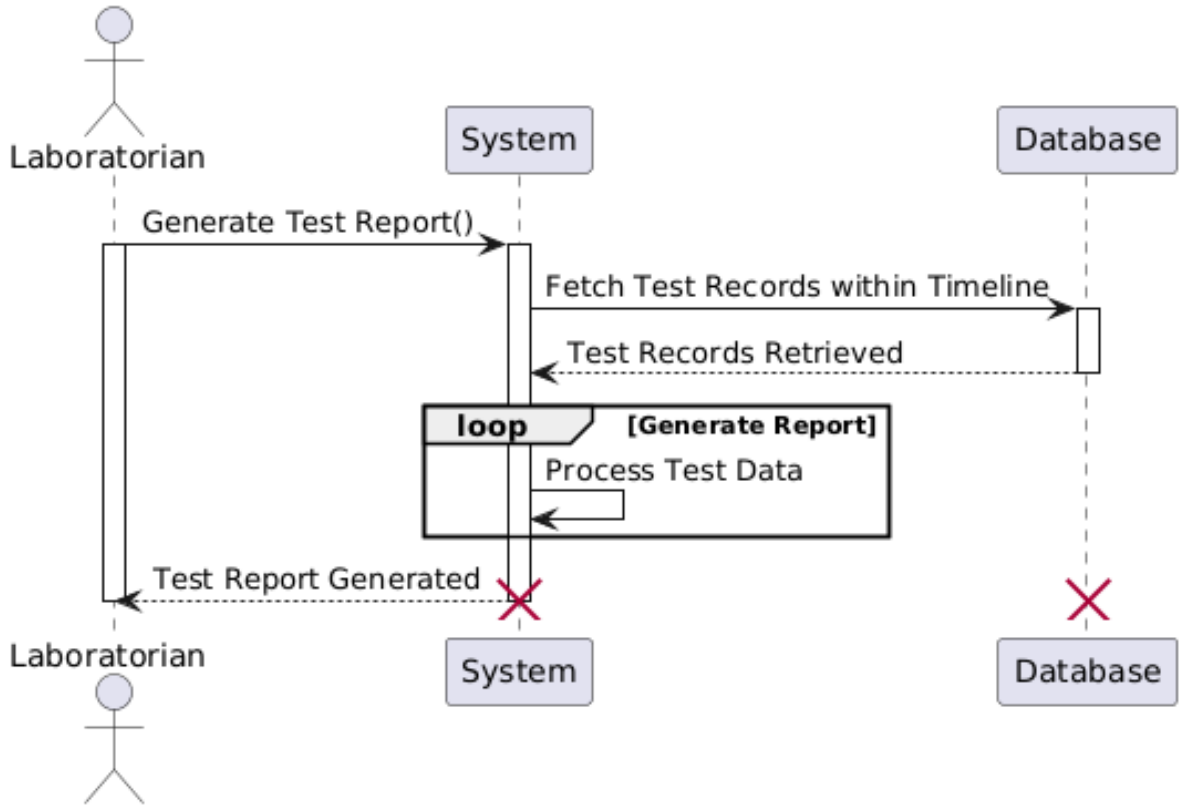
Laboratorian Add/Update/Delete Test Records



