

Project Summary

PresenceHub is a web-based **Attendance Management System** designed to streamline **student attendance tracking**. It enables **role-based access for Admins, Faculty, and Students**, supports **QR-based attendance marking**, and provides **reporting and PDF export** features.

Roles

- 1. Admin** – Authorize Students and Faculty, creates courses, assigns faculty to courses, view all students, faculties and courses and view and export the attendance records with filters.
- 2. Faculty** – Manual marks and updates attendance, generates QR codes for attendance, views and exports attendance reports for his courses.
- 3. Students** – Enroll into courses, view all courses and view attendance records and mark attendance via QR scan.

Summary of functionalities for each role

1. ADMIN

- Authorize students and faculties
- create courses
- Assign faculty to courses
- Views all Students, Faculties, and Courses
- Views and exports Attendance Records with filters

2. FACULTY

- View assigned courses
- Mark/Update attendance manually or via QR
- Generate QR Codes for Attendance
- View/export attendance reports with filters

3. STUDENTS

- Self-register and view enrolled courses
- Scan QR code to mark attendance
- View Attendance Summary and Detailed Records

Security - Authentication and Authorization Techniques - IF USED

Authentication: Implemented using **JWT** (JSON Web Tokens), stored in **HttpOnly cookies** and **localStorage**.

Authorization:

- i. Role-based access controlled via **@PreAuthorize** and **Spring Security**.
- ii. Endpoints restricted by roles (`hasRole('ADMIN')`, `hasRole('FACULTY')`, etc.)
- iii. Token includes role claims, parsed on frontend for conditional rendering.

Note on Using Both localStorage and HttpOnly Cookies

We initially stored the JWT only in **localStorage**, but this caused issues when accessing secured **JSP view pages** (e.g., `/faculty/dashboard`) that used `@PreAuthorize("hasRole('...')")` or route-level security in Spring Security.

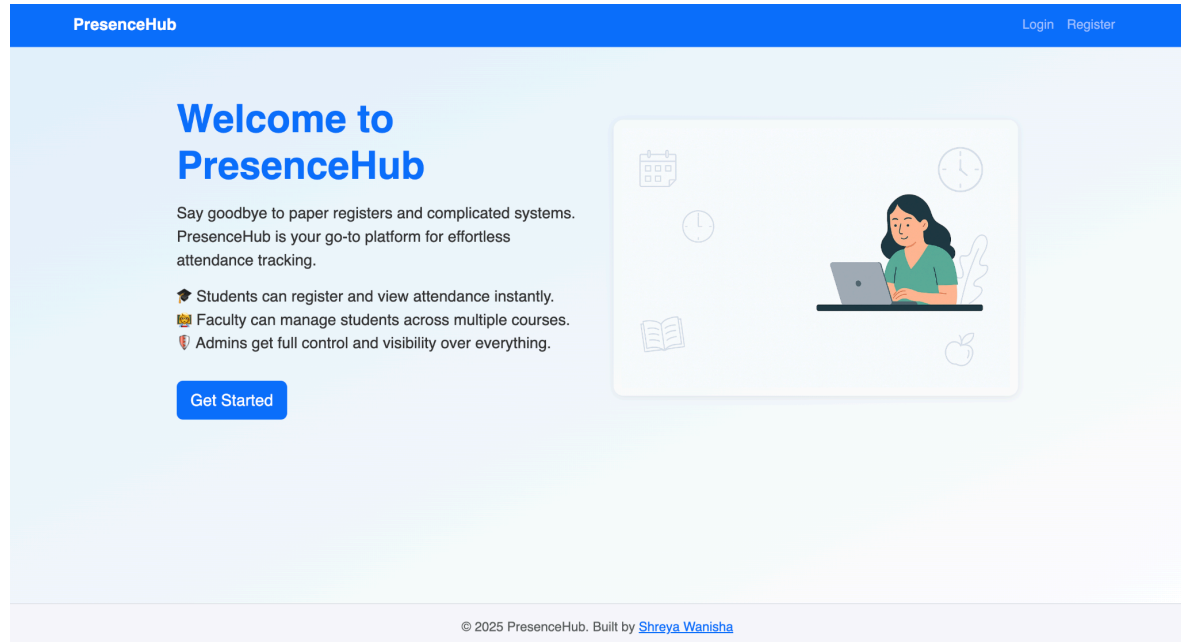
Since **localStorage** tokens are **not automatically sent** with HTTP requests, the Spring Security context couldn't authenticate the user, resulting in **403 Forbidden** errors.

To fix this, we decided to:

- Store the token in a **HttpOnly cookie** during login so that Spring Security automatically receives and processes it on view requests.
- Still keep the token in **localStorage** to access role/email for **frontend logic**, like showing dashboard buttons or greeting the user by name in JSP.

