

Homework: Senior Software Engineer

An Overview

At Axon Software Engineers highly engaged in multiple phases of product development: ideate, design, implement, release and operate the features, end-to-end. We seek for engineers with clear communication, constantly seek for improvements, logical thinking, good computer science fundamental and coding skill. In this homework, we expect candidates to demonstrate their ability to write a clear technical design document, good rationale on technical decision and last but not least, implementation skill.

Problem Statement

Axon is building a Call For Service (CFS) management service with the following requirements

1. **User** should be able to create a **CFS** with the following information: event number, event type (with type code), event time, dispatch time, responder.
2. User should be able to search for CFS within a time range with paging and sorting order.
3. User should be able to search for CFS that assigned to a responder.
4. CFS belongs to different agencies are not allowed to be exposed to other agencies.
5. User and **responder** should belong to only one **agency**.

Your task is to design CFS service to support the above requirements and implement the API to support CFS search by time range.

Samples

An CFS event in JSON

```
{
  "agency_id": "4f9b99eb-490a-484e-bade-15e3841dfda9",
  "event_id": "562c89de-f140-4482-8ef5-5f1703b286b6",
  "event_number": "3234019",
  "event_type_code": "SMO",
  "event_time": "2020-11-25 07:36:04.193",
  "dispatch_time": "2020-11-26 13:55:46.466",
  "responder": "OFFICER_001"
}
```

Requirements

As a senior engineer, you are going to take lead a team of talented people, leading the designs and implements phase that involve multiple features or components to ensure the efficient end-to-end, integration and component of our product.

- You are going to create a well-written technical design document includes
 - System design, with detailed reasons to support your decision
 - Data models and database design.
 - API contracts
- You are going to define a test plan, define metrics that measure quality of this products, break it down, and come up with a plan to support your team deliver it

Expectation

Please prepare a document to describe your plan to tackle on every requirement above.

- We'd like to have an understanding about your technical aptitude, so we highly prefer you provide a Github project, where you define your selected tools, as well as how you're going to setup your project to kick off the product
- We'd like to see your plan to delivery this product

Please take your time to complete this document. We'd like to review it carefully, and use it as an topic to talk with you in more details in the next interview session.

Time limit

- There is no hard time limit for this homework. But we expect to receive your solution **within 1 week**.

Good luck,
The Axon team