Light Links Take Home Assessment - Software Intern

Overview

Welcome to the Light Links take-home assignment! This assignment is designed to assess your skills and problem-solving abilities in a flexible environment. Please read the instructions carefully and submit your work by the specified deadline.

Assignment Details

Objective

Build a simple TCP proxy demonstrating your ability to quickly learn and/or demonstrate network fundamentals and protocols. This assignment is the opportunity to demonstrate your knowledge with computer networks, problem-solving skills, and creativity. A simple, and **reliable** program is the ultimate objective but also in this case subjective. We encourage you to use any resources available to meet the deliverables and cover desired functionality to meet the short deadline imposed.

Deliverables

1. A GitHub repository link with your code.
2. A short README.md explaining your approach, decisions made, and instructions to run the project.
3. A markdown file for citations listed and is mentioned in README.md
4. This document included within your repository and mentioned in README.md
5. Any and all design documents made in-preparation or while completing the task.

Instructions

Requirements

- Any language, and most libraries are allowed. We recommend reducing reliance on libraries if possible.

- Interoperable: Support Windows, MacOS, and Linux to the best of your ability
- Well formatted and documented code

Tasks

1. **Command Line Arguments**
   - Provide command line arguments for `ip, port, server`
     - Server format is `"ip:port"`
2. **Signal Handling**
   - Handle signal interrupts and errors with helpful messages
3. **Basic TCP Proxy Functionality**
   - Successfully handles TCP connections and relays to target server.
     - Handle HTTP Request/Responses
     - Handle basic API calls Unencrypted
4. **Get Creative**
   - Add your own spin to the project. This is the opportunity to build, and express yourself.
5. **Cite any and all sources you include**
   - As an example something like:

```
https://chatgpt.com/
https://stackoverflow.com/questions/tagged/tcp
etc
```

> **Note**
>
> Using Gen-AI, Co-Pilots, Online Forums, or any other resource is allowed for this assessment. However this does not mean we support or accept plagarism

Evaluation Criteria

We will evaluate your submission based on:

- **Functionality:** Does your solution meet the requirements?
- **Code Quality:** Is your code clean, readable, and well-documented?
- **Design & Architecture:** Did you structure your code effectively?
- **Creativity:** Any additional features or unique approaches.

- **Testing:** Are there sufficient tests for your solution?
- **Performance**: How well does your program operate under different hardware and configurations

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Submission Guidelines

1. **Deadline:** December 4, 2024, at 11:59PM PST
2. **Submission Format:** Email us a link to your public Github repo at contact@lightlinks.co
3. **Contact:** Please reach out via contact@lightlinks.co if you have any questions or wish to submit earlier than the deadline. We will only consider your latest submission (Commit)

CLI example

Examples of command line arguments requirements. Additional arguments or long vs short syntax is up to you, but should be defined in your README

`Python example`

```
python3 tcpproxy.py --ip 127.0.0.1 --port 5555 --server "192.168.5.2:80"
```

`C example`

```
tcpproxy --ip=127.0.0.1 --port=5555 --server="192.168.5.2:80"
```