STUDENT AUDITORIUM MANAGEMENT SOFTWARE

SOFTWARE ANALYSIS AND DESIGN

GROUP 59

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1. INTRODUCTION

This Structured Analysis (SA) document provides a complete analysis of the internal functioning of the software via Sequence, Collaboration, Activity and State Chart Diagrams.

The Structured Design (SD) document provides all the design specifications in terms of the operating systems, programming languages, databases etc.

2. DATA DICTIONARY

- Total Seats Available = Balcony Seats Available + Ordinary Seats Available
- Ticket Sales Income for a show = (Balcony Seats Sold * Balcony Seat Price) + (Ordinary Seats Sold * Ordinary Seat Price)
- Expenditures for a show = Commissions for sales persons + Artists' payments + Logistics.
- Balance = Ticket Sales Income – Expenditures

3. FEASIBILITY STUDY

The problem under study is the need for the development of a software which handles the management of an auditorium with ease. The functions performed include querying for the seat availability for a show, booking tickets and cancellation, adding and hiring employees.

This software allows to simulate the entire working of an auditorium and thus helps the management in their working.

3.1 Identifying Stakeholders:

These key users who shall interact with the software.

- Show Manager: He is the supervisor of everything this software can do. He can add and fire employees. He can query for seat availability, add and modify show details, query for the balance sheets.
- Sales Person: He has the rights to book and cancel tickets on request of the spectators with his special log in ID.
- Accounts clerk: He adds expenditure for a particular show which helps to generate the balance sheets.
- Spectator: Spectator is an indirect user of the software. He can access it only through a sales person for querying and ticket booking.

3.2 Ticket Simulation

This part deals with the tickets. The spectators would have to approach a sales person with authorized access, to query for ticket availability for a show and then book the tickets for that show specifying the required number of balcony and ordinary seats required. The sales person then proceeds with their requests and generates and then hand the printed receipt over to them. In case of cancellation the spectators are required to tell their transaction id and then after cancellation the refund amount is handed over to them.

3.3 Show Management

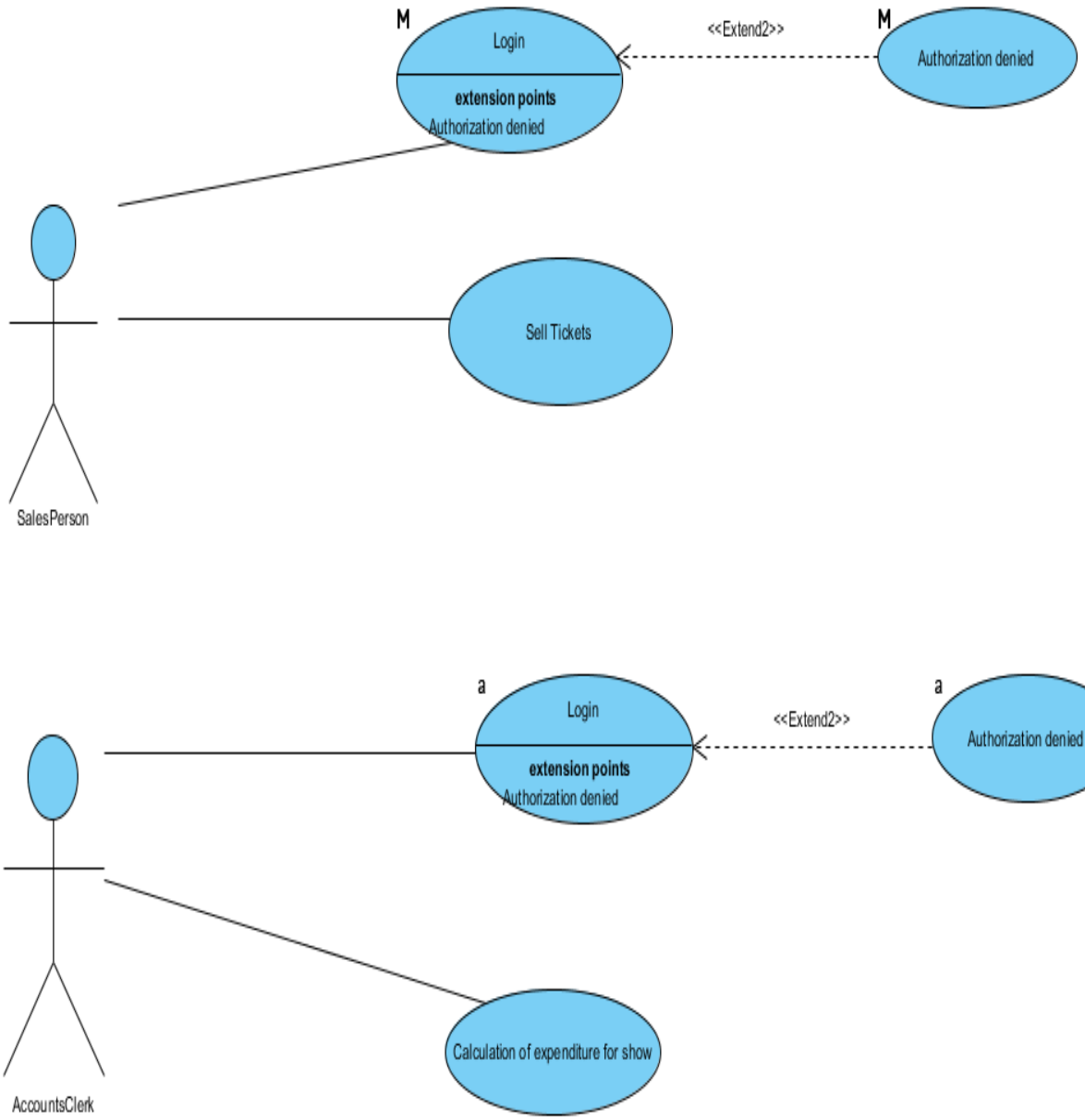
Only the show manager has the entire access to the modification of the details of a show. He can view the balance sheets for that show or query the seat availability.

3.4 Employee Management

The show manager has the rights to add new sales persons or remove the existing ones and same with the accounts clerk.

4. USE CASE DIAGRAMS

4.1 Sales Persons and Accounts Clerk



BRIEF DESCRIPTION:

The **Sales Person** can book the tickets and can even cancel them on the request of the spectators. The sales persons are the only authorized people to book tickets.

The **Accounts Clerk** can enter the expenditures of a show for the generation of Balance Sheets. Only an accounts clerk is granted such access by the show manager.

STEP-BY-STEP DESCRIPTION:

Both the sales persons and accounts clerk are appointed by the show manager and they are given a username and a password should be set by them. They have to log in using these credentials for accessing the specified parts of the database.

Sales Person is then directed to Ticket Booking Interface with various choices:

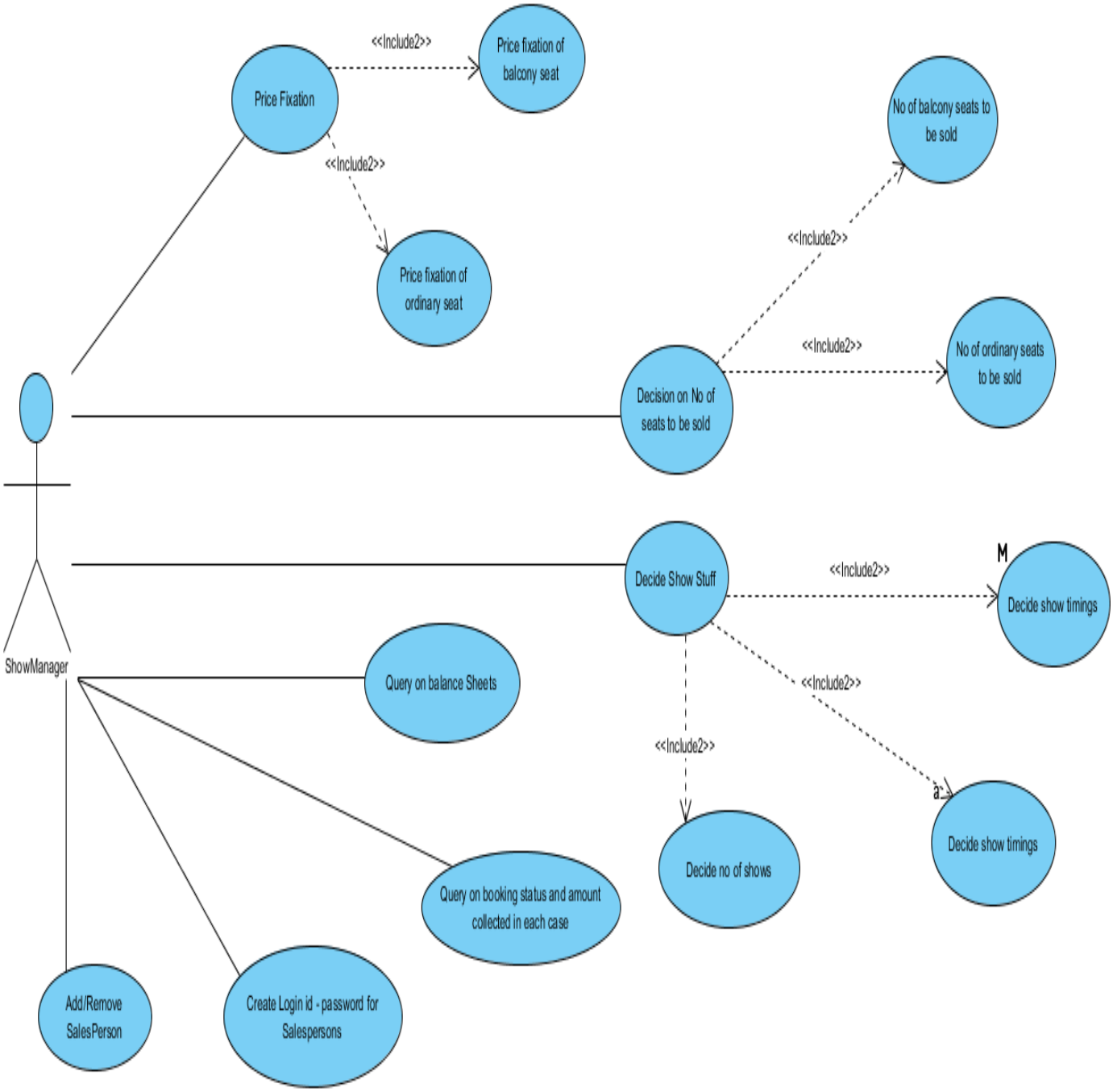
- Book tickets after confirming the availability of the seats for a particular show and then generating the ticket. Printing is also commanded by the sales person.
- He can also cancel the tickets provided that the spectator provides the ticket, he had already booked. The money is then refunded to the spectator as per the norms.

The Sales Person gets commission based upon the number of seats he sells.

After log in, an accounts clerk is directed to the expenditures interface with choices like:

- Enter expenditure for artists' payments
- Enter expenditure for other expenses like logistics.

4.2 Show Manager



BRIEF DESCRIPTION:

The show manager, once appointed, has he entire authority over the auditorium. He supervises everything at the auditorium during a show.

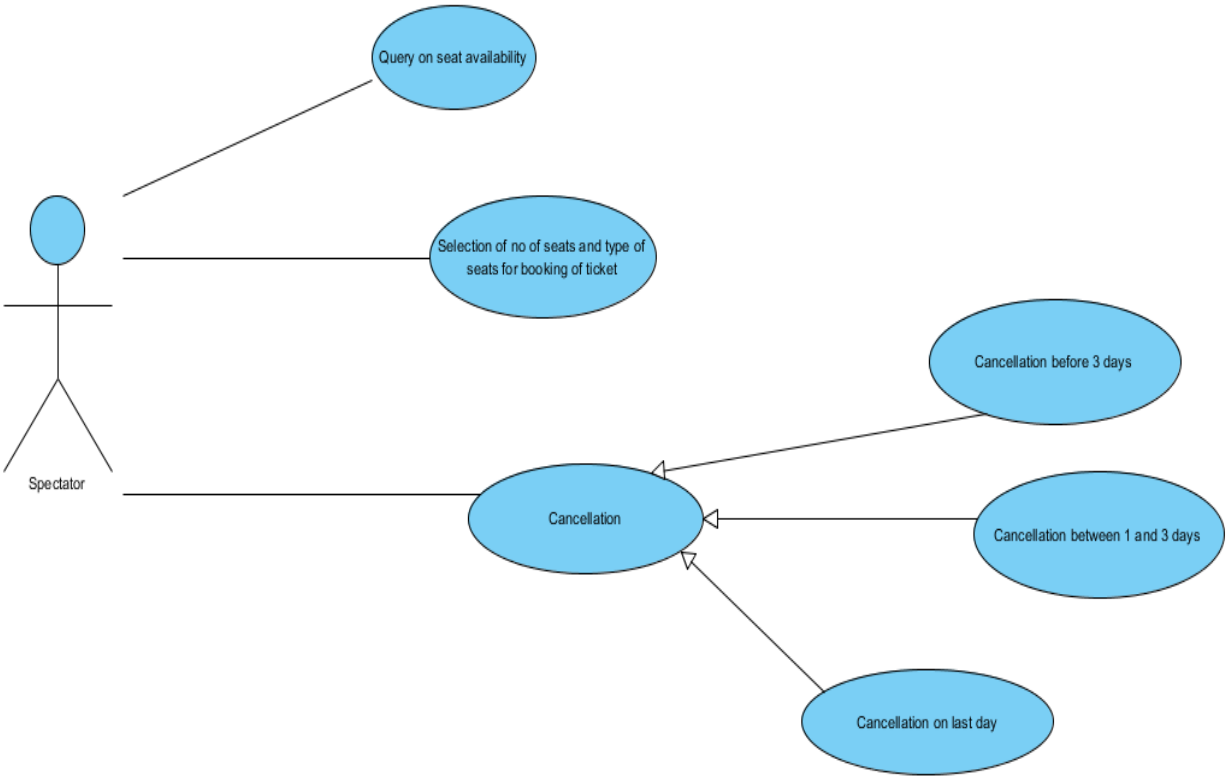
STEP-BY-STEP DESCRIPTION:

The Show Manager also has a special ID and his own password to log in to the software.

After log in, he is directed to the manager interface with various options like:

- Add an employee, either a sales person or an accounts clerk.
- Fire an employee, due to poor work.
- Fix show timings and also details for the show like seats available for booking and their corresponding prices.
- Create Log in IDs for his employees
- Querying for seat availability and also query the sales income for a show
- Query for balance sheets containing all the expenditures and sales income.

4.3 Spectator

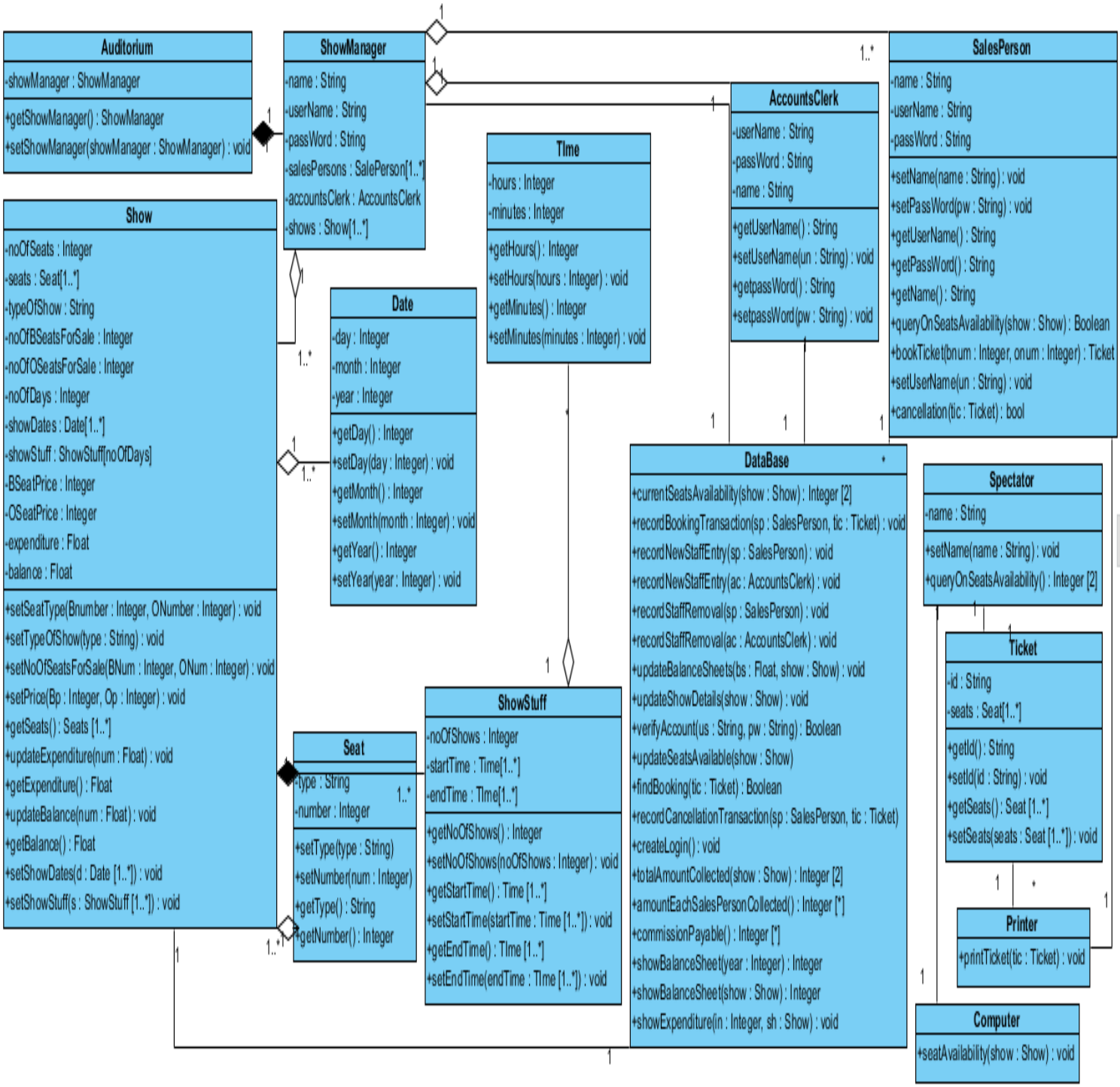


DESCRIPTION:

