cFlask Server

The cFlask server is a lightweight C-based HTTP server framework inspired by Flask, allowing functions to be exposed as HTTP endpoints.

Prerequisites

- **Compiler**: GCC or a compatible C compiler.
- **Civetweb Library**: Ensure Civetweb is downloaded and linked in your project directory or available on your system.

Compilation Instructions

Navigate to the Project Directory

```
Extract the folder and enter the folder.
```

Compile the Code:

Use the following command to compile the server code (assuming your main source file is

```
Run the make file
$ make
```

Running the Server

Start the Server:

To start the server, execute the following command, providing the port number and desired thread pool size as an argument:

```
./cflask <port> <thread_pool_size>
```

Replace <port> with the port number

```
Replace <thread_pool_size> with the number of threads (e.g., 1, 6, or 12),
```
depending on your testing or performance needs.
Example:

```
./cflask 8080 4
```

1. This will start the server at port 8080 with a thread pool size of 4.
2. **Accessing Endpoints**:
   The server exposes several endpoints. You can test them by visiting the following URLs in your browser or using curl:
   - **Prime**: http://localhost:8080/arithmetic/prime?num=<number>
   - **Pingpong**: http://localhost:8080/pingpong?str=<string>
   - **Square**:
     http://localhost:8080/arithmetic/square?num=<number>
3. **Stopping the Server**:
   Press Ctrl+C in the terminal running the server to stop it manually.

Load Testing the Server

Use tools like `curl` or Apache Benchmark (AB) to perform load testing:

Using curl:
```
curl "http://localhost:8080/pingpong?str=hello"
```

Using Apache Benchmark:
If not installed, install Apache Benchmark:
```
$ sudo apt-get install apache2-utils
```
Run a load test on an endpoint:
```
$ ab -n 100 -c 10 http://localhost:8080/pingpong?str=hello
```

●
  ○ `-n 100`: Total number of requests to send.
  ○ `-c 10`: Number of concurrent requests.

Using Apache Benchmark:
If not installed, install Apache Benchmark:
```
$ sudo apt-get install apache2-utils
```
Now run the python script loadtest.py for load testing the server.
```
$ python3 tests.py
```

Additional Notes

- Ensure Civetweb library paths and permissions are correctly set for your system.
- Modify the port or endpoint as needed if running on a different setup.