**Application Description: University Scheduler**

The "University Scheduler" is a web application designed to streamline and enhance the scheduling process within a university environment. Tailored to the unique needs of students, teachers, and administrators, the application provides a user-friendly interface for managing academic schedules, ensuring effective coordination of classes and activities.

**Key Features:**

1. **Role-Based Access:**
   * Students, teachers, and administrators have distinct roles with specific permissions, ensuring a personalized and secure user experience.
2. **Personalized Student Schedules:**
   * Students can easily access and view class schedules for their group for the week, aiding in efficient time management.
3. **Course Management for Teachers:**
   * Teachers have the ability to manage and view schedule for the course they are responsible for, facilitating effective class planning.
4. **Centralized Admin Dashboard:**
   * Administrators have a centralized view of the entire university schedule, allowing for global management, schedule creation and modifications, and user role assignments.
5. **Real-Time Updates:**
   * Changes made to the schedule, whether by students, teachers, or administrators, are reflected in real-time to ensure everyone has the latest information.
6. **Responsive Design:**
   * The application features a responsive design, ensuring a seamless and user-friendly experience.

The "University Scheduler" is a comprehensive solution that optimizes the scheduling process, and empowers users with the tools they need to succeed in their academic roles within the university ecosystem.

**User Role Authorities: University Scheduler Security Settings**

**1. Student:**

As a **Student** in the University, your role primarily revolves around accessing personal academic information. In terms of modifying the global university schedule, your authorities are limited to viewing your own schedule and being informed about any changes made by teachers or administrators. Students do not have the capability to make modifications to the overall schedule.

**2. Teacher:**

As a **Teacher** within the University, your authorities extend to the management of the course you teach. You have the ability to make changes to the schedule of your assigned course, including adjustments to class timings, locations, and related details. However, your scope is limited to the course under your responsibility, and you do not have global access to modify the university schedule beyond your teaching assignments. Schedule modification have to follow common schedule restrictions and teacher can do only allowed modifications that don’t brake other parts of global schedule.

**3. Admin:**

As an **Admin** with privileged access, you hold comprehensive authorities over the global university schedule. Your responsibilities include:

* **Centralized Schedule Management:** Access a centralized dashboard to make global modifications to the academic calendar and university schedule including schedule creation.
* **Uniform Changes:** Implement changes that affect the entire university, ensuring consistency and efficiency in scheduling.
* **User Role Management:** Manage user roles, including assigning or modifying permissions for teachers and students, controlling their level of access within the application.

**Global University Schedule Restrictions:**

1. Single Course Assignment per Teacher:
   * A teacher is restricted to teaching only one course at a given time. This ensures that their attention and efforts are focused on delivering quality education for the specific course.
2. Enforced Semester Limits:
   * There should be a limit on the number of courses a teacher can be assigned within a single semester to prevent overloading and ensure a balanced workload for educators.
   * The number and list of courses for the group is determined by the special Educational Program (curriculum).
   * The Curriculum is a table with a list of groups-rows and courses-columns. The number of lessons per week is indicated in the cell at the intersection. That is, the row for the group will indicate the number of Lessons from each Course available at the University. Some Courses will be 0 - they are not taught for this group. Numbers 1-3 will indicate the number of lessons per week.
3. At the same time, there can be only one Lesson from one Teacher from one Course for one Group.
4. Parallel classes for different groups, classrooms, courses, teachers are allowed.
5. For one group there should be from 2 to 4 classes per day.
6. For a group, classes should be consecutive.
7. For a group or a teacher, classes may not start with the first Lesson, but with the 2nd or 3rd.

These restrictions collectively contribute to the effective and organized management of the global university schedule, preventing conflicts, and enhancing the overall academic experience for both teachers and students.

**User Stories**

**Title:** View Personal Schedule

**User Story:**

As a **Student**,

I want to **view my personal schedule** for the one week,

So that **I can easily plan and manage my academic activities.**

**Acceptance Criteria:**

1. Given that I am logged in as a student, When I navigate to the "Schedule" section, Then I should see a clear and organized display of my class timetable.
2. Given that I have multiple courses in a semester, When I view my schedule, Then each course should be listed with its corresponding details, such as course name, teacher, room number, and time.
3. Given that there are changes in the schedule (e.g., cancellations or room changes), When I refresh the schedule page, Then the information should be updated in real-time to reflect any modifications.

