

EXPERIMENT -1

Objective: To design use case diagram for

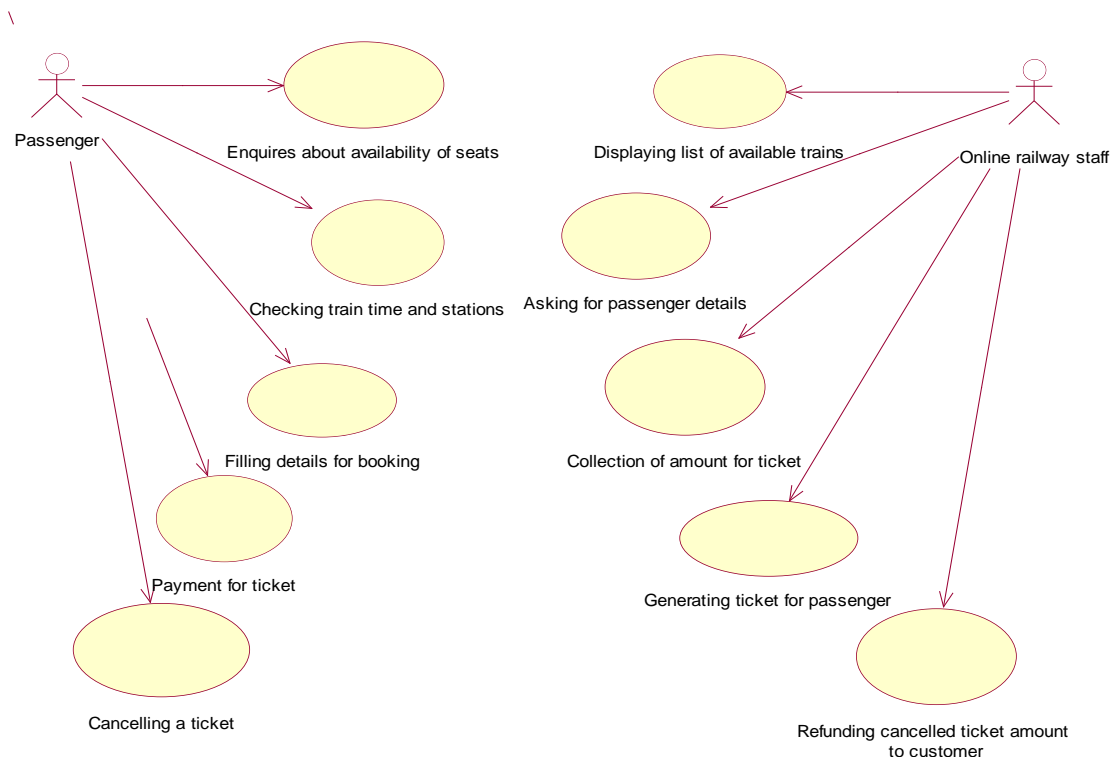
- A. railway management system
- B. hospital management system
- C. library management system

Hardware/ Software Requirements: Rational Rose Enterprise

Theory: A use case diagram visually represents what happens when an actor interacts with a system. Hence it captures the functional aspects of a system. The actors are shown as stick figures, the uses cases are shown as solid bordered ovals with the name of the use case and relationships are represented through arrows. Use cases are meant to capture what the system is and not how the system will be designed or built.

A. Railway Management System

Diagram:



Description:

1. Actors
 - a. Passenger

b. Online Railway Staff

2. Use Case

a. Enquire about availability of seats

Introduction: The passenger enquires about the train

Participating user: Passenger, Online Railway Staff

Flow of events:

Basic flow:

- The customer enters date and place of journey
- The railway department displays desirable results

Alternate flow: None

Pre-condition: None

Post-condition: The railway department generates a list of trains matching the passenger's requirements or provides alternatives if desired results are unavailable.

b. Filling details for booking

Introduction: The passenger fills the details required to book a ticket

Participating user: Passenger, Online Railway Staff

Flow of events:

Basic flow:

- The passenger fills form for booking ticket
- The form is submitted
- A confirmation is generated by railway staff

