

Vanier College

Computer Science Department

Project Report

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420-301-VA : Programming Patterns
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Saturday, December 7, 2024

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Project Description

Travel Agency System (TAS)

Project Overview

The Travel Agency System (TAS) is designed to streamline booking reservations for flights and hotels while offering comprehensive customer service capabilities. Customers can easily book, cancel, and manage their flight and hotel reservations through the assistance of agency employees. The system stores customer profiles, flight details, hotel reservations, and payment histories in different storage locations. Customers accumulate points with each booking, which can be redeemed for future transactions. Employees can book and cancel reservations for customers and manage their own reservations with unique benefits.

This project leverages the Model-View-Controller (MVC) design paradigm and aims to provide a user-friendly experience for both customers and employees.

Design Paradigm

Model-View-Controller (MVC)

Model: Represents data, such as customer profiles, flight details, booking statuses, etc.

View: Provides user interfaces to interact with the system (e.g., booking forms, search results).

Controller: Manages logic and user input, processing requests, updating the view, and interacting with the model.

Expected Features and Outcomes

Flights

Search for Flights

Action: Users can search for available flights based on departure city, destination city, date, and class of service (economy/business).

Expected Output: A list of flights matching the criteria, with details such as:

Flight number

Airline name

Departure and arrival times

Price per seat

Additional Output: If no flights match the criteria, a message appears: "No flights available for the selected criteria."

Book a Flight

Action: Agents select a flight and book a seat by entering passenger details (name, age, passport number, phone number, and email).

Expected Output: Confirmation of booking with assigned ticket details, including:

Booking number

Flight details

Passenger details

Total cost

Cancel a Flight

Action: Agents cancel an existing booking by providing the booking reference.

Expected Output: Confirmation message: "Booking successfully canceled." The system updates the list of booked and canceled tickets.

Additional Output: If invalid booking reference is provided, message appears: "Booking not found. Please check your booking number."

View Booking Details

Action: Users can view existing booking details using their booking number.

Expected Output: Display of booking details, passenger information, flight details, and total price. If booking is not found, an error message is displayed.

Payment and Invoice Generation

Action: Employees handle payment using credit card details. Payment is simulated.

Expected Output: Generation of an invoice with total amount, payment method, and ticket details.

View Flight Information

Action: Users or agents view general flight information, including upcoming departures and flight status.

Expected Output: Display of flight information without booking.

Error Handling

Expected Output: Specific error messages for invalid inputs (e.g., wrong dates, incomplete passenger details, invalid booking numbers).

Hotels

Search for Available Rooms

Action: Users search for rooms based on availability.

Expected Output: List of available rooms matching the criteria.

Reserve a Room

Action: Agents book a room by entering client details (name, age, phone number, and email).

Expected Output: Confirmation with booking details:

Room number

Booking details (nights, price, meals, arrival and departure times)

Client details

Total cost

Cancel a Hotel Booking

Action: Agents cancel a booking using the room number and client name.

Expected Output: Confirmation message: "Booking successfully canceled." The system updates booked and available rooms.

View Booking Details

Action: Users view booking details.

Expected Output: Display of all relevant details.

Payment and Invoice Generation

Action: Employees handle payment using credit card details.

Expected Output: Generation of invoice with payment information.

View Hotel Information

Action: Users view hotel information without booking.

Expected Output: Display of hotel information.

Error Handling

Expected Output: Specific error messages for invalid inputs (e.g., wrong dates, incomplete client details, invalid user IDs).

Additional System Behavior

Admin-Specific Features: Restricted to certain users with password protection.

Data Integrity: Prevents overbooking, double bookings, and incorrect flight/hotel details.

Responsive User Interface: Provides clear, concise feedback for actions and errors.

Expected Results Summary

Search for Flights and Rooms

Displays a list of matching results or a "not found" message.

Book a Flight or Room

Confirms booking with detailed information.

Cancel a Booking

Confirms cancellation and updates lists.

Payment Processing and Invoice Generation

Generates an invoice with payment details.

View Booking Information

Displays booking, flight, and hotel information.

Error Handling

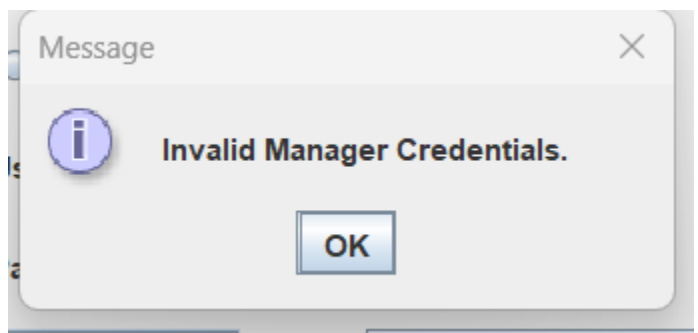
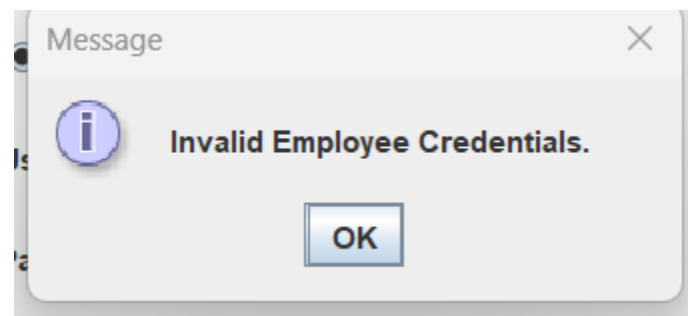
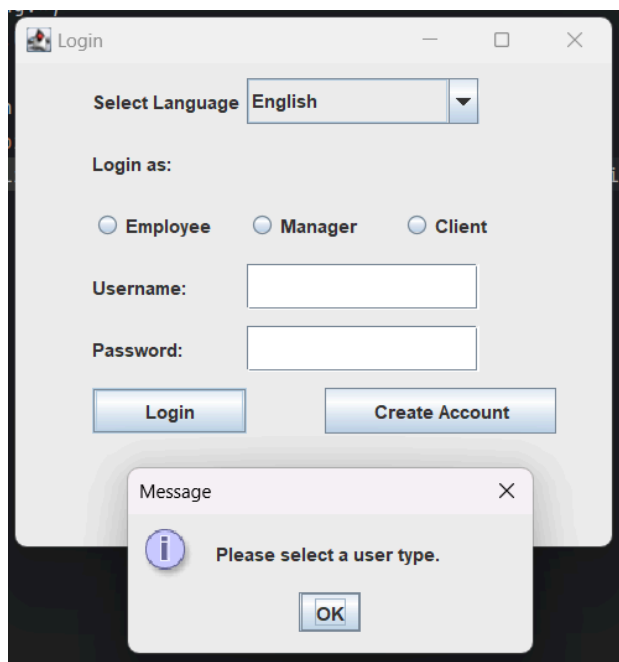
Provides detailed error messages for invalid inputs.

