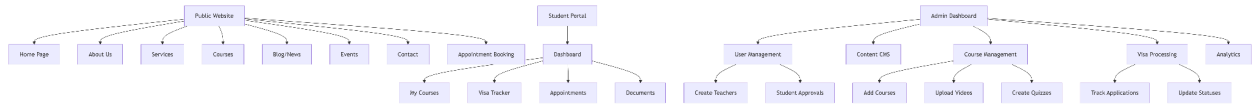


# System Design for Northern Lights Consultancy

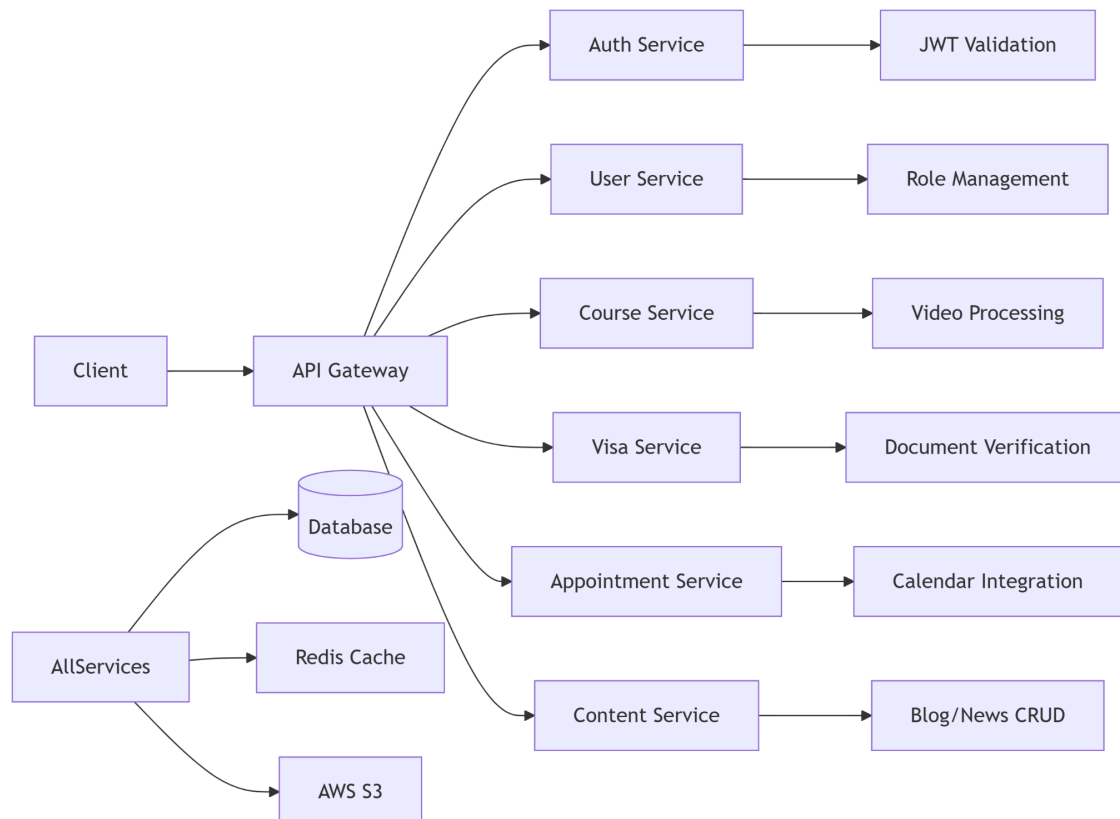
## 1. Frontend Architecture



### Key Components:

- Next.js/React framework
- Responsive design with Tailwind CSS
- Role-based routing (public/student/teacher/admin)
- Integrated calendar for appointments

