

Vaccination Portal – FSAD Assignment 2025

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Course: Full Stack Application Development

System Overview

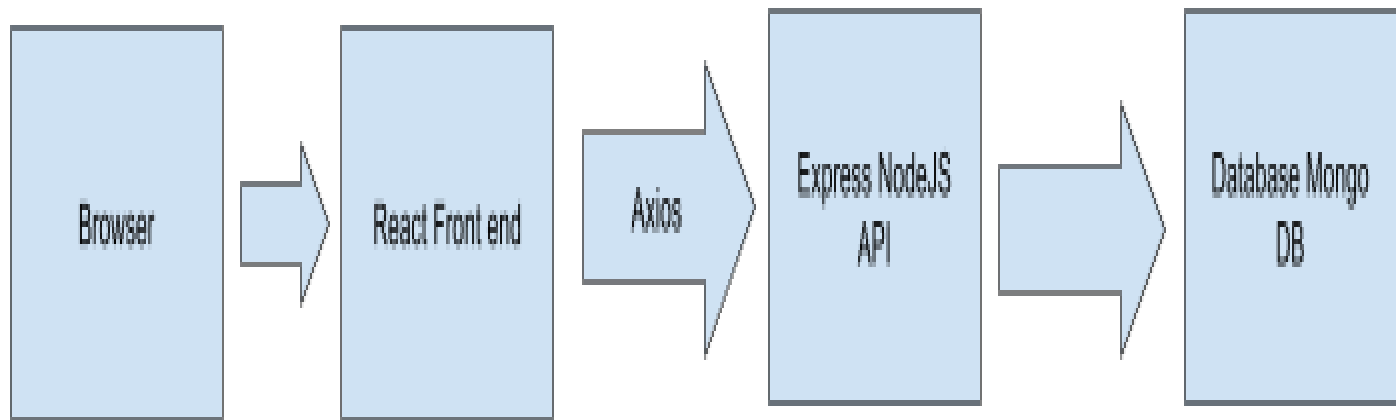
A school-based vaccination management portal that allows coordinators to manage students, schedule vaccination drives, and track overall immunization coverage. Built using a React-based frontend and a RESTful Node.js + Express backend.

Application Architecture

Tech Stack

| Layer | Technology |
|------------|----------------------------|
| Frontend | React (Vite), Tailwind CSS |
| Backend | Node.js, Express |
| Database | MongoDB + Mongoose |
| API Client | Axios |
| Testing | Postman / Thunder Client |

Architecture Diagram



4. 🔄 Frontend-Backend Interaction

- Login → Hardcoded validation (simulated admin access)
- Dashboard → GET /api/dashboard for aggregate metrics
- Students:
 - POST /api/students to add student
 - PUT /api/students/:id to edit
 - DELETE /api/students/:id to delete
 - GET /api/students to list
- Drives:
 - POST /api/drives to schedule drive
 - GET /api/drives to view upcoming drives

API Endpoints

| Method | Route | Description |
|--------|-------------------|----------------------------------|
| GET | /api/students | List all students |
| POST | /api/students | Add new student |
| PUT | /api/students/:id | Update student info |
| DELETE | /api/students/:id | Delete student |
| GET | /api/drives | List all drives |
| POST | /api/drives | Add vaccination drive |
| GET | /api/dashboard | Dashboard stats (counts, % etc.) |

API Tested Using

- Thunder Client (Visual Studio Code extension)

API response for adding student

The screenshot shows the Thunder Client interface in Visual Studio Code. The top bar indicates a POST request to `http://localhost:5000/api/students/` with a status of 201 Created, size of 216 Bytes, and time of 5 ms. The left pane shows the request body in JSON format:

```
1 {
2   "name": "Arjun Patel",
3   "studentId": "STD102",
4   "class": "7",
5   "vaccinated": false
6 }
7
```

The right pane shows the response body in JSON format:

```
1 {
2   "name": "Arjun Patel",
3   "studentId": "STD102",
4   "class": "7",
5   "vaccinated": false,
6   "_id": "682096da16db79a6d018e097",
7   "vaccinationRecord": [],
8   "createdAt": "2025-05-11T12:23:54.085Z",
9   "updatedAt": "2025-05-11T12:23:54.085Z",
10  "_v": 0
11 }
```

API response for adding vaccination drive

POST <http://localhost:5000/api/drives> Send

Status: 201 Created Size: 227 Bytes Time: 31 ms

Query Headers¹ Auth Body¹ Tests Pre Run

HTTP Headers Raw

- ☒ Content-Type application/json
- ☐ header value

Response Headers⁶ Cookies Results Docs

```
1 {
2   "vaccineName": "Polio",
3   "date": "2025-05-15T09:00:00.000Z",
4   "availableDoses": 100,
5   "applicableClasses": [
6     "5",
7     "6"
8   ],
9   "_id": "682094e2efd42814c2614fbd",
10  "createdAt": "2025-05-11T12:15:30.561Z",
11  "updatedAt": "2025-05-11T12:15:30.561Z",
12  "__v": 0
13 }
```

