**Machine specs:**

* Model: 12th Gen Intel(R) Core(TM) i5-1235U
* Physical Cores: 10 cores
* Logical Processors: 12 threads
* Total RAM: 16.0 GB

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Implementation** | **Run 1 (ms)** | **Run 2 (ms)** | **Run 3 (ms)** | **Run 4 (ms)** | **Run 5 (ms)** | **Average (ms)** |
| **SequentialDataProcessor** | 1631 | 1653 | 1684 | 1721 | 1727 | 1683.2 |
| **ParallelDataProcessor** | 430 | 462 | 524 | 597 | 586 | 519.8 |
| **ParallelDataProcessor\_1** | 607 | 692 | 701 | 801 | 809 | 722 |
| **ParallelStreamsDataProcessor** | 861 | 889 | 868 | 983 | 1209 | 962 |

The reason the second version of ParallelDataProcessor is faster:

|  |  |
| --- | --- |
| **ParallelDataProcessor** | **ParallelDataProcessor\_1** |
| Reads and processing the file in chunks | Loads all lines into memory before it processes it |
| Uses a concurrent hashmap | Uses a regular hashmap |
| Bases chunk size on file size and cpu | Has a fixed chunk size of 10000 |
| Directly updates the shared map | Created separate maps and then had to merge |