Alternate flow: User enquires about availability of tickets

Pre-condition: The passenger must check availability of seats

Post-condition: A confirmed ticket must be generated by the railway staff

c. Payment for ticket

Introduction: The passenger pays for the ticket

Participating user: Passenger, Online Railway Staff

Flow of events:

Basic flow:

- The passenger pays for the booked ticket
- The railway staff confirms the payment

Alternate flow: None

Pre-condition: The passenger must have booked a ticket

Post-condition: The railway staff must generate a confirmation ID for successful transaction

d. Availability of trains

Introduction: The railway staff generates list of trains with available seats

Participating user: Passenger, Online Railway Staff

Flow of events:

Basic flow:

- The passenger enquires about the seats
- The railway staff informs the passenger whether seats are available or not

Alternate flow: None

Pre-condition: The passenger must have enquired about availability of seats

Post-condition: The passenger books the ticket if available

e. Cancelling a ticket

Introduction: The passenger fills form to cancel a ticket

Participating user: Passenger, Online Railway Staff

Flow of events:

Basic flow:

- The passenger fills form for cancellation
- The form is submitted to the railway staff

Alternate flow: None

Pre-condition: The passenger must have a valid ticket

Post-condition: The cancellation must be confirmed by the staff

f. Refunding cancelled ticket amount to customer

Introduction: The railway staff pays the customer back

Participating user: Passenger, Online Railway Staff

Flow of events:

Basic flow:

- The passenger's ticket is checked for authenticity
- Some percentage of amount is returned to the passenger

Alternate flow:

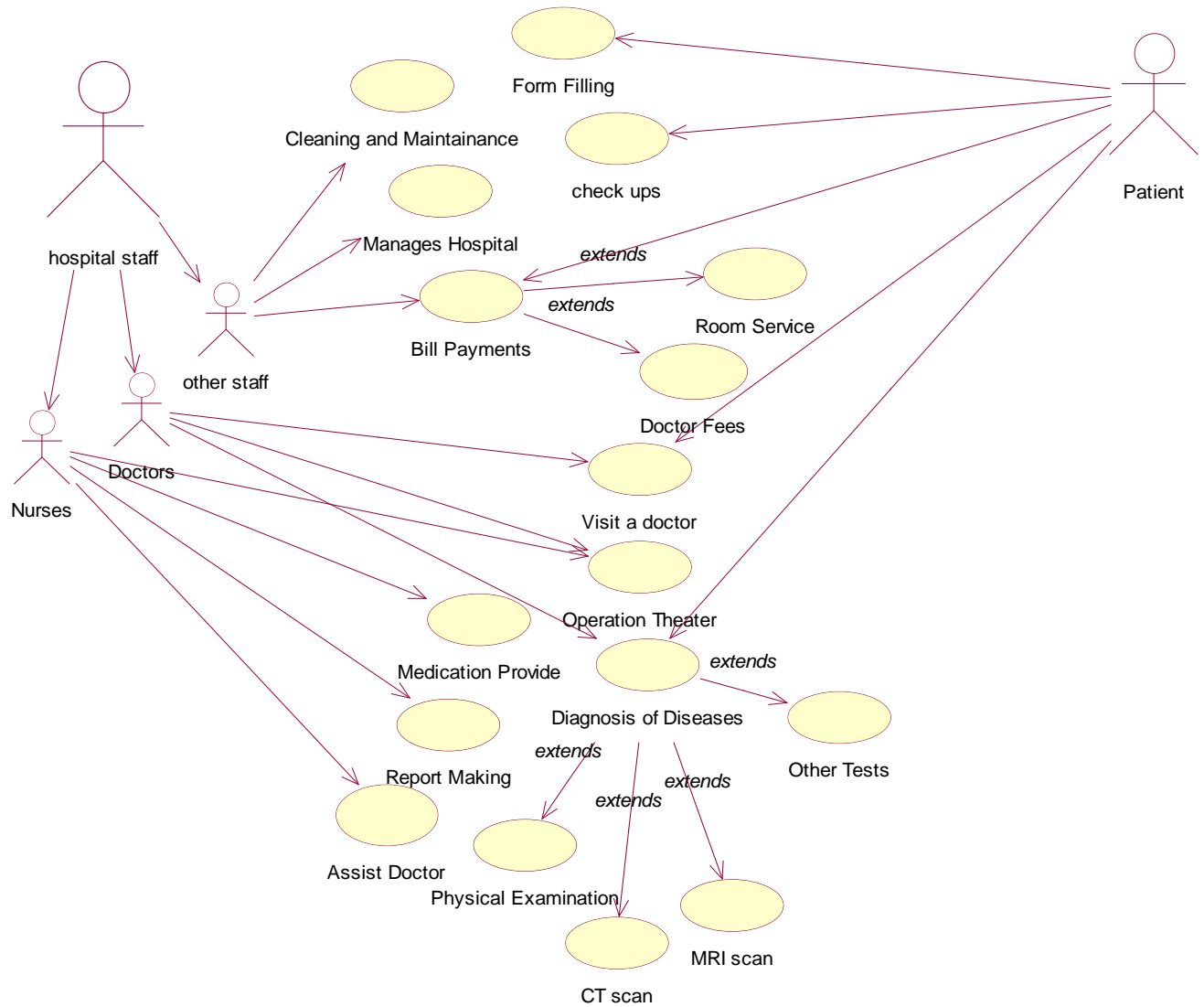
- The passenger fills form for cancellation
- The form is submitted to the railway staff