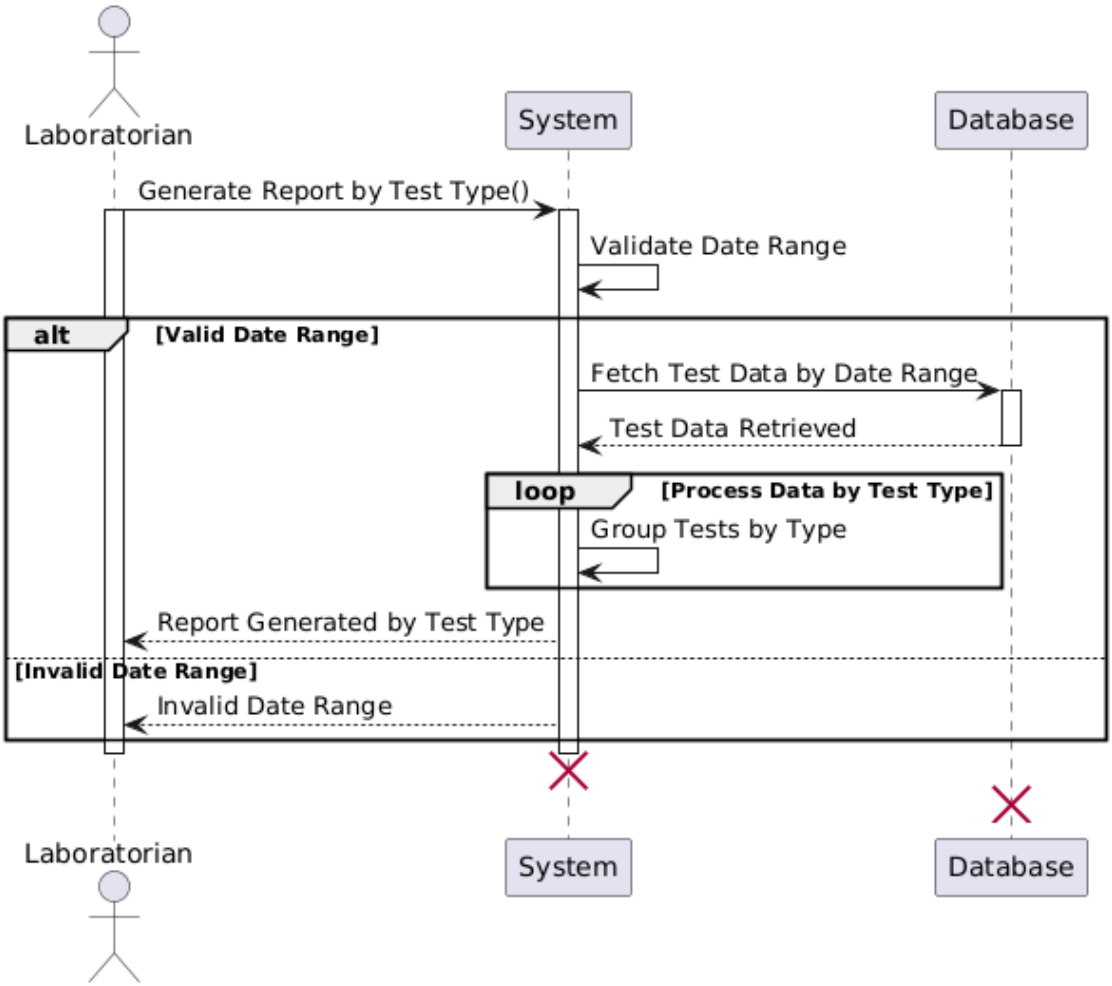




Laboratorian Generate Test Report

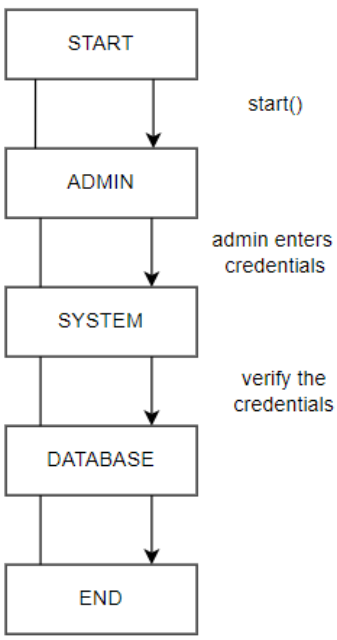


Laboratorian Generates Statistical Report

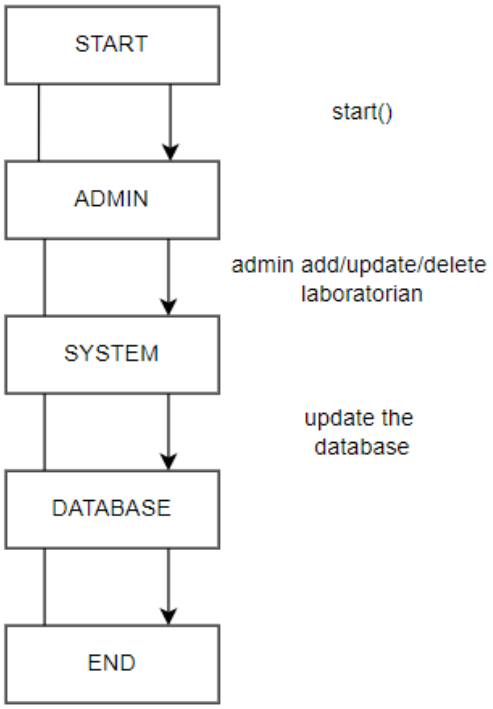


Collaboration Diagram (Admin)

