Requirements

You need to implement **two main modules**, following **REST principles**, **Domain-Driven Architecture**, and using **TypeScript** with a **relational database** (like PostgreSQL).

Module 1: AI Chat Module

- Accepts a user question.
- Returns a **mocked OpenAI response.**
- Stores the question, answer and tokens in the database.
- Track monthly usage per user:
    - Each user gets 3 free messages per month.
    - After that, a valid subscription bundle is required.
- Support multiple active bundles per user with different tiers:
    - Basic (10 responses).
    - Pro (100 responses).
    - Enterprise (unlimited).
- Deduct usage from the bundle with the latest remaining quota.
- Auto reset free quota on the 1st of each month.
- Throw structured errors if the user exceeds quota.
- Constraints:
    - Simulate Open Ai Api response time delay (mocked).

Module 2: Subscription Bundle Module

- Allow users to:
    - Create subscription bundles (`Basic`, `Pro`, `Enterprise`)
    - Choose billing cycle: monthly or yearly
    - Toggle auto-renew
- Each subscription includes:
    - `maxMessages`, `price`, `startDate`, `endDate`, `renewalDate`
- Simulate billing logic:
    - Auto-renew subscriptions if enabled
    - If "payment fails" (randomly), mark subscription inactive
- Support cancellation:
    - Ends current billing cycle
    - Prevents renewal
    - Preserves usage history

Architecture

- Use **Clean Architecture (DDD-style)**
- Layers: `domain/entities`, `services`, `repositories`, `controllers`
- Organize modules independently (e.g., `chat/`, `subscriptions/`)
- TypeScript-first.
- Configure prettier and Eslint.

Submission Guidelines

Please follow the instructions below carefully:

1. **Create a public GitHub repository** to manage your code.
2. **Name the repository using your full name.**
3. **Add a `README.md` file** that clearly explains your code and any other relevant details.
4. **Upload the provided test PDF file** to the repository as part of your submission.
5. Once you've completed the task,**reply to this email with the link to your GitHub repo.**

Deadline: You have **48 hours** to complete this task.

Submissions will not be entertained after the deadline.