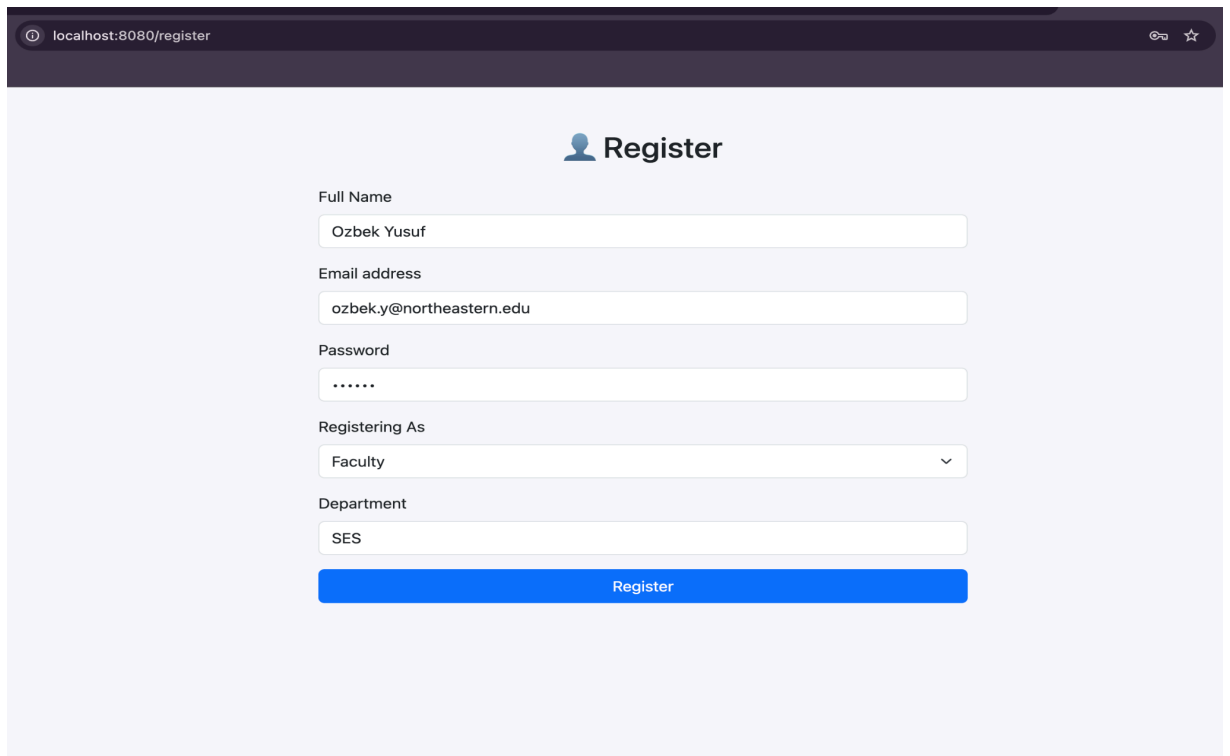
Some screenshots for key screens

1. Home Page



2. Registration Page

Registering as a Faculty (added necessary validations on name, emails, password)



localhost:8080/register

Register

Full Name

Email address


Password

Registering As

Department

3. Registering as a Student

localhost:8080/register

 **Register**

Full Name

Email address

Password

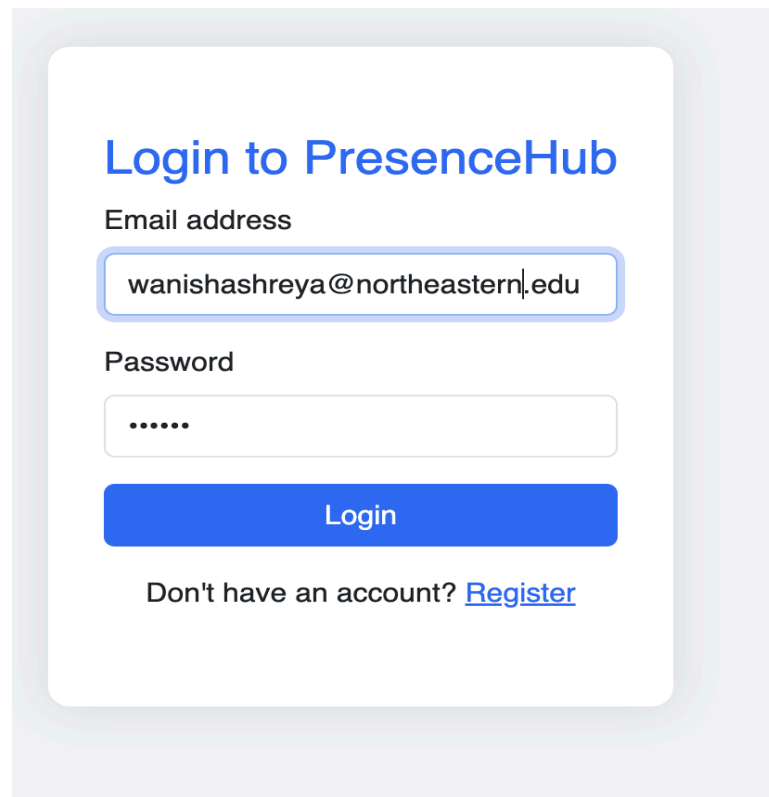
Registering As

Roll Number

Department

Semester

4. Login Page

A login form titled "Login to PresenceHub" is centered on a light gray background. The form is contained within a white rounded rectangle with a subtle drop shadow. It features two input fields: "Email address" with the text "wanishashreya@northeastern.edu" and "Password" with masked characters ".....". Below the fields is a blue "Login" button. At the bottom, there is a link "Register" preceded by the text "Don't have an account?".