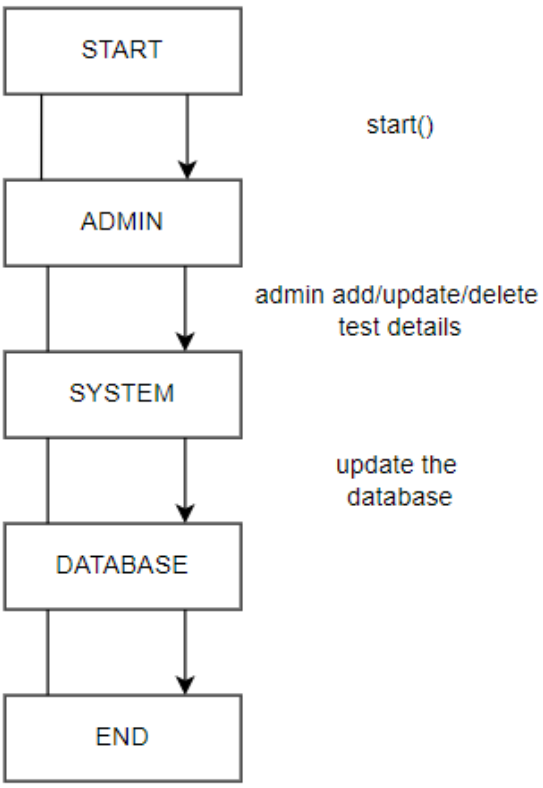
Admin Login



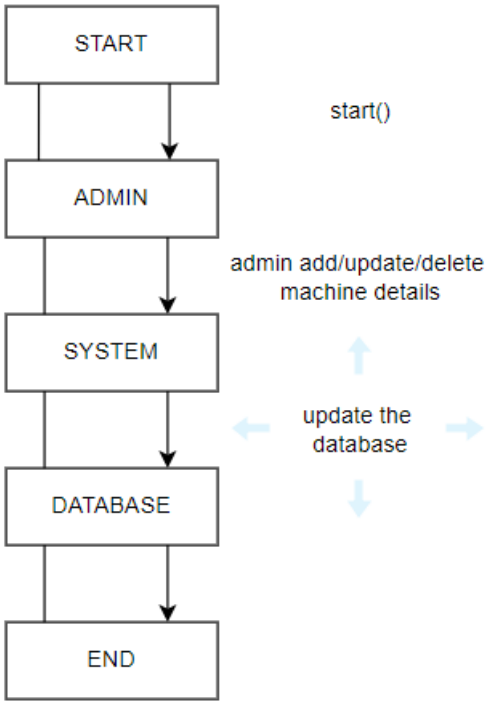
Admin Manages Laboratorian



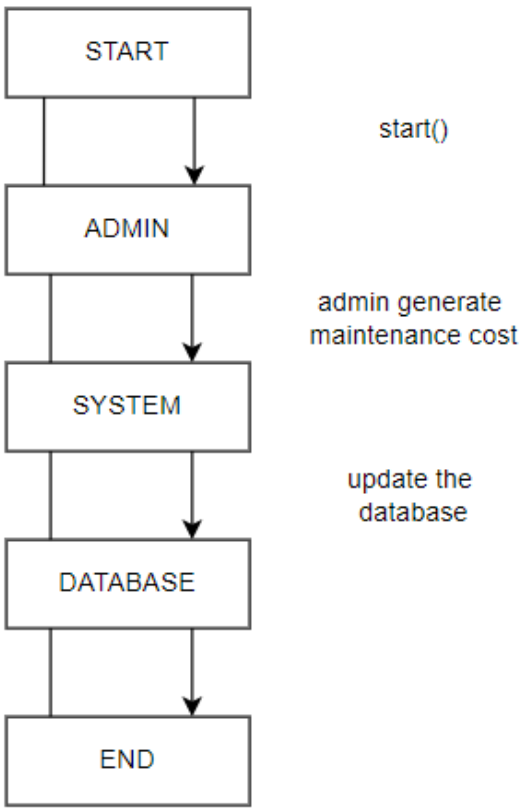
Admin Manage Tests



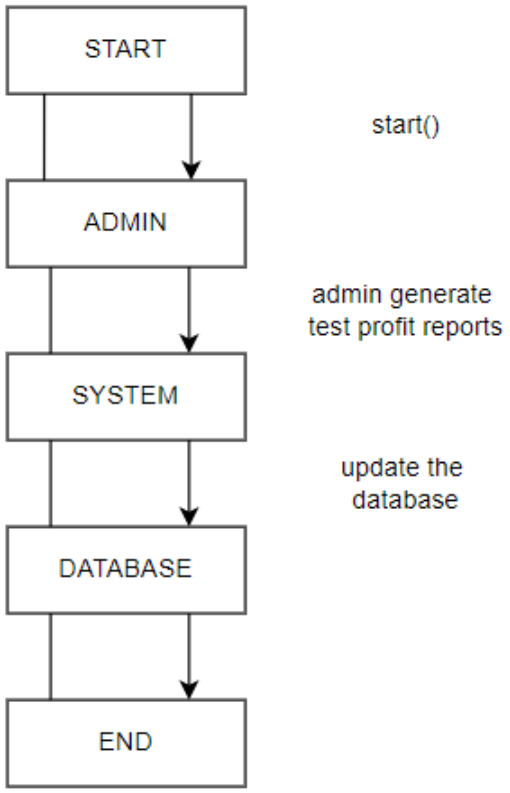
Admin Manages Inventory



Admin Generate Maintenance Cost Report

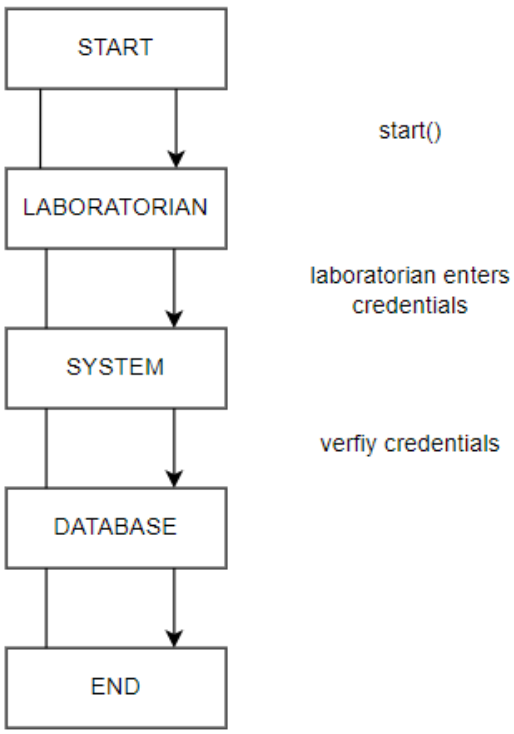


Admin Generate Test Profit Report

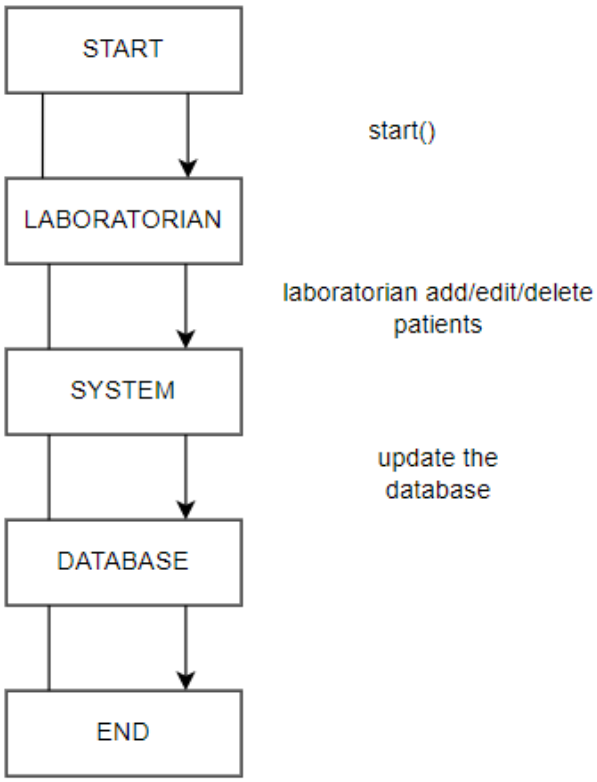


Collaboration Diagram (Laboratorian)