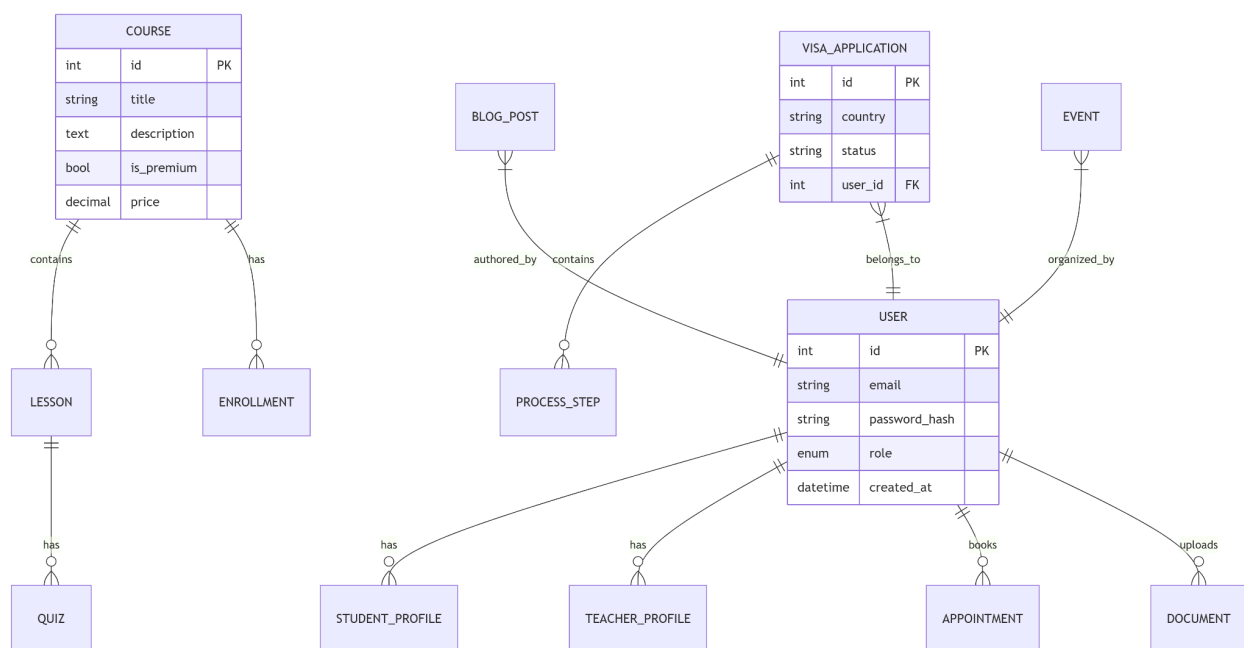
## 2. Backend Architecture



## Microservices Breakdown:

1. Auth Service: Handles JWT, OAuth, session management
2. User Service: Manages profiles, roles, permissions
3. Course Service: LMS functionality with video streaming
4. Visa Service: Document workflow and status tracking
5. Appointment Service: Booking system with Zoom integration
6. Content Service: Blog/news/events management