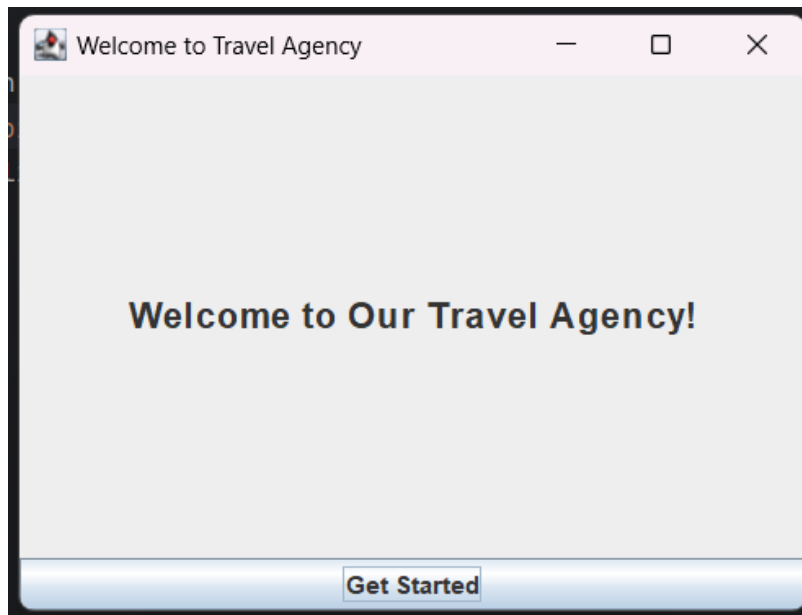
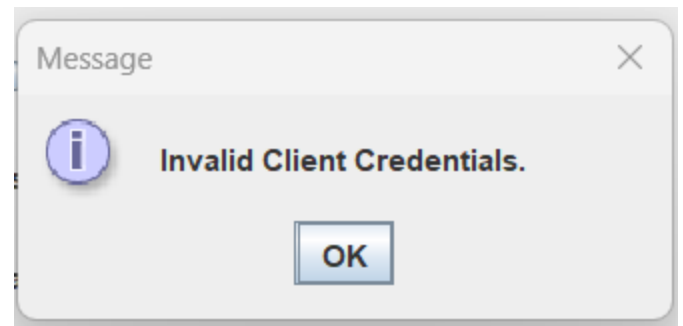
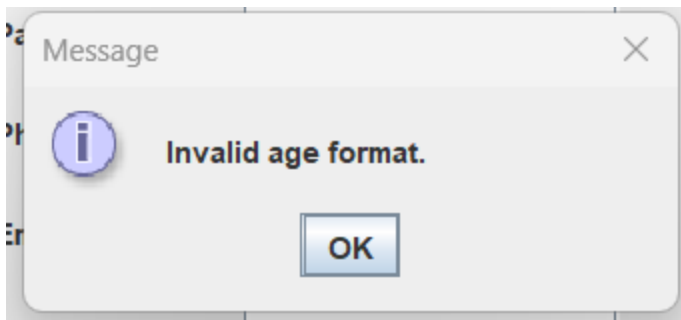
Conclusion

The Travel Agency System (TAS) will streamline booking, cancellation, and customer service processes with an easy-to-use interface while maintaining data integrity and security. This system will enhance customer experience and simplify agency operations.

Screenshots

*****SOME WARNINGS BUT THEY ALL COMES IN FRENCH AND ENGLISH BUT HERE ARE THE ENGLISH ONES JUST SO YOU HAVE AN IDEA*****





Welcome View Page



Connexion

Sélectionnez la .. Français

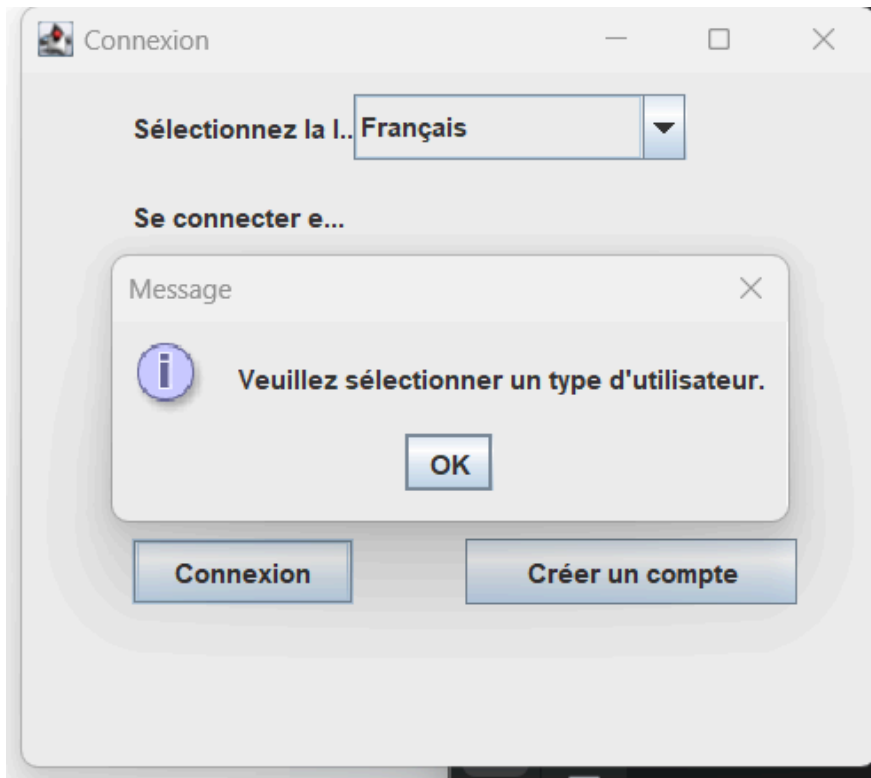
Se connecter e...

☐ Employé ☐ Gerant ☐ Client

Nom d'utilisate...

Mot de passe :

Connexion Créer un compte




Connexion

Sélectionnez la l.. Français

Se connecter e...

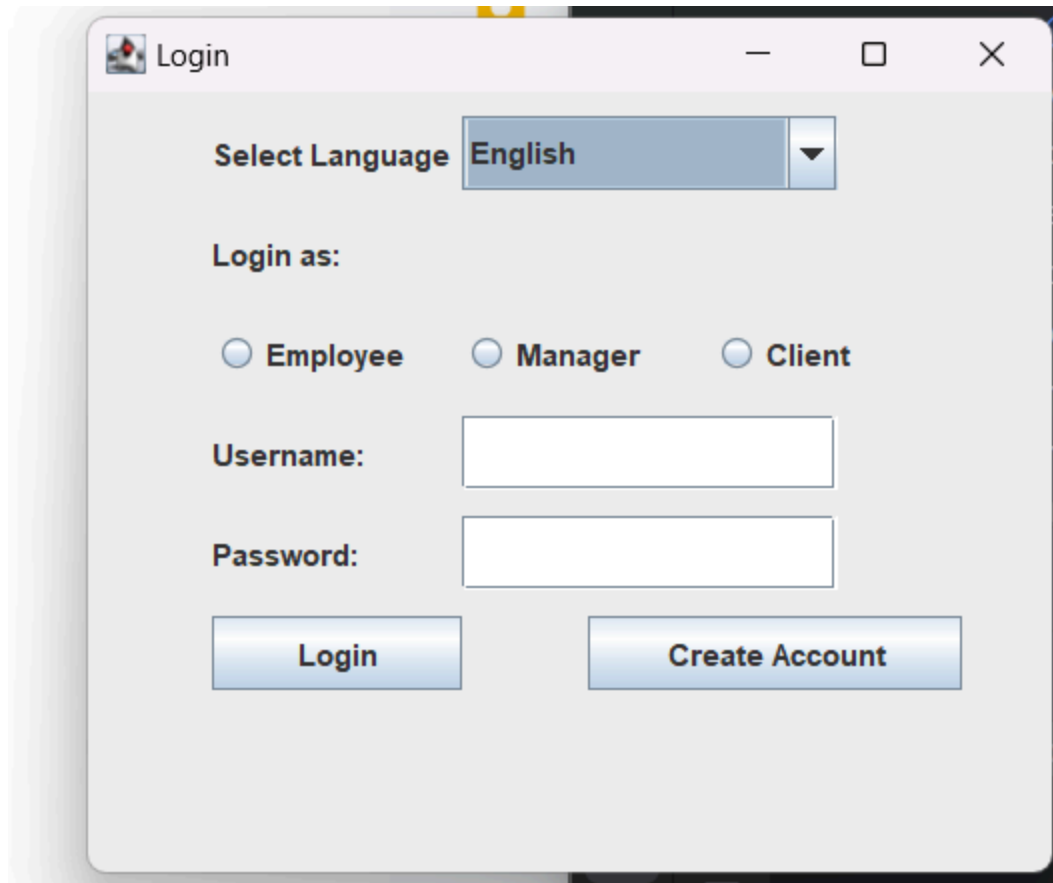
Message

 Veuillez sélectionner un type d'utilisateur.