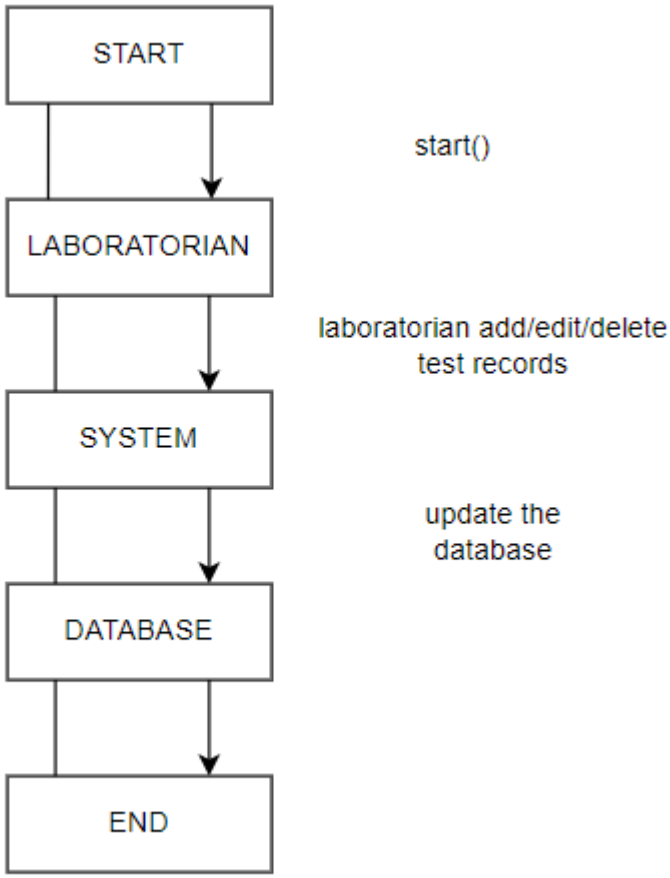
Laboratorian Login



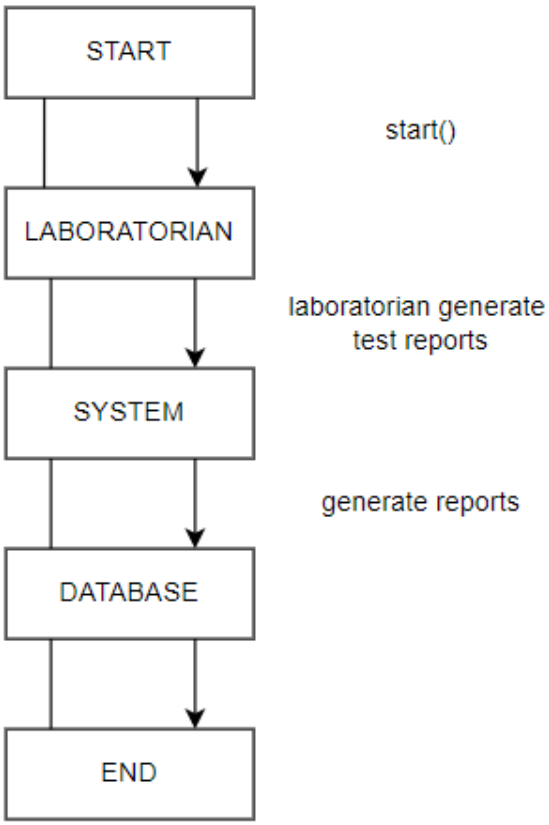
Laboratorian Manages Patients



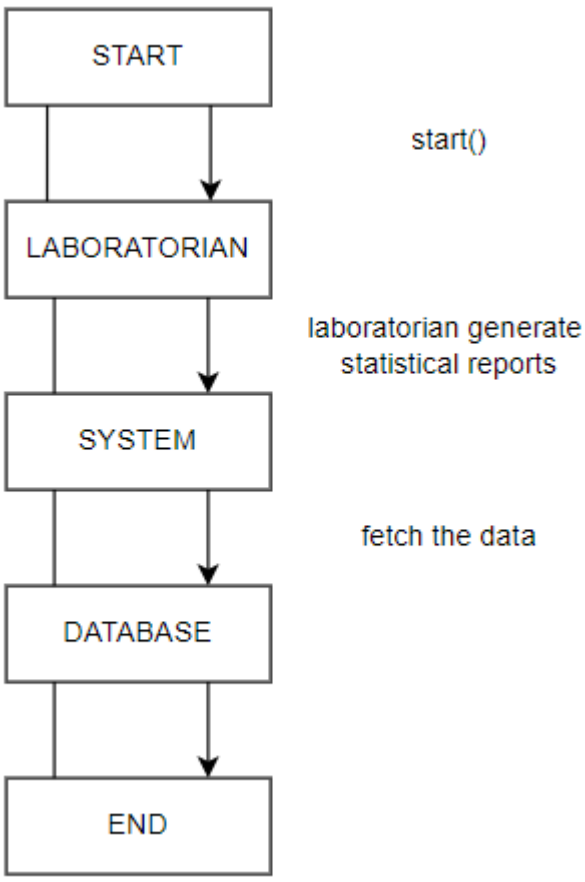
Laboratorian Manages Test Records