The spectator cannot directly use the SAMS. But he can use it through the sales persons. He can perform tasks like:

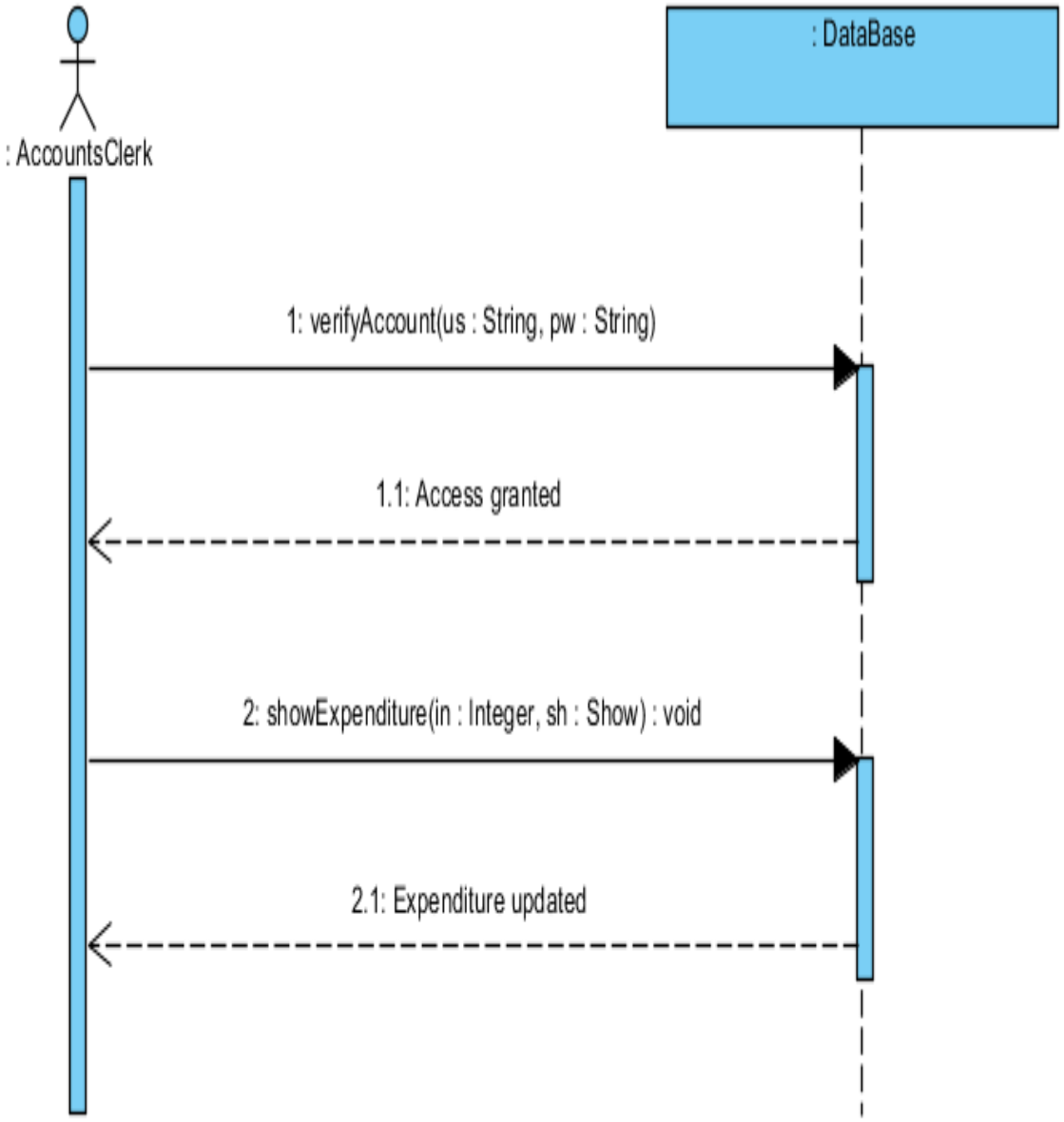
- Query for the ticket availability for a show.
- Book the tickets through sales person, by providing details like his name, required number of balcony and/or ordinary seats and also the show for which tickets are required.
- Cancel the tickets booked by providing the ticket at the sales persons' desk.

5. CLASS DIAGRAM

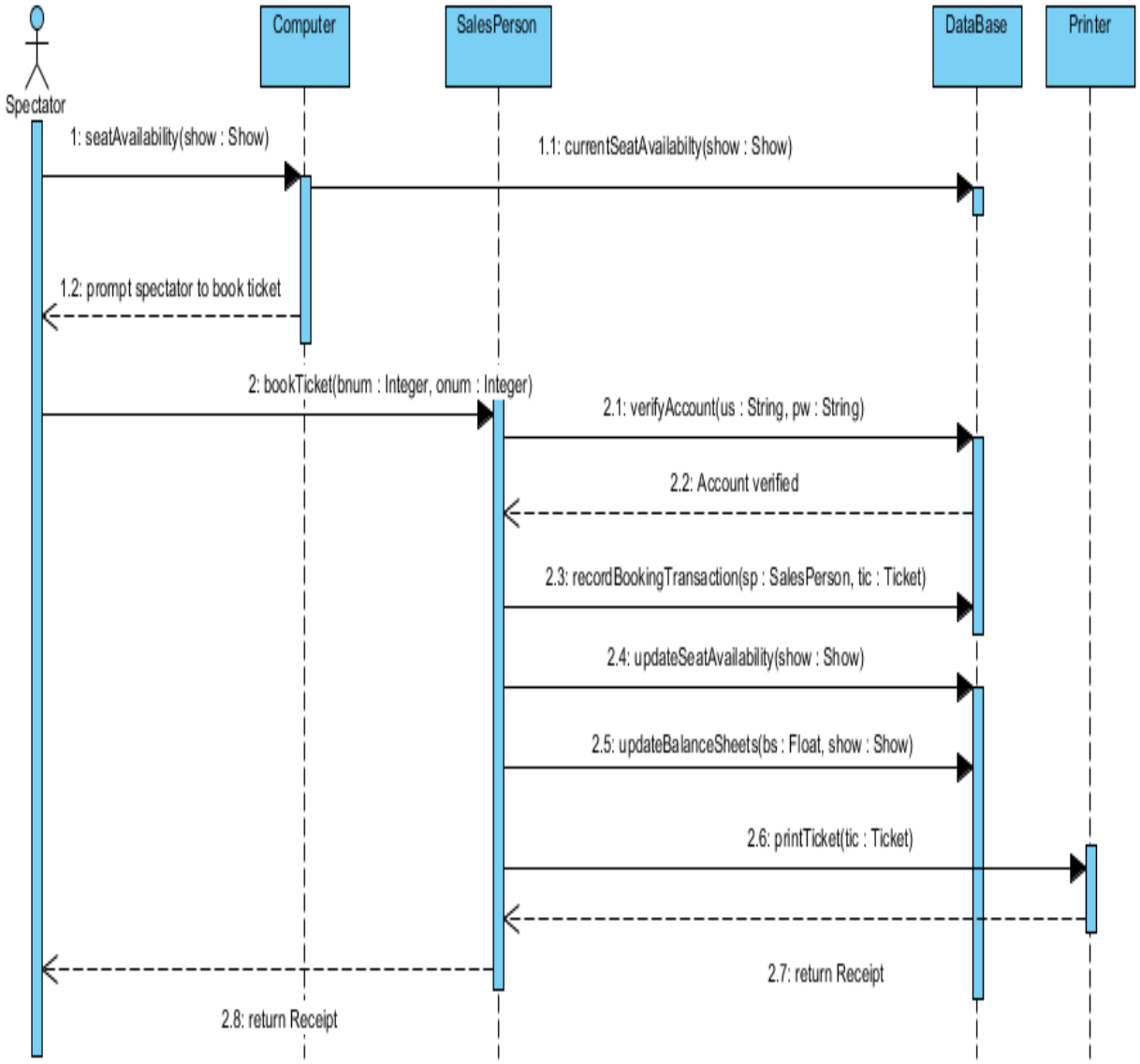


6. SEQUENCE DIAGRAMS

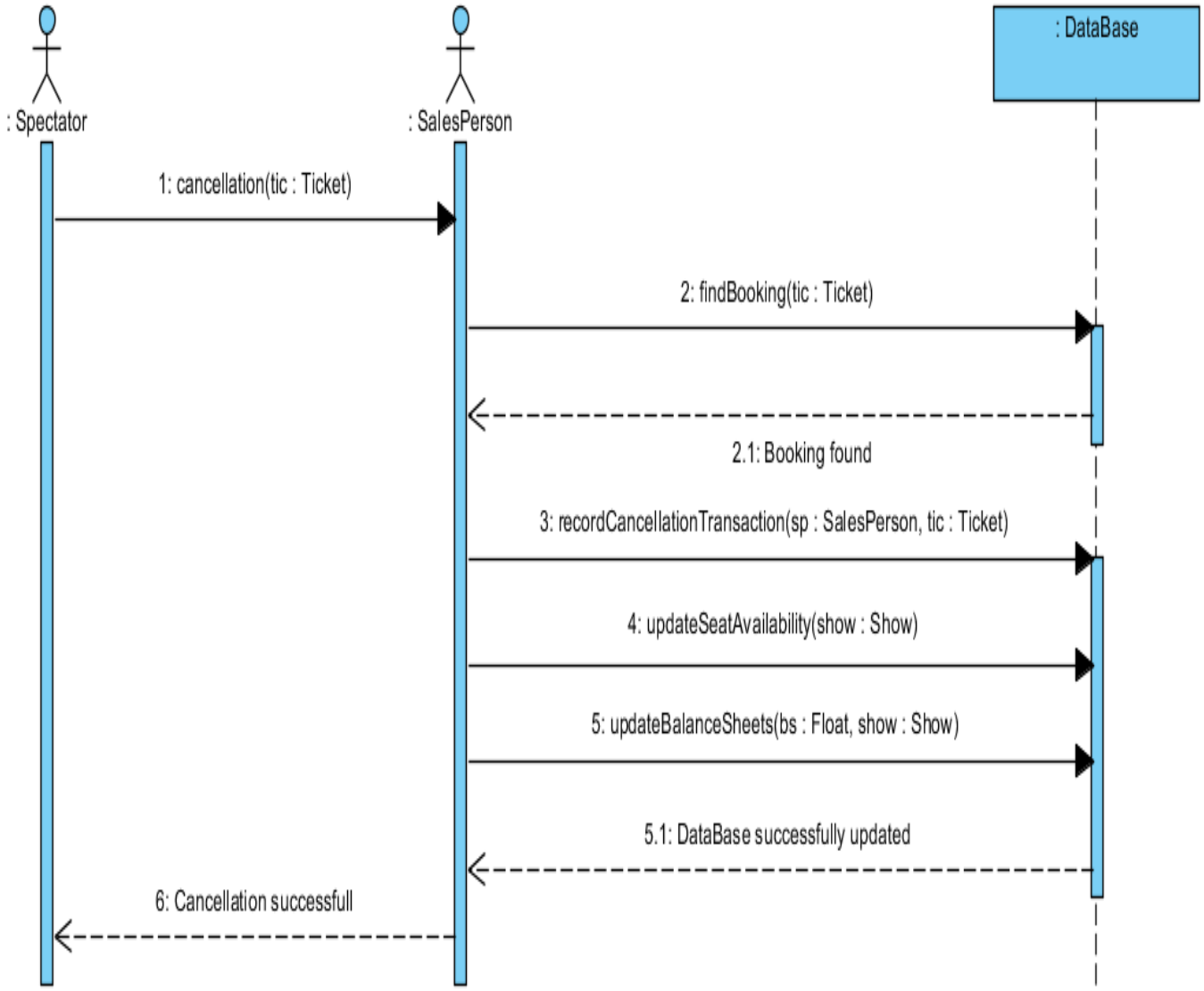
6.1 Adding Expenditures by Accounts Clerk



