



PROJECT 8.1

Laboratory Management System: Authentication, Booking Management and Data Persistence

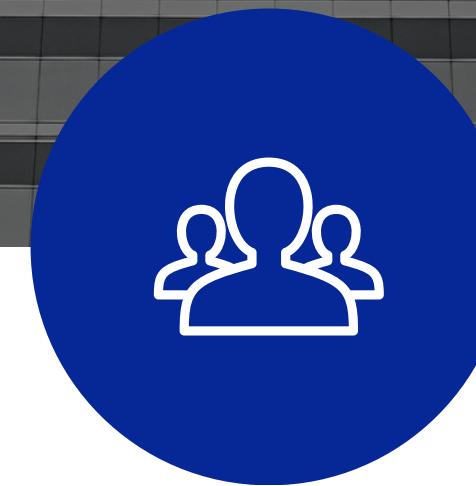
Garozzo Ettore Giuseppe

General structure



SchoolLab Web Api

Platform for managing laboratories, computer resources and bookings.



UserManager Web API

UserManager is a Web API specialized in managing users by providing an authentication flow



FileManager Library

provides a data persistence service, allowing both components to independently manage data storage within their own directories

A large, abstract graphic on the left side of the slide features several overlapping diagonal planes. One plane is white with a fine grid pattern. Another is dark grey with a subtle hexagonal texture. A third is black with a prominent, larger hexagonal texture. The bottom right corner of this graphic is a solid orange color.

UserManager

Web API specialized in user management by providing an authentication flow.

This component provides an authentication flow through the
Authentication Controller

Its RESTful interface allows administrators to perform CRUD (Create, Read, Update, Delete) operations on users,

Autentication endpoints

AuthenticationController

```
[Route("api/authentication")]
```

01

Search by Username



```
[Route("{username}")]
```



Generation of the challenge

02

Resolution of the Challenge



```
[Route("{username}/{challenge}")]
```



Authentication token release

Administration endpoints

AdminController

```
[Route("api/user-manager/admin")]
```

01

```
[Route("users")]
```

Get user list

02

```
[Route("users/{id}")]
```

Get of a single user

03

```
[Route("users/create")]
```

User creation

04

```
[Route("users/update/{id}")]
```

User data update

05

```
[Route("users/delete/{id}")]
```

User deletion

A large, abstract graphic on the left side of the slide features several overlapping geometric shapes. It includes a dark grey triangle at the top left, a white triangle below it, and a large black shape with a diagonal hatching pattern. A red diagonal band runs from the bottom-left corner towards the center. The overall effect is modern and minimalist.

SchoolLab

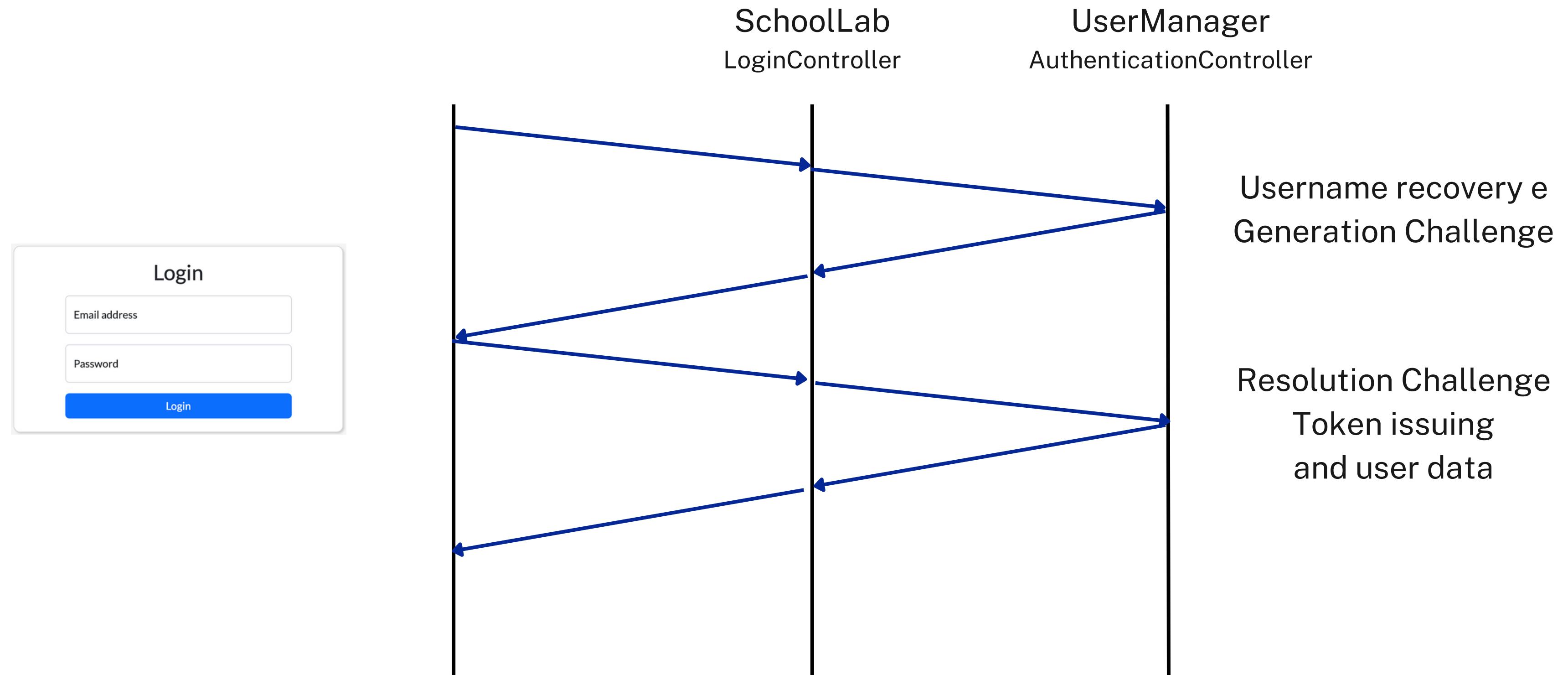
System for managing and booking laboratories and IT resources.