Pre-condition: The ticket must be genuine

Post-condition: None

B. Hospital Management System

Diagram:



Description:

1. Actors:

- a. Hospital Staff
 - I. Doctors

- II. Nurses
- III. Other Staff
- b. Patient

2. Use Case:

a. Form Filling

Introduction: The patient fills the form

Participating User: Patient

Flow of Events:

Basic Flow:

- The patient fills the form.
- The form is submitted at reception

Alternate Flow: None

Pre- Condition: A patient fills his details in the form and gets an appointment to meet the doctor.

Post- Condition: The hospital staff must keep the record of the patient and book the appointment.

b. Check-Ups

Introduction: The patient wants to meet the doctor for check up.

Participating User: Patient

Flow of Events:

Basic Flow:

- The patient waits for the appointment number for check up.

Alternate Flow: None

Pre- Condition: A patient wants to meet the doctor for check up.

Post- Condition: The patient waits for the doctor to check up.

c. Cleaning and Maintenance

Introduction: The hospital staff is responsible for cleaning and maintenance of the hospital environment.

Participating User: Other staff

Flow of Events:

Basic Flow:

- The hospital staff is responsible for cleaning and maintenance of hospital.

Alternate Flow: None

Pre- Condition: The other staff including every person who is a part of the hospital is responsible for keeping the hospital environment neat and clean.

Post- Condition: The services provided by the hospital also come under the maintenance and cleaning section.

d. Manages Hospital

Introduction: The hospital staff that includes the management people are responsible to manage all the sections in which a hospital is divided.

Participating User: Other staff

Flow of Events:

Basic Flow:

- The hospital staff includes the management staff that maintains a proper work flow going on in the hospital premises.

Alternate Flow: None

Pre- Condition: The people who are under the management staff of the hospital come under the other staff also. The staff is responsible to keep record of activities, keep record of patients, doctors and other staff.

Post- Condition: The management of the hospital is a big task to perform and all the people who have senior role in management include admin and reception people.

e. Bill Payments

Introduction: The patient is the one who make the bill payments and the hospital staff is responsible to register the patient, collect the payment and keep the records updated.

Participating User: Other staff, Patients

Flow of Events:

Basic Flow:

- The hospital staff generates the bill.
- The patient has to make the required payment.
- The hospital has to maintain a record.

Alternate Flow: None

Pre- Condition: The patient makes the payment and gets an appointment. The hospital staff collects the payment and keeps the record.

Post- Condition: The hospital registers the number of patients and assigns each patient to a particular doctor. The total bill payment is done by the patient at the starting for checkup and appointment and other charges like room services are add on to the bill. The salary of doctors, nurses and other staff is prepared by the hospital accordingly.

f. Visit a Doctor

Introduction: The patient after getting an appointment or in an emergency visits a doctor. The doctor is available according to their specialties.