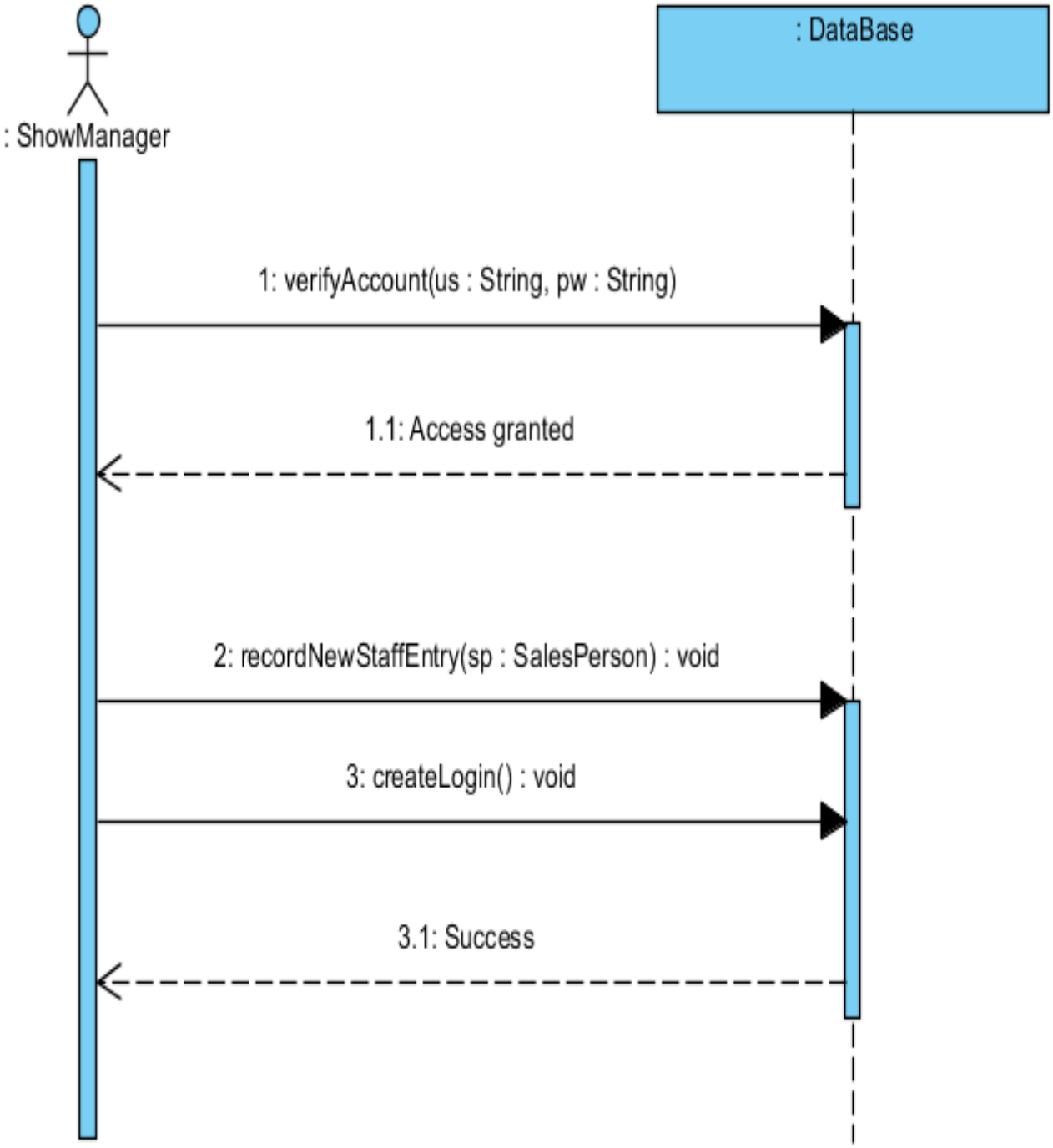
6.2 Ticket Booking



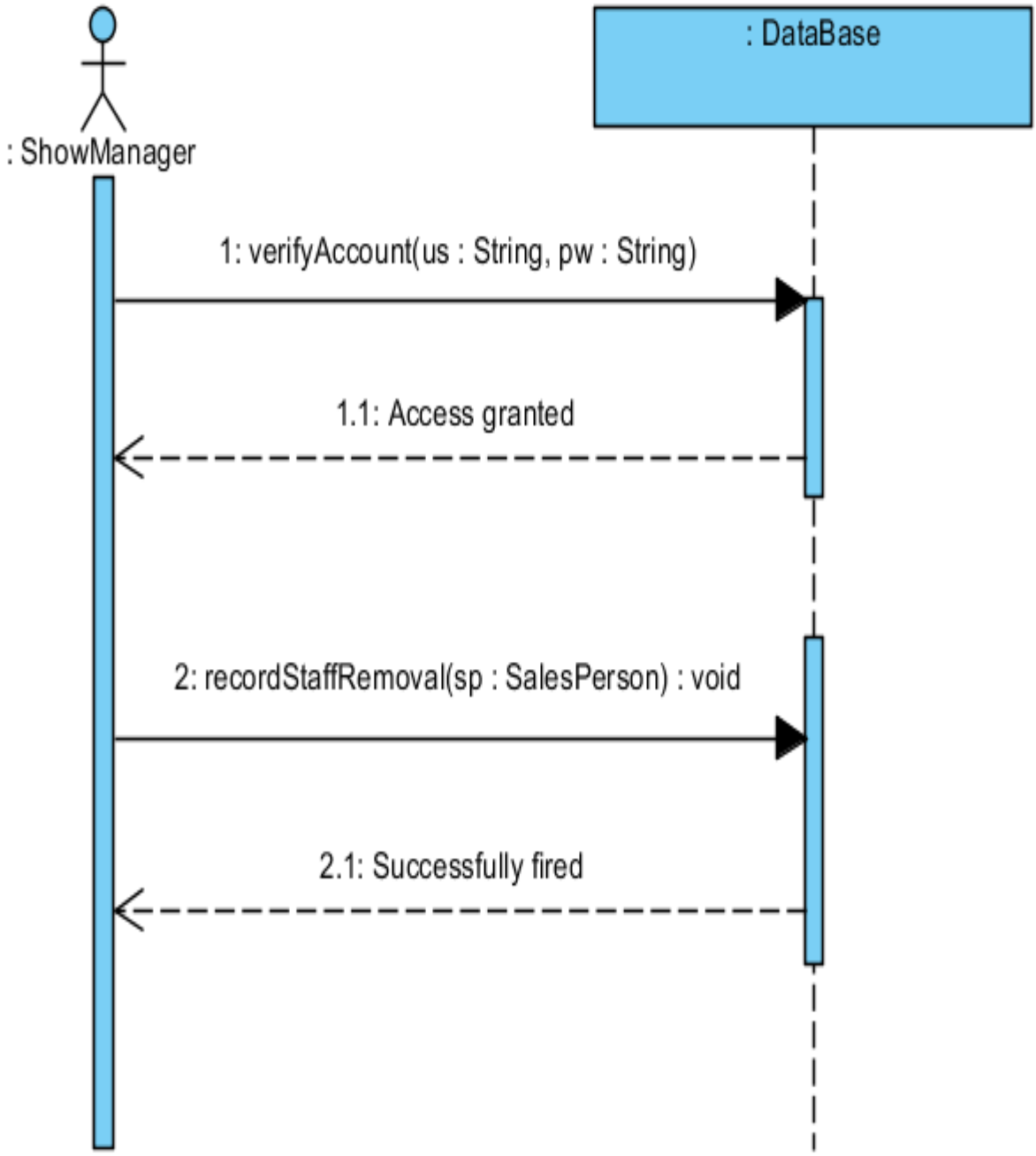
6.3 Ticket Cancellation



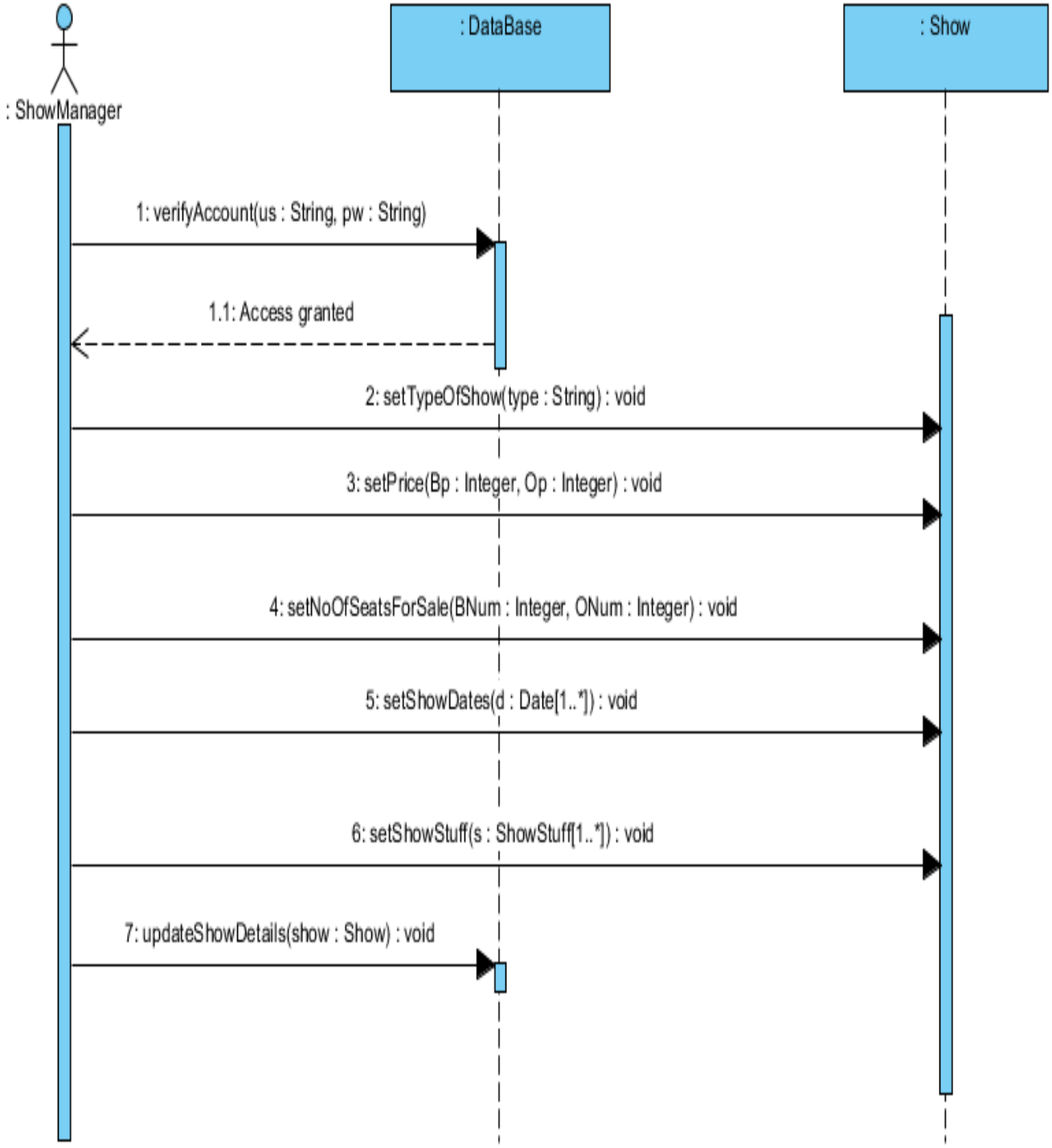
6.4 Sales Person Recruitment



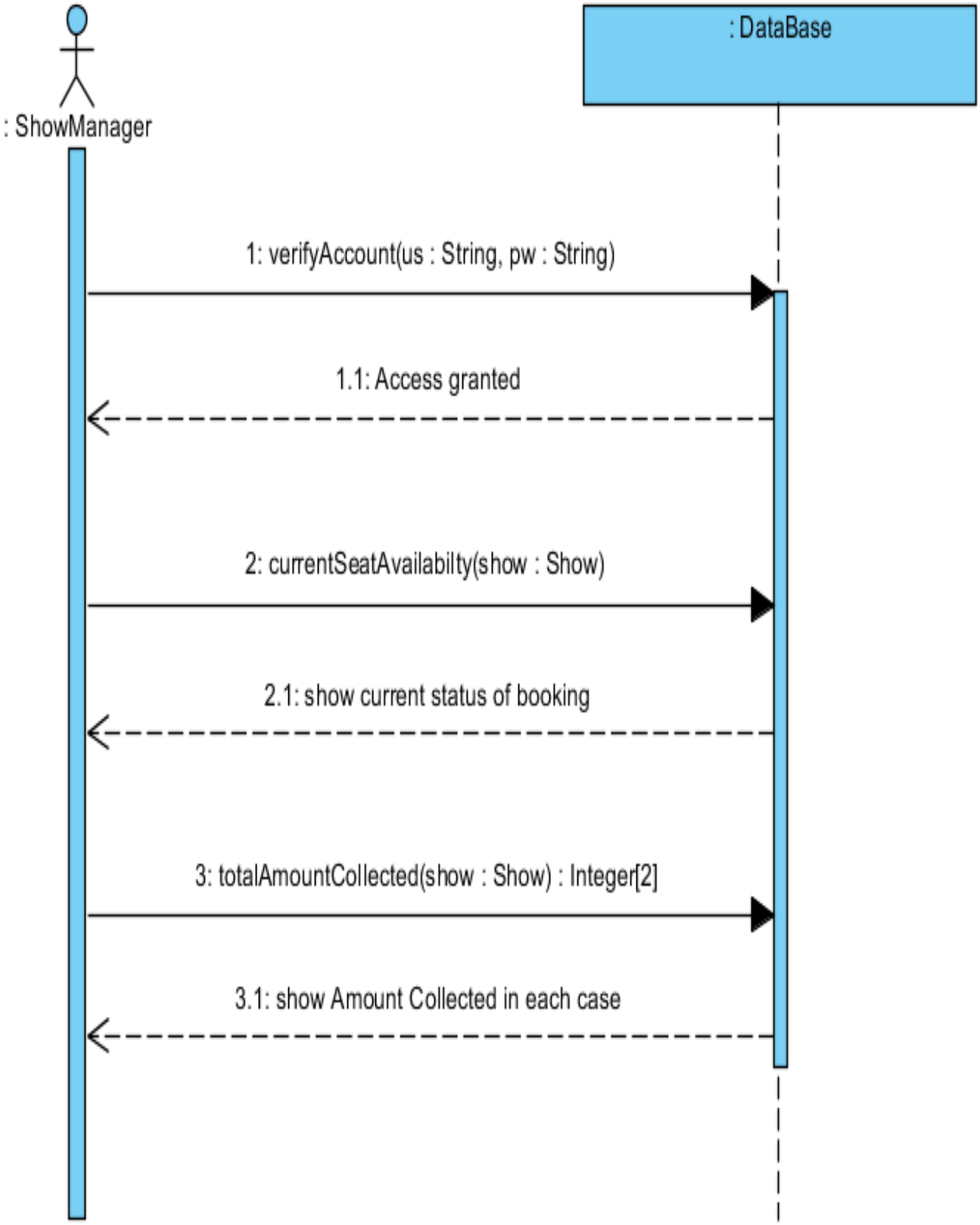
6.5 Sales Person Removal



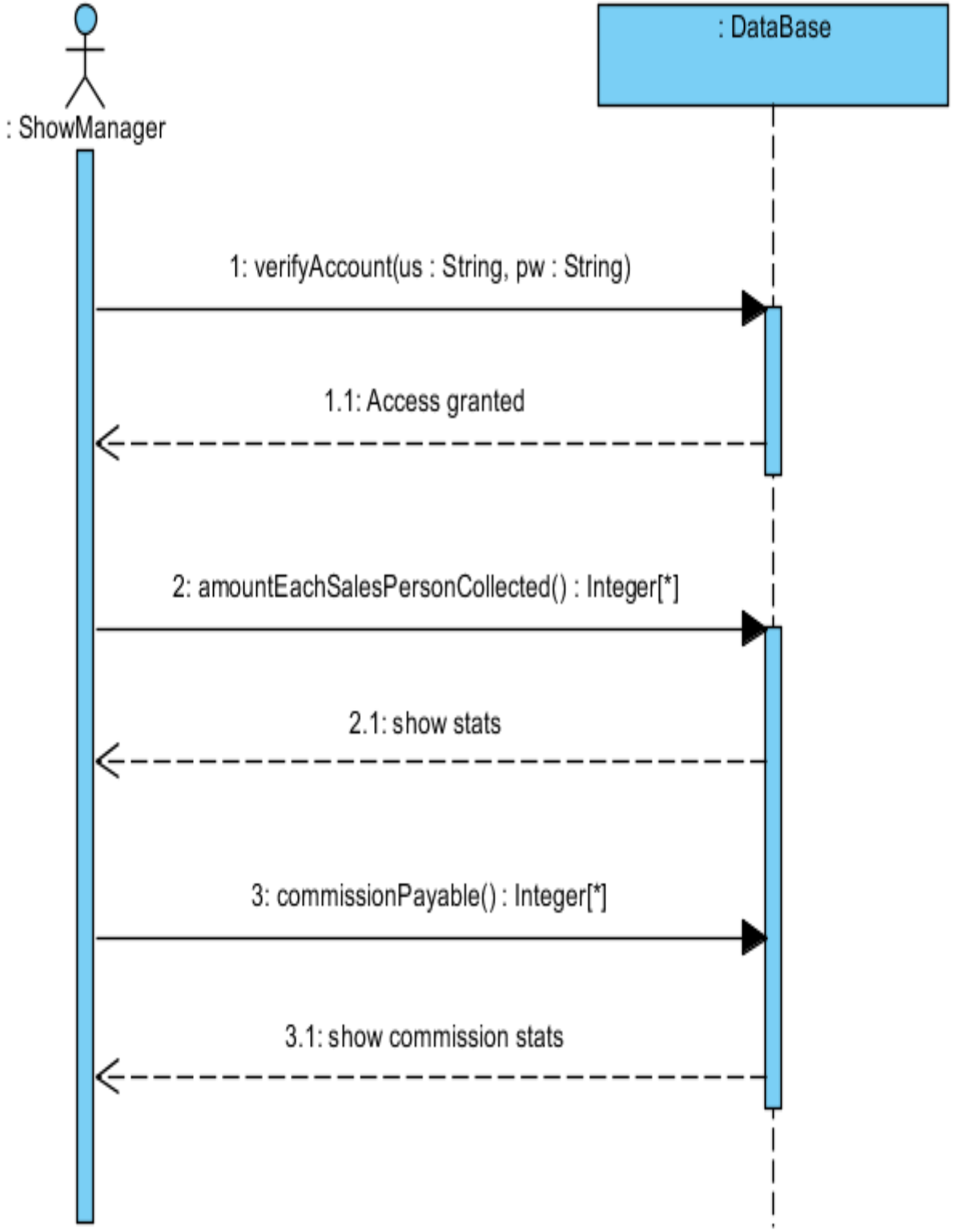
6.6 Show Details Management



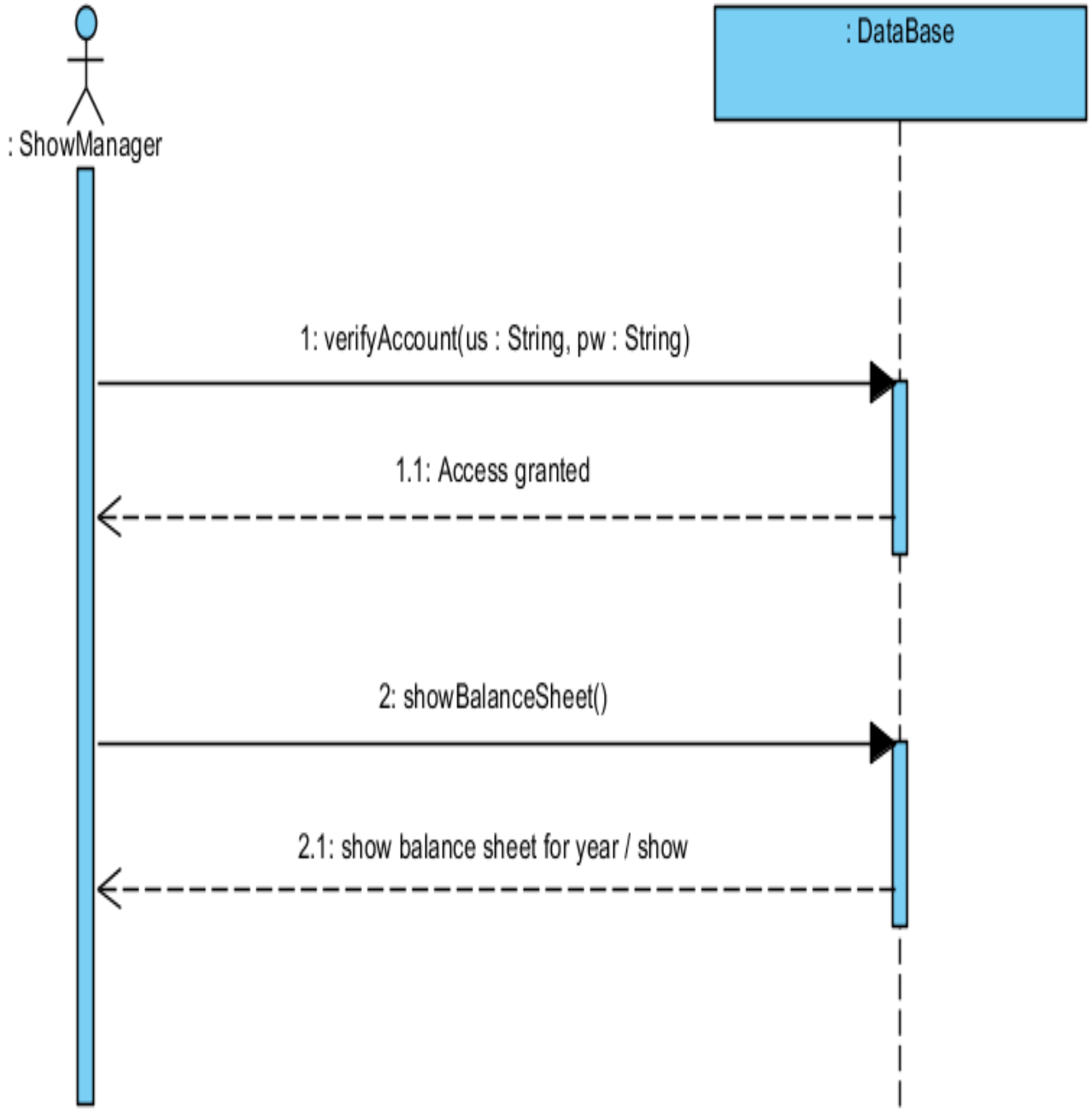
6.7 Show Manager Query – I



6.8 Show Manager Query – II

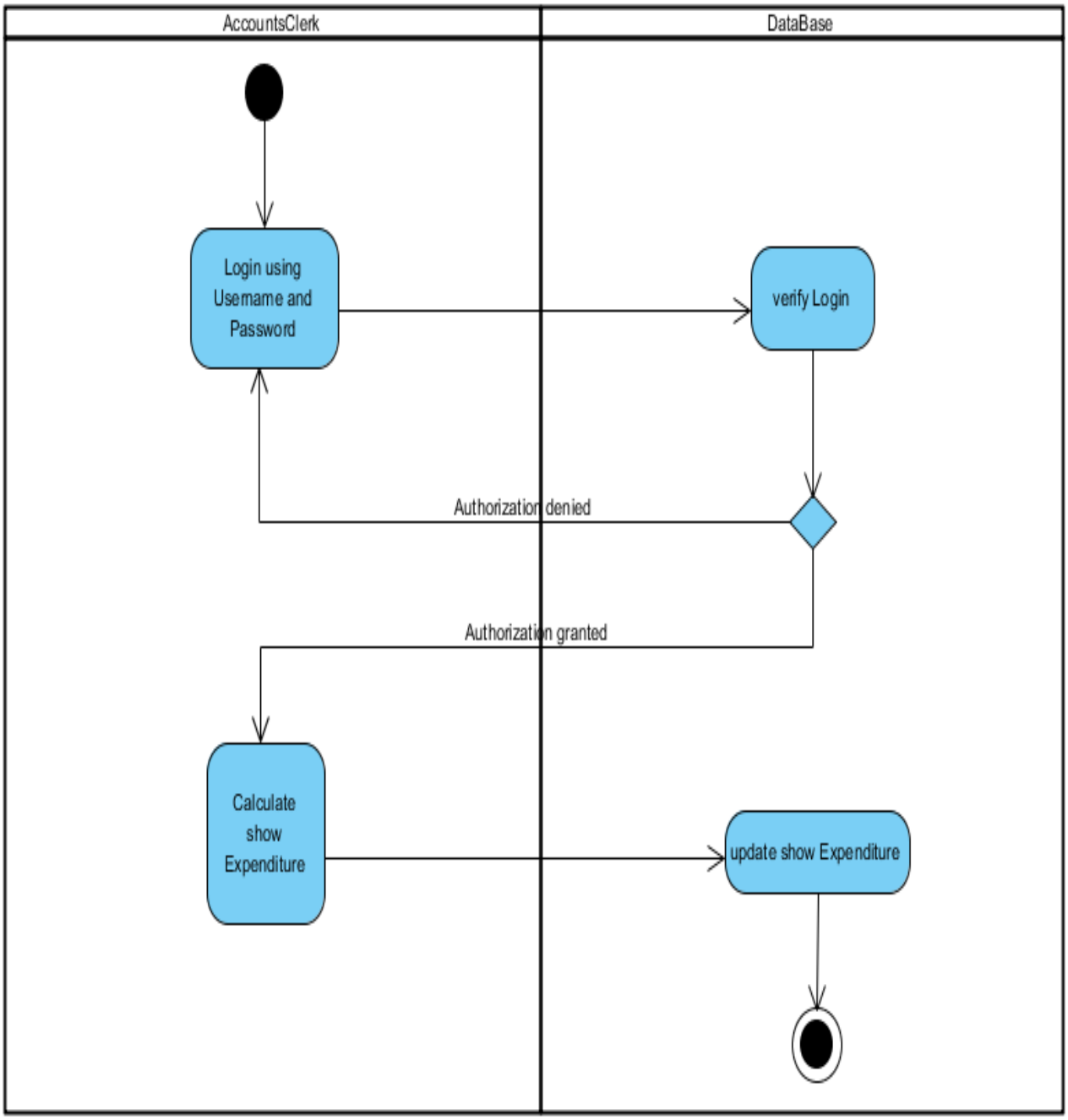


6.9 Show Manager Query – III

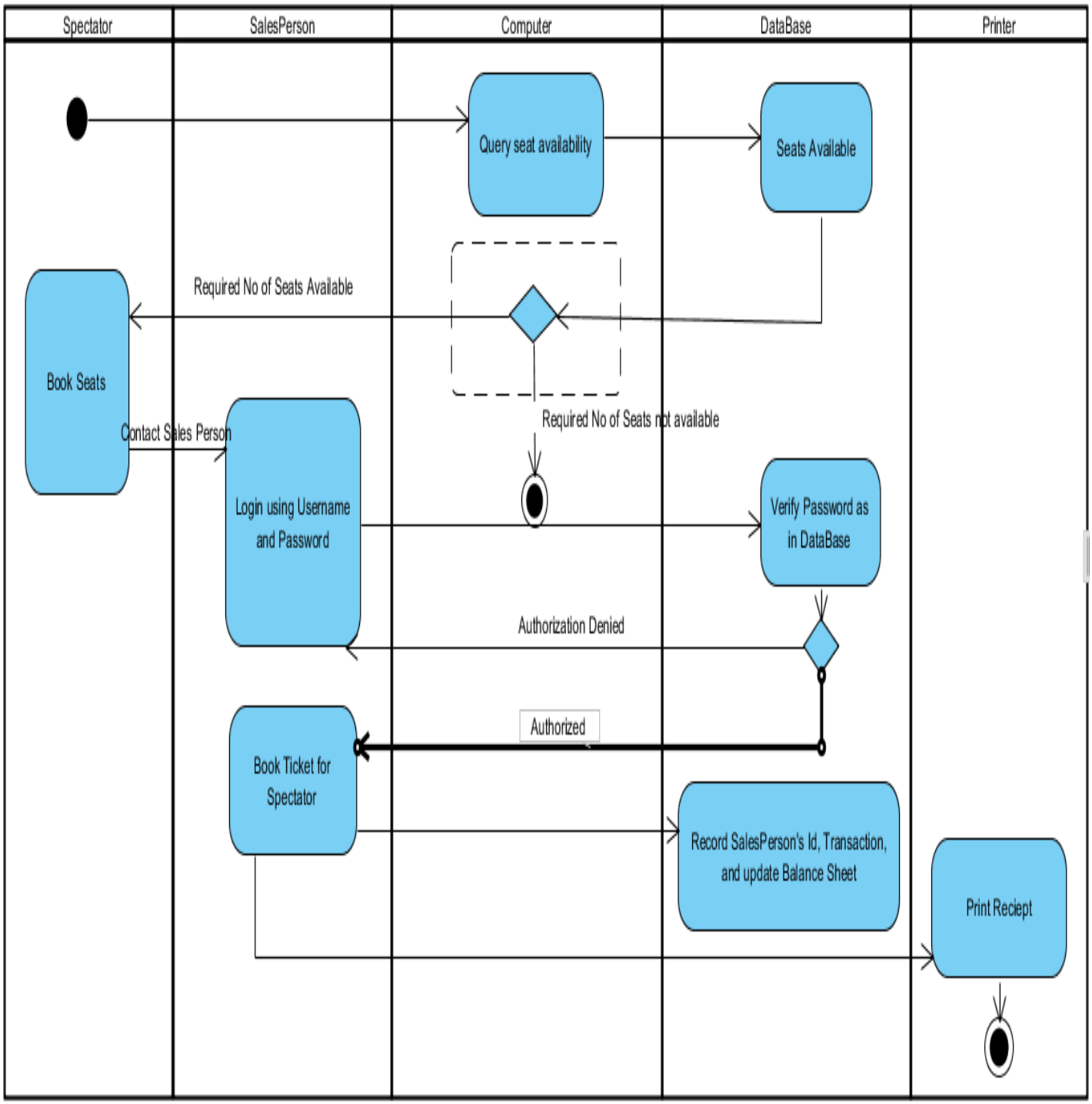


7. ACTIVITY DIAGRAMS

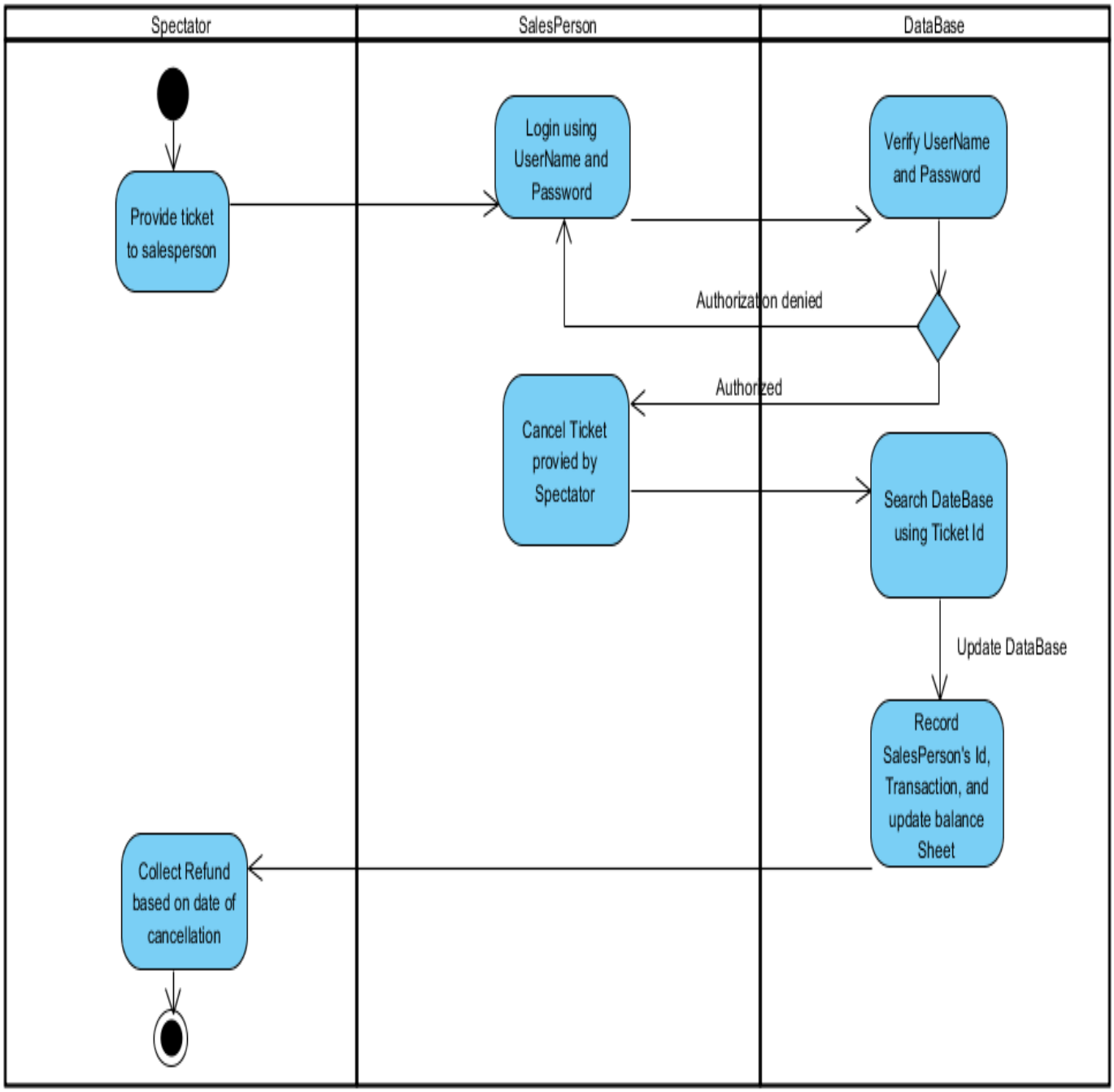
7.1 Accounts Clerk Expenditure Addition