Login to PresenceHub

Email address

wanishashreya@northeastern.edu

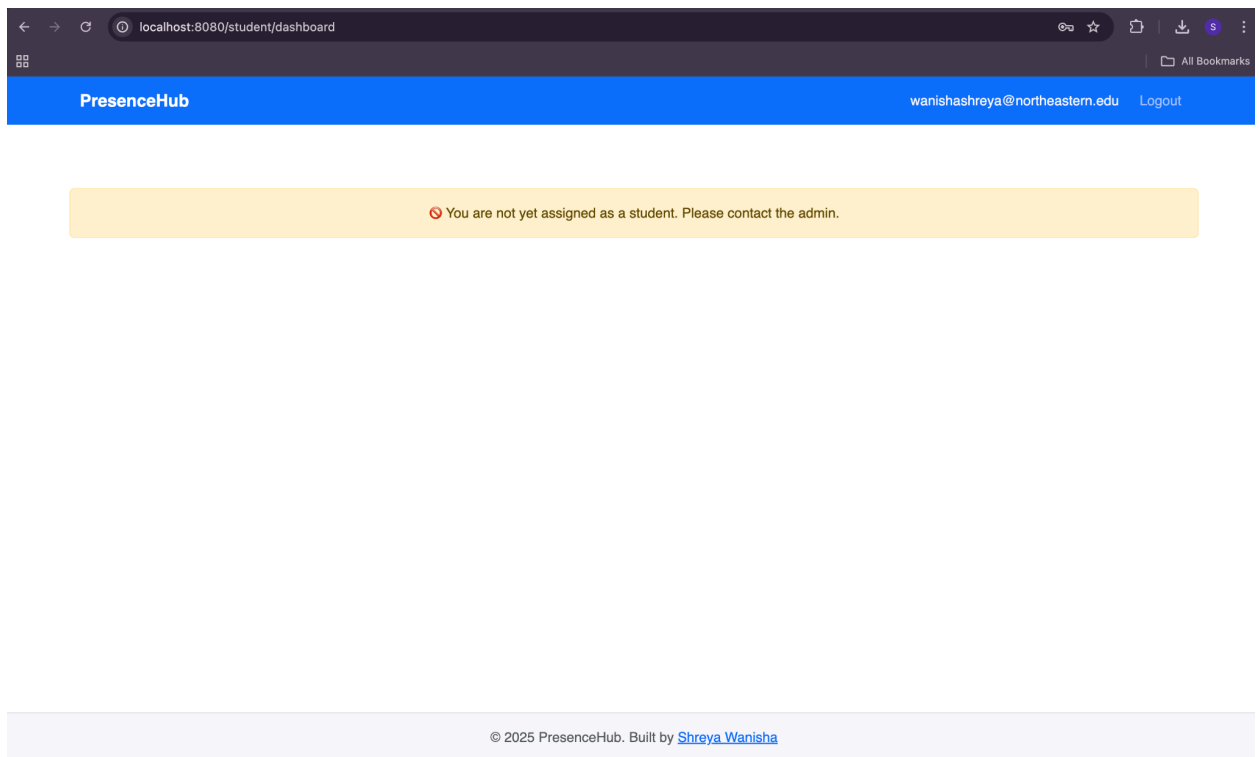
Password

.....

Login

Don't have an account? [Register](#)

5. Student dashboard before authorized by admin



Same behaviour would be for Faculty as well, Admin needs to authorize both Student and Faculty.

6. Admin dashboard

The screenshot shows a web browser window with the address bar displaying 'localhost:8080/admin/dashboard'. The browser's title bar indicates 'Admin Dashboard - PresenceHub'. The page features a blue header with 'PresenceHub' on the left and 'admin@northeastern.edu Logout' on the right. The main content area is titled 'Admin Dashboard' with a shield icon. It contains three summary cards: 'Total Students 12', 'Total Faculty 8', and 'Total Courses 10'. Below these are three buttons: '+ Add Course', 'Assign Faculty' (with a person icon), and 'View Attendance Report' (with a report icon). A section titled 'Authorize Students' is expanded, showing details for a student named 'Wanisha Shreya' with email 'wanishashreya@northeastern.edu', roll number '363663', department 'Software Engineering Systems', and semester 'SEM2'. An 'Authorize' button is at the bottom of this section.