OK

Connexion Créer un compte

Login View Page in French



A screenshot of a web application's login window. The window has a title bar with a small icon, the text "Login", and standard minimize, maximize, and close buttons. The main content area is light gray and contains the following elements: a "Select Language" label followed by a dropdown menu showing "English"; a "Login as:" label; three radio buttons labeled "Employee", "Manager", and "Client"; a "Username:" label followed by a text input field; a "Password:" label followed by a text input field; and two buttons at the bottom, "Login" and "Create Account".

Login

Select Language English

Login as:

☐ Employee ☐ Manager ☐ Client

Username:

Password:

Login Create Account

The image shows a 'Login' window with a title bar containing a small icon and the text 'Login'. Inside the window, there is a 'Select Language' dropdown menu currently set to 'English'. Below this, the text 'Login as:' is followed by three radio button options: 'Employee', 'Manager', and 'Client'. Underneath these are two text input fields labeled 'Username:' and 'Password:'. At the bottom of the window are two buttons: 'Login' and 'Create Account'. A message dialog box is overlaid on top of the login window. The dialog has a title bar with the text 'Message' and a close button. It contains an information icon (a lowercase 'i' in a circle) and the text 'Please select a user type.' Below the message is an 'OK' button.

Login

Select Language English

Login as:

☐ Employee ☐ Manager ☐ Client

Username:

Password:

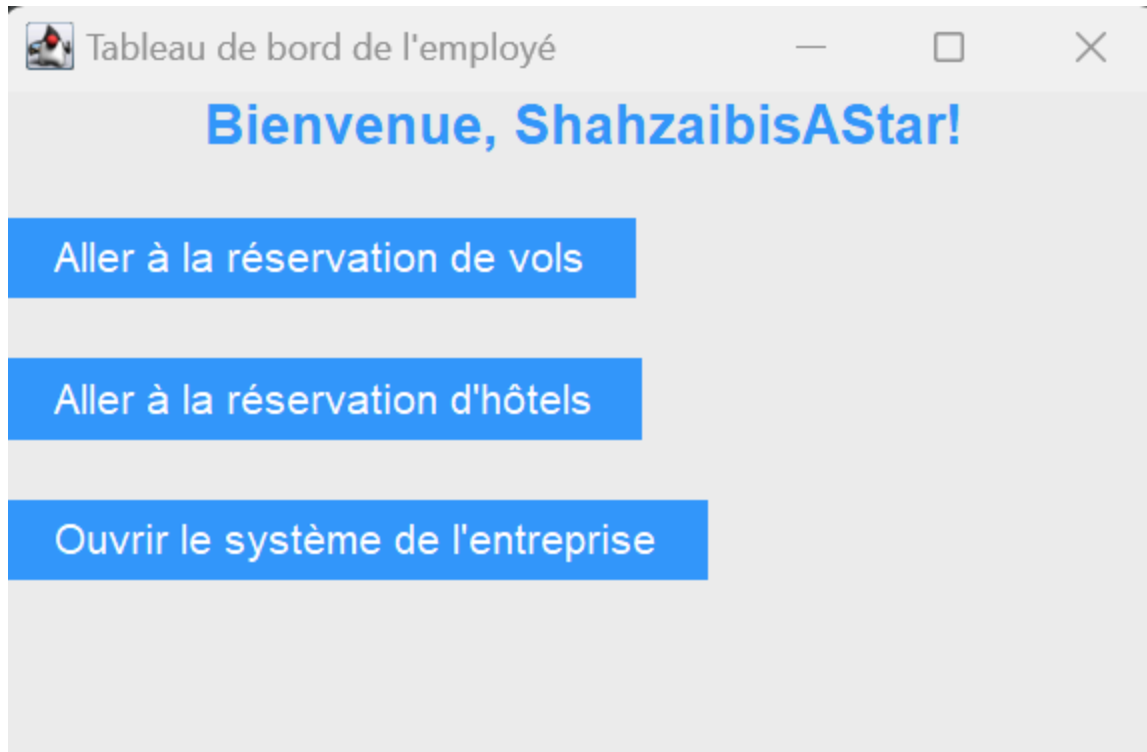
Login Create Account

Message

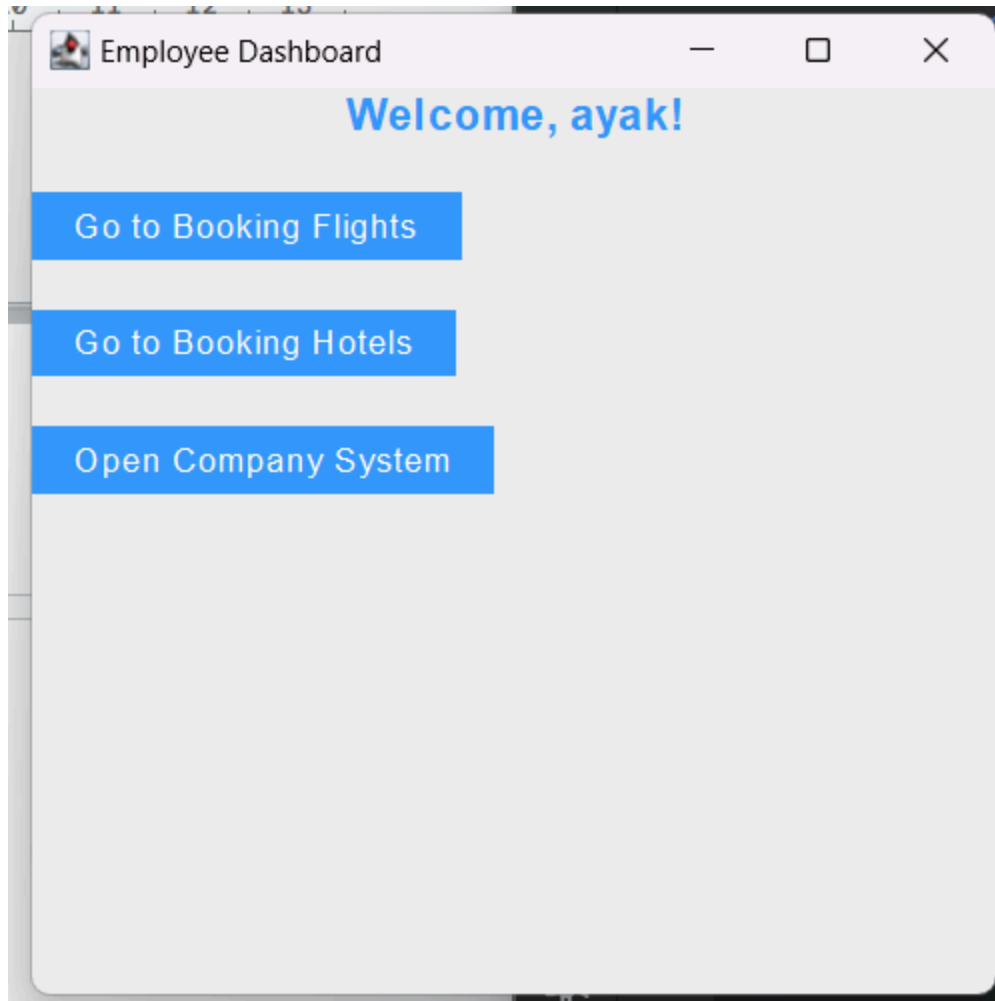
Please select a user type.