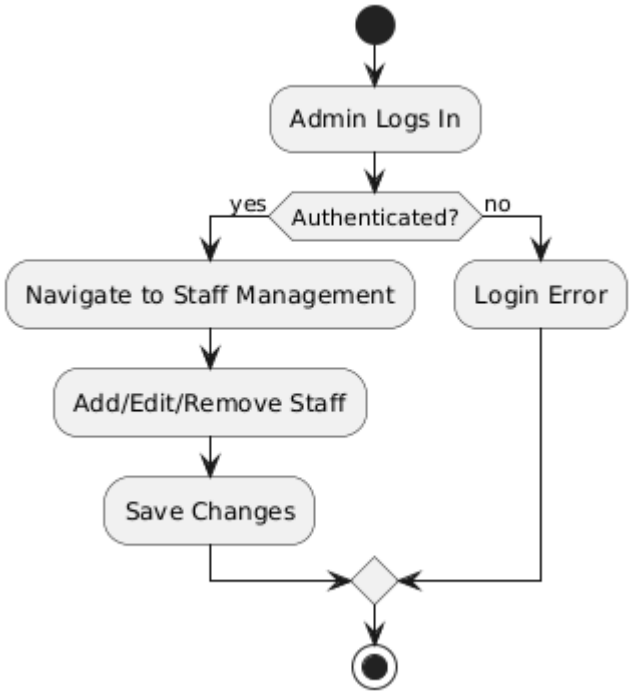
Laboratorian Generates Test Reports

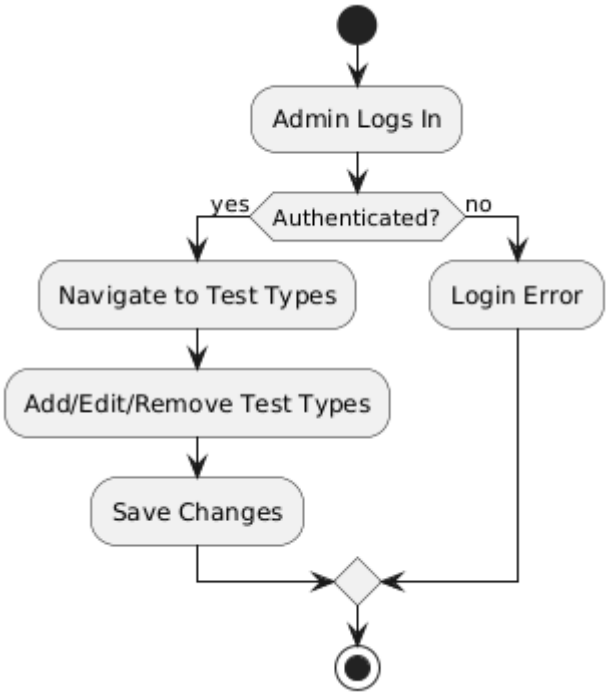


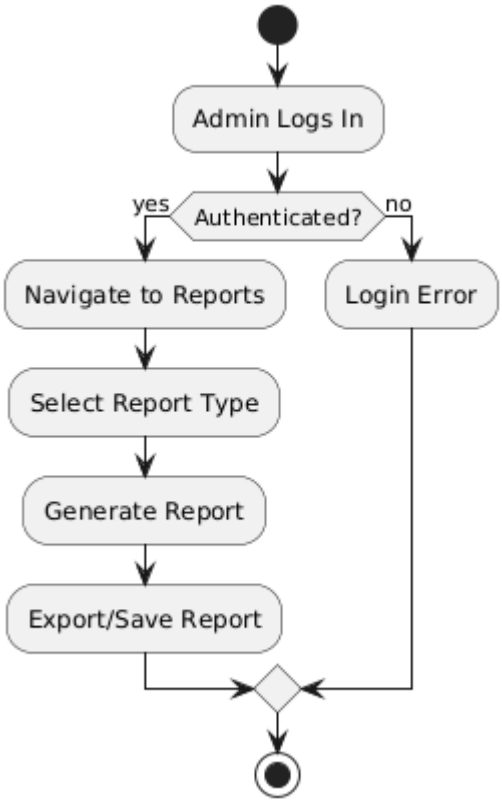
Laboratorian Generates Statistical Reports

