

Jaeger.AI - Use Cases and Database Queries  
Course Project - Part 3: Web Application  
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Date: December 4, 2025

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### 1. USER REGISTRATION & AUTHENTICATION

#### Use Case 1.1: User Registration

Description: A new student creates an account to begin tracking job applications.

#### User Actions:

- Navigate to /register
- Fill out name, email, password, optional phone
- Click Register

#### Backend Query (Prisma ORM → SQL):

Checks if email exists, then inserts a new user with hashed password.

Security: bcrypt hashing, prepared statements, uniqueness constraint.

API Endpoint: POST /api/register

#### Use Case 1.2: User Login

User enters email and password. Backend retrieves user and checks bcrypt hash.

Security: NextAuth session, HTTP-only cookies.

API Endpoint: NextAuth credentials callback.

#### Use Case 1.3: Session Validation

Every protected route verifies JWT in memory via NextAuth middleware.

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## 2. JOB APPLICATION MANAGEMENT

#### Use Case 2.1: Create New Application

User fills job details and submits. Backend upserts job\_posting and inserts application\_entry.

Security: Student email from session only.

API Endpoint: POST /api/jobs

#### Use Case 2.2: View All Applications

User sees dashboard with all application details.

Backend retrieves:

- Applications joined with job postings and user
- Folder assignments
- Interviews
- Reminders
- Documents
- Folder counts

Features displayed: statuses, job info, folders, interviews, reminders, documents.

#### Use Case 2.3: Update Application Status

User selects new status from dropdown.

Backend updates only if student\_email matches.

API Endpoint: PATCH /api/jobs/[id]

#### Use Case 2.4: Delete Application

Backend verifies ownership then deletes entry, cascading interviews, reminders, documents, and folder assignments.

API Endpoint: DELETE /api/jobs/[id]

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### 3. INTERVIEW SCHEDULING

#### Use Case 3.1: Schedule Interview

User fills interview type, date/time, notes.

Backend verifies application ownership then inserts interview.

API Endpoint: POST /api/applications/[id]/interviews

Interview Types: PHONE, VIDEO, ONSITE, TECHNICAL, BEHAVIORAL

#### Use Case 3.2: View Upcoming Interviews

Fetches along with applications, sorted by date.

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### 4. REMINDER MANAGEMENT

#### Use Case 4.1: Set Reminder

User sets deadline, follow-up, prep reminder, etc.

Backend verifies ownership then inserts reminder.

API Endpoint: POST /api/applications/[id]/reminders

#### Use Case 4.2: View Reminders with Overdue Detection

Frontend marks reminders red if past due, yellow if upcoming.

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### 5. DOCUMENT UPLOAD

#### Use Case 5.1: Upload Document

User uploads resume, cover letter, or other document.

Backend verifies ownership, saves file to /public/uploads/, inserts record.

Document types: RESUME, COVER\_LETTER, OTHER

API Endpoint: POST /api/applications/[id]/documents

#### Use Case 5.2: View and Download Documents

Displayed on application cards; clicking opens file.

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## 6. FOLDER ORGANIZATION

### Use Case 6.1: Create Folder

Backend inserts application\_folder for current user.

API Endpoint: POST /api/folders

### Use Case 6.2: Assign Application to Folder

Backend verifies user owns folder and application, then inserts assignment (many-to-many).

API Endpoint: POST /api/folders/[id]/assign

### Use Case 6.3: Filter Applications by Folder

Client-side filtering only.

### Use Case 6.4: Remove Application from Folder

Backend deletes folder assignment.

API Endpoint: DELETE /api/folders/[id]/assign

### Use Case 6.5: Delete Folder

Backend verifies ownership, deletes folder and its assignments.

API Endpoint: DELETE /api/folders/[id]

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## 7. SEARCH & FILTERING

### Use Case 7.1: Search Applications by Company or Job Title

Client-side filtering across all applications.

Supports Part 2 Query 4d: searching for “Google”.

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## 8. PART 2 QUERY SUPPORT

### Query 4a: Show all upcoming interviews

Client filters interviews where interview\_datetime > now.

### Query 4b: Show all rejected applications

Client filters applications where status = REJECTED.

### Query 4c: Show user names and jobs they track

SQL join of student\_user, application\_entry, and job\_posting.

Query 4d: Show all job postings from “Google”  
Client search filter on company name.

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## SECURITY IMPLEMENTATION SUMMARY

### Prepared Statements:

All Prisma queries use SQL parameters (placeholders like \$1, \$2). Prevents injection.

### Session Management:

NextAuth JWT sessions stored in HTTP-only cookies.

### Authorization Checks:

Every API route validates ownership with student\_email.

### Password Hashing:

bcrypt with 10 salt rounds.

### XSS Prevention:

React escapes HTML; no unsafe HTML rendering features used.

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## TECHNOLOGY STACK

Framework: Next.js 16 (App Router)

Language: TypeScript

Database: PostgreSQL (Neon Cloud)

ORM: Prisma 6.19

Authentication: NextAuth.js v5

Password Hashing: bcrypt

Styling: Tailwind CSS

UI Components: shadcn/ui

State Management: React Server + Client Components

File Upload: Next.js FormData API

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## CONCLUSION

The Jaeger.AI web app provides a complete job application tracking system with:

- 8 fully implemented database tables
- 30+ organized source files

- Over 20 API endpoints
- 15+ UI components
- Full CRUD operations across jobs, interviews, reminders, documents, folders
- Many-to-many folder organization
- Robust search/filtering
- Real-time updates and overdue detection
- Strong security: prepared statements, authorization, sessions, bcrypt, XSS protection

All Part 2 queries are supported through the UI, and all Part 3 requirements are fully satisfied.