

Multithreading Assignment

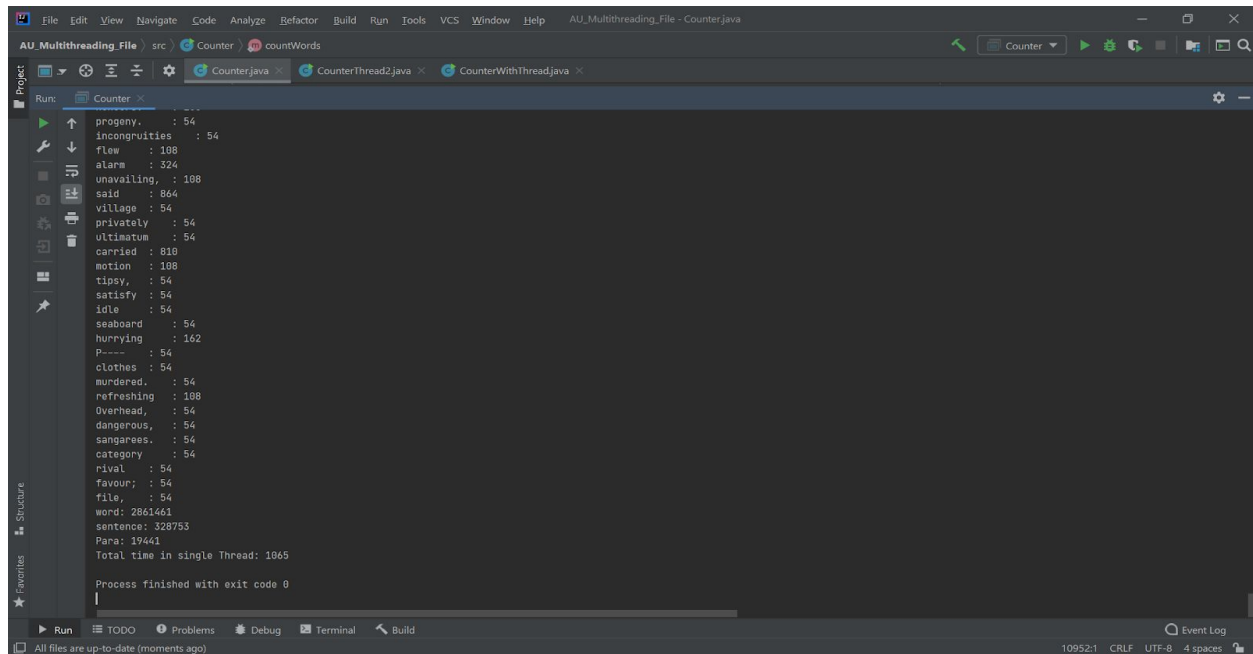
Prabhakar

Task:

- Analyze the book using a java program and perform a word count operation.
- You have to find out the count of each word in the book.
- Along with words, you also need to find out the number of paragraphs and sentences present in the book.
- Try it using a single threading program and repeat the same through multithreading approach.
- Make note of the performance improvement.

Reading Book with single Thread:

- **Counter.java** - words, sentences, paragraphs are counted. Calculated frequency for each word

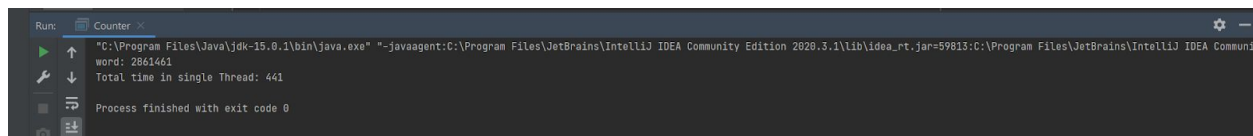


The screenshot shows the IntelliJ IDEA interface with the 'Run' window open. The output of the 'Counter.java' program is displayed, showing the frequency of various words and the total time taken for a single-threaded execution.

```
progeny. : 54
incongruities : 54
flew : 108
alarm : 324
unavailing. : 108
said : 864
village : 54
privately : 54
ultimatum : 54
carried : 818
motion : 108
tipsy. : 54
satisfy : 54
idle : 54
seaboard : 54
hurrying : 162
P--- : 54
clothes : 54
murdered. : 54
refreshing : 108
Overhead. : 54
dangerous. : 54
sangarees. : 54
category : 54
rival : 54
favour. : 54
file. : 54
word: 2861461
sentence: 328753
Para: 19441
Total time in single Thread: 1065

Process finished with exit code 0
```