OK

Login View Page in English

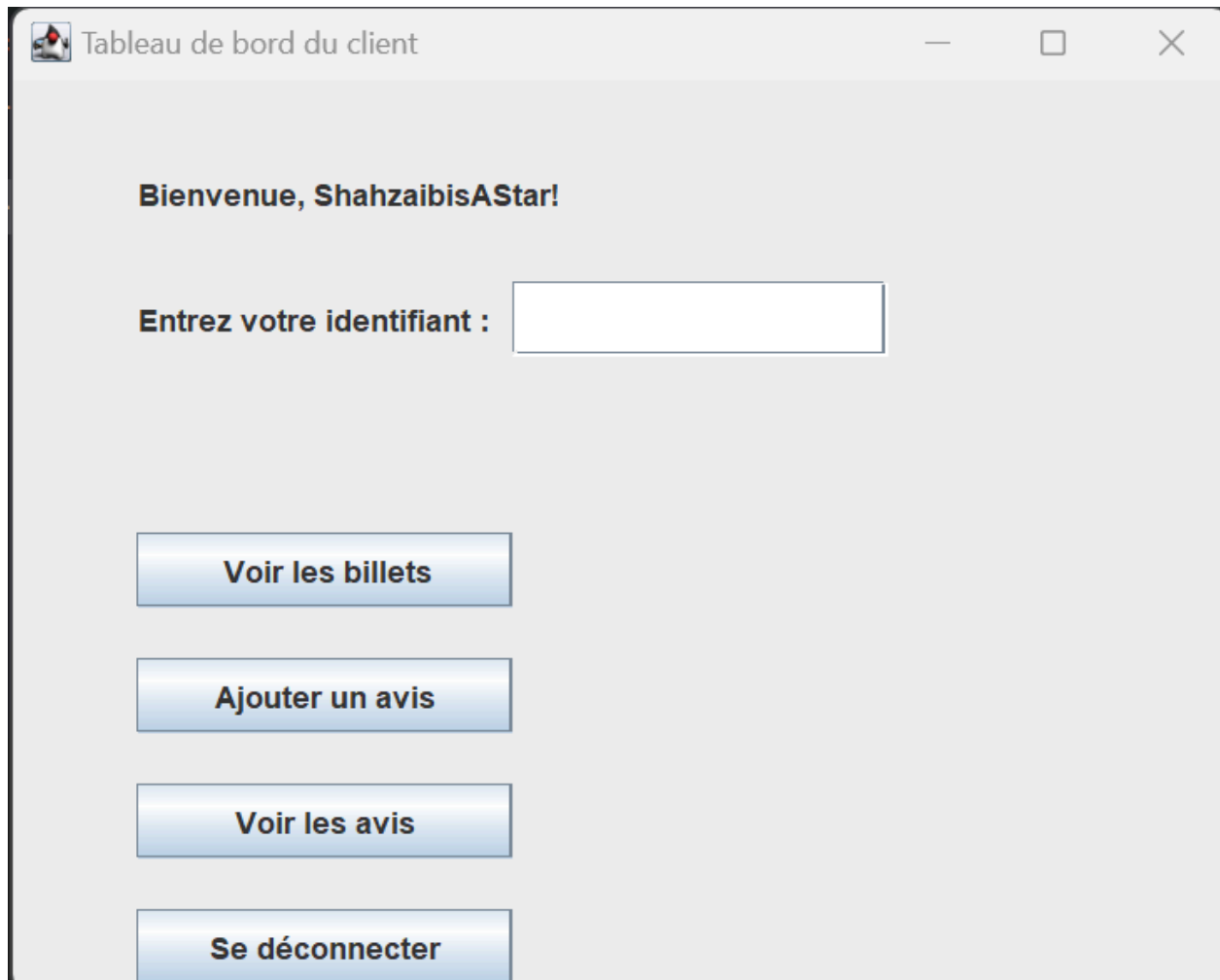
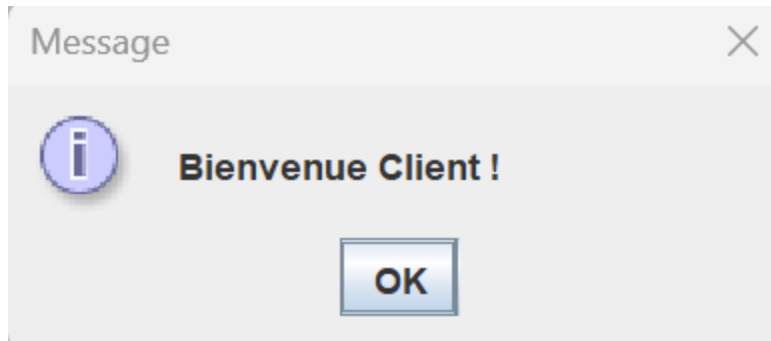