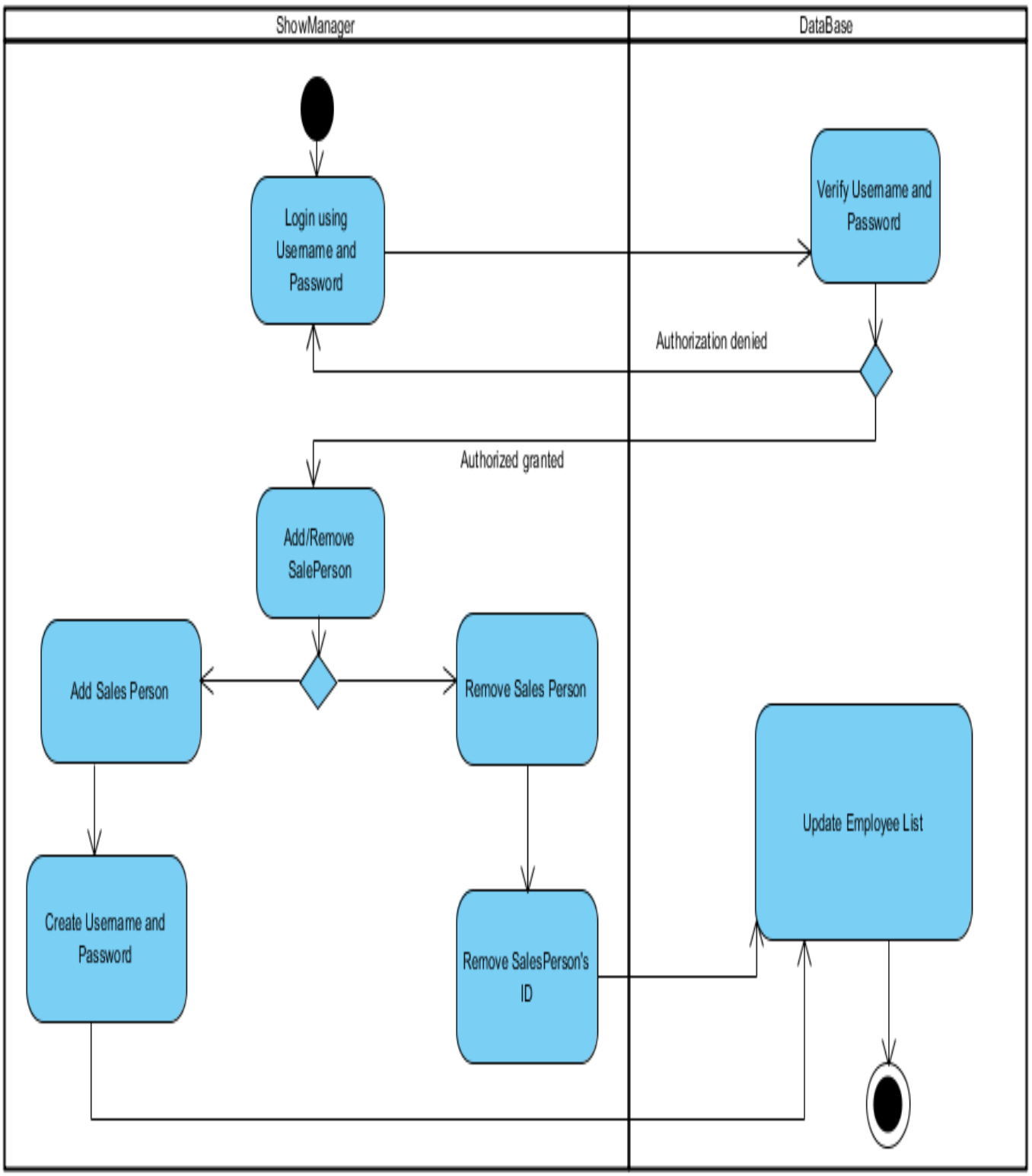
7.2 Ticket Booking



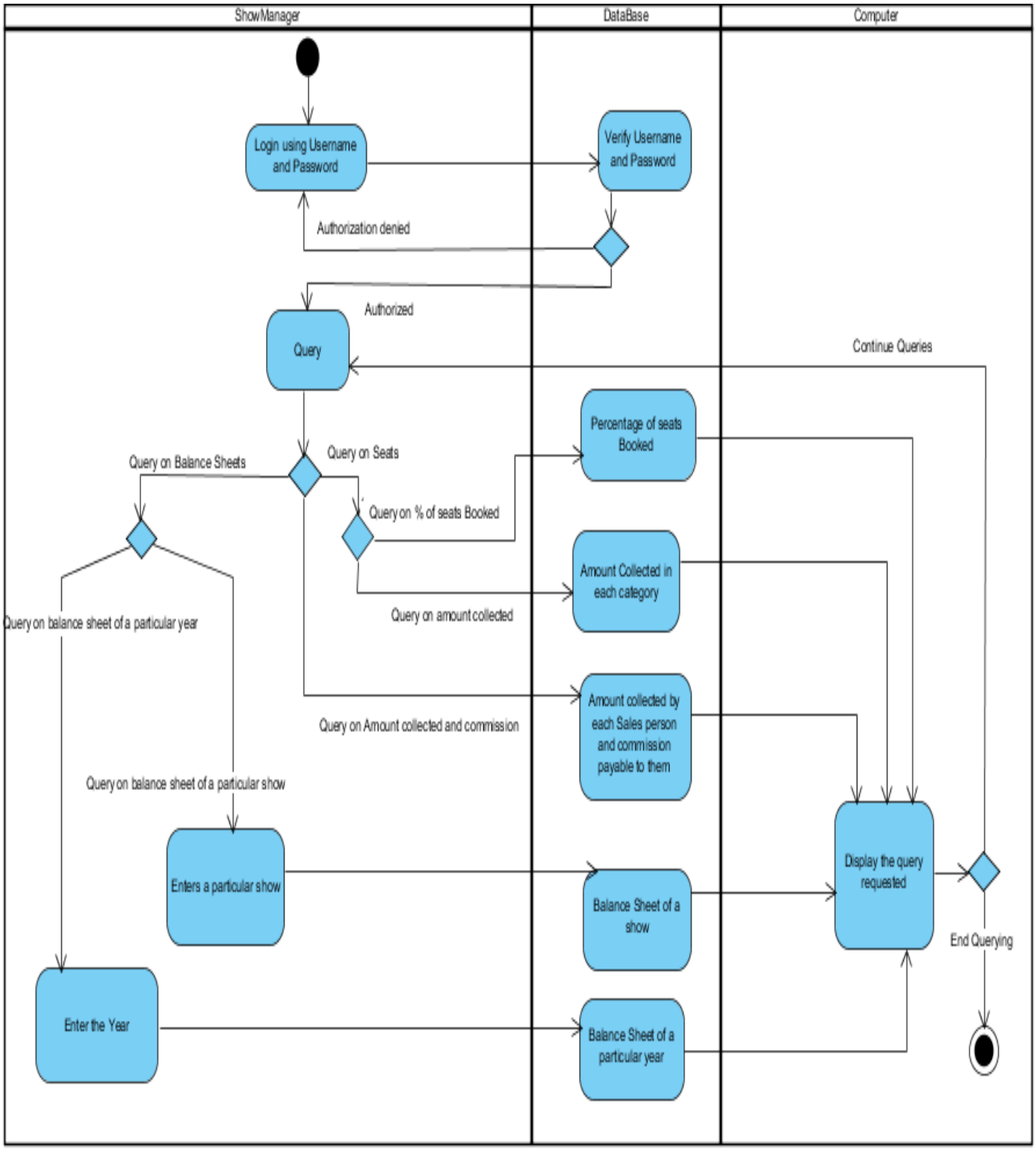
7.3 Ticket Cancellation



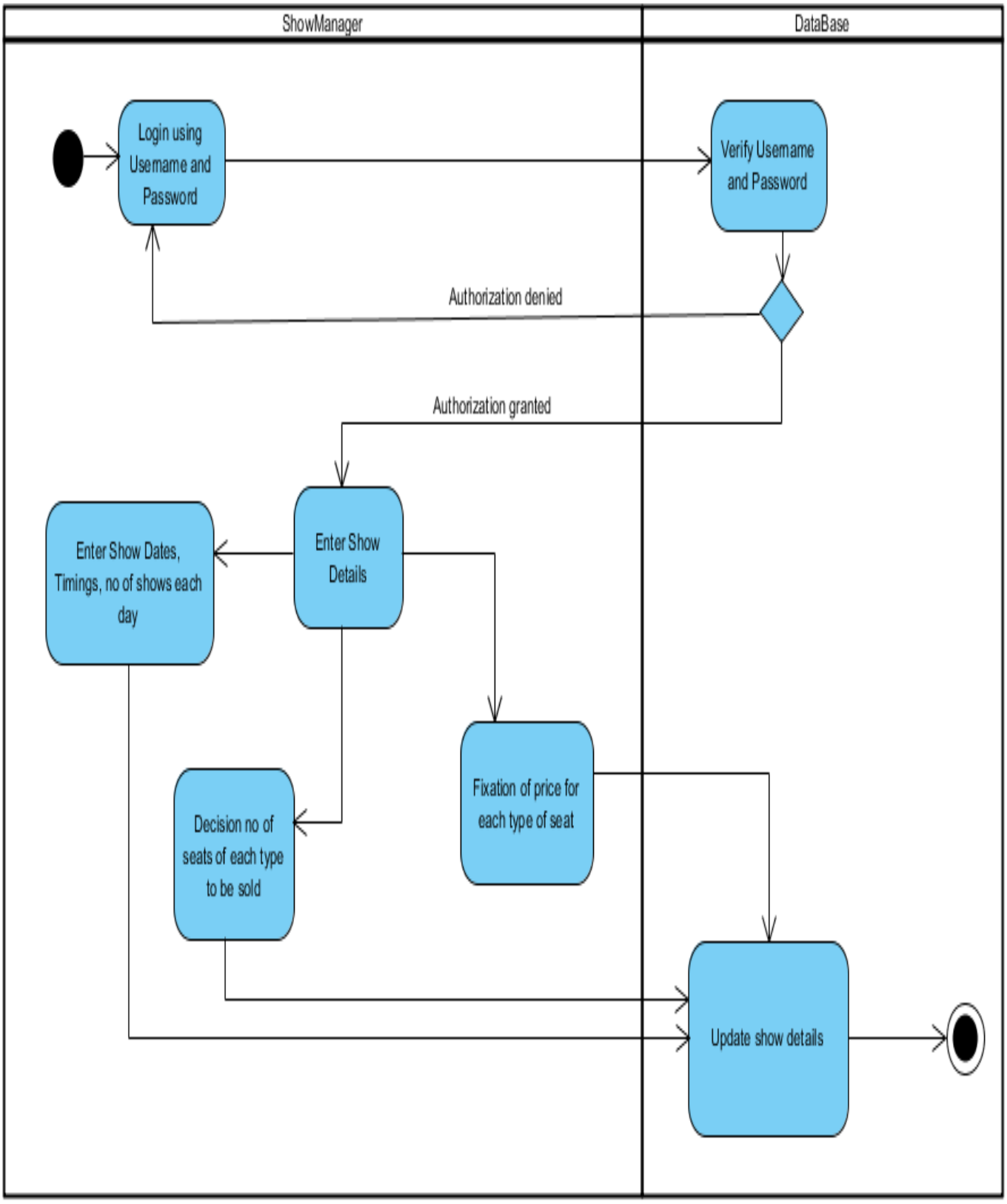
7.4 Manage Employees



7.5 Show Manager Queries

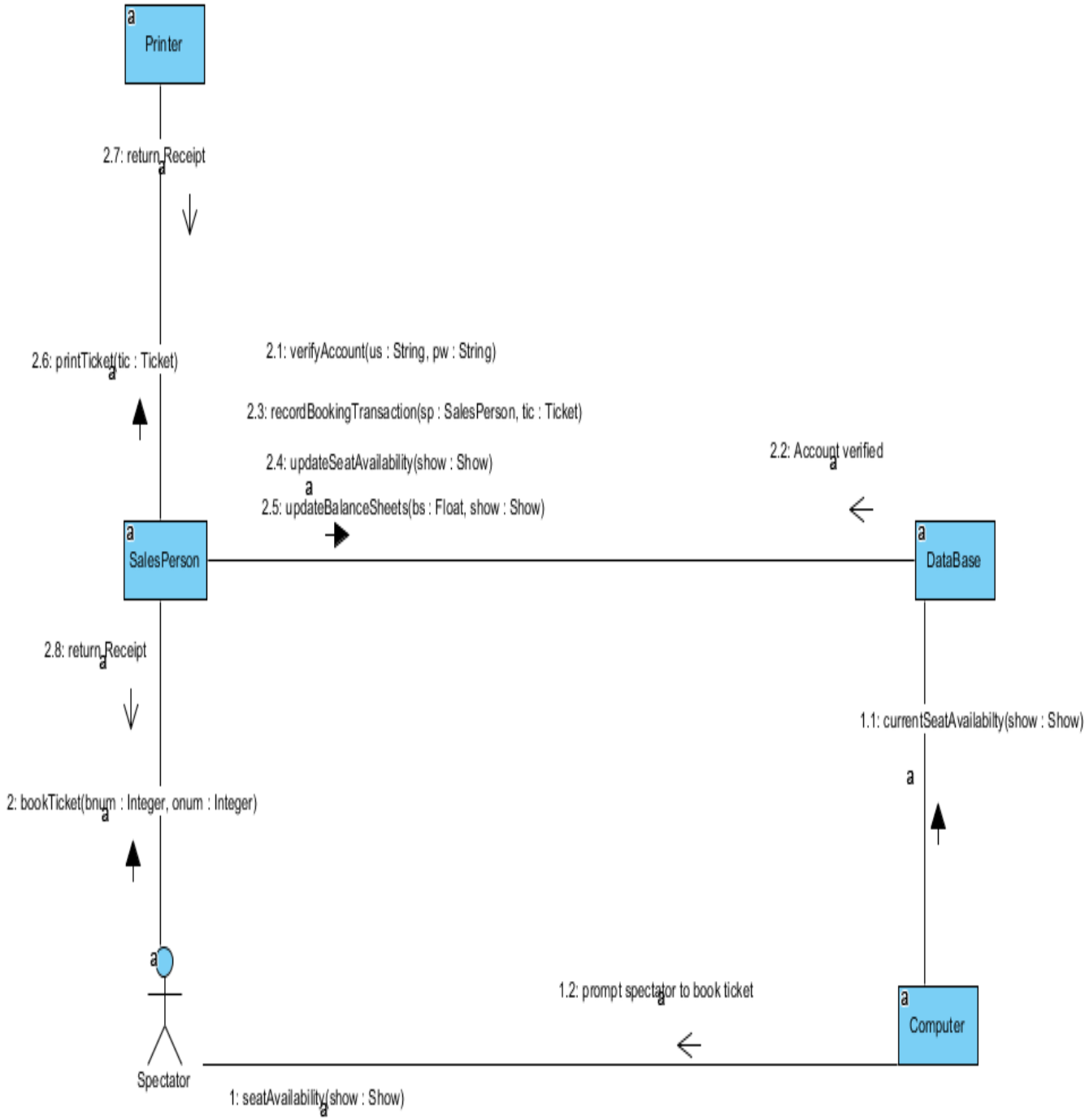


7.6 Show Manager Tasks

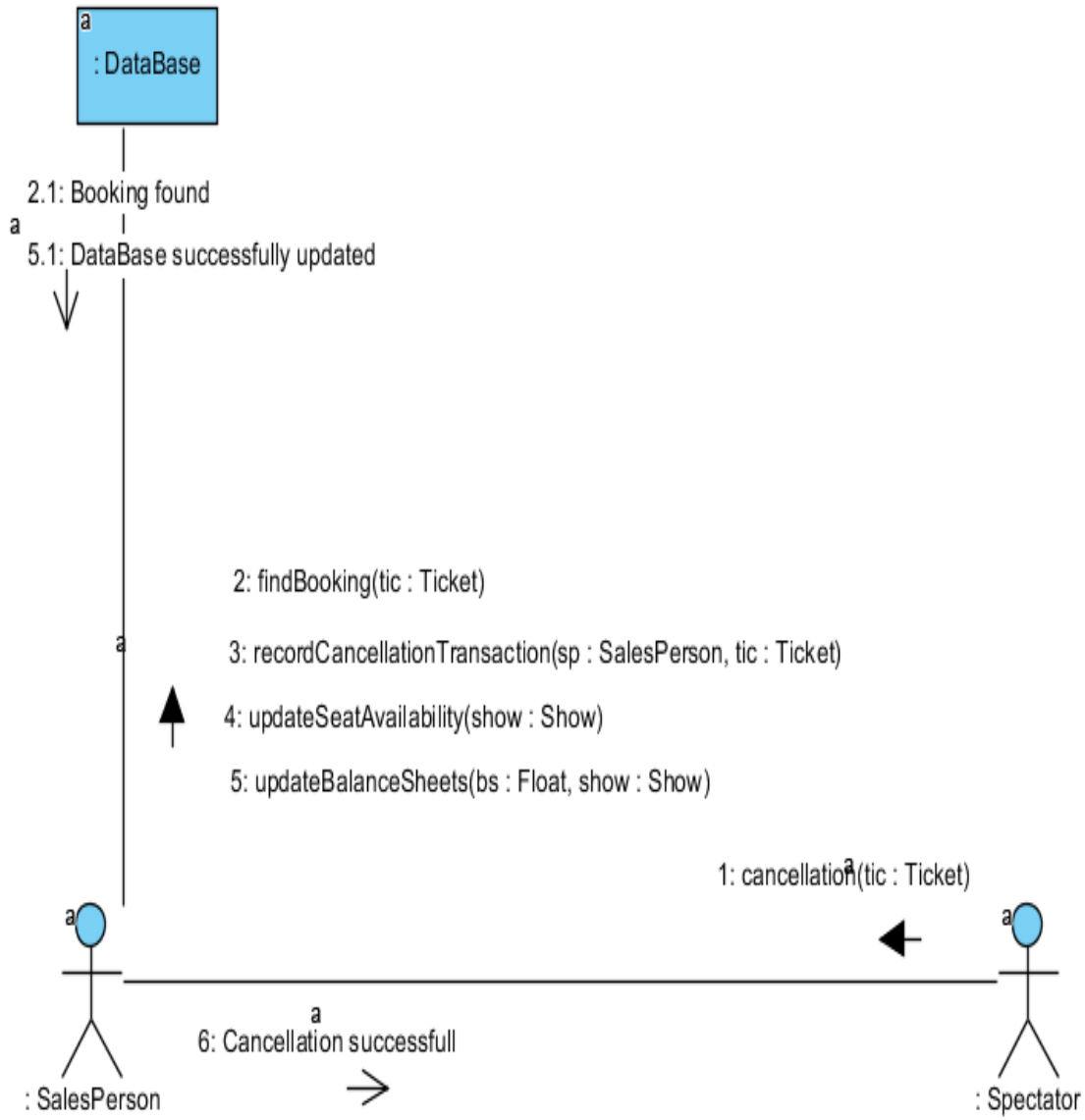


8. COMMUNICATION DIAGRAMS

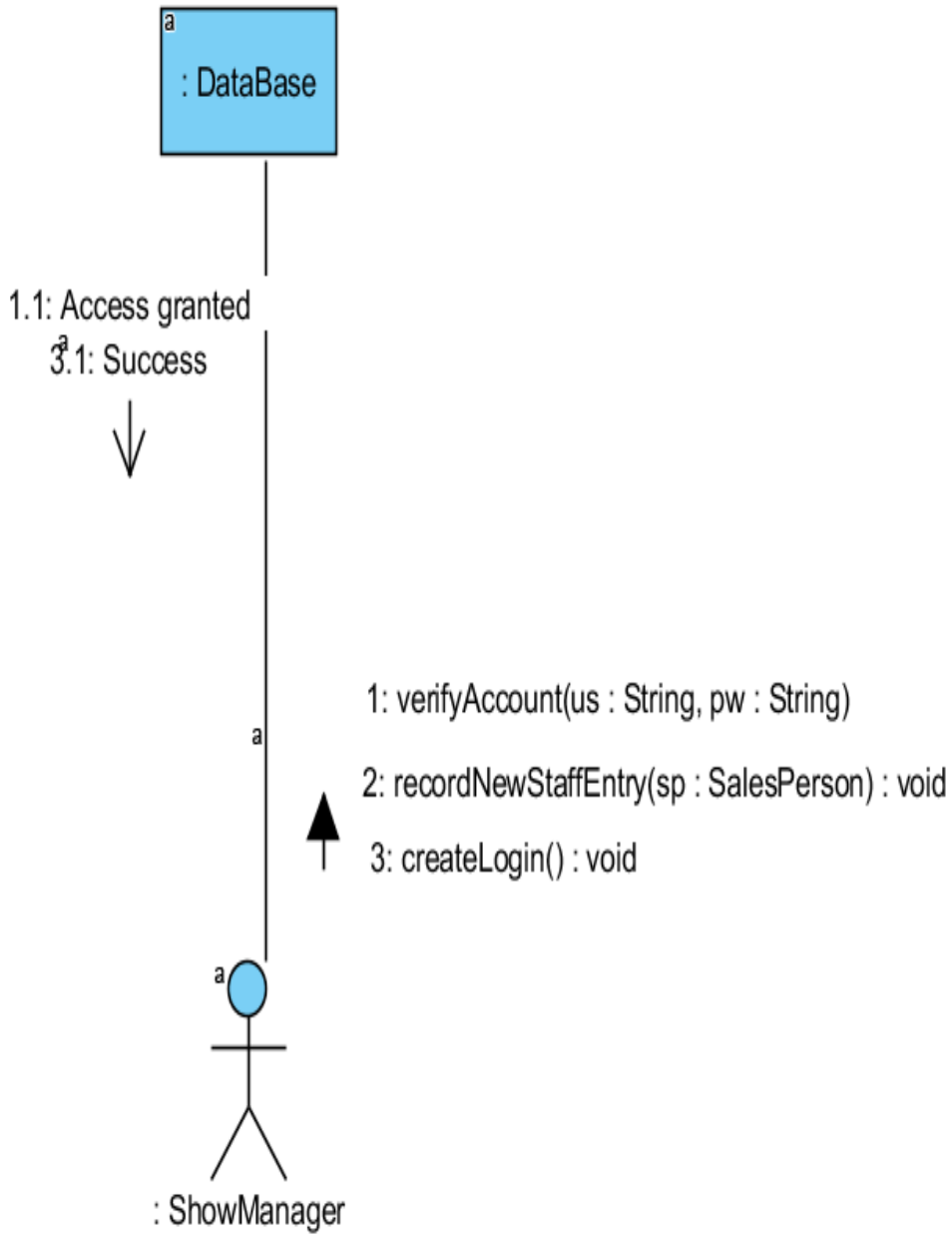
8.1 Ticket Booking



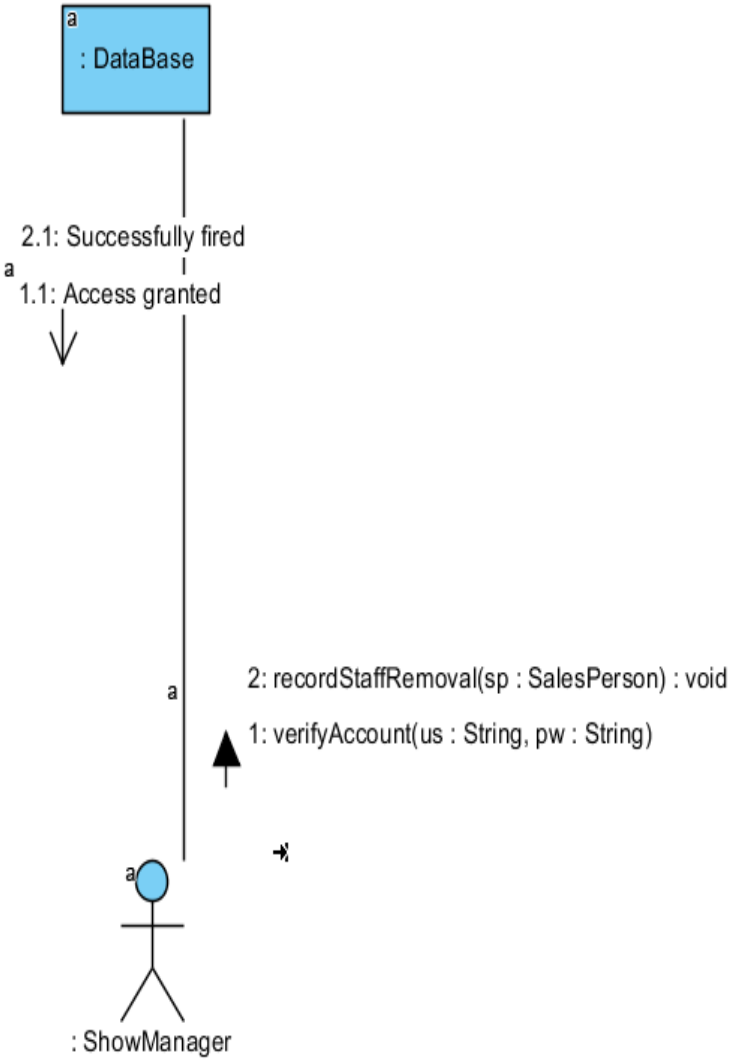
8.2 Ticket Cancellation



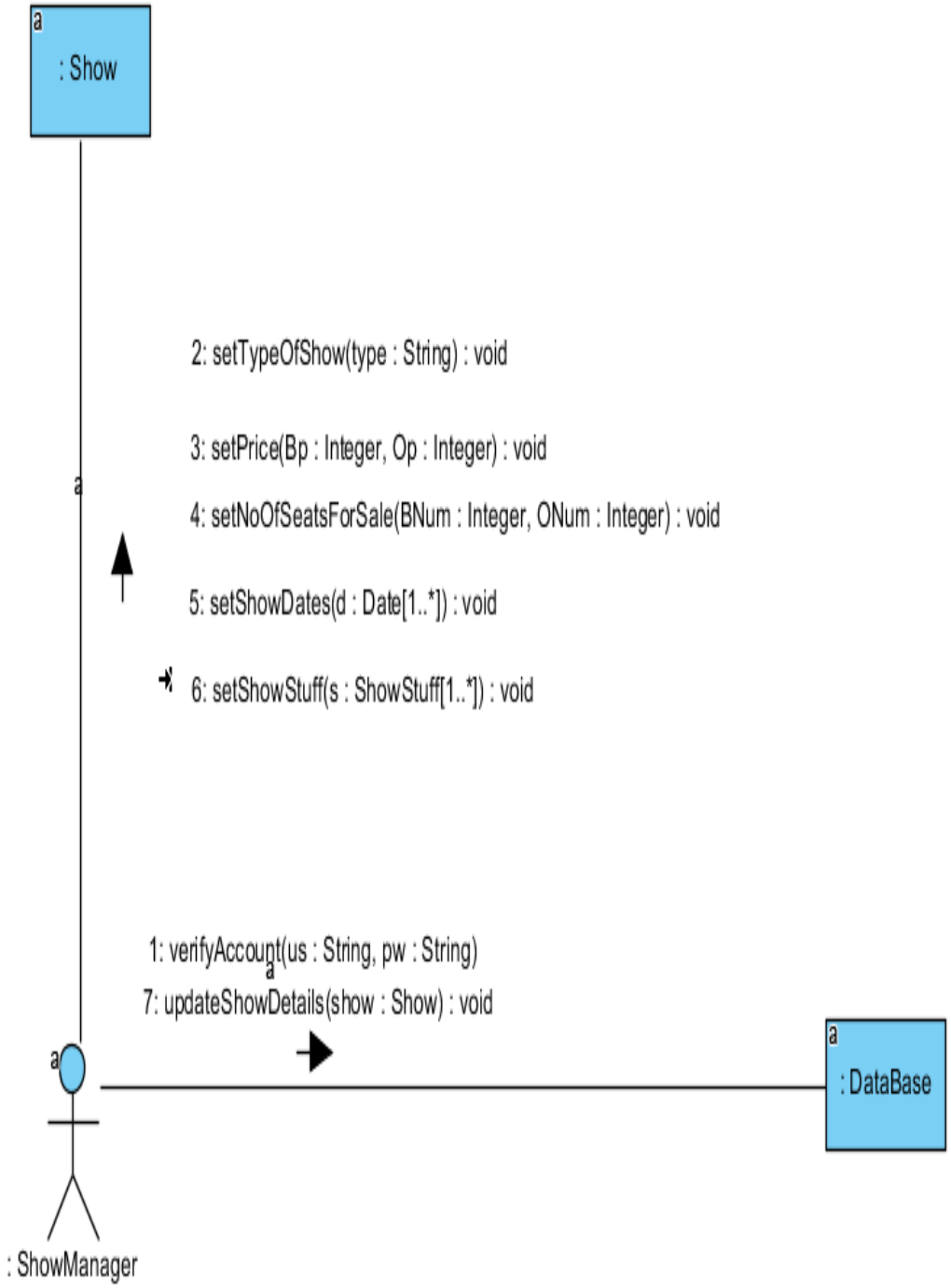
8.3 Sales Person Recruitment



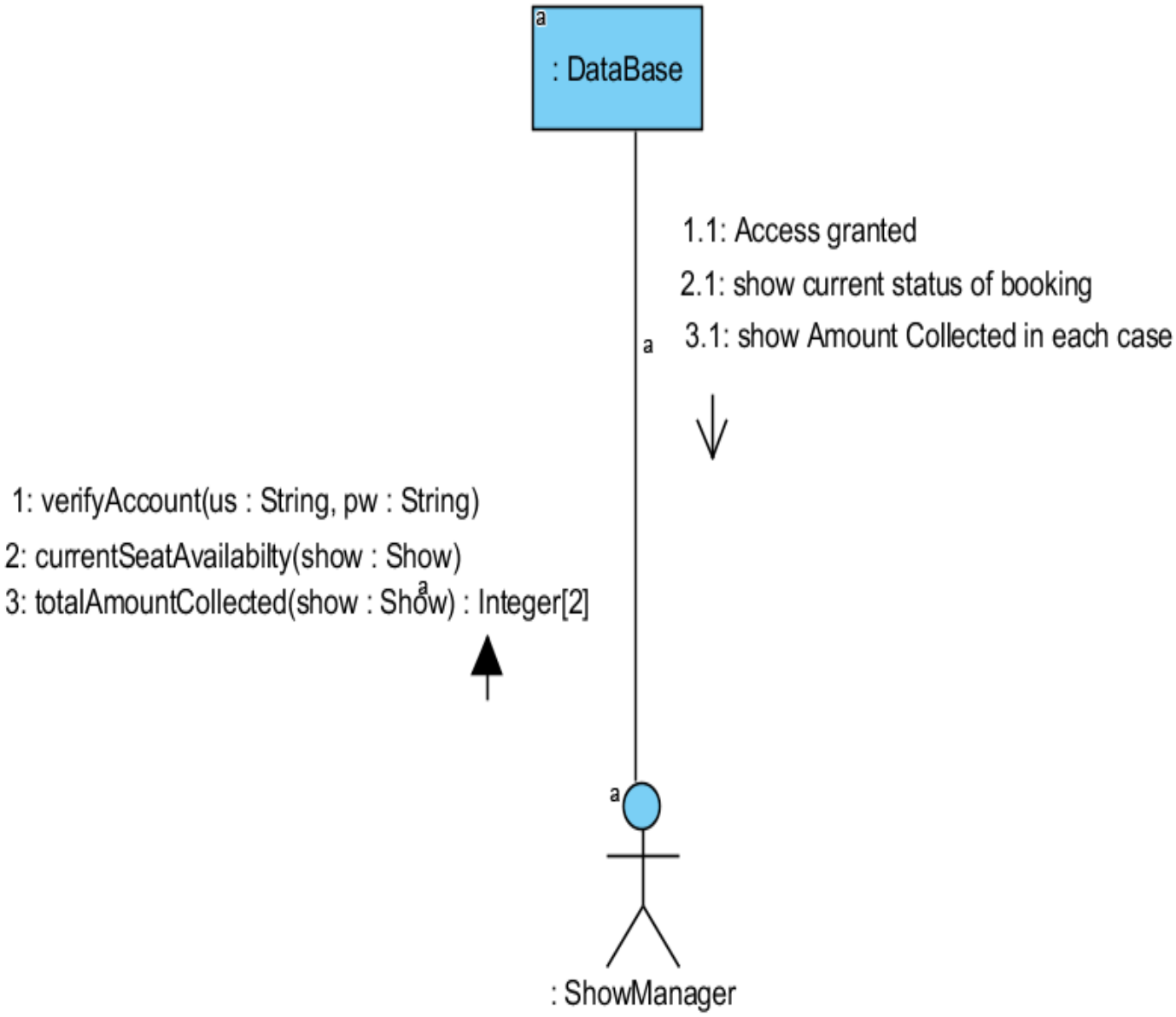
8.4 Sales Person Removal