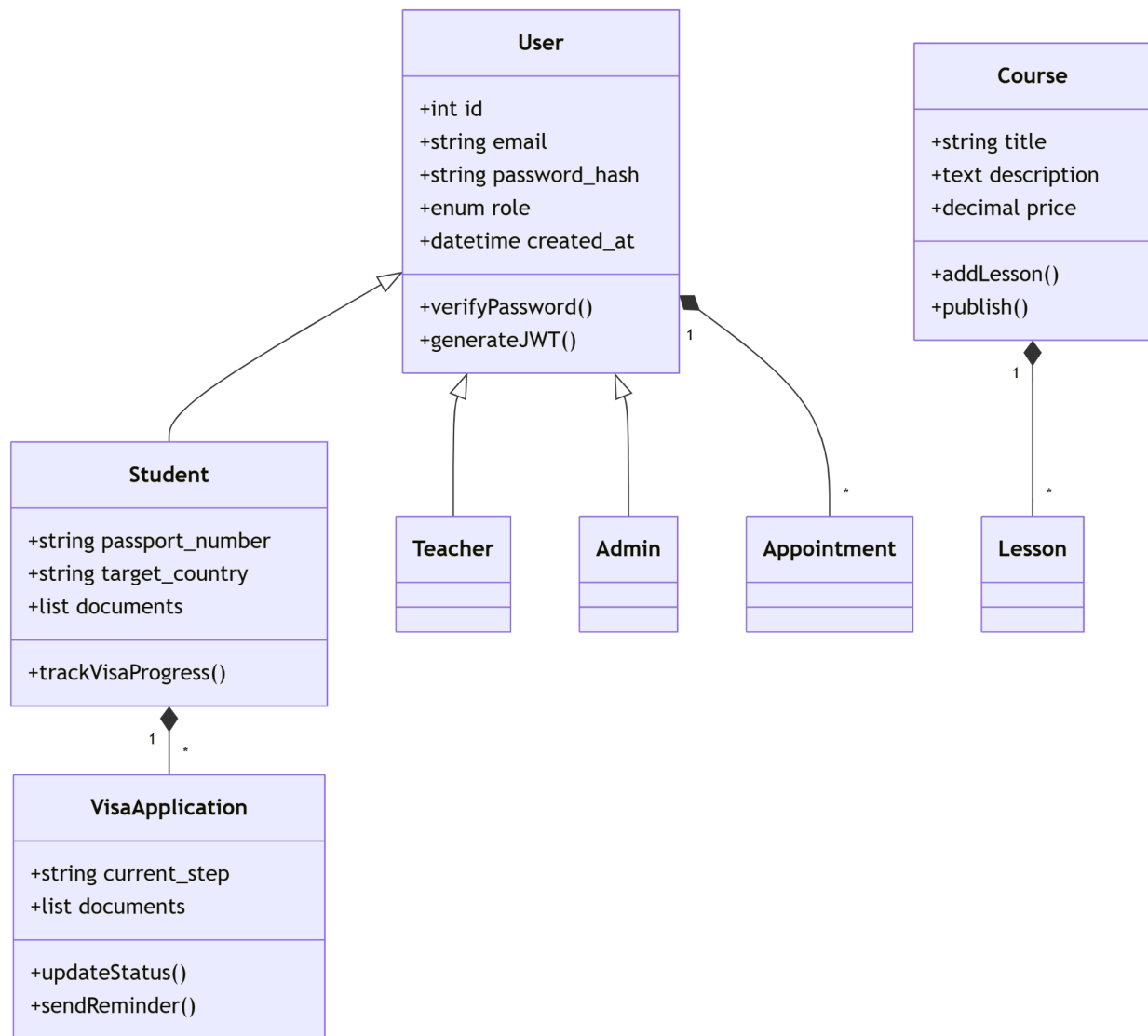
## 3. Database Schema



## Complete Schema Includes:

- 15+ tables with proper relationships
- Indexes on all foreign keys
- JSON columns for flexible data (e.g., course modules)
- Soft delete pattern for all tables

## 4. UML Class Diagram



Key Methods Shown:

- Authentication flows
- Visa status updates
- Course publishing logic
- Appointment scheduling

## 5. API Endpoint Matrix

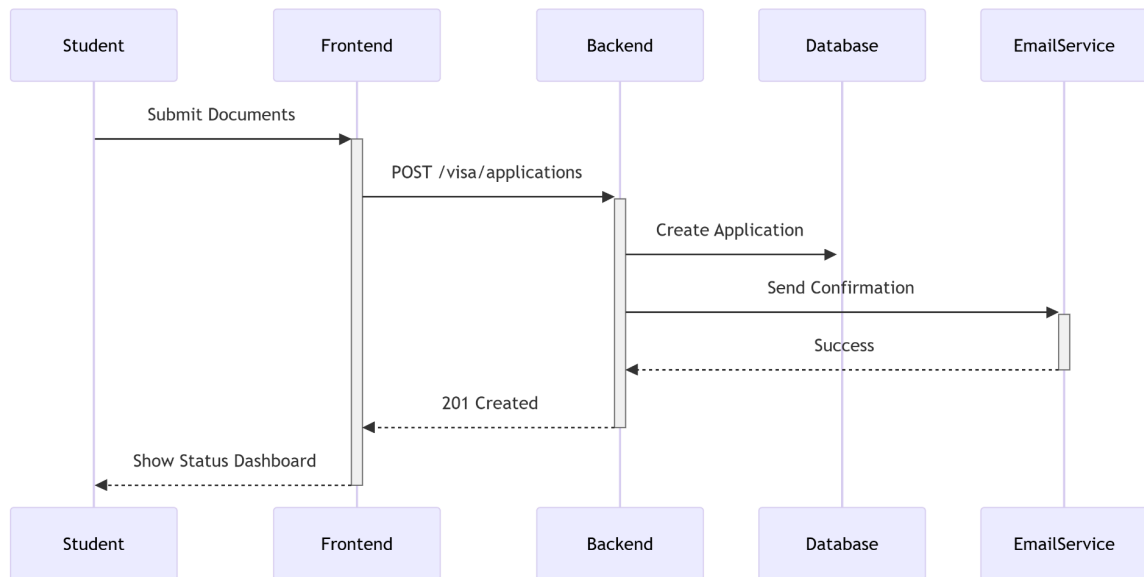
Module	Endpoint	Method	Parameters	Response
Auth	/auth/login	POST	email, password	JWT token
Users	/users/teacher s	POST	name, bio, courses	Teacher profile
Courses	/courses/:id/e nroll	POST	user_id	Enrollment record
Visa	/visa/:id/step s	PATCH	step_name, status	Updated application
Appointments	/appointments/ slots	GET	date	Available time slots

Security:

- Rate limiting on auth endpoints
- RBAC middleware for all routes
- Data validation at API gateway

## 6. Sequence Diagrams

Visa Application Flow:



## Course Enrollment:

