Engineering Exercise - Anomaly Detections IP

Introduction

This exercise is to be considered a simulation of what it would be like for you and our team to work together. We will assume, hypothetically, that you are creating this project as an Auth0 offering for the Anomaly Detections team. You may ask us questions, discuss topics and ideas, get code reviews, etc.

While this is a simulation, there are limits:
- You may not delegate work to us; that would take away all the fun.
- We may not often provide definitive answers to all questions. We like to talk through ideas and understand your thought process.

It's important to note that under no circumstance will we ever use the code you create. Feel free to put restrictive licenses on your code and any documents if you are concerned and would like to take extra measures. We value transparency and want to be very upfront that the exercise is not an attempt to get free work done.

Challenge

As part of our anomaly detection offering (https://manage.auth0.com/#/anomaly) we would like to provide the possibility of optionally not allowing traffic from untrusted IP addresses.

The scope of this exercise is to create a service that can determine whether a given IP address is allowed or blocked on this source: https://github.com/firehol/blocklist-ipsets. If the IP is determined to be blocked, helpful information, such as the source and other metadata, should be returned with the response.

Functionality

The service must:
- Self update whenever there are new entries in https://github.com/firehol/blocklist-ipsets. No manual intervention should be required.
- Must be able to reply to requests very quickly. To provide some context: every login attempt will result in a request to this service, so any unnecessary delay in the replies will also affect the latency of the login request.
- Include scripts or similar components that can run a benchmark against a setup of the service and report the results.

Additionally, we ask that you create a UI where you can send IPs to an endpoint on, or communicating with, your service, and display results on a web page. This requirement serves two purposes; it provides:

- A simple way for you to test your service
- A way for us to evaluate your front-end skills

Although the point of the exercise is to develop a prototype, please make sure you have a plan for production release. Deployment is not necessary, but you should have a strategy in mind for how you could take it to the next level.

Goals

The skills we assess in this exercise, in no particular order:

- Coding skills
- Research ability
- Written communication and interaction
- Autonomy
- Expectation management
- Attention to detail
- Customer orientation

The idea is to iterate over it, so you can get an idea of the way we work and we can get an idea of how you work, based on a real life task. We would encourage you to put your code in GitHub and share with us as early as possible, but please do so in a private repository. We do use the same exercise for multiple candidates so we try to keep it secret. If you don't already have access to GitHub Private Repositories, please let us know and we'll be happy to provide one for you.

Please, while you are doing the exercise, track the effort you invest in the exercise. We know that you are not dedicated to this full-time, so it's useful for us to understand the time you spent on tasks.

The exercise should take ~7 days wall clock time. If you believe it will take you longer, please let us know and we can see how to best approach the situation.