API response for getting dashboard

GET <http://localhost:5000/api/dashboard> Send

Status: 200 OK Size: 81 Bytes Time: 8 ms

Query Headers¹ Auth Body Tests Pre Run

HTTP Headers Raw

- ☒ Content-Type application/json
- ☐ header value

Response Headers⁶ Cookies Results Docs

```
1 {
2   "totalStudents": 2,
3   "vaccinated": 0,
4   "unvaccinated": 2,
5   "vaccinatedPercentage": "0.00"
6 }
```

Database Schema

Student Model

```
{  
  name: String,  
  studentId: String,  
  class: String,  
  vaccinated: Boolean (default: false),  
  vaccinationRecord: [ { vaccineName: String, date: Date } ]  
}
```

Drive Model

```
{  
  vaccineName: String,  
  date: Date,  
  availableDoses: Number,  
  applicableClasses: [String]  
}
```

Instructions to Run

Backend

```
cd backend  
npm install  
npx nodemon server.js
```

(Requires: MongoDB running locally (via Compass or service))

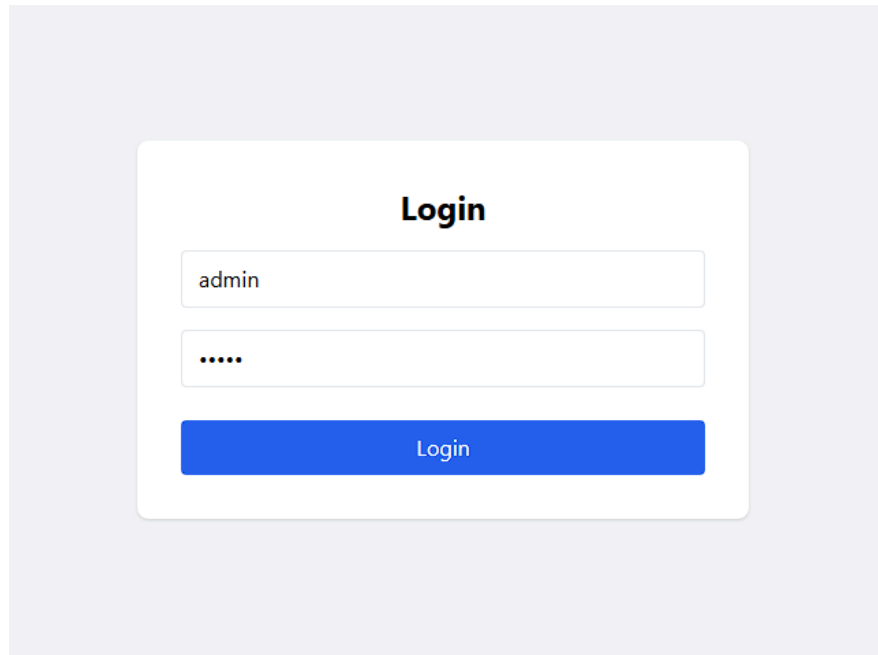
Frontend

```
cd frontend  
npm install  
npm run dev
```

Visit: <http://localhost:5173>

Snapshots

Login Page

A screenshot of a login page. It features a light gray background with a white rounded rectangle in the center. Inside the rectangle, the word "Login" is centered at the top. Below it are two input fields: the first contains the text "admin", and the second contains five dots. At the bottom of the rectangle is a blue button with the text "Login" in white.

Login

admin

.....

Login

Main Portal page

Vaccination Portal

[Dashboard](#) [Add/Edit Students details](#) [Vaccination Drives](#)

Vaccination status dashboard

Vaccination Dashboard

| | | |
|---------------------|-----------------|-----------------------|
| Total Students 2 | Vaccinated 0 | Vaccinated % 0.00% |
|---------------------|-----------------|-----------------------|

Upcoming Drives (Next 30 Days)

| |
|--|
| Polio Date: 5/15/2025 Doses: 100 Classes: 5, 6 |
| Influenza Date: 5/17/2025 Doses: 50 Classes: 6 |

Students page

Manage Students

Add

| Name | Student ID | Class | Actions |
|-------------|------------|-------|---------------------------|
| Arjun Patel | STD102 | 7 | <a>Edit <a>Delete |
| abc xyz | STD103 | 8 | <a>Edit <a>Delete |

Manage vaccination drives page

Vaccination Drives

Add Drive

| Vaccine | Date | Doses | Classes |
|---------|-----------|-------|---------|
| Polio | 5/15/2025 | 100 | 5, 6 |