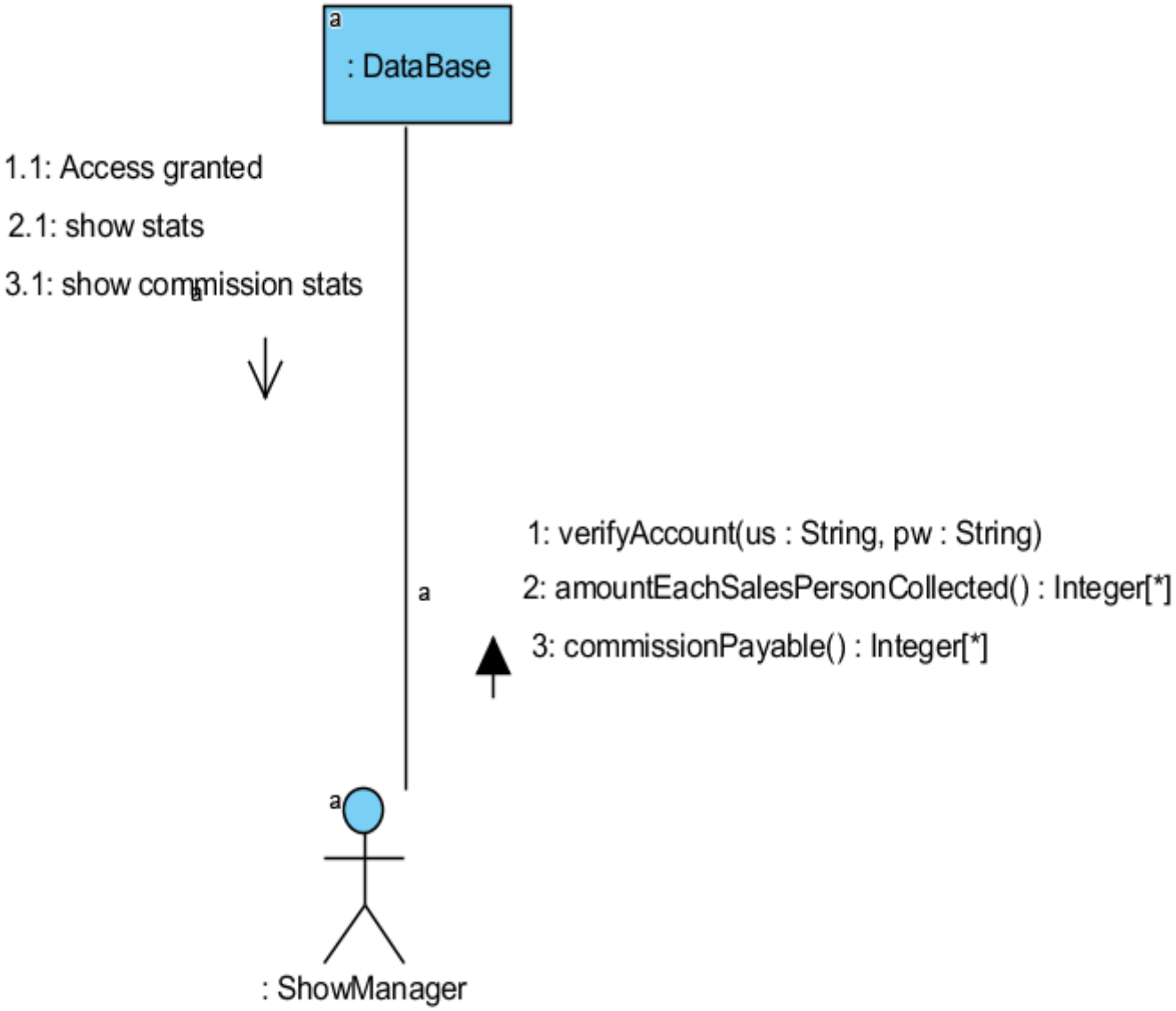
8.5 Show Details



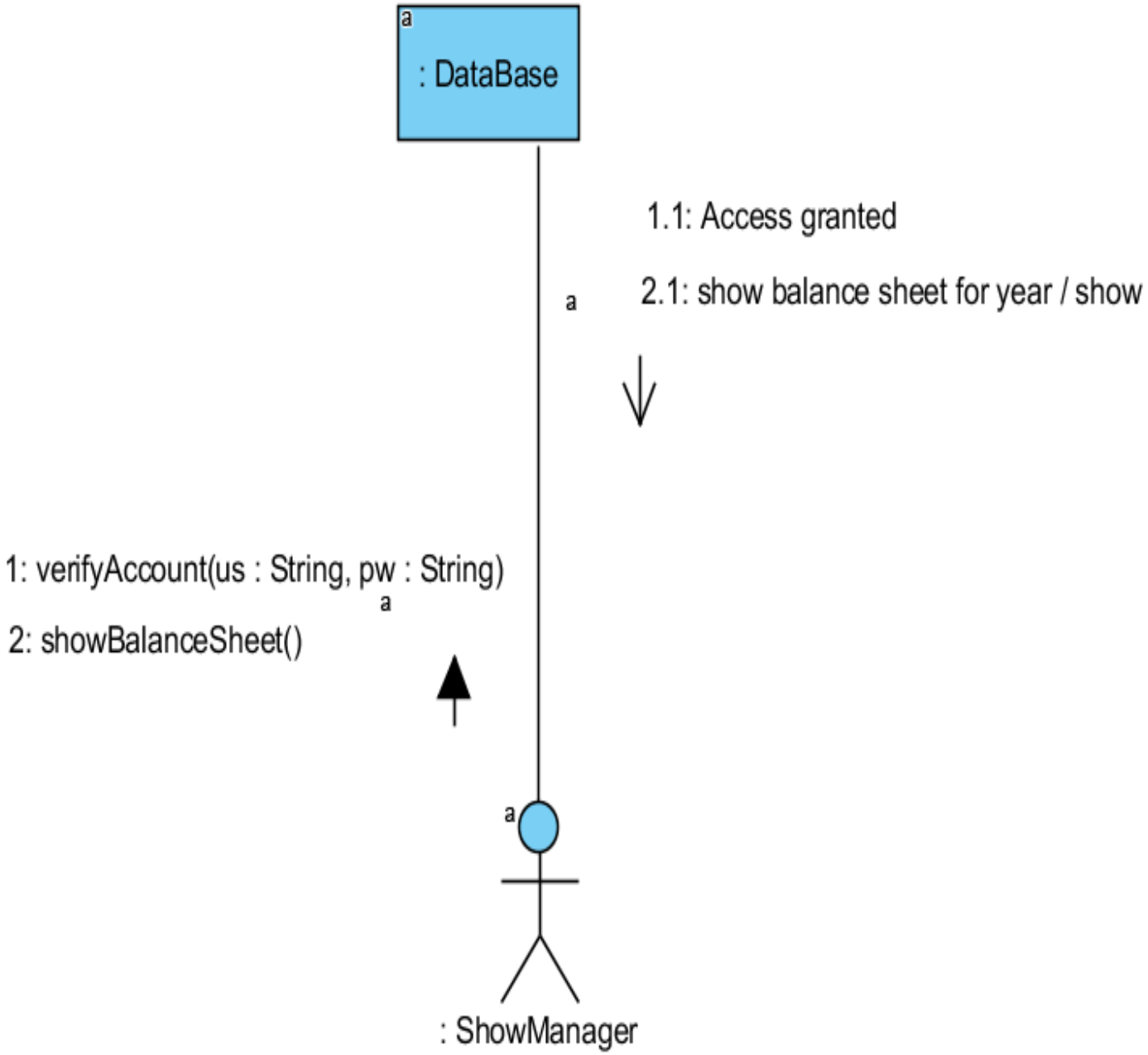
8.6 Show Manager Query – I



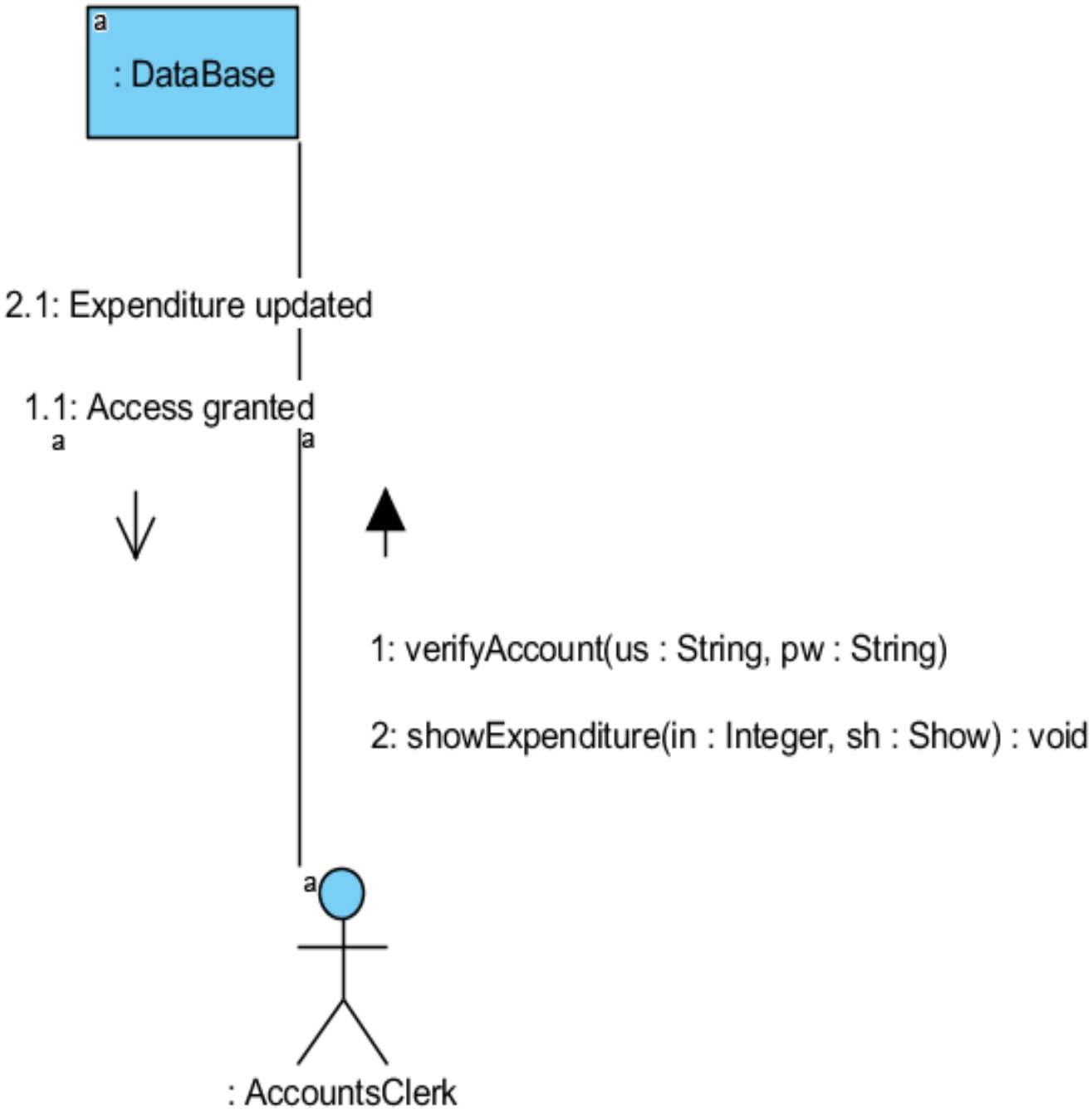
8.7 Show Manager Query – II



8.8 Show Manager Query – II

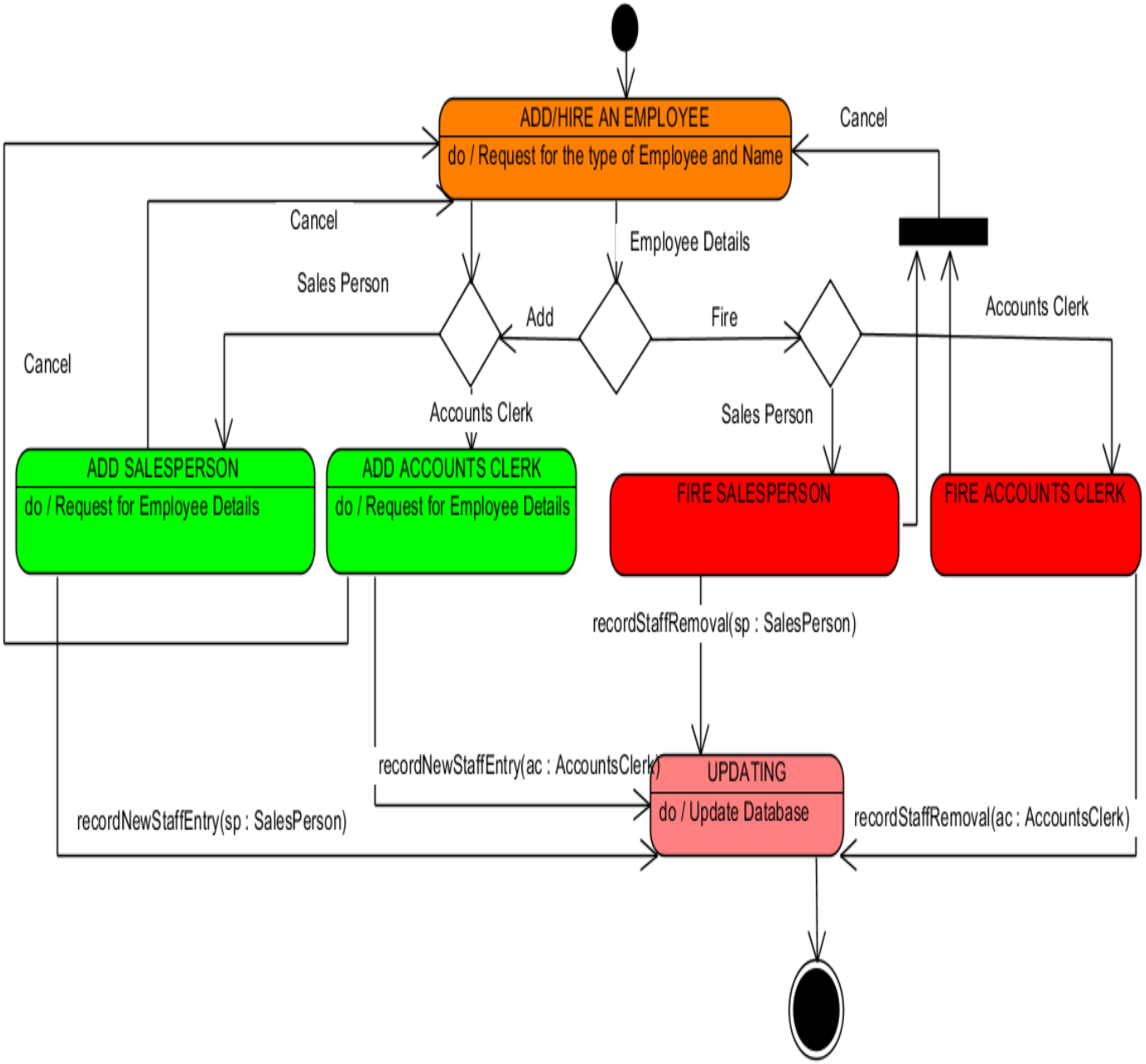


8.9 Accounts Clerk Expenditure Entry

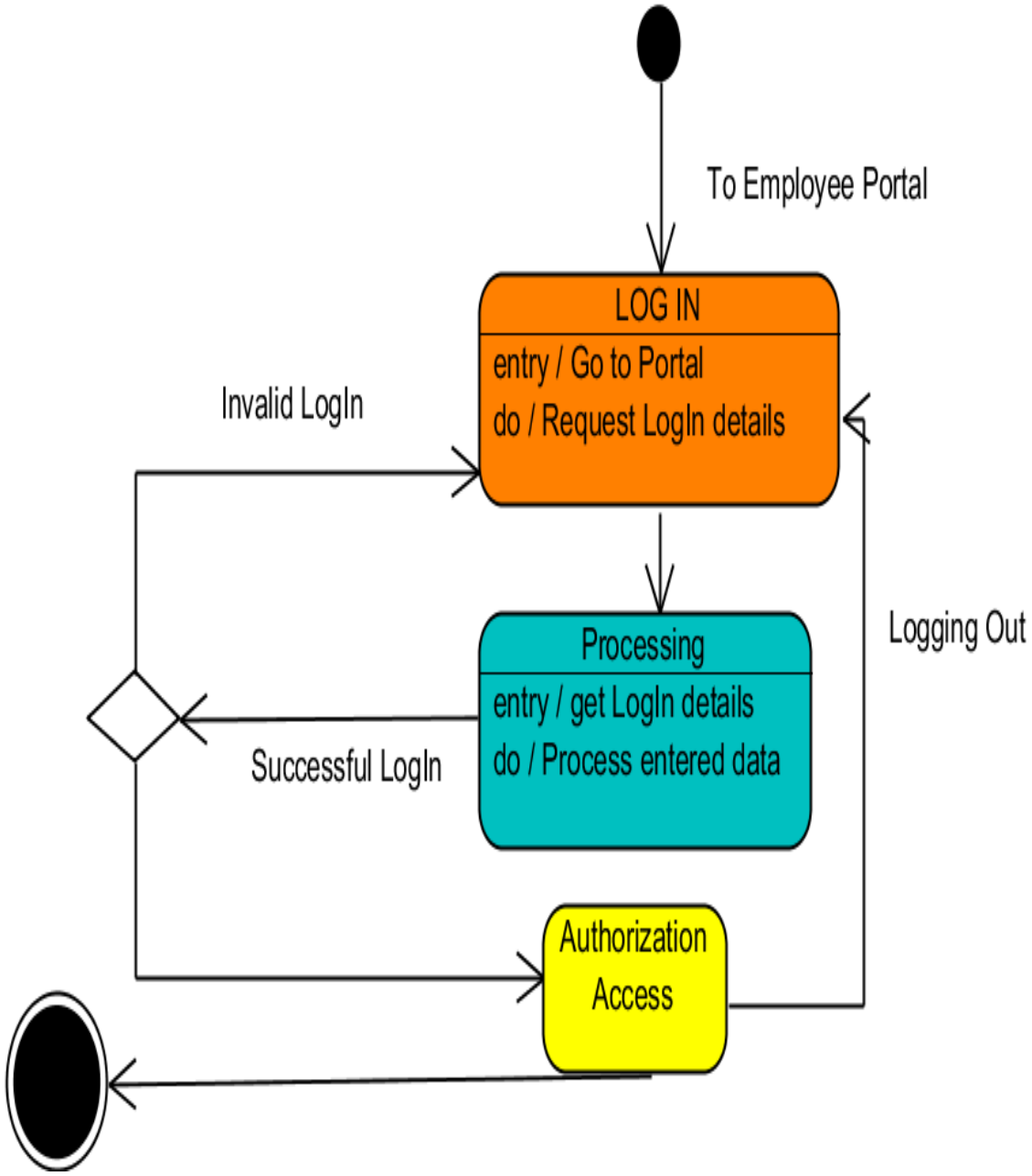


9. STATE CHART DIAGRAMS

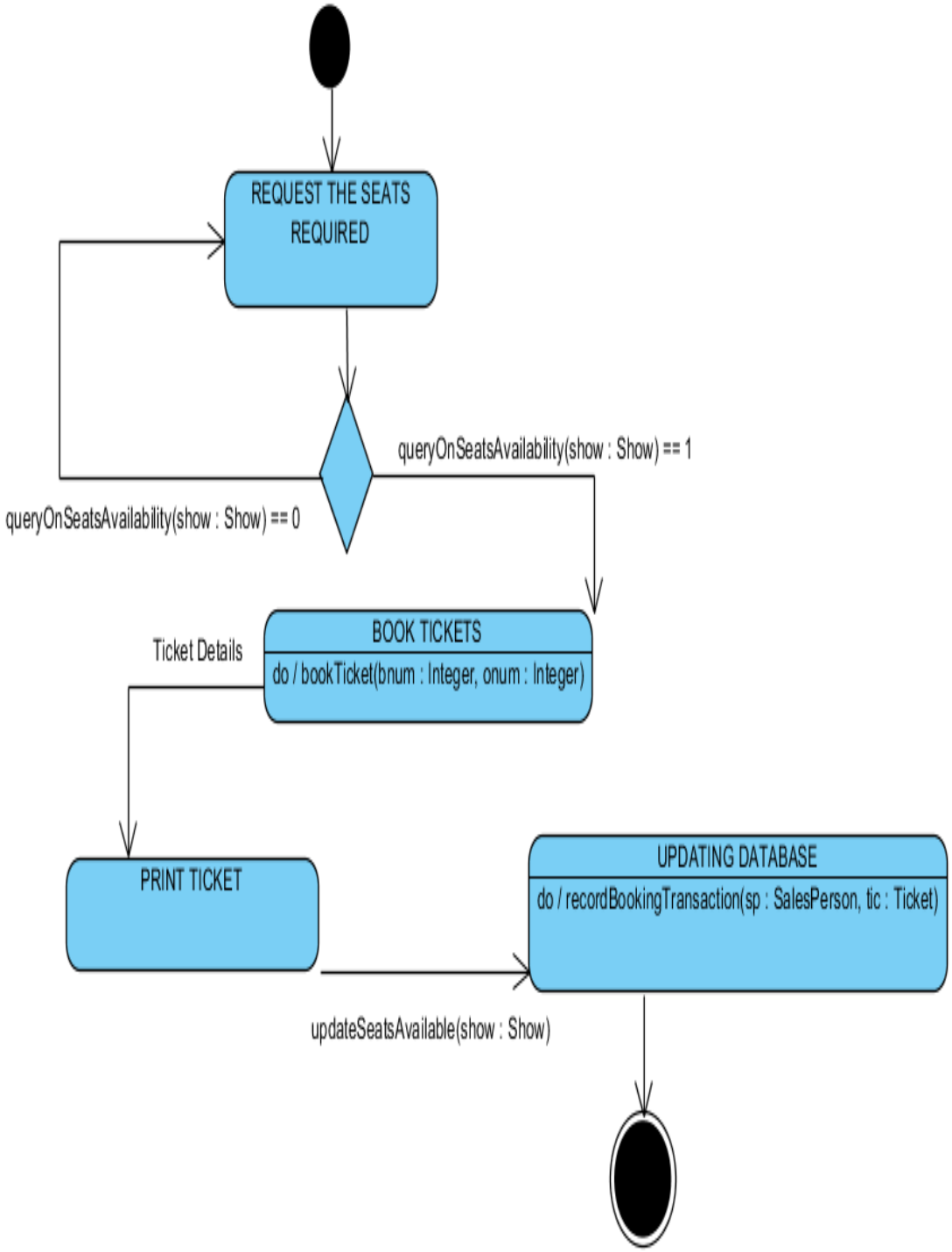
9.1 Adding and Firing Employee



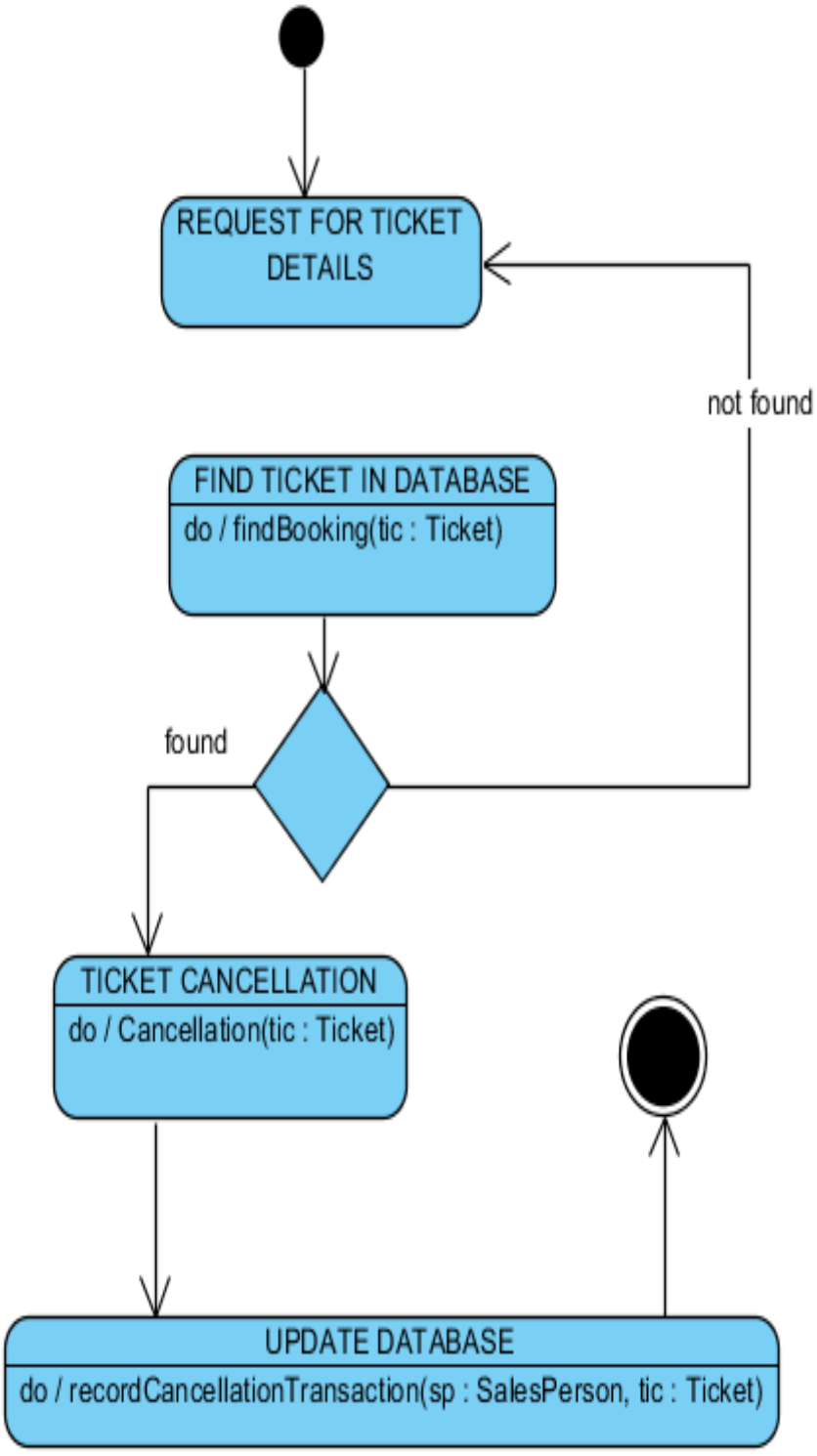
9.2 Log In


To Employee Portal
LOG IN
entry / Go to Portal
do / Request LogIn details
Invalid LogIn
Processing
entry / get LogIn details
do / Process entered data