Participating User: Patient, Doctor

Flow of Events:

Basic Flow:

- The patient comes to the doctor and tells about the problem.
- The doctor helps the patient by treatment and providing medication.

Alternate Flow: None

Pre- Condition: The patient visits a doctor and the doctor is available according to the need to provide the required medication and other health tests.

Post- Condition: The patient on the visit to a doctor gets prescription from the doctor and proper guidance and further process is carried out.

g. Operation Theater

Introduction: In the operation theater there are doctors required to operate the patient and nurses that are present to assist doctor.

Participating User: Patient, Doctors, Nurses

Flow of Events:

Basic Flow:

- The patient is taken into the operation theater.
- The operation is carried out by one or more doctors.
- The nurses are present to assist the doctors.

Alternate Flow: None

Pre- Condition: The patient is taken to the operation theater either in an emergency case or after some medication. The team of doctors and nurses carry out the operation.

Post- Condition: The operation is completed by doctors and nurses and staff provides with the proper bill and other formalities to the patient's family to be completed.

h. Diagnosis of diseases

Introduction: The patient after checkup comes to the doctor again for the diagnosis of the diseases. The doctor does the physical test gives the guidance to patient to go for MRI scan, CT scan and other tests if required.

Participating User: Doctors, Patient

Flow of Events:

Basic Flow:

- The patient comes for the diagnosis of diseases.
- The doctor does the physical checkup and then suggests the MRI scan, CT scan and list of other scans if required.

Alternate Flow: None

Pre- Condition: The patient comes to the doctor for diagnosis of diseases after the checkup.

Post- Condition: The doctor tells the patient to go for MRI scan, CT scan and other tests if required.

i. Providing Medication

Introduction: The doctor guides the nurse about the specific medicines that are to be provided to the patient within some time interval.

Participating User: Nurse

Flow of Events:

Basic Flow:

- The nurse while assisting the doctor is given instructions by the doctor to provide the medication to the patient.

Alternate Flow: None

Pre- Condition: The nurse is instructed by the doctor to perform some tasks like giving injections on time or giving medicines to patient.

Post- Condition: The nurse further recommends the patient the medicines to be taken or makes the other family members or friends of the patient aware about the same.

j. Report Making

Introduction: The hospital has to maintain a proper record of the patient so the nurse is instructed to take all the information about the health of the patient and send the report to the patient and keep one for hospital records.

Participating User: Nurse

Flow of Events:

Basic Flow:

- The nurse maintains a proper record of the patient's health.
- The report made by the nurse is sent to patient and hospital staff for records.

Alternate Flow: None

Pre- Condition: The report is made by the nurse as instructed by the doctor.

Post- Condition: The copy of report is sent to the hospital staff for records and other is sent to the patient.

k. Assist Doctor

Introduction: The main role of the nurse in the hospital is to assist the doctor wheather it be in operation theater or wherever the patient and doctor is present.

Participating User: Nurse

Flow of Events:

Basic Flow:

- The nurse is present all the time in some shifts to assist the doctor.

