**OOP Assignment 3**

**Transport System Walkthrough**

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**Transportation System User Walkthrough**

**1. Admin Perspective:**

The Admin is the key person managing the system. Admins can register users, add buses, define stops, and view user and bus data.

**Launching the Admin Panel:**

* The Admin opens the transportation system application on their terminal.
* The system displays the main menu with several options: Register User, Add a Bus, Define Stops, Display All Users, Display All Buses, and more.

**Registering a User:**

* The Admin selects "1. Register User" from the menu.
* The system prompts the Admin to input the type of user (Student, Teacher, or Staff), and their details such as ID, name, and stop name.
* The Admin inputs the required information, and the user is successfully registered and stored in the system.
* The system acknowledges the registration with a success message.

**Adding a Bus:**

* The Admin selects "2. Add a Bus" from the menu.
* The Admin is prompted to input the bus ID, bus name, and the maximum number of stops.
* The system creates a new bus and adds it to the list of buses.
* The Admin receives confirmation that the bus has been added.

**Defining Stops for a Bus:**

* The Admin chooses "3. Define Stops for a Bus."
* The system asks the Admin for the bus ID and the number of stops to define.
* The Admin enters the stop names, and each stop is added to the bus’s route.

**Viewing Users and Buses:**

* The Admin can select "4. Display All Users" to see a list of all registered users, displaying details like their ID, name, stop, and card status.
* Similarly, selecting "5. Display All Buses" shows all the buses along with their routes and IDs.

**Saving Data:**

* The Admin saves all the data (users and buses) to files before exiting.
* The system writes user and bus data to "users.dat" and "buses.dat."

**Exiting:**

* The Admin chooses "7. Exit" to safely exit the system after ensuring that all data is saved.

**2. Student Perspective:**

A student uses the transportation system primarily to pay fees, record attendance, and view their status.

**Launching the System:**

* The student opens the transportation system on their terminal.
* The main menu gives options like paying fees, recording attendance, and viewing details.

**Paying Fees:**

* The system prompts the student to pay for the semester's transport fees.
* After payment, the student’s card becomes active, and they receive confirmation that the fees have been paid successfully.

**Marking Attendance:**

* The system asks for the day (1-31) for which attendance should be marked.
* If the student's card is active, the attendance is marked as "Present" for that day. If not, the student is reminded to pay fees to activate the card first.

**Viewing Attendance:**

* The system displays a list of days in the month, showing whether the student was "Present" or "Absent" for each day.

**Updating Stop Name:**

* The student enters the new stop name, and the system updates their details, confirming the change.

**Viewing Details:**

* The system displays the student’s ID, name, stop name, and card status.

**3. Teacher Perspective:**

Teachers use the system to pay fees and view their transportation details.

**Launching the System:**

* The teacher opens the system and is presented with the main menu.

**Paying Fees:**

* The system processes the payment and confirms that the fees have been successfully paid.

**Viewing Details:**

* The system displays the teacher's ID, name, stop name, and whether the card is active.

**Additional Notes for All Users:**

* **User Registration and Authentication:** The system ensures that only authenticated users can perform certain actions (e.g., teachers, students, and staff need to pay fees to activate their cards before using certain features).
* **File Persistence:** All user and bus data is stored in binary files ("users.dat" and "buses.dat") to persist information between sessions.
* **Card Activation:** A user’s card can only be activated if the transport fees are paid. This affects their ability to mark attendance (students), use bus routes, or view certain features.

**Summary**

This system aims to manage the transportation needs for students, teachers, and staff members. Admins oversee the registration and management of users and buses, while students and teachers interact with the system mainly for paying fees and viewing their details. The flow is simple and ensures a seamless experience for each type of user.