

Assignment Senior Backend Engineer

- Amrutam



Senior Backend Engineer - Amrutam

Build a production-grade backend for Amrutam's telemedicine system focusing on scalability, reliability, security, and observability.

Deliverables include code, infra as code, design docs, automated tests, and documentation.

Deliverables

1. Git repo with code and infra
2. README with setup
3. OpenAPI/GraphQL schema
4. Architecture doc (2–4 pages)
5. Tests and CI pipeline
6. Observability setup
7. Security checklist and threat model

Problem Scope

Implement core workflows:

- User lifecycle (auth, roles)
- Doctor availability and booking
- Consultation lifecycle and prescriptions
- Search and filtering • Compliance and audit trails
- Admin analytics. System Requirements
- Scale: 100k daily consultations
- Latency: p95 <200ms reads, <500ms writes
- Availability: 99.95% • Security: encryption, MFA, RBAC
- Observability: metrics, logs, traces
- CI/CD with containerized deployment.

Architecture Tasks

1. High-level architecture and data flow
2. Booking flow sequence diagram
3. ER diagram
4. API schema
5. Retry & backoff strategies
6. Data partitioning
7. Caching and concurrency handling
8. Transaction management and sagas
9. Backup and DR strategy.

Implementation Guidelines

- Language: Node.js, Go, or Python
- DB: PostgreSQL (Redis optional)
- REST or GraphQL API • Modular services with DI
- Idempotency for writes
- Async jobs for heavy tasks
- Rate limiting and input validation
- Secrets via env vars.

Security & Threat Modelling Include OWASP mitigation, attack surface analysis, data classification, encryption, key rotation, audit logs, and dependency scanning.

Data Model Core tables: users, profiles, doctors, availability_slots, consultations, prescriptions, payments, audit_logs.

Evaluation Rubric

Architecture – 20

Core Flows – 20

Code Quality – 15

Security – 10

Observability – 10

Scalability – 10

Infra/CI – 10

Bonus – +10 Fail if critical security or idempotency is missing.

Time Expectation: 4–5days.

Submit repo, docs, and 5-minute demo video.

Life at Amrutam



Life at Amrutam

At Amrutam, we're not just a company; we're a family. We're a modern-day Ayurvedic and wellness brand that believes in the power of ancient recipes to solve modern problems. Our company culture is built on trust, respect, and a strong sense of community, ensuring that everyone feels valued and supported.



Retreat 2025, Amrutam HQ - Gwalior

Our Core Values: The 5 Fs

Our philosophy is guided by five core values that shape everything we do:

- **Family:** We foster a supportive and close-knit environment where everyone feels like they belong.
- **Faith:** We have faith in our mission, our products, and most importantly, in our people. We believe in your ability to take ownership of your work and make a real impact.
- **Future:** We are forward-thinking, constantly innovating, and committed to providing opportunities for personal and professional growth. We're building a sustainable legacy for generations to come.
- **Freedom:** We champion autonomy and trust. You'll have the freedom to manage your work, make decisions, and contribute your unique ideas.

- **Frugality:** We are resourceful and mindful of our resources. This value promotes smart, sustainable decisions and a commitment to avoiding waste in all aspects of our business.

We believe that a culture of **autonomy** and a strong **community vibe** is the key to creating an engaging and fulfilling workplace. If you're looking for a place where you'll be trusted, respected, and empowered to do your best work, Amrutam could be the perfect fit for you.

Recruitment Process @ Amrutam

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Our recruitment process generally involves the following stages:

1. Carefully Review the Job Description (JD):

- This is the first and most important step. The Job Description outlines the responsibilities, required skills, and qualifications for the specific role.
- We advise you to thoroughly review the JD to:
 - Understand the core responsibilities and day-to-day tasks.
 - Identify the essential and preferred skills we are looking for.
 - Assess if your qualifications and experience align with our requirements.
 - Determine our expectations for the role.
 - Check for any specific application instructions.

2. Complete the Assignment to Submit Your Application:

- For certain roles, we use assignments as part of the application process.
- This step typically involves:
 - Receiving a specific task or project related to the job role. This could be a coding challenge, a writing sample, a design project, or a case study.
 - Completing the assignment within the given timeframe.
 - Submitting the completed assignment along with your application on the [form here](#)
- The assignment allows us to evaluate your practical skills, problem-solving abilities, and how you apply your knowledge.
- *Specific Example:* For some technical roles at Amrutam, you might be asked to complete a coding task, such as developing a small application.

3. Group Discussion (GD) Round:

- If your application and/or assignment are shortlisted, you may be invited to a Group Discussion.
- A GD typically involves:
 - Discussing a given topic with a group of other candidates (usually 5-10).
 - Being observed by assessors who evaluate various skills.



The GD round helps us assess your:

- Communication skills: How clearly and effectively you express your ideas.
- Listening skills: How attentively you listen to others' viewpoints.
- Teamwork: How well you interact with other group members.
- Leadership: Whether you can lead the discussion or contribute meaningfully.
- Problem-solving: How you analyze the topic and contribute to finding solutions.
- Confidence and assertiveness: How confidently you present your opinions.

2. Personal Interview (PI):

- Candidates who perform well in the GD round are usually invited to a Personal Interview.
- The PI is a one-on-one interaction between you and an interviewer (or a panel of interviewers).
- During the PI, we aim to:
 - Evaluate your overall suitability for the role and our company culture.
 - Assess your technical skills and experience in detail.
 - Explore your career goals, motivations, and expectations.
 - Determine your personality, attitude, and communication style.
 - Verify the information provided in your resume and application.
- Please be prepared to answer common interview questions, such as:
 - "Tell me about yourself."
 - "Why are you interested in this position?"
 - "What are your strengths and weaknesses?"
 - "Why Amrutam?"
 - Questions related to your previous experience and the job description.

3. Final Results:

- After all the interview rounds are completed, we evaluate the performance of each candidate.
- The final results are announced, and successful candidates receive an offer of employment.

- The method and timing of the announcement will be communicated to you.

Submission Guidelines



Submission Guidelines

Written Submission

Prepare your assignment as a **Google Document, PDF, or PowerPoint/Google Slides** presentation.

Your document should clearly outline your **approach, strategy, and action plan** as a **Senior Backend Developer**, based on the provided case scenario.

Your written submission should include:

- Your understanding of the backend architecture and system requirements.
- A step-by-step approach to designing, developing, and optimizing backend systems.
- Strategies to ensure scalability, reliability, and security of the backend.
- Tools, technologies, and coding practices you would use to achieve efficiency and maintain high performance.

Video Submission

Along with the written assignment, record a **short video presentation (2–4 minutes)** explaining your thought process and strategy.

In your video, you should:

1. **Walk us through your proposed backend development plan** — explain your design choices, workflow, and technical decisions.
2. **Explain the reasoning (“why”)** behind your approach — why you chose specific tools, frameworks, or architectures.
3. **Share why you believe you are the right fit for the Senior Backend Developer role** — highlight your technical expertise, problem-solving skills, and experience with backend technologies.

Submission Deadline

Submit both your **written document** and **video link** within **seven (4-5) days** from receiving this assignment.

[*Submit your assignment here*](#)

Evaluation Criteria

Your submission will be assessed on your technical understanding of backend systems, strategic thinking in design and implementation, and practical application of modern tools and coding standards. It will also evaluate your problem-solving skills and how effectively you communicate your ideas while demonstrating your fit for the Senior Backend Developer role.