Time taken to count all words:



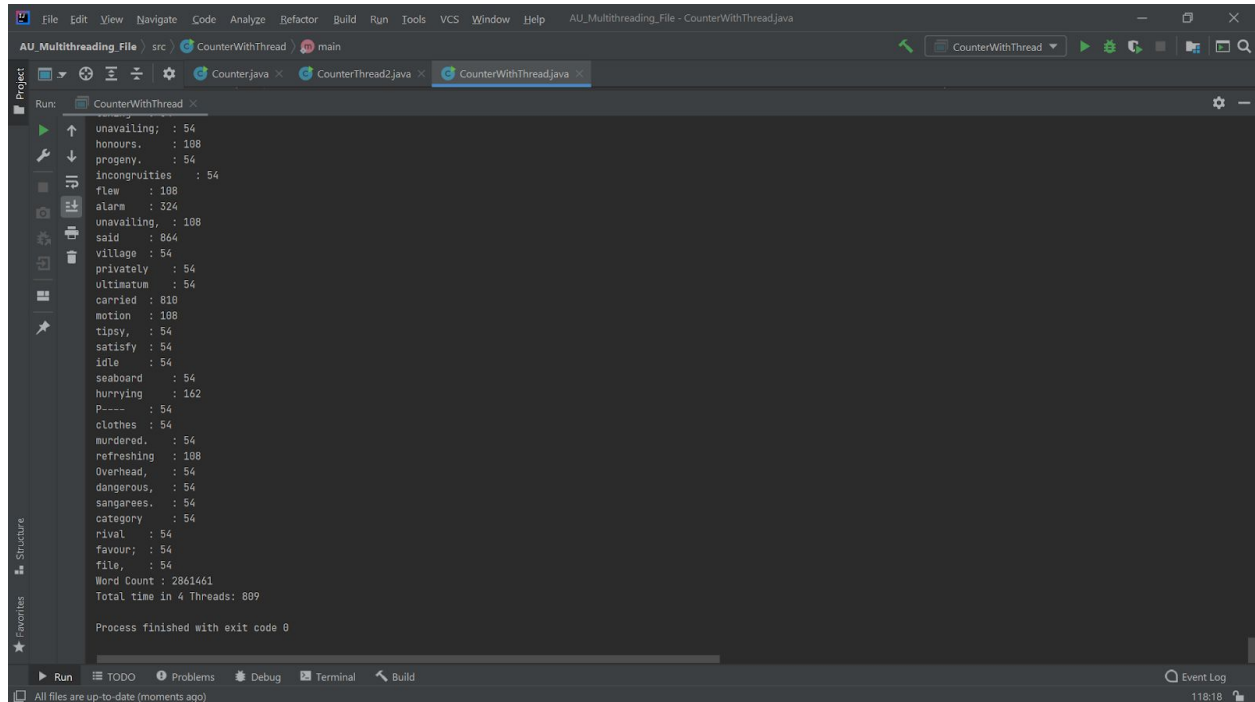
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```
"C:\Program Files\Java\jdk-15.0.1\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2020.3.1\lib\idea_rt.jar=59813:C:\Program Files\JetBrains\IntelliJ IDEA Communi
word: 2861461
Total time in single Thread: 441

