Exercise Description

Objective:
Build a simple, content-filtering HTTP proxy server. This proxy will sit between a web browser and a web server, forwarding traffic and blocking certain content based on a keyword.

Scenario:
Your proxy will act as a middleman. When you configure your browser to use it (or simply navigate to its address), the following will happen:

1. Your browser sends an HTTP request to your proxy.
2. Your proxy forwards this request, completely unchanged, to a predefined target web server (e.g., `ggombos.web.elte.hu`).
3. The web server sends an HTTP response back to your proxy.
4. Your proxy inspects this response.
    - **Default Case:** If the response is normal, the proxy forwards it, completely unchanged, back to your browser.
    - **Filtering Case:** If the response from the server contains the specific string `"SzamHalo"`, your proxy must **block** the response. Instead of forwarding it, your proxy will generate and send its own `HTTP 404 Not Found` error page back to the browser.

Architecture:
The data flow will look like this:

```
[Web Browser] <---TCP---> [Your Proxy] <---TCP---> [Target Web Server]
```

Your Task:
Complete the `netProxy_exercise.py` file by filling in the code marked with `TODO` comments.

Instructions for Running and Testing

1. **Start Your Proxy Server:**
   Open a terminal and run the script. It takes two arguments: the target host and the local port for the proxy to listen on.

```
python3 netProxy_exercise.py ggombos.web.elte.hu 9000
```

Your proxy is now listening for connections on `localhost:9000`.

2. **Use Your Web Browser to Test:**
   Open your favorite web browser (like Chrome, Firefox, or Safari).
   - **Test the Default Case (Forwarding):**
     Navigate to `http://localhost:9000/`. Your proxy should forward the request to `http://ggombos.web.elte.hu/`, receive the homepage, and display it in your browser.
   - **Test the Filtering Case (Blocking):**
     Navigate to `http://localhost:9000/SzamHalo/`. The real page on the server contains the forbidden string. Your proxy should detect this, block the real page, and instead show a "404 Not Found" error that it generated itself.