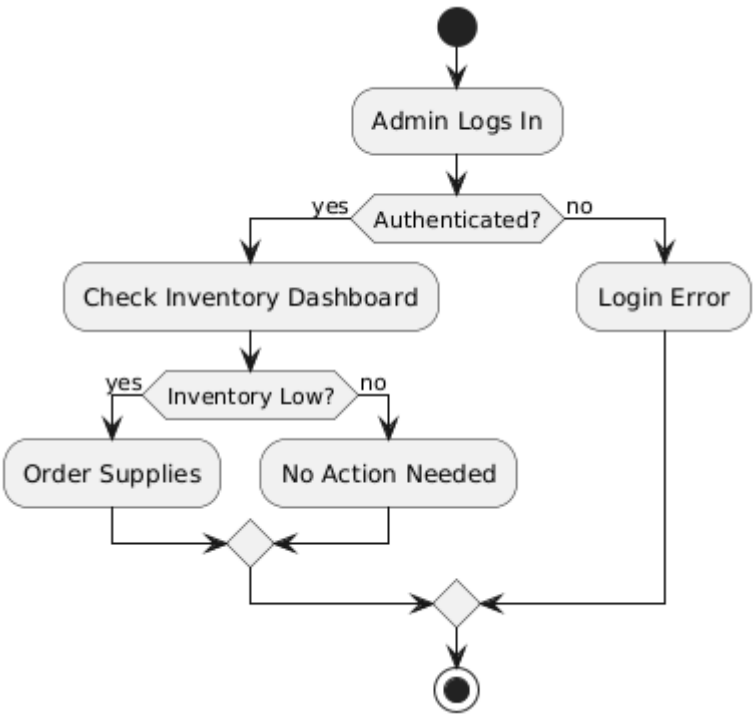


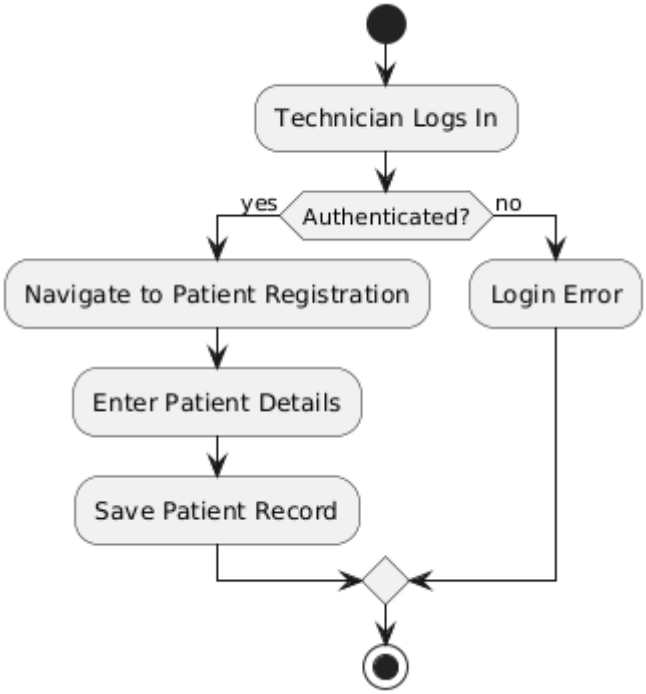
Activity Diagram

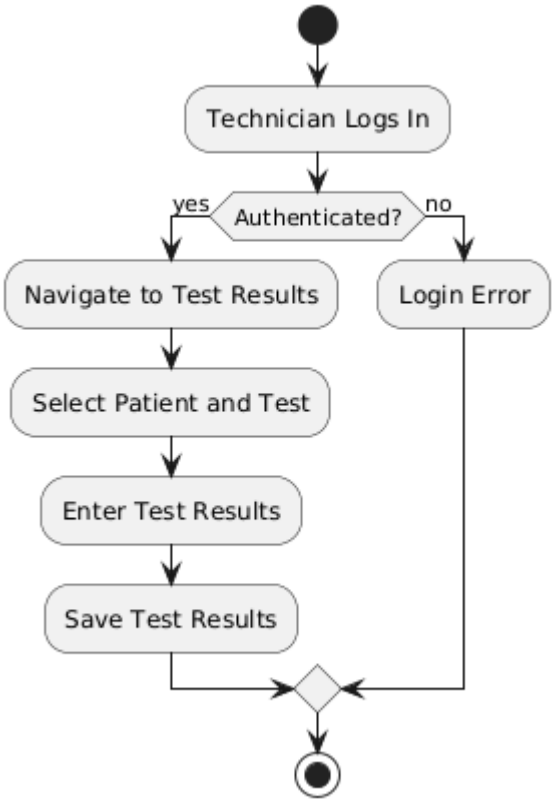


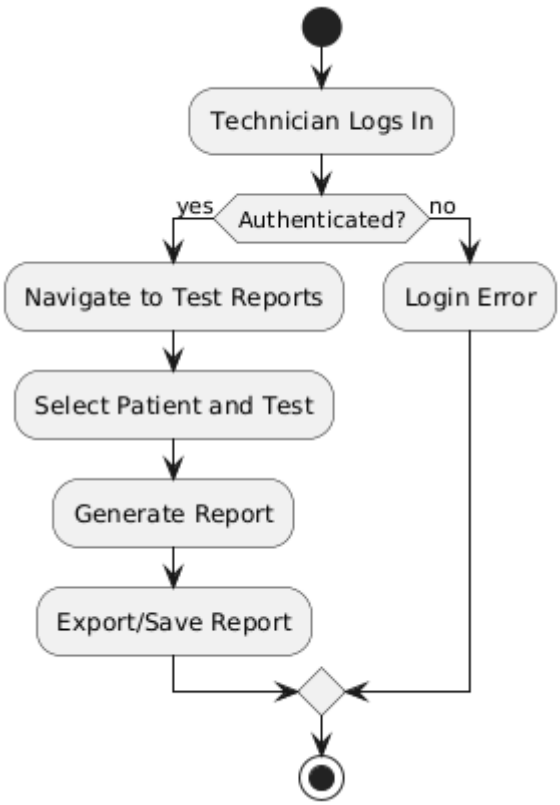



Admin Logs In
Authenticated?
yes
no
Navigate to Reports
Login Error
Select Report Type
Generate Report
Export/Save Report