Admin Dashboard - PresenceHub

localhost:8080/admin/dashboard

admin@northeastern.edu Logout

Admin Dashboard

Total Students	Total Faculty	Total Courses
12	8	10

+ Add Course Assign Faculty View Attendance Report

Authorize Students

Wanisha Shreya
wanishashreya@northeastern.edu

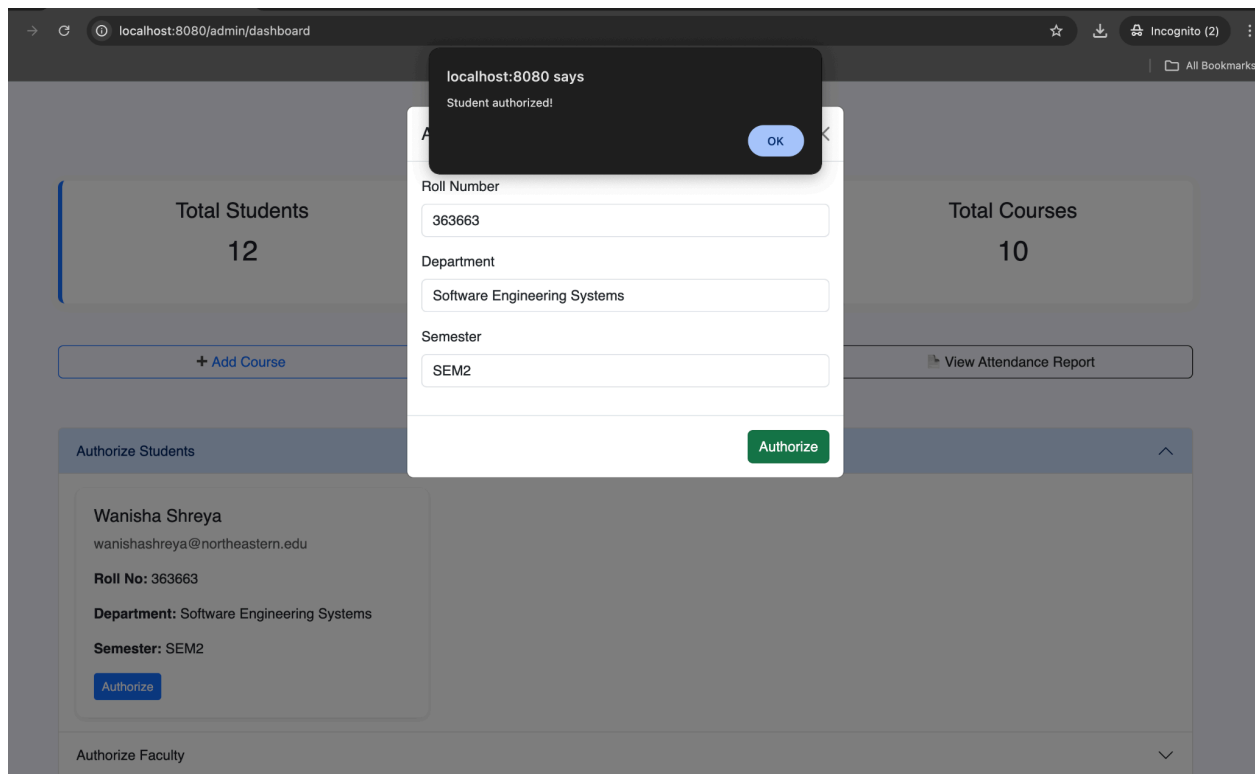
Roll No: 363663

Department: Software Engineering Systems

Semester: SEM2

Authorize

7. Admin authorizing Student



Similar way, Admin will authorize Faculty as well.

8. Admin Views: Students, Courses, Faculties

The screenshot shows the PresenceHub admin dashboard at localhost:8080/admin/dashboard. The dashboard has a blue header with the PresenceHub logo and a user profile for admin@northeastern.edu. The main content area displays 'Total Students: 12' and 'Total Courses: 10'. A modal titled 'All Students' is open, showing a table of student records.

Name	Email	Roll No	Department	Semester
shreyaWanisha	swanisha@northeastern.edu	39051	Software Engineering Systems	SEM1
sandeshS	sandeshS@northeastern.edu	39052	Computer Science	SEM2
keya	keya@northeastern.edu	39053	Software Engineering Systems	SEM2
abcd	abc@northeastern.edu	39034	Detective	SEM1
swayam	swayam@northeastern.edu	39876	CA	SEM4
madhvi	madhvi@northeastern.edu	39099	Fashion Designer	SEM7
Sheru	sheru@northeastern.edu	39030	CSE	SEM7
Sinchan	sin@northeastern.edu	002335709	CSE	SEM4
Dharna Kashyap	dharna@northeastern.edu	00282663	SES	SEM3
Emma	emma@northeastern.edu	37267	IS	SEM6
Vanshi	vanshi@northeastern.edu	436536	SES	SEM2
shreya wanisha	shreyawanisha@northeastern.edu	324262	SES	SEM2

The screenshot shows the PresenceHub admin dashboard at localhost:8080/admin/dashboard. The dashboard has a blue header with the PresenceHub logo and a user profile for admin@northeastern.edu. The main content area displays 'Total Students: 12' and 'Total Courses: 10'. A modal titled 'All Faculty' is open, showing a table of faculty records.