Users can authenticate through the UserManager system.

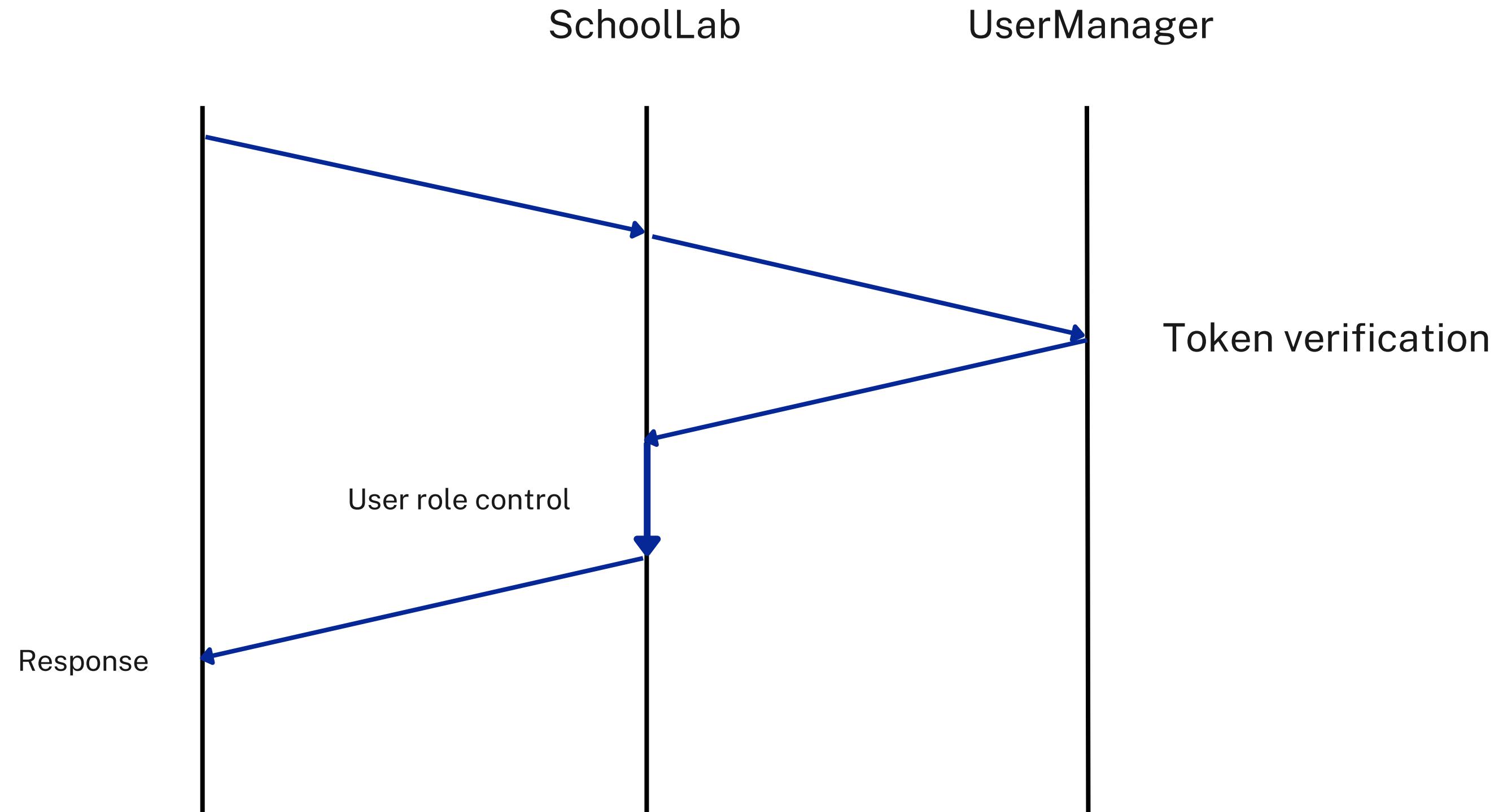
Labs can be administered by allowing Admin users CRUD operations via the **LabAdminController**.