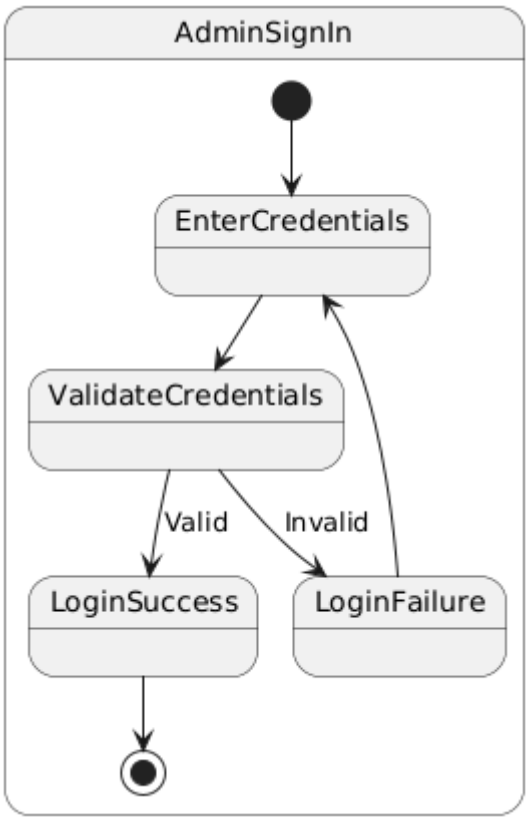

Admin Logs In
Authenticated?
yes
no
Check Inventory Dashboard
Login Error
Inventory Low?
yes
no
Order Supplies
No Action Needed

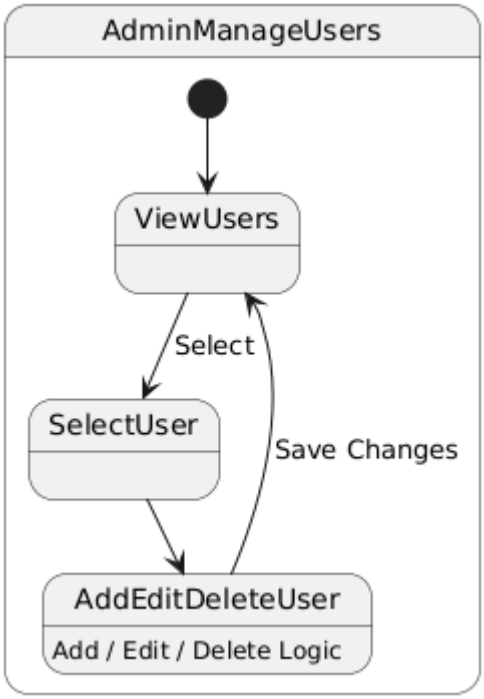

Technician Logs In
Authenticated?
yes
no
Navigate to Patient Registration
Login Error
Enter Patient Details
Save Patient Record

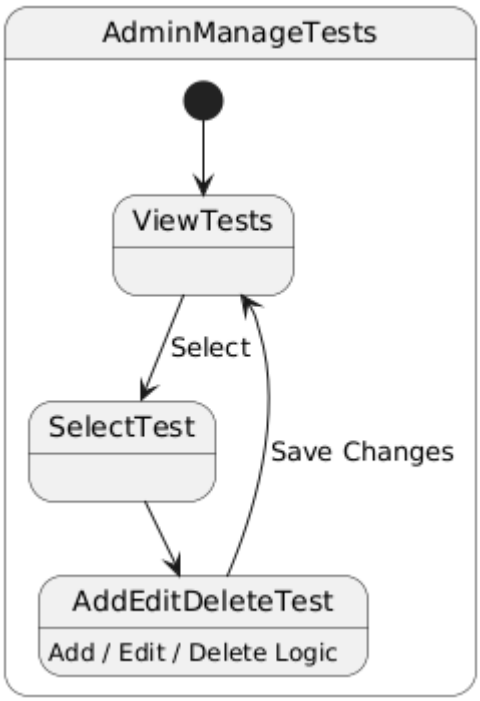

Technician Logs In
Authenticated?
yes
no
Navigate to Test Results
Login Error
Select Patient and Test
Enter Test Results
Save Test Results

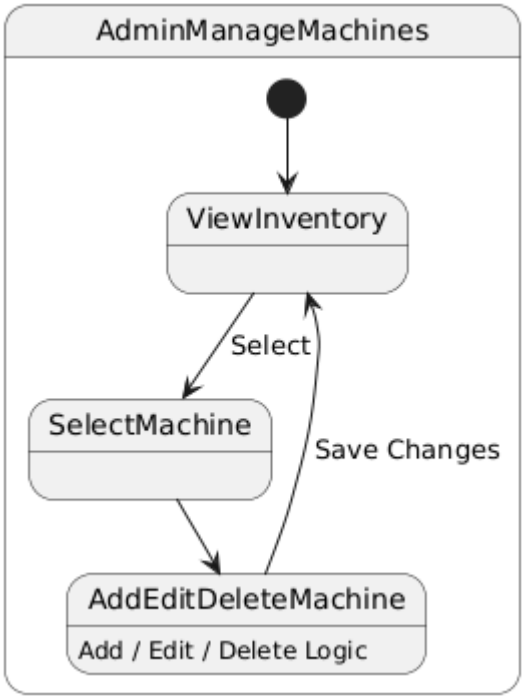


State Machine Diagram (Admin)

