Fetch Take-Home Exercise — Site Reliability Engineering

I am implementing here a Python program to check the health of HTTP endpoints based on the requirements. I am breaking this down into steps along with explanations.

1. I am importing necessary libraries: sys for command-line arguments, yaml for parsing YAML files, requests for making HTTP requests, time for sleeping between checks, collections.defaultdict for easier counting, and urllib.parse for extracting domains from URLs.
2. The load\_config function reads and parses the YAML configuration file.
3. The check\_endpoint function performs the actual health check for a single endpoint. It sends the HTTP request, measures the latency, and determines if the endpoint is UP or DOWN based on the criteria specified.
4. The main function is the core of the program. It:
   * Loads the configuration
   * Initializes counters for total checks and successful checks
   * Enters an infinite loop (until the user interrupts)
   * Checks each endpoint every iteration
   * Calculates and prints the availability percentage for each domain
   * Sleeps for 15 seconds between iterations
5. The script accepts a command-line argument for the configuration file path.

To use this script:

1. File has been shared e.g., health\_checker.py
2. Run it from the command line: python health\_checker.py path/to/abc/config.yaml

The script will continue running and printing availability percentages every 15 seconds until we stop it (e.g., by pressing Ctrl+C).

Just to add fyi.. that this script uses the requests library, which might need to install using pip:

pip install requests pyyaml

Above implementation is going to meet all the requirements asked in the document to cover and expected result will be below.

* It reads the YAML configuration file
* It checks endpoints every 15 seconds
* It calculates availability percentage per domain
* It logs results to the console after each check cycle
* It handles optional fields in the YAML configuration (method, headers, body)
* It rounds availability percentages to the nearest whole number

FAQ

How will my solution be graded?

An engineer will review the code you submit. At a minimum, they must be able to run the code and it must produce the expected results. While your solution does not need to be fully production-ready, you are being evaluated, so put your best foot forward.

What programming language should I use?

You may use any language. Choose something that allows you to showcase what you know.

Can I use third-party open source software?

Yes, you may use publicly available third-party open source software to assist with your solution. If you include third-party components, you should ensure that your solution’s instructions allow the exercise reviewer to successfully build and run your code.

How do I submit my solution?

We strongly recommend uploading your solution to a publicly accessible git-based repository system (e.g. Github, Gitlab, Bitbucket). This will allow the fastest and easiest way for the reviewer to assess your solution.

Do I need to provide instructions to the reviewer in my repository? You should assume that the reviewer has no familiarity with your programming language of choice. You should therefore provide instructions in a README or similar format on how to build and run your solution. Keep in mind that the exercise reviewer may have a different operating system or software installed on their local machine, so make minimal assumptions in your instructions.

Should I use a durable data store (e.g. disk, SQL/NoSQL databases) for keeping track of availability percentages?

Definitely not. For the purposes of this exercise, it is fine to use a suitable data structure in your application’s memory to keep track of and log the expected program output over time as each testing cycle completes. We do not expect your solution to persist data durably across multiple executions of your program.

How long do I have to complete the exercise?

There is no time limit for the exercise. We have designed the exercise so that it should take a few hours. But please take as much time as you need to put your best solution forward.

I have a question about the problem statement.

Use your best judgment to design and implement a program that meets the requirements of the prompt. Anything not explicitly stated is left to your discretion.