**Title:** Manage Course Schedule

**User Story:**

As a **Teacher**,

I want to **manage and view the schedule for the courses I am responsible for**,

So that **I can effectively plan and conduct my classes.**

**Acceptance Criteria:**

1. Given that I am logged in as a teacher, When I navigate to the "Schedule" section, Then I should see a comprehensive overview of the course I am teaching in the current semester.
2. Given that I have the ability to modify the schedule, When I make changes to the class timings or locations, Then the modifications should be reflected in real-time for both me and the students.
3. Given that I have only one course, When I access the schedule, Then course should be clearly listed with details like course name, class timings, room numbers, and the group names.

**Title:** Administer University Schedule

**User Story:**

As an **Admin**,

I want to **manage and oversee the entire university schedule**,

So that **I can ensure efficient coordination of academic activities.**

**Acceptance Criteria:**

1. Given that I am logged in as an admin, When I access the admin dashboard, Then I should have a centralized view of the entire university schedule.
2. Given that I have the authority to make global changes, When I need to update the academic calendar or make universal schedule modifications, Then the changes should be applied uniformly across all user roles and be reflected in real-time.
3. Given that I have a duty to manage university schedule, When I create global schedule or edit existing schedule, Then the changes should appear for all users in real-time.
4. Given that I want to manage user roles, When I access the user management section, Then I should be able to assign or modify roles for teachers and students, ensuring the right level of access.

**Login Page Descriptions**

**1. Successful Login (Valid Data):**

* *Scenario:* When a user enters valid credentials (username and password) and clicks the "Login" button.
* *Action:* The system verifies the entered credentials against the stored database. Upon successful validation, the user is redirected to their respective dashboard (Student Dashboard, Teacher Dashboard, or Admin Dashboard) based on their assigned role.

**2. Incorrect Password:**

* *Scenario:* When a user enters a valid username but an incorrect password.
* *Action:* The system notifies the user that the password is incorrect and prompts them to re-enter the password. A certain number of consecutive incorrect attempts may trigger an account lockout mechanism for security purposes.

**3. Non-existent Username:**

* *Scenario:* When a user enters a username that does not exist in the system.
* *Action:* The system informs the user that the entered username is not found. It prompts the user to verify the username or provides a link to a registration page if applicable.

**4. Empty Fields:**

* *Scenario:* When a user attempts to log in with one or both of the required fields (username and password) left empty.
* *Action:* The system prompts the user to fill in both the username and password fields. It may highlight the empty fields or display a tooltip indicating the missing information.

**5. Account Lockout:**

* *Scenario:* After a specified number of consecutive incorrect login attempts.
* *Action:* The system temporarily locks the account to prevent unauthorized access. The user may receive an email notification with instructions for unlocking the account or be directed to a password recovery/reset process.

**6. Forgot Password:**

* *Scenario:* When a user forgets their password and clicks on a "Forgot Password" link.
* *Action:* The system provides options for password recovery, which may include sending a password reset link to the user's registered email address or answering security questions.

**7. Account Inactivity Timeout:**

* *Scenario:* When there is no user activity for a specified period.
* *Action:* The system automatically logs out the user for security reasons and redirects them to the login page. A message may inform the user about the automatic logout due to inactivity.

**8. Session Expiry:**

* *Scenario:* When a user attempts to access a page after their session has expired.
* *Action:* The system redirects the user to the login page, prompting them to log in again. A message may explain that the session expired due to security measures.

**9. Account Deactivation:**

* *Scenario:* When an administrator deactivates a user account.
* *Action:* The system notifies the user that their account has been deactivated, and they are prevented from logging in. Instructions for reactivation or contacting support may be provided.

**10. Security Measures Notification:**

* *Scenario:* General login page interaction.
* *Action:* The login page may include security messages, such as reminding users not to share passwords, providing information about account security, and directing users to contact support for account-related issues.

These scenarios and actions contribute to a secure and user-friendly login experience within the University Scheduler application.