Users can reserve resources, view, create and delete reservations via the **LabUserController**.

Communication between UserManager and SchoolLab in the authentication phase



Communication between UserManager and SchoolLab in routine operations



Users endpoints

LabUserController

```
[Route("api/user")]
```

01

```
[Route("labs")]
```

Get list of laboratories

02

```
[Route("labs/reservations/{userId}")]
```

Get reservation list

03

```
[Route("labs/reservations/create")]
```

Booking creation

04

```
[Route("labs/reservations/delete/{reservationId}")]
```

Cancellation of reservation

Administration endpoints

LabAdminController

```
[Route("labs/{labId}")]
```

01

```
[Route("labs")]
```

Get list of laboratories

02

```
[Route("labs/{labId}/computers")]
```

Get computer list

03

```
[Route("labs/{labId}/computers/create")]
```

Computer creation

04

```
[Route("labs/{labId}/computers/update/{computerId}")]
```

Computer update

04

```
[Route("labs/{labId}/computers/delete/{computerId}")]
```

Deletion of computers

A large, abstract graphic on the left side of the slide features several overlapping geometric shapes. It includes a dark grey triangle at the top left, a white triangle below it, and a large black shape with a diagonal hatching pattern. A red triangular area is visible at the bottom right. The overall effect is modern and minimalist.

