**Report for Project 2**

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**How to Run my Code:**

To Check the iterative server and client performance. First, we need to run the server file in iterative folder and then run the client file in iterative folder. The output displayed is the server connection time, thread ID, time difference between the process start time and end time.

To check Concurrent Server and Client Performance. We need to run the server file in Concurrent folder and then run the client file in concurrent folder. The client code for both iterative and concurrent is basically same the difference is only in the server code (server functioning). The output displayed will be the Server connection time, thread ID, time difference between the process start and end time.

**Explanation about performance delay:**

The Delay in iterative server is very high when compared to Concurrent. The time taken is calculated by running server and client files consecutively one after the other for a particular number of times. I took 5 such observations mentioned as below. The standard deviation is also high for the iterative server compared to Concurrent server. The reason behind that difference is because the concurrent server has an extra “for loop” to save all the requests from the client in a thread list. In iterative server, it will accept the client requests one after the other, so it doesn’t require any for loop and takes more time to process thread request.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Measurement | 1 | 2 | 3 | 4 | 5 | Average | Standard Deviation |
| Delay\_IS(ms) | 60.595 | 66.0618 | 58.04 | 62.0903 | 61.835 | 61.72442 | 2.907296925 |
| Delay\_CS(ms) | 57.962 | 60.452 | 60.9166 | 58.438 | 59.079 | 59.36952 | 1.274604194 |
|  |  |  |  |  |  |  |  |

**In the above table we can observe that the delay in Iterative Server is more than the delay in Concurrent Server**

Worked with: Vamsi

References: Textbook, https://www.ibm.com/docs/en/zos/2.3.0?topic=programsclientserver-socket-iterative-server-socket, https://www.geeksforgeeks.org/joiningthreads-in-python/?ref=lbp,