Name	Email	Department
sonal	sonal@northeastern.edu	Software Engineering Systems
robin	robin@northeastern.edu	Software Engineering Systems
yusuf	yusuf@northeastern.edu	Information System Program
amish	amish@northeastern.edu	Computer Science
faculty	faculty@northeastern.edu	Computer Science
faculty hu main	facultyNayaWala@northeastern.edu	faculty
Amulthan	amulthan@northeastern.edu	IS
yusuf ozbek	ozbek@northeastern.edu	SES

localhost:8080/admin/dashboard

Incognito (2)

PresenceHub

admin@northeastern.edu Logout

All Courses

Course Name	CRN	Department	Semester
Web Design & User Experience Engineering	INFO6150	Software Engineering Systems	SEM2
Program Design Paradigm	CS6120	Computer Science	SEM2
test	test	Computer Science	SEM2
Object Oriented Design	CSYE6200	Software Engineering Systems	SEM2
Cloud Computing	37654	Computer Science Engineering	SEM3
UX/UI Development	66578	CSE	SEM2
Mobile Dev	65537	CSE	SEM2
OS	372626	SES	SEM2
Data	453728	SES	SEM2
DBMS	382637	SES	SEM3

Total Students: 12

+ Add Course

Authorize Students

Authorize Faculty

Total Courses: 10

Attendance Report

9. Admin Adding a New Course

PresenceHub

admin@northeastern.edu Logout

+ Add New Course

CRN

76543

Course Name

Enterprise Software Design

Department

SES

Semester

SEM2


Add Course

Back to Dashboard

10. Admin Assigning Faculty/Faculties to a Course

PresenceHub

admin@northeastern.eduLogout

 Assign Faculty to a Course

Select Course

Enterprise Software Design (76543)

Select Faculties

☐ sonal (sonal@northeastern.edu)

☐ robin (robin@northeastern.edu)

☐ yusuf (yusuf@northeastern.edu)

☐ amish (amish@northeastern.edu)

☒ faculty (faculty@northeastern.edu)

☐ faculty hu main (facultyNayaWala@northeastern.edu)

☐ Amulthan (amulthan@northeastern.edu)

☒ yusuf ozbek (ozbek@northeastern.edu)

Assign Faculty


Back to Dashboard

© 2025 PresenceHub. Built by [Shreya Wanisha](#)

11. Admin Viewing Attendance Reports with Filters

PresenceHub

admin@northeastern.eduLogout

 Attendance Report

Select Course

Web Design & User Experience Engi

Start Date

dd/mm/yyyy

End Date

dd/mm/yyyy

Status

All

Search

Name, Roll No, Email

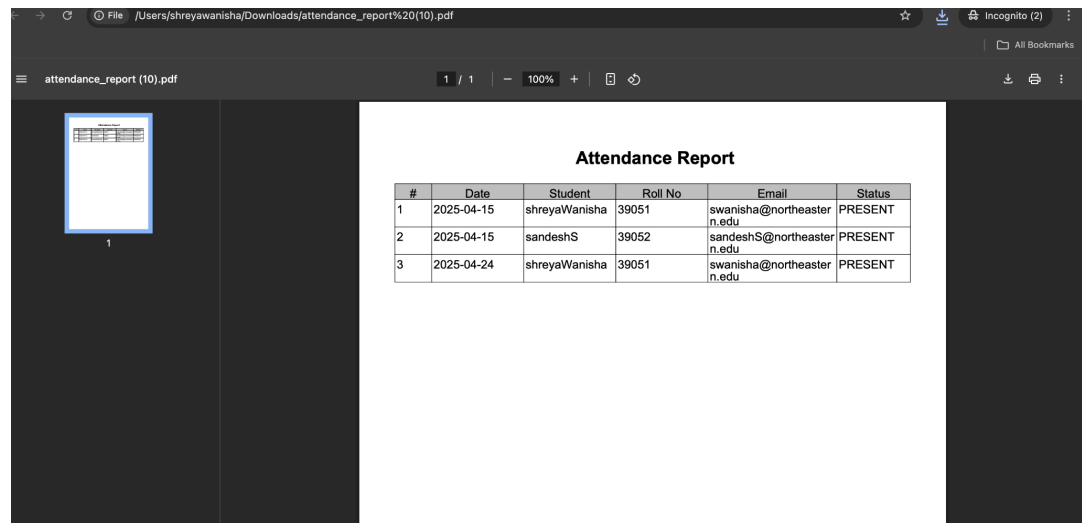
Load Report

Export PDF

#	Date	Student	Roll No	Email	Status
1	2025-04-15	shreyaWanisha	39051	swanisha@northeastern.edu	PRESENT
2	2025-04-15	sandeshS	39052	sandeshS@northeastern.edu	PRESENT
3	2025-04-15	keya	39053	keya@northeastern.edu	ABSENT
4	2025-04-17	shreyaWanisha	39051	swanisha@northeastern.edu	ABSENT
5	2025-04-17	sandeshS	39052	sandeshS@northeastern.edu	ABSENT
6	2025-04-17	keya	39053	keya@northeastern.edu	ABSENT
7	2025-04-24	shreyaWanisha	39051	swanisha@northeastern.edu	PRESENT