Employee View Page in French

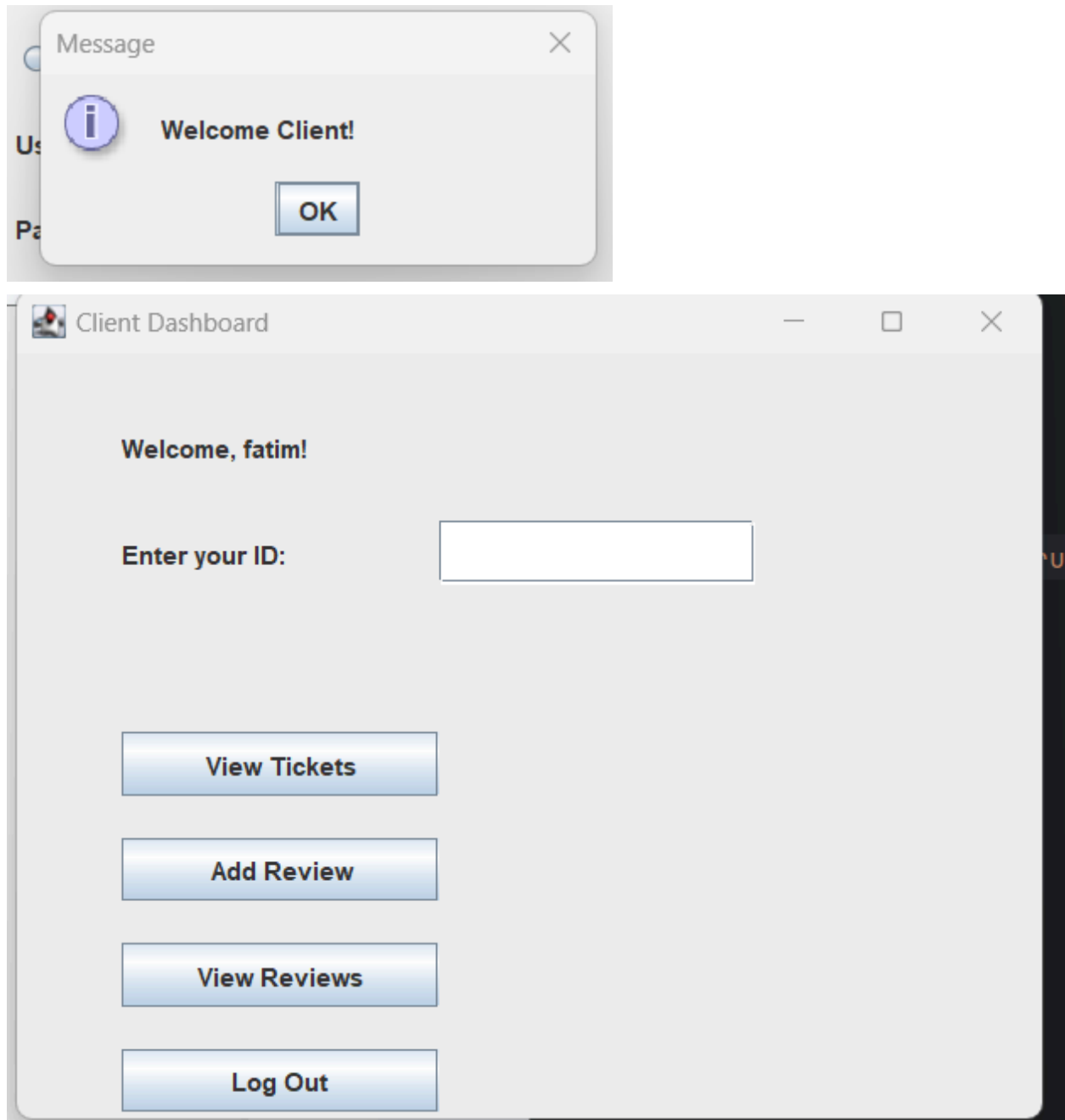


Employee View Page in English

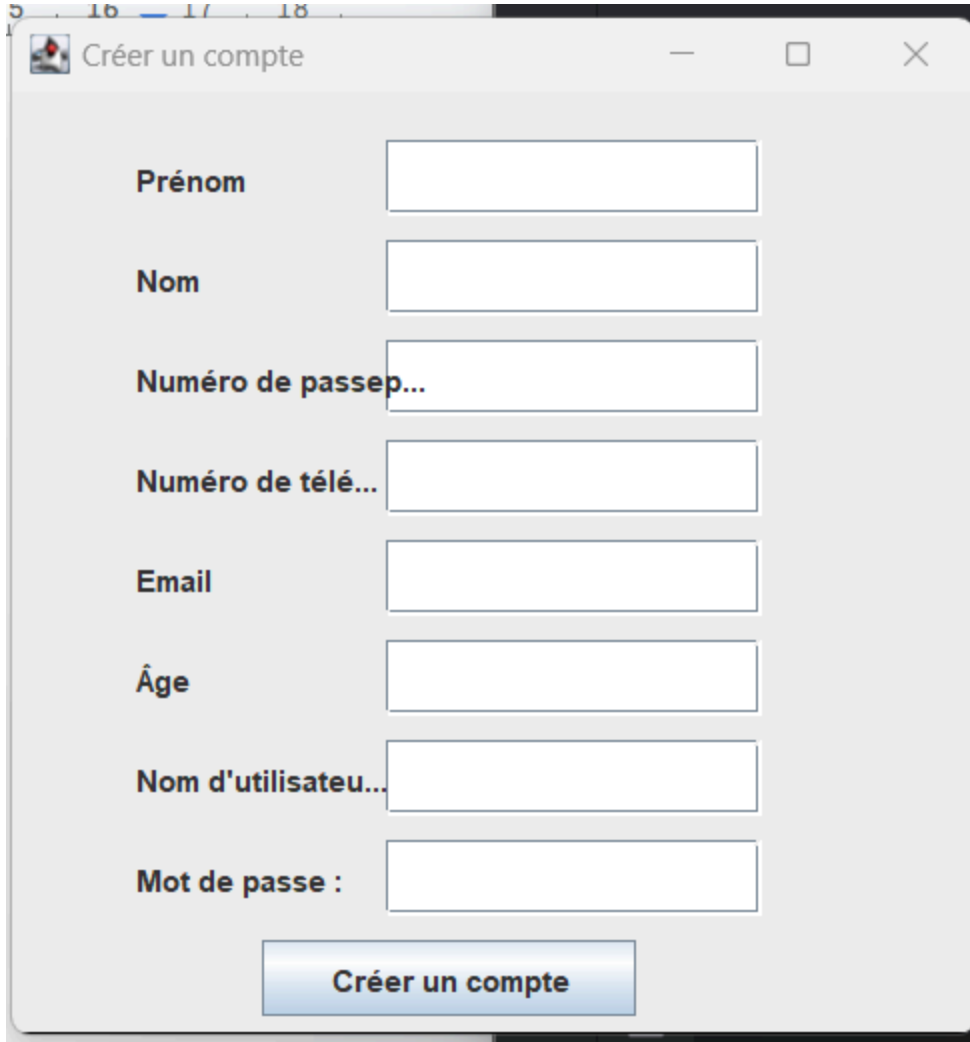
PS:SAME DISPLAY FOR MANAGER



Client View Page in French



Client View Page in English



Créer un compte

Prénom

Nom

Numéro de passep...

Numéro de télé...

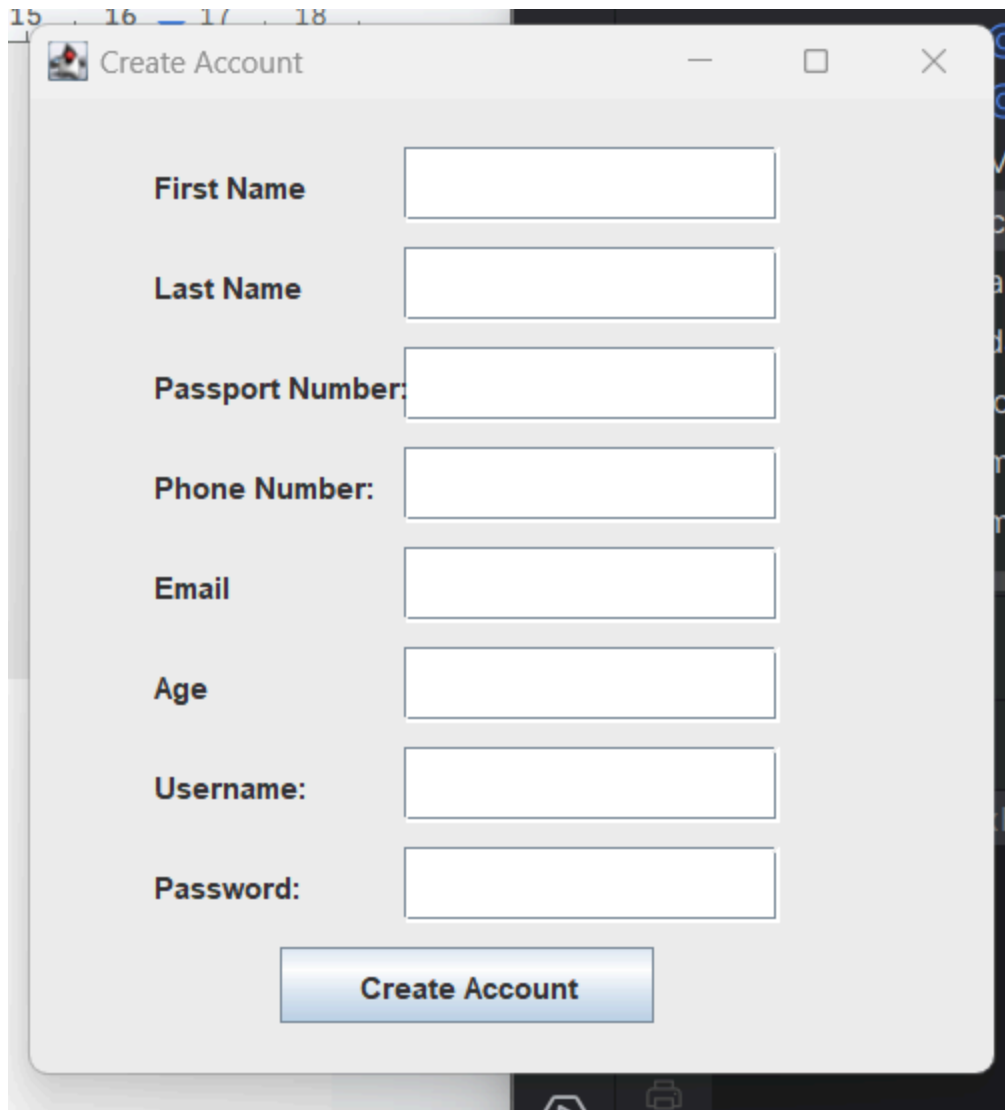
Email

Âge

Nom d'utilisateur...