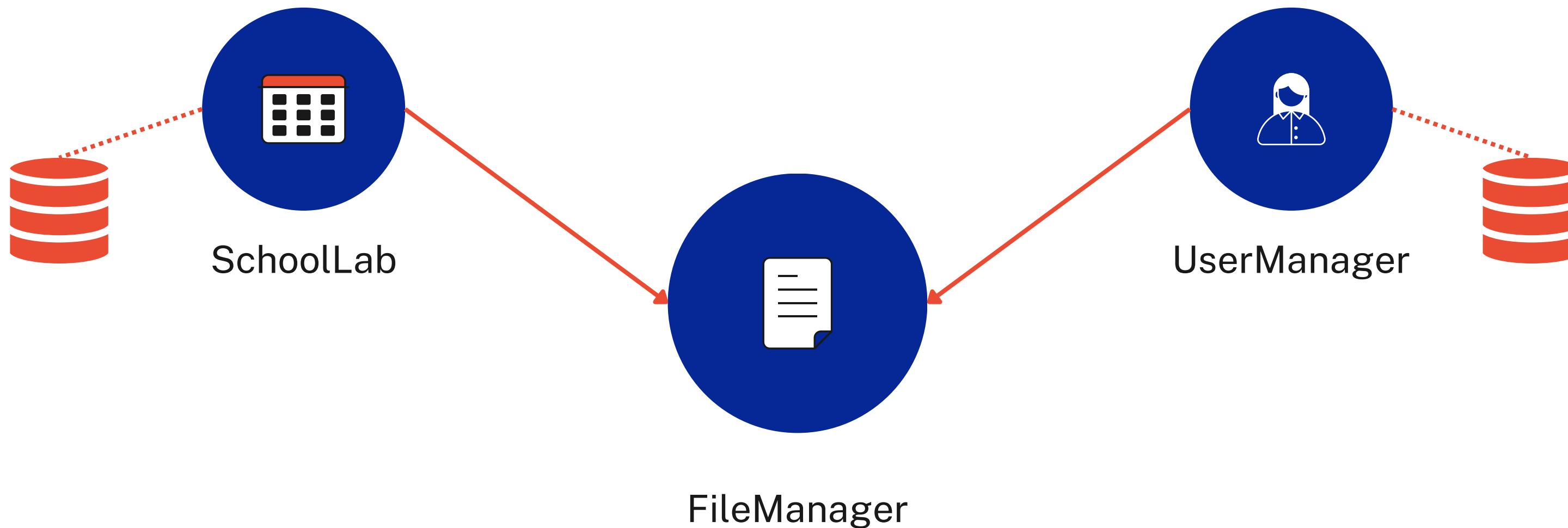
FileManager

FileManager is an external library integrated into the UserManager and SchoolLab components

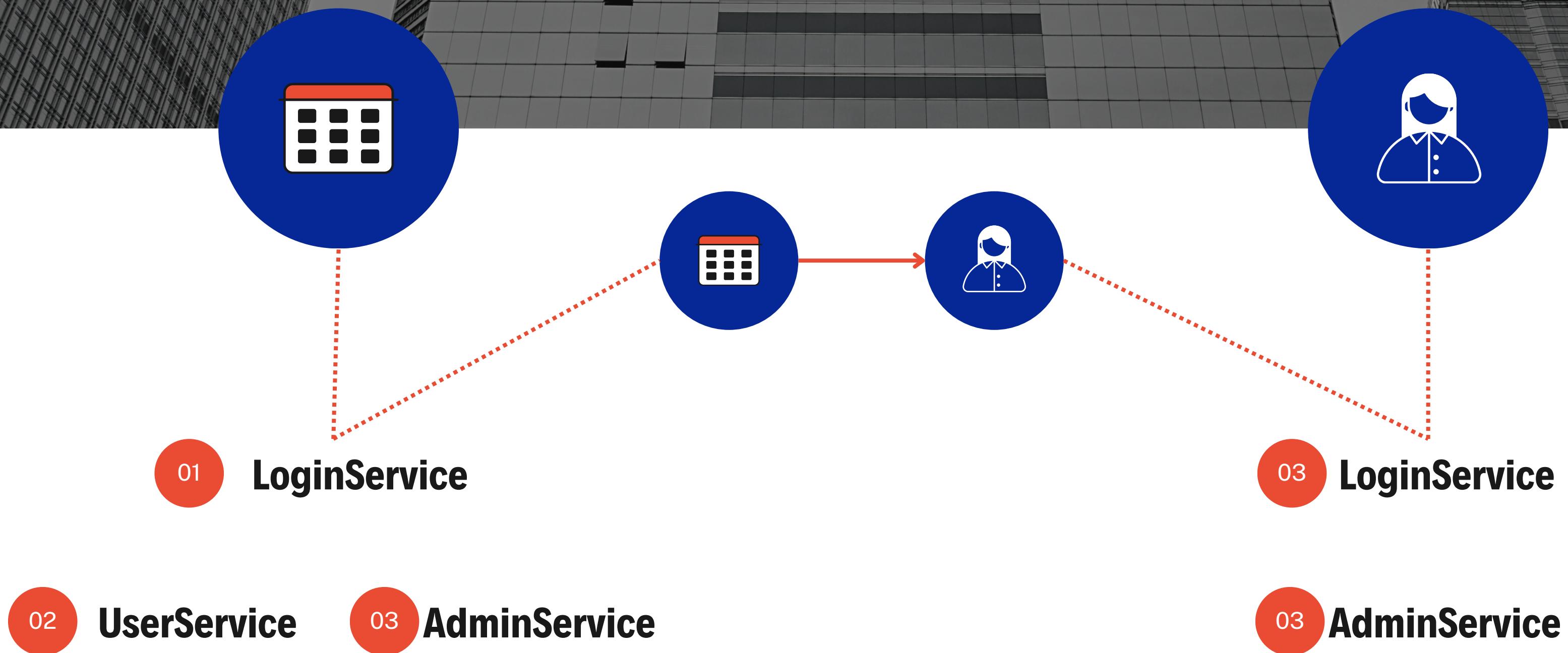
Both UserManager and SchoolLab utilize this library for data persistence.

It's important to note that while the FileManager library provides the service, each web API (UserManager and SchoolLab) independently manages data storage within its own directories.

FileManager



Front-End



Thank you!