Back to Dashboard

12. Exporting Attendance Reports to PDF



13. Student Dashboard after Authorization

localhost:8080/student/dashboard

PresenceHub wanishashreya@northeastern.edu Logout

Your Enrolled Courses

You are not enrolled in any courses yet.

Available Courses to Enroll

You can enroll in a maximum of 2 courses.

[Hide Courses](#)

Web Design & User Experience Engineering

CRN: INFO6150

Department: Software Engineering Systems

Semester: SEM2

Faculty

- sonal (sonal@northeastern.edu)
- yusuf (yusuf@northeastern.edu)
- Amulthan (amulthan@northeastern.edu)

[Enroll](#)

Program Design Paradigm

CRN: CS6120

Department: Computer Science

Semester: SEM2

Faculty

- faculty (faculty@northeastern.edu)
- yusuf (yusuf@northeastern.edu)
- robin (robin@northeastern.edu)

[Enroll](#)

test

SEM 2025

Object Oriented Design

SEM 2025

14. Student Dashboard after Enrolling into Courses



Your Enrolled Courses

Object Oriented Design

CRN: CSYE6200

Department: Software Engineering Systems

Semester: SEM2

Faculty

- yusuf (yusuf@northeastern.edu)
- robin (robin@northeastern.edu)
- faculty (faculty@northeastern.edu)

Attendance: 0 / 0 (0% present)

 View Records

 Scan QR

Enterprise Software Design

CRN: 76543

Department: SES

Semester: SEM2

Faculty

- yusuf ozbek (ozbek@northeastern.edu)
- faculty (faculty@northeastern.edu)

Attendance: 0 / 0 (0% present)

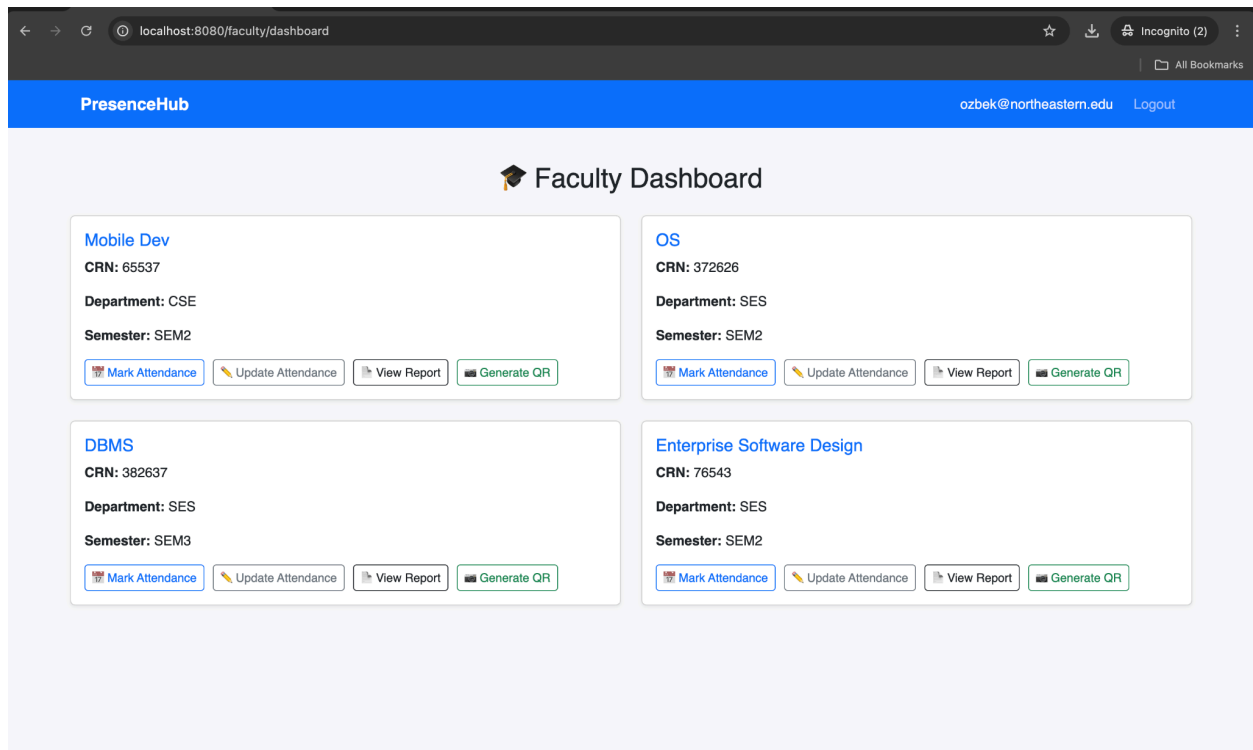
 View Records

 Scan QR

Available Courses to Enroll

You can enroll in a maximum of 2 courses.