Mot de passe :

*** Client Create Account View Page in French***



The image shows a 'Create Account' dialog box with the following fields and labels:

- First Name
- Last Name
- Passport Number:
- Phone Number:
- Email
- Age
- Username:
- Password:

A 'Create Account' button is located at the bottom of the dialog box.

*** Client Create Account View Page in English***

Système de réservation de vols

Gérer les vols

Acheter des billets

Numéro de vol	Compagnie aérienne	Prix	Nombre total de siè...	Lieu de départ	Lieu d'arrivée	Heure de départ	Heure d'arrivée
---------------	--------------------	------	------------------------	----------------	----------------	-----------------	-----------------

Détails du vol

Numéro de vol:

Compagnie aérienne:

Prix:

Nombre total de sièges:

Lieu de départ:

Lieu d'arrivée:

Heure de départ:

Heure d'arrivée:

Ajouter un vol

Supprimer un vol

Afficher tous les vols

Système de réservation de vols

Gérer les vols

Acheter des billets

Numéro de vol	Compagnie aérienne	Prix	Nombre total de siè...	Lieu de départ	Lieu d'arrivée	Heure de départ	Heure d'arrivée
PK782	Pakistan Internatio...	1473.58	254	YYZ - Lester B Pear...	ISB - Islamabad Int...	13:00 PM	12:15 PM
AC810	Air Canada	548.23	108	YYC - Calgary Inter...	LAX - Los Angeles I...	10:35	13:05
AA532	American Airlines	435.23	104	Los Angeles	Seattle	12:10	14:30

Détails du vol

Numéro de vol:

Compagnie aérienne:

Prix:

Nombre total de sièges:

Lieu de départ:

Lieu d'arrivée:

Heure de départ:

Heure d'arrivée:

Ajouter un vol

Supprimer un vol

Afficher tous les vols


Système de réservation de vols

Gérer les vols Acheter des billets

Numéro de vol:	PK782
Numéro de passeport du client	A4325M678
Date de départ	2024-12-11
Date de retour	2025-01-12
Numéro de siège	
Type de paiement	
Email	shahzaibahmed@gmail.com
Carte de crédit	3401340134013401

Acheter un billet Annuler un billet

Message

 Billet acheté avec succès!

OK

Employee Booking Flight View Page in French

Flight Booking System

Manage Flights

Purchase Tickets

Flight Number	Airline	Price	Total Seats	Departure Location	Arrival Location	Departure Time	Arrival Time
---------------	---------	-------	-------------	--------------------	------------------	----------------	--------------

Flight Details

Flight Number:

Airline:

Price:

Total Seats:

Departure Location:

Arrival Location:

Departure Time:

Arrival Time:

Add Flight

Remove Flight

View All Flights

Flight Booking System

Manage Flights

Purchase Tickets

Flight Number	Airline	Price	Total Seats	Departure Location	Arrival Location	Departure Time	Arrival Time
PK782	Pakistan International	1473.58	254	YYZ - Lester B Pears...	ISB - Islamabad Inter...	13:00 PM	12:15 PM
AC810	Air Canada	548.23	108	YYC - Calgary Intern...	LAX - Los Angeles Int...	10:35	13:05
AA532	American Airlines	435.23	104	Los Angeles	Seattle	12:10	14:30

Flight Details

Flight Number:

Airline:

Price:

Total Seats:

Departure Location:

Arrival Location:

Departure Time:

Arrival Time:

Message

Flights loaded successfully.

OK

Add Flight

Remove Flight

View All Flights

The screenshot shows a web application window titled "Flight Booking System". It has two tabs: "Manage Flights" and "Purchase Tickets", with the latter being the active tab. The form is divided into two columns. The left column contains labels for various fields: "Flight Number:", "Client Passport Number", "Departure Date", "Return Date", "Seat Number", "Payment Type", "Email", and "Credit Card". The right column contains corresponding empty text input fields. At the bottom of the form, there are two buttons: "Purchase Ticket" on the left and "Cancel Ticket" on the right.

Flight Number:	<input type="text"/>
Client Passport Number	<input type="text"/>
Departure Date	<input type="text"/>
Return Date	<input type="text"/>
Seat Number	<input type="text"/>
Payment Type	<input type="text"/>
Email	<input type="text"/>
Credit Card	<input type="text"/>
<input type="button" value="Purchase Ticket"/>	<input type="button" value="Cancel Ticket"/>

Employee Booking Flight View Page in English

Système de réservation d'hôtel

Réservation de chambre Gestion de l'hôtel Gestion des chambres Voir les chambres

Numéro de passeport du client:

Numéro de la chambre:

Nuittées:

Carte de crédit:

Réserver la chambre

Système de réservation d'hôtel

Réservation de chambre **Gestion de l'hôtel** Gestion des chambres Voir les chambres

Nom de l'hôtel

Adresse

Nombre total de chambres

Ajouter un hôtel

Supprimer un hôtel

Système de réservation d'hôtel

Réservation de chambre Gestion de l'hôtel **Gestion des chambres** Voir les chambres

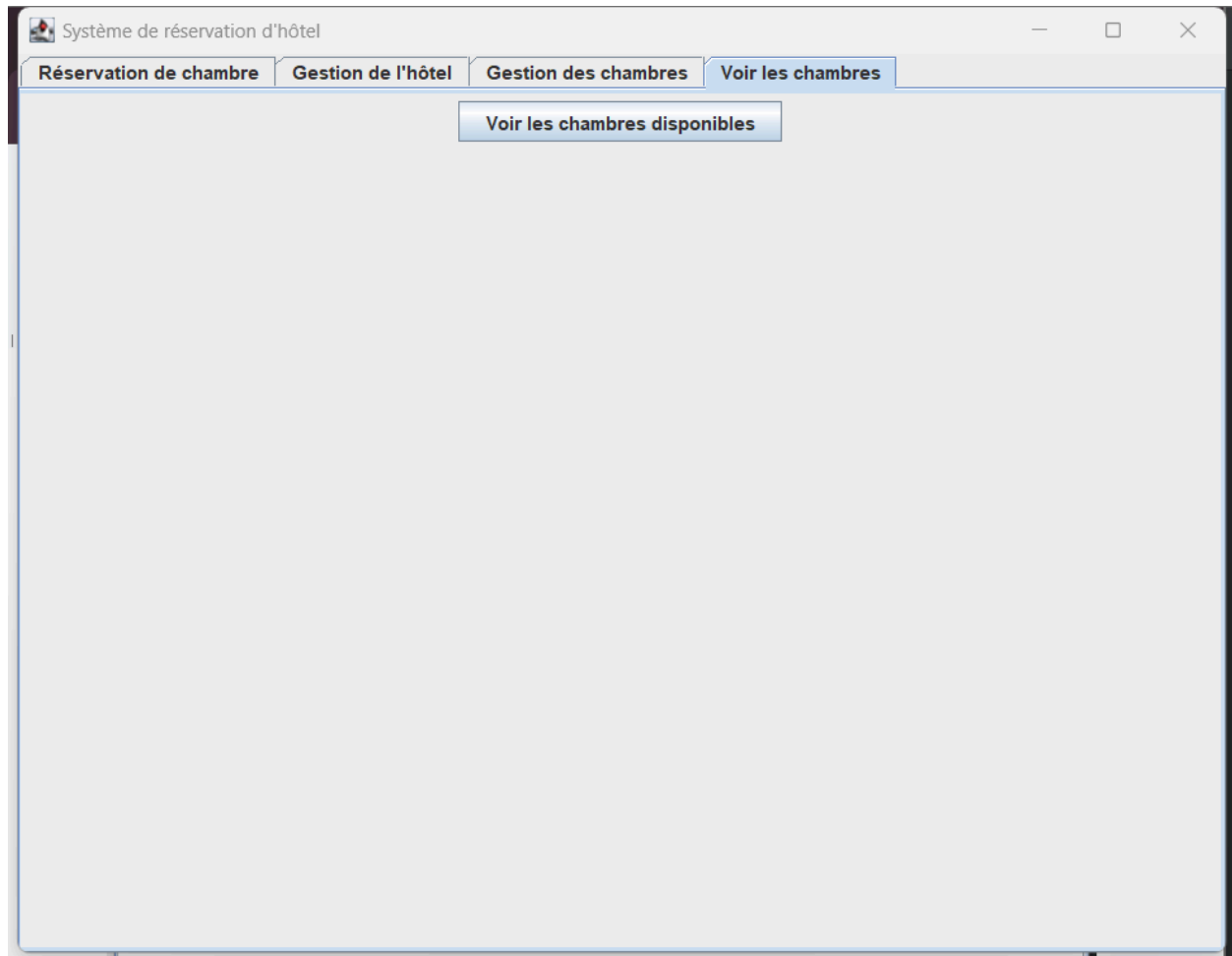
Numéro de la chambre:

