Xeni Starter Project

Goal:

Design and implement a backend **Rate Limiter Service** that enables clients (applications or services) to register and enforce request rate limits. The system should support multiple rate-limiting strategies and be designed with extensibility in mind.

Core Requirements
Your task is to build a service that

1. Register a client/application
    - Each client should have a unique key(could be application name or a generic key with app name as a separate field)
    - Rate limiting should be defined as number of requests per time window(1000 requests per minute)
2. Enforce Rate limits
    - Implement at least one rate limiting strategy
    - You may use fixed window strategy
    - Sliding window - optional
3. Check request Eligibility
    - Provide an api end point that accepts a client key or app name and timestamp and respond whether is rate limited or allowed
4. Extensibility:
    - Design in such a way that you can extend the logic to use token-bucket, quota based algorithms.
5. Storage:
    - Use in memory data structure. Not required to have DB setup. The system should not lose state while execution but across restarts it doesnt need to maintain state.

Deliverables:

- Working code base in a github repo or zip file
- Setup instructions(Readme file)
- Clean code with test cases
- Crisp and short design document