15. Faculty Dashboard



16. Faculty Marking Attendance Manually

localhost:8080/faculty/attendance?courseId=5

PresenceHub robin@northeastern.edu Logout

📅 Mark Attendance (Today Only)

Select Course
Object Oriented Design (CSYE6200)

Date
26/04/2025

Mark Present

- ☒ shreyaWanisha (39051)
- ☒ keya (39053)
- ☐ Wanisha Shreya (363663)

✔ Submit Attendance

Back to Dashboard

17. Faculty Updating Attendance

localhost:8080/faculty/attendance/update?courseId=5

PresenceHub robin@northeastern.edu Logout

✎ Update Attendance

Select Course
Object Oriented Design (CSYE6200)

Select Date
26/04/2025

🔍 Load Attendance

shreyaWanisha (39051)	Present	Absent
keya (39053)	Present	Absent
Wanisha Shreya (363663)	Present	Absent

Back to Dashboard

18. Faculty Viewing/Exporting Attendance Reports

PresenceHub

robin@northeastern.eduLogout

Attendance Report

Select Course

Object Oriented Design (CSYE6200) ▾

Start Date

dd/mm/yyyy

End Date

dd/mm/yyyy

Status

Absent ▾

Search

Name, Roll No, Email

Load Report

Export PDF

#	Date	Student	Roll No	Email	Status
1	2025-04-13	keya	39053	keya@northeastern.edu	ABSENT
2	2025-04-23	shreyaWanisha	39051	swanisha@northeastern.edu	ABSENT
3	2025-04-23	keya	39053	keya@northeastern.edu	ABSENT
4	2025-04-26	keya	39053	keya@northeastern.edu	ABSENT
5	2025-04-26	Wanisha Shreya	363663	wanishashreya@northeastern.edu	ABSENT

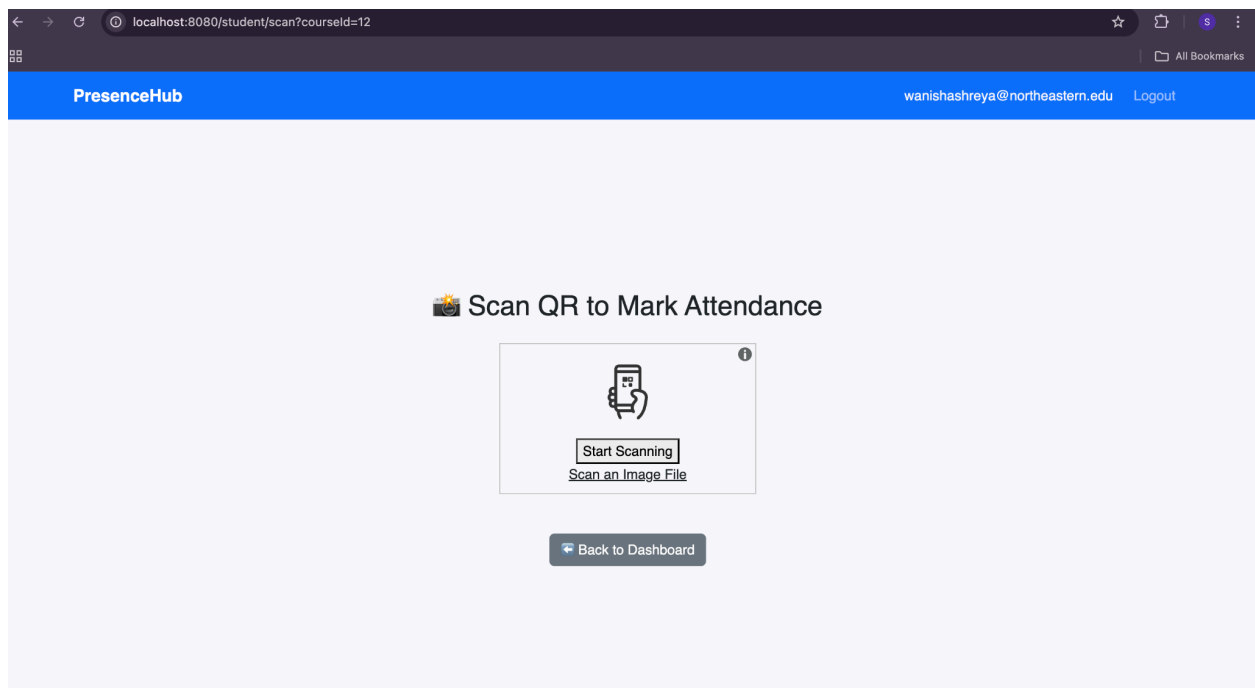
Back to Dashboard

© 2025 PresenceHub. Built by [Shreya Wanisha](#)

