Take-Home Assignment

HTTP Round Robin API

Goal: Write a Round Robin API that receives HTTP POSTS and routes them to one of a list of Application APIs

CREATE A SIMPLE API

Create a simple APPLICATION API with one endpoint that accepts an HTTP POST with any JSON payload. The API will respond with a successful response containing an exact copy of the JSON request it received. The request and response structure can be any valid JSON, but below is a good example to follow.

For example if you post:
{"game":"Mobile Legends", "gamerID":"GYUTDTE", "points":20}
Your API should respond with an HTTP 200 success code with a response payload of:
{"game":"Mobile Legends", "gamerID":"GYUTDTE", "points":20}

You should be able to run multiple instances of this API (for example, on different ports)—for your demo, you should have at least three instances.

CREATE A ROUTING API

Create a ROUND ROBIN API that will receive HTTP POSTS and send them to an instance of your application API. The round robin API will then receive the response from the application API and send it back to the client.

You should be able to configure the round-robin API with a list of application API instances. For example, if you run 3 instances of the application API, then the round-robin API will need the addresses of these instances.

When the round robin API receives a request, it should choose which application API instance to send the request to on a round robin basis. Therefore, if you have 3 instances of the application API, then the first request goes to instance 1, the second to instance 2, the third to instance 3, etc

Please code the logic for round robin yourself, and don't rely on an external framework or library to provide this functionality. It's okay to use frameworks to create the HTTP API and service basics, but for round robin logic, we would like you to code this yourself.

These are the basic requirements of the code, but here are some things for you to consider:

- How would my round robin API handle it if one of the application APIs goes down?
- How would my round robin API handle it if one of the application APIs starts to go slowly?
- How would I test this application?

You may write the code in any language and then share it with us before the demo (git, Bitbucket, or zip file is fine—we just want a chance to review your code before the interview). During the demo, you will share your screen and review the code live in your IDE with our interviewers.

We want to be respectful of your time, so please time-box how much effort you put into this. Most of all, have fun writing the code!

Note: You may use any tools you normally use for development, including AI-assisted ones.