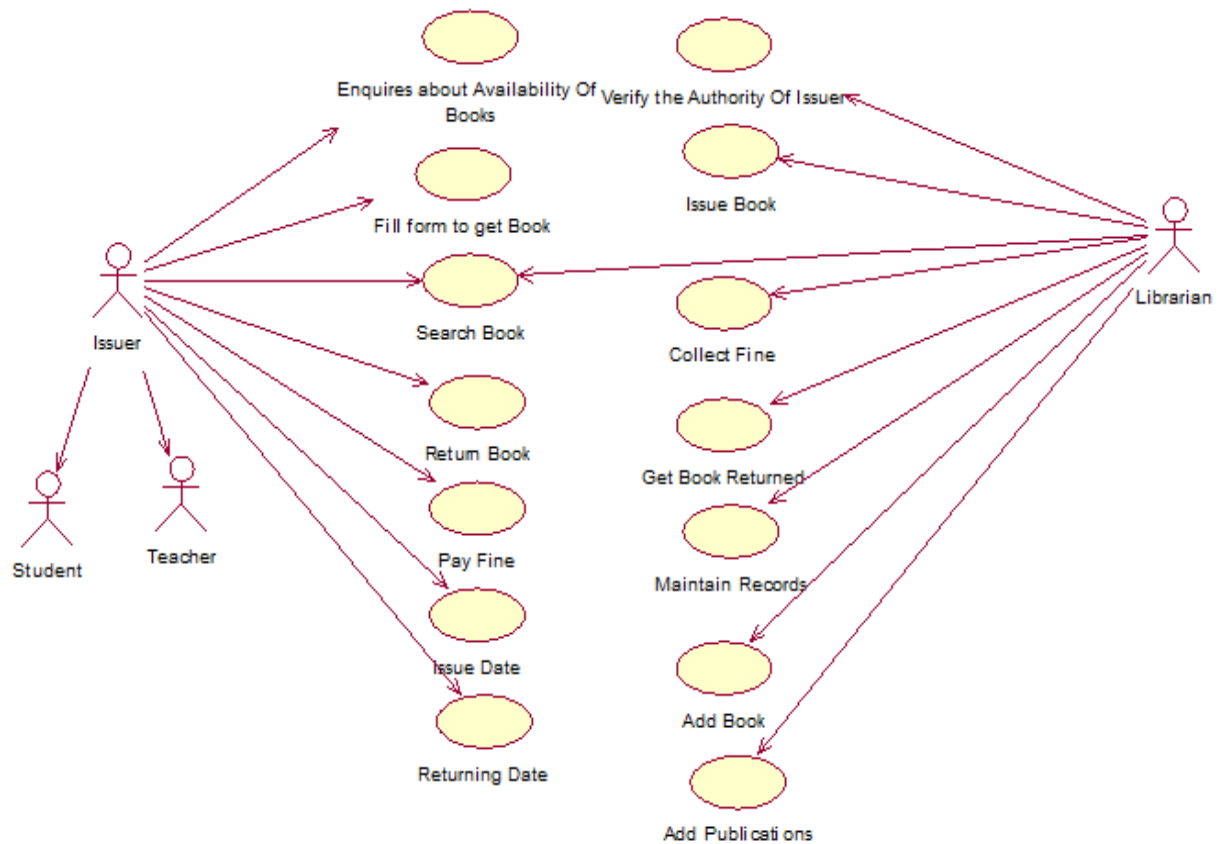
Alternate Flow: None

Pre- Condition: The nurse is required in the operation theater and other emergency rooms of the hospital.

Post- Condition: The nurse assists doctor and patient as well by providing information and sometimes acting as an intermediate between both.

C. Library Management System

Diagram :



Description

1. Actors

- Issuer
- Student
- Teacher
- Librarian

2. USE CASE

a. Search Book

Introduction :- The Student ,Teacher and Librarian will search the book.

Participating User:- Student, Teacher ,Librarian

Flow of Events :

Basic Flow :-

- Student ,Teacher and Librarian search the specific book
- Librarian will verify the authority of issuer

Alternative Flow- None

Pre-Condition- If Student and Teacher is returning book , he must have issued the book.

Post-Condition – Librarian will maintain the record of issue.

b. Fill form to get Book

Introduction :- The issuer will fill form to get book

Participating User:- Student, Teacher ,Librarian

Flow of Events :

Basic Flow :-

- Student ,Teacher and Librarian fill the form to get book
- Librarian will issue the book.

Alternative Flow- None

Pre-Condition- If Student and Teacher is issue book ,he must have search the book.

Post-Condition – Librarian will maintain the issue record.

c. Return Book

Introduction :- The issuer will return the book

Participating User: - Student, Teacher, Librarian

Flow of Events:

Basic Flow:-

- Student, and Teacher return the book
- Librarian will get the book.

Alternative Flow- None

Pre-Condition- If Student and Teacher is returning book ,he must have issue the book.