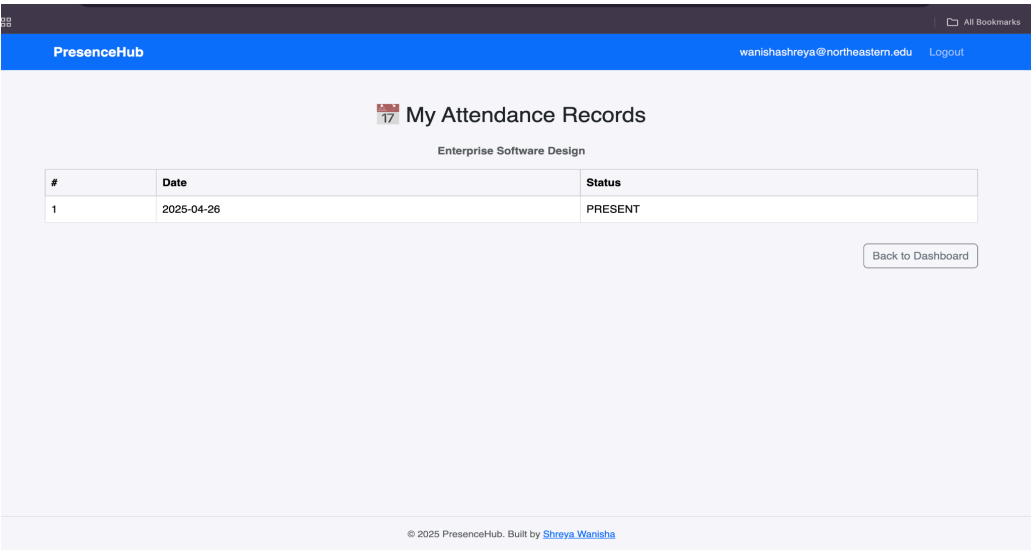
19. Faculty Generating QR Codes (refresh every 5 minutes)



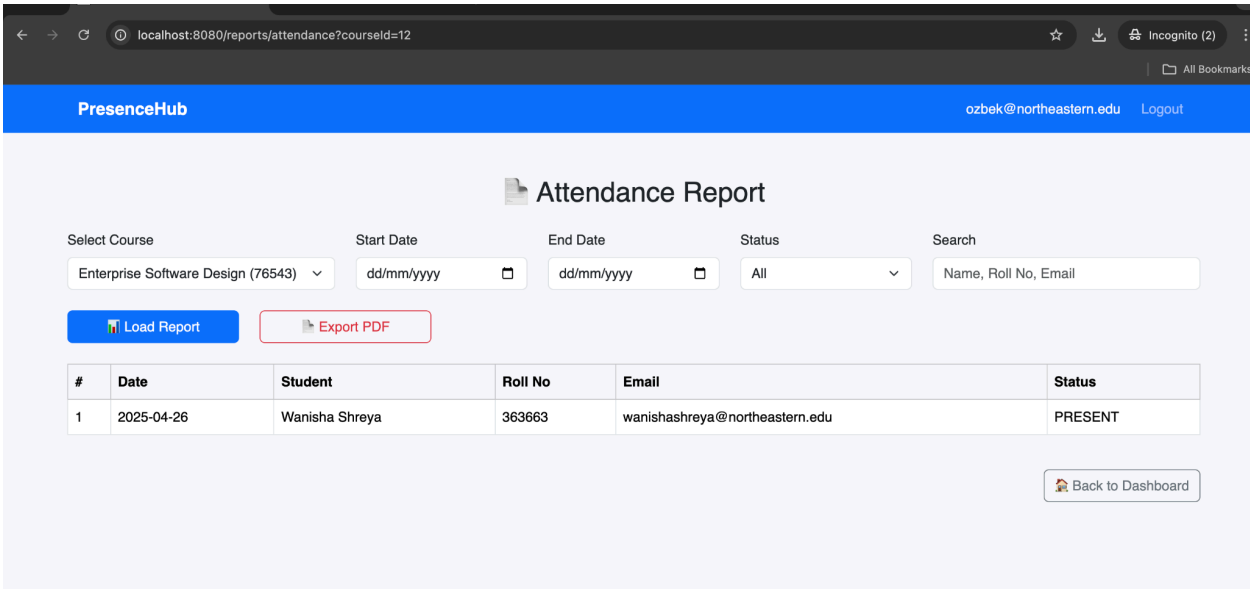
20. Student Scanning QR and Marking Attendance



21. Student Viewing Detailed Attendance Report



22. Faculty Attendance Report View After Marking Complete



THANK YOU.