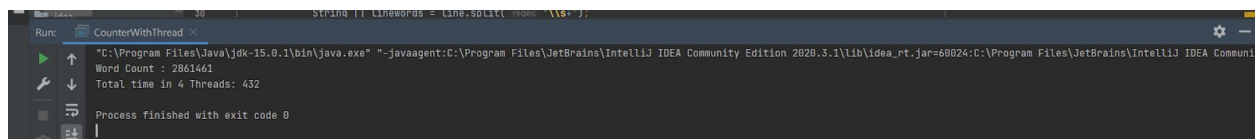
Process finished with exit code 0
```

Count with 4 threads:

- **CountThread.java**
- Each thread used for specific operation

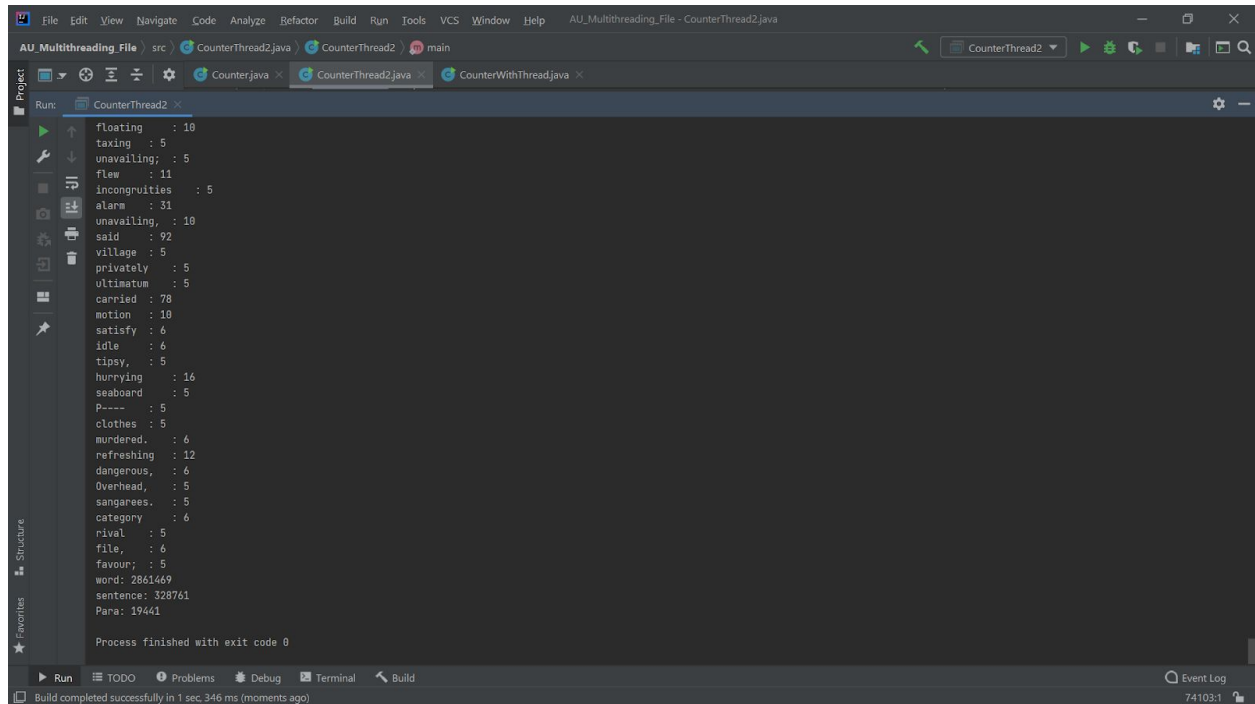


Time taken to count all words:



Count with 10 threads:

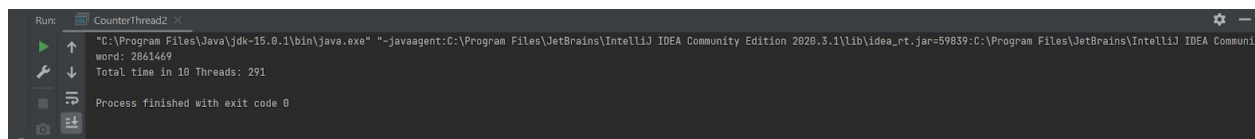
- **CounterThread2.java**
- The book text file splitted into 10 parts and each thread deals with specific part.



```
floating : 10
taxing : 5
unavailing; : 5
flew : 11
incongruities : 5
alarm : 31
unavailing, : 10
said : 92
village : 5
privately : 5
ultimatum : 5
carried : 78
motion : 10
satisfy : 6
idle : 6
tipsy, : 5
hurrying : 16
seaboard : 5
P----- : 5
clothes : 5
murdered, : 6
refreshing : 12
dangerous, : 6
Overhead, