**Assignment 6 – Multithreaded Web Server Using Rust**

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**Objective:**

To implement a basic yet functional **multithreaded web server** in Rust, which demonstrates:

* TCP Socket Programming
* Basic HTTP parsing
* Serving static HTML pages
* Managing concurrency using a **custom thread pool**
* Graceful shutdown and cleanup of threads

**Steps followed and features implemented**

Creating a new project as in rust as – “assignment*6 “*

* Listening to TCP Port - Adding the **TCPListener** that will listen to at the local address 127.0.0.1:7878 for incoming TCP streams in main.rs file

Code line: 

Output:

A screenshot of a computer program

AI-generated content may be incorrect.

* Accepting incoming connections and handling them in a thread pool:

Code line:

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* Reading the HTTPS Request

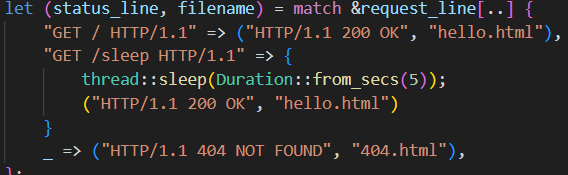
Code Lines:

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* Now we are Returning HTTP Responses, using the routing logic on URL & writing the response to the stream (stream.write\_all)

Code Lines:



A screen shot of a computer code

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* Thread Pool Implementation in “ lib.rs ” – using “impl Treadpool”

A screen shot of a computer program

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* Implementing **Graceful Shutdown of Threads** in lib.rs :

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* Worker thread managing sender and exiting loop when needed:

A screen shot of a computer program

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**Terminal Output:**

**A computer screen shot of a program

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**Web Results**

* **Display page Code – hello.html**

A screen shot of a computer program

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Output:

**A screenshot of a computer

AI-generated content may be incorrect.**

* **Error message Display – 404.html**

Code:

A screen shot of a computer screen

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Output:

**A screenshot of a computer

AI-generated content may be incorrect.**

**Appendix:**