Capacité

Prix

Ajouter une chambre

Supprimer une chambre



Employee Booking Hotel View Page in French

Hotel Booking System

Room Booking Hotel Management Room Management View Rooms

Client Passport Number:

Room Number:

Nights:

Credit Card:

Book Room

Hotel Booking System

Room Booking Hotel Management Room Management View Rooms

Hotel Name

Address

Total Rooms

Add Hotel

Remove Hotel

Hotel Booking System

Room Booking Hotel Management Room Management View Rooms

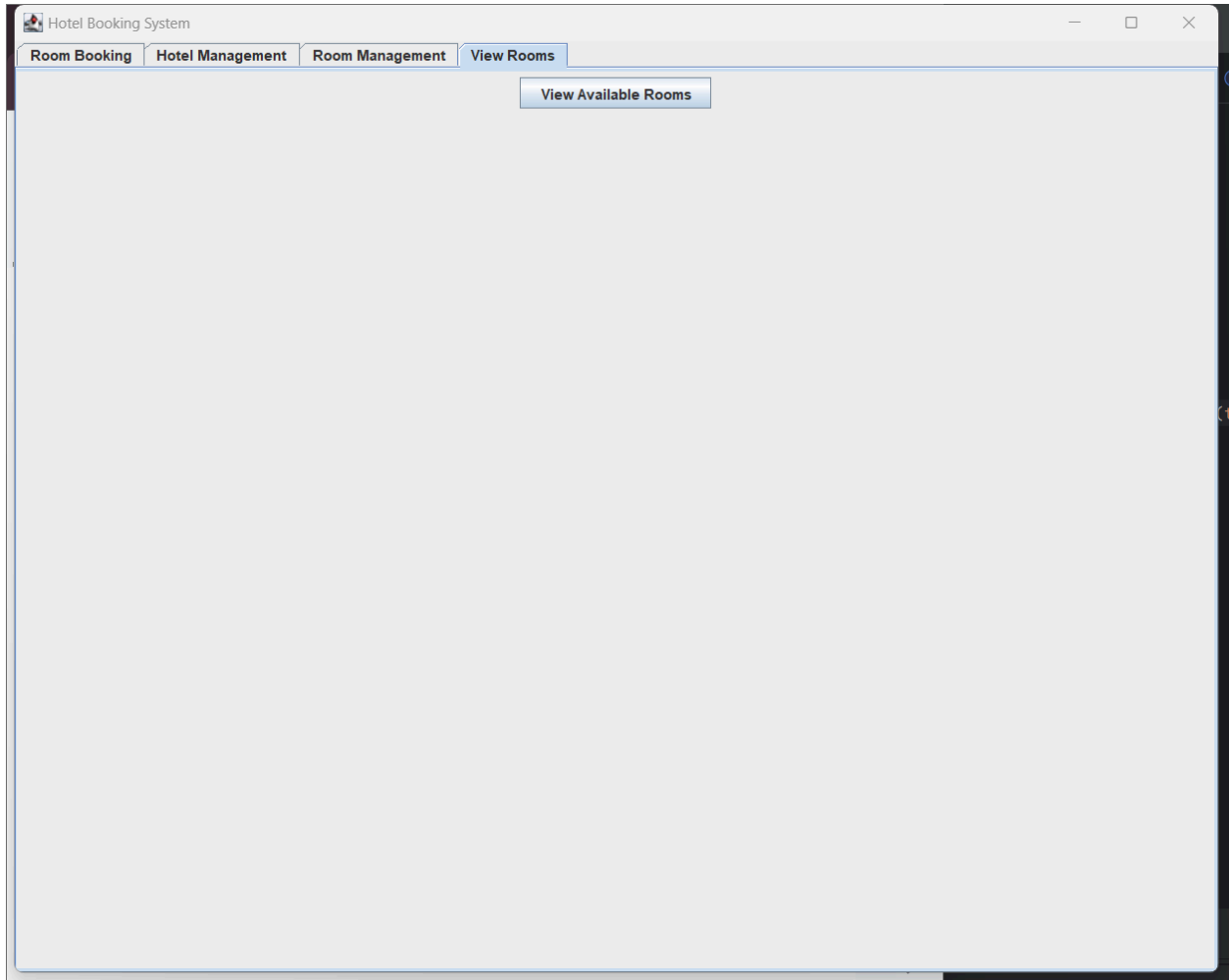
Room Number:

Capacity

Price


Add Room

Delete Room




Employee Booking Hotel View Page in English



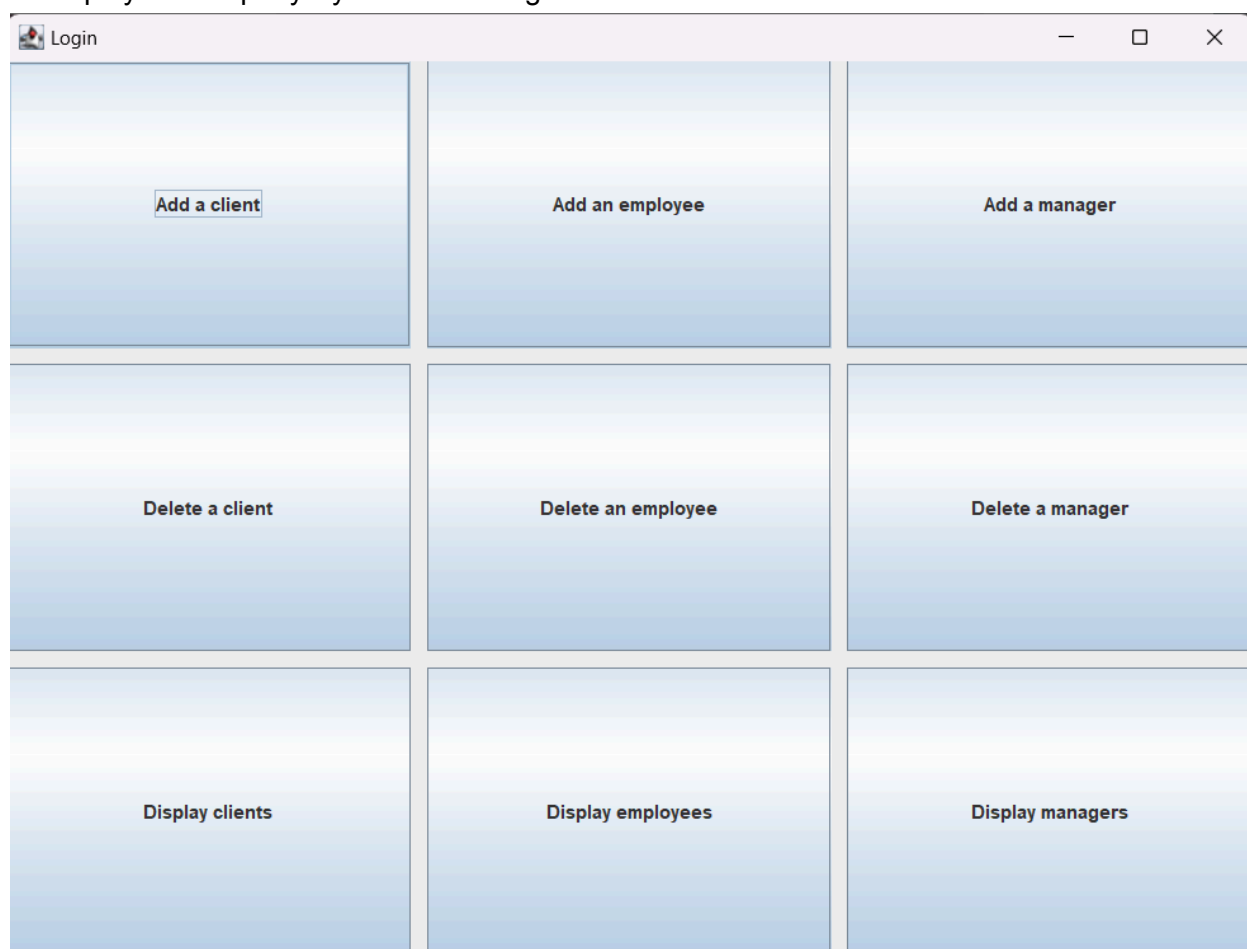
 Afficher les clients

Prénom	Nom	Numéro de P...	Téléphone	Email	Âge	Nom d'utilisat...
Shahzaib	Ahmed	A4325M678	5533257543	shahzaibahm...	20	ShahzaibisAS...
Aya	Kharchafi	B6325I226	4423277543	ayakharchafi...	20	ShahzaibisAS...
Fatima	Lemrani	A4325M678	1234567890	f@gmail.com	65	fatim
Rim	Kharchafi	A4325M678	5147891234	aya@.com	12	rim
ali	Kharchafi	A4325M679	4568909999	ali@gmail.com	23	alir

 Afficher les employés

Prénom	Nom	Numéro de ...	Téléphone	Email	Âge	Nom d'utilis...	Réduction
Shahzaib	Ahmed	123456789	5143334343	shahzaibah...	20	shahzaiba	50.0
Aya	Kharchafi	123456789	5143334343	ayakharcha...	20	ayak	50.0
Shahzaib	Ahmed	123456789	5143334343	shahzaibah...	20	shahzaiba	50.0
Shahzaib	Ahmed	123456789	5143334343	shahzaibah...	20	shahzaiba	50.0
Shahzaib	Ahmed	123456789	5143334343	shahzaibah...	20	shahzaiba	50.0
Shahzaib	Ahmed	123456789	5143334343	shahzaibah...	20	shahzaiba	50.0
Shahzaib	Ahmed	123456789	5143334343	shahzaibah...	20	shahzaiba	50.0
Shahzaib	Ahmed	123456789	5143334343	shahzaibah...	20	shahzaiba	50.0
Aya	Khariy	A4325M672	3451233211	olaf@gmail....	34	gogo	0.5

Employee Company System View Page in French



Employee Company System View Page in English

Features Not Implemented

Requested Bookings Feature

Reason for Removal: Initially, we planned to include a feature allowing employees to view a list of requested bookings. This feature was intended to help track customer booking requests before confirmation. However, after careful consideration, we decided to focus on direct flight and hotel reservations, aligning better with the system's core functionality. By streamlining operations, we removed unnecessary complexity, allowing employees to dedicate their time to confirmed bookings, improving overall time management and resource utilization.

Assign-to Feature for Tickets

Reason for Non-Implementation: The system design initially included an "Assign-to" feature, where managers could assign specific tickets to employees for updates or changes. While beneficial in larger-scale systems, we decided against implementing it because the "requested bookings" feature, intended to trigger assignments, was removed. This decision simplified the system's scope, ensuring a more focused and user-friendly experience.

Displaying Manager List in GUI

Reason for Limited Implementation: As this was our first experience with GUI development, we encountered challenges adapting the system to display complex data, such as manager lists, through a graphical interface. Given the time constraints and steep learning curve, we prioritized core functionalities like flight and hotel booking. This decision allowed us to deliver a functional product while gaining valuable GUI development experience.

Successfully Implemented Features

Login System

- Clients, employees, and managers can log into the GUI using their username and password.
- New clients can create accounts independently, but new employees and managers must be added by existing employees or managers.
- Deletion, updates, and display of client, employee, and manager data are restricted to managers and employees.
- Clients can update their passwords (this functionality is not integrated into the GUI).

Flight Booking and Cancellation

- Employees and managers can book and cancel flights for clients by entering passenger details.
- Booking generates a confirmation with flight details, and cancellations update the ticket lists.
- Features include:
 - Adding or deleting flights.
 - Viewing flights, tickets, purchased tickets, and canceled tickets.
 - Searching for tickets by ID.
 - Payment processing via credit card or loyalty points.
 - Adding loyalty points after payment.
 - Sending confirmation emails for bookings and refunds.

Hotel Room Search and Reservation

- Employees can:
 - Search for available rooms based on client preferences.
 - Book rooms with payment processing and email confirmation.
 - Cancel room bookings with refunds and email confirmations.
 - Add or remove hotels and rooms.
 - View room and hotel details.
- The system ensures room availability is updated accurately to prevent double bookings.

Invoice Generation

- Flight and hotel bookings integrate with a payment system to simulate credit card processing.
- Invoices are generated for completed bookings, providing users with detailed payment summaries to ensure financial transparency and customer satisfaction.

Payment Handling

- Employees can process payments, simulate credit card usage, and generate invoices.
- This ensures users receive proper documentation for transactions.

Error Handling

- The system provides clear error messages for invalid inputs, such as incorrect dates or incomplete passenger details.
- This improves user experience by allowing easy error correction.

Client and Employee Management

- Employees and managers can add, modify, and delete client and employee profiles.
- This ensures the agency's database remains accurate and up-to-date while managing customer relationships and employee tasks efficiently.

Review Management

- Clients can add and view reviews for the agency, enhancing customer interaction and feedback.
-

Learning Outcomes and Benefits of the Decisions Made

Database Integrity and Foreign Keys

- Managing foreign keys and ensuring proper relationships between entities (e.g., customers, flights, bookings, and payments) required careful planning.
- Simplifying the system reduced unnecessary complexity and ensured easy maintenance. This experience strengthened our understanding of database management and referential integrity.

Backend Operations

- Handling backend operations for flight and hotel reservations gave us insights into real-world travel systems.
- We learned how to manage customer data, flight schedules, and booking information efficiently.

GUI Development

- By prioritizing core features and simplifying the GUI, we delivered a functional and maintainable system.
- This hands-on experience in GUI design will be invaluable for future projects, despite some features being omitted due to time constraints and complexity.

Team Collaboration and Project Management

- Collaborating with my colleague improved our teamwork and communication skills.
- We learned to divide tasks efficiently, make joint decisions, and maintain a cohesive system design, all of which are crucial for successful software development.

Final Conclusion

The Travel Agency System (TAS) project enabled us to create a functional platform addressing key aspects of flight and hotel bookings while catering to the needs of both customers and employees. Challenges such as database structure complexities and GUI design helped us grow as developers. Decisions to remove certain features were made to maintain simplicity and focus on core functionalities. Overall, the project was a valuable learning experience, equipping us with skills in database management, GUI design, backend operations, and collaborative software development.