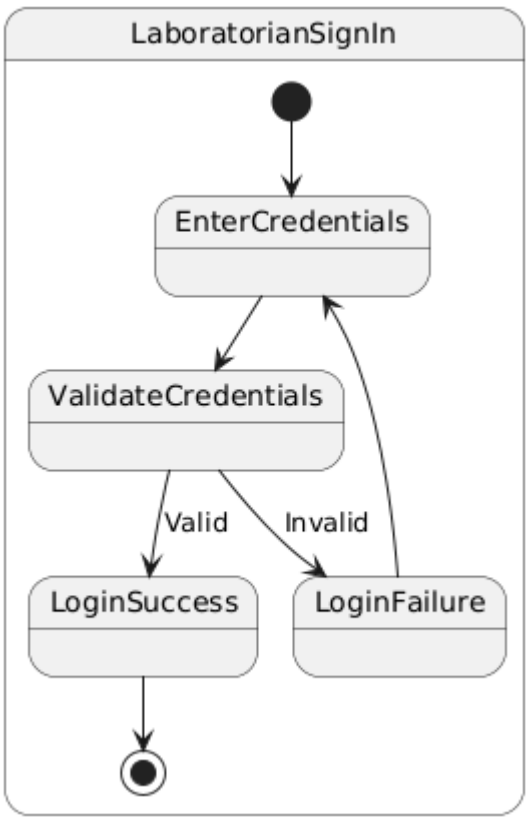


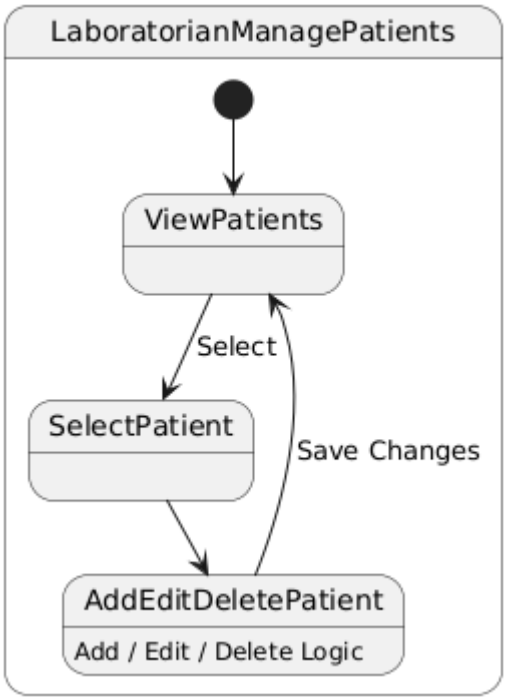

AdminManageUsers
ViewUsers
Select
SelectUser
Save Changes
AddEditDeleteUser
Add / Edit / Delete Logic

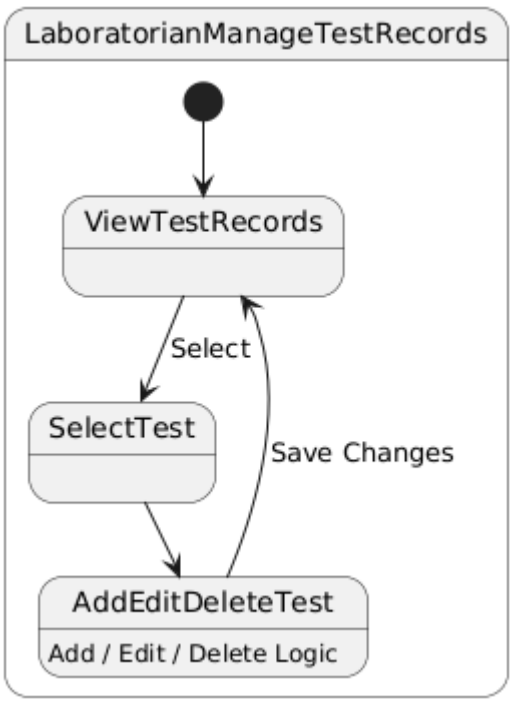

AdminManageTests
ViewTests
Select
SelectTest
Save Changes
AddEditDeleteTest
Add / Edit / Delete Logic

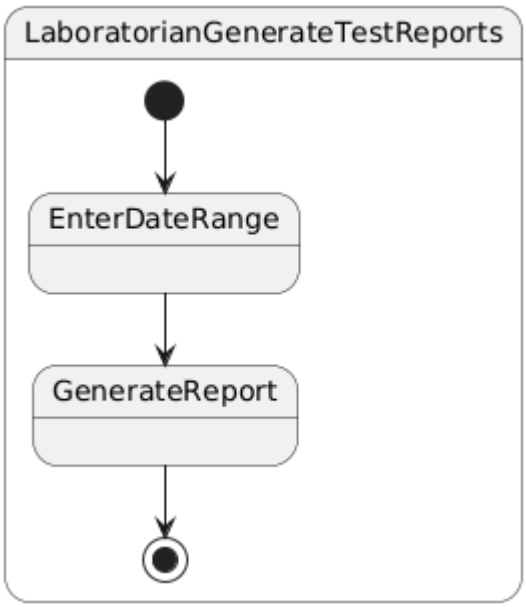


State Machine Diagram (Laboratorian)




LaboratorianManagePatients
ViewPatients
Select
SelectPatient
Save Changes
AddEditDeletePatient
Add / Edit / Delete Logic


LaboratorianManageTestRecords
ViewTestRecords
Select
SelectTest
Save Changes
AddEditDeleteTest
Add / Edit / Delete Logic


LaboratorianGenerateTestReports
EnterDateRange
GenerateReport