Post-Condition – Librarian will maintain the issue record.

d. Enquiries About Availability Of Books

Introduction :- The Student ,Teacher and Librarian will enquiry about availability of books

Participating User:- Student, Teacher

Flow of Events

Basic Flow :-

- Student and Teacher enquiry about book

Alternative Flow- None

Pre-Condition- If Student and Teacher is enquiring about book ,he must have issue the book.

Post-Condition – Student and Teacher must have search the book.

e. Pay Fine

Introduction :- The issuer will pay fine

Participating User:- Student, Teacher ,Librarian

Flow of Events :

Basic Flow :-

- Student and Teacher will pay fine for book.

Alternative Flow- None

Pre-Condition- If Student and Teacher is paying fine book ,he must have issue the book.

Post-Condition – Librarian will collect fine.

f. Issue Date

Introduction :- Librarian will check issue date of book

Participating User:- Student, Teacher ,Librarian

Flow of Events :

Basic Flow :-

- Student ,Teacher and Librarian will check the issue date of book

Alternative Flow- None

Pre-Condition- If Student and Teacher is checking issue date of book ,he must have search the book.

Post-Condition – Librarian will maintain the issue record.

g. Returning Date

Introduction :- Librarian will check returning date of book

Participating User:- Student, Teacher ,Librarian

Flow of Events :

Basic Flow :-

- Student ,Teacher and Librarian will check the returning date of book.

Alternative Flow- None

Pre-Condition- If Student and Teacher is checking the returning date ,he must have issue the book.

Post-Condition – Librarian will maintain the issue record.

h. Issue Book

Introduction :- Librarian will issue the book for Issuer

Participating User:- Student, Teacher ,Librarian

Flow of Events :

Basic Flow :-

- Librarian will issue the book for Student and Teacher .

Alternative Flow- None

Pre-Condition- If Librarian will issue book then Student and Teacher must have search the book.

Post-Condition – Librarian will maintain the record and verify the Issuer .

i. Collect Fine

Introduction :- Librarian will collect the fine.

Participating User:- Student, Teacher ,Librarian

Flow of Events :

Basic Flow :-

- Librarian will collect the fine from Student and Teacher .

- Student and Teacher will pay fine

Alternative Flow- None

Pre-Condition- If Librarian will collect fine from Student and Teacher then he must have issue the book.

Post-Condition – Librarian will maintain the record .

j. Maintain Records

Introduction :- Librarian will maintain the record of issue and return book.

Participating User:- Librarian

Flow of Events :

Basic Flow :-

- Librarian will maintain the book records of Issue book which is done by issuer .

Alternative Flow- None

Pre-Condition- If Librarian will maintain records then he must issue the book to the Student and teacher.

Post-Condition – Librarian will maintain the record and add more books .

k. Get Returned Book

Introduction :- Librarian will get book which will be returned by Student and Teacher.

Participating User:- Student, Teacher ,Librarian

Flow of Events :

Basic Flow :-

- Librarian will get book from Student and Teacher.

Alternative Flow- None

Pre-Condition- If Librarian will get book from Student and Teacher, then he must have issue the book to them.

Post-Condition – Librarian will check the record like issuing and returning date .

l. Verify the authority of Issuer

Introduction :- Librarian will verify the authority of issue book.

Participating User:- Librarian

Flow of Events :**Basic Flow :-**

- Librarian will verify the book authority and publication.

Alternative Flow- None

Pre-Condition- If Librarian will verify the authority then Issuer must have issued the book.

Post-Condition – Librarian will check the record like issuing and returning date .

m. Add Publication

Introduction :- Librarian will add new publication of book.

Participating User:- Librarian

Flow of Events :**Basic Flow :-**

- Librarian add new and upcoming publication of Book.

Alternative Flow- None

Pre-Condition- If Librarian will add new publication then , he/she must have search the publication.

Post-Condition – Librarian will maintain the records of newly added publications.

n. Add Books

Introduction :- Librarian will add new books

Participating User:- Librarian

Flow of Events :**Basic Flow :-**

- Librarian add new and upcoming of Book of different author's.

Alternative Flow- None

Pre-Condition- If Librarian will add new book then , he/she must have search the books.

Post-Condition – Librarian will maintain the records of newly added books.