Logging Out
Successful LogIn
Authorization
Access

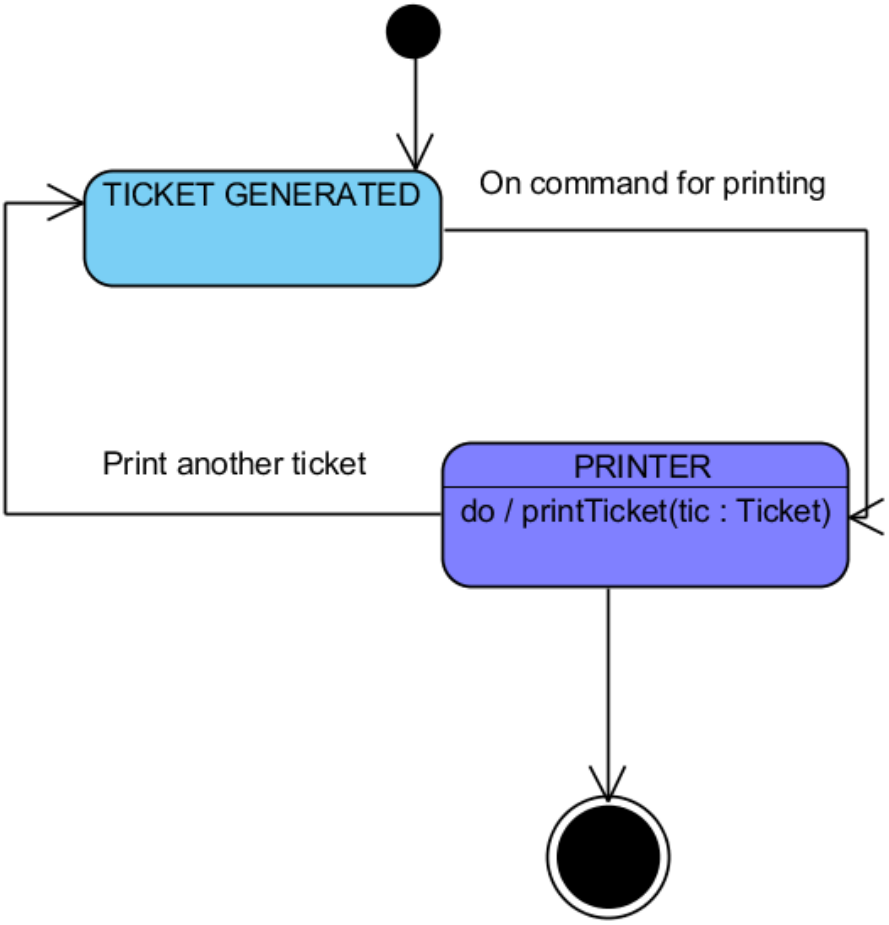
9.3 Ticket Booking



9.4 Ticket Cancellation

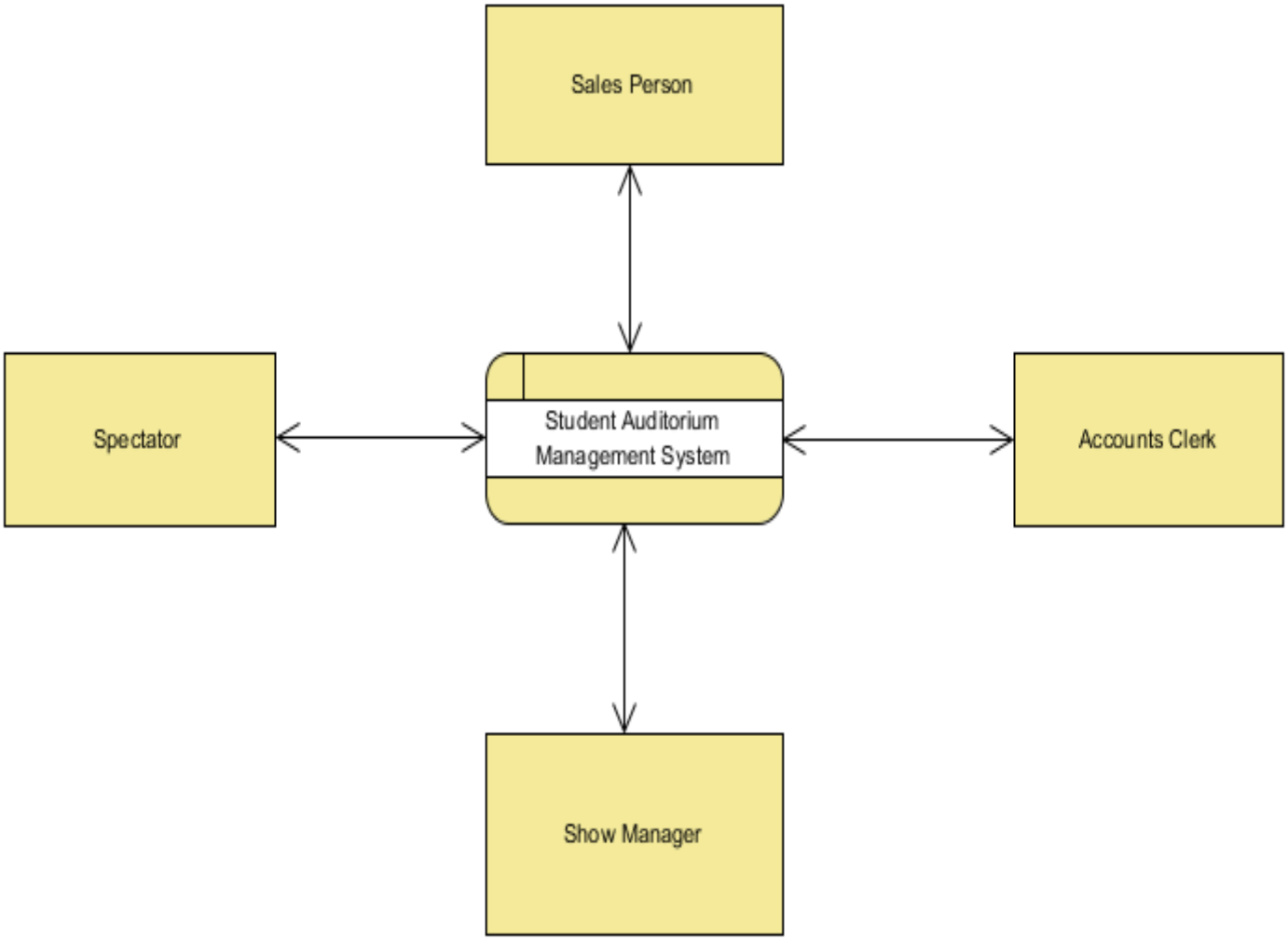


9.5 Receipt Printing

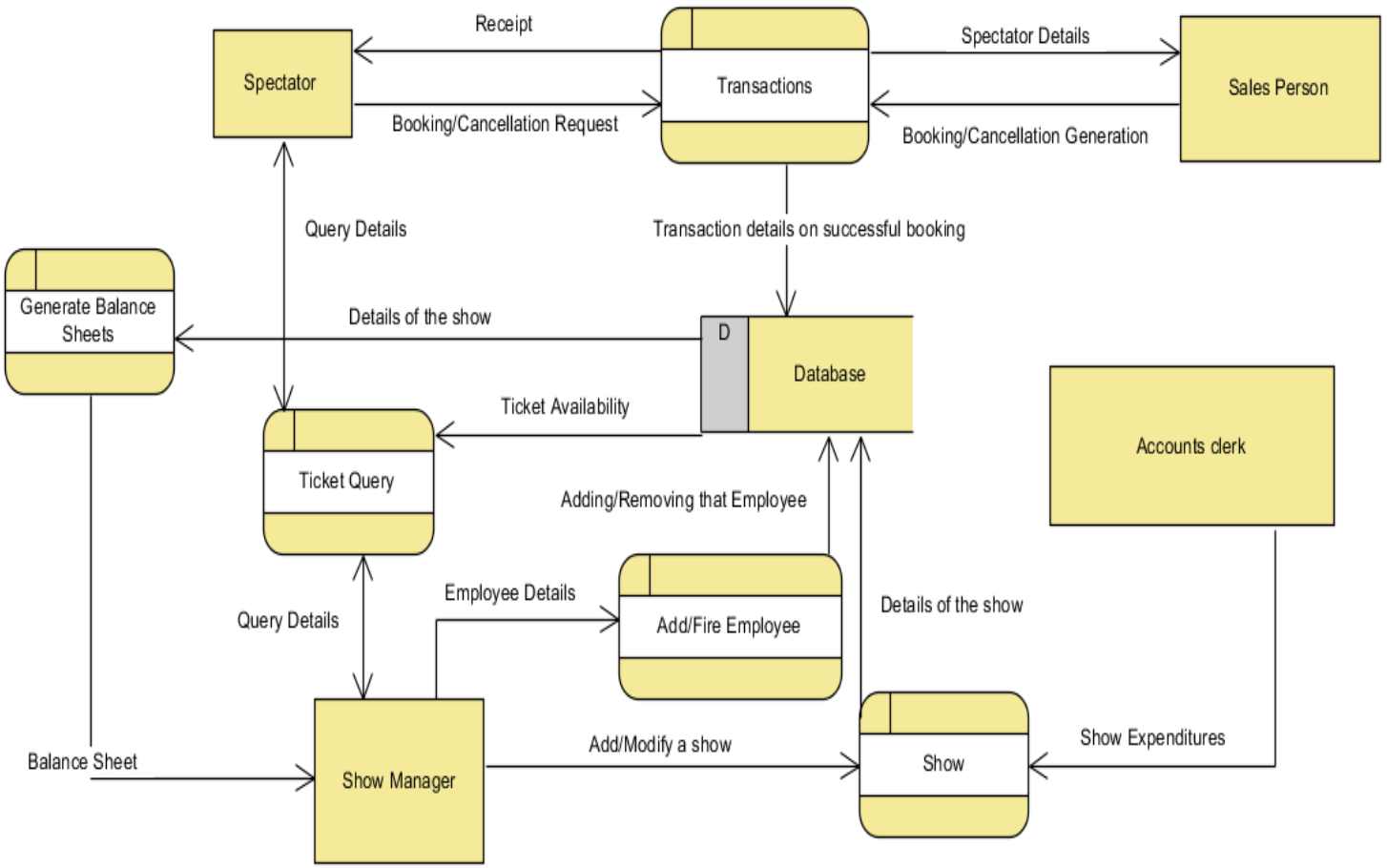


10. DATA FLOW DIAGRAMS

10.1 Level 0 – Context Diagrams



10.2 LEVEL 1 – DATA FLOW



11. DETAILED DESIGN

11.1 Global System Architecture

The overall system architecture is a 2-tier architecture which includes client at one end and the database at the other. There is no server based middle tier in the software being designed.

11.2 Requirements

Operating System: Windows / Linux

Software Requirements:

- Database: MySQL
- JAVA JDK > 7.0

11.3 Software Architecture

Object-oriented architecture forms the basis of the SAMS software.
In this style data representations and their associated primitive operations are encapsulated in an abstract data type or object. The components of this style are the objects or instances of the abstract data types. Objects interact through function and procedure invocations. Two important aspects of this style are that (a) An object is responsible for preserving the integrity of its representation (usually by maintaining some invariant over it), and
(b) The representation is hidden from other objects.

Thus the aspects of OOA mentioned justify our choice.

11.4 Report

Under the detailed design section of the software design, the global system architecture was discussed. The SAMS software has a 2-tier architecture comprising of the client and the database with no server. Then the platform requirements for the TGHM software was discussed in terms of the operating system and JAVA requirements.

The software architecture of the SAMS software was later stated to be of the object-oriented type using JAVA as the core technology. The important aspects of OOD used for the SAMS are data abstraction and the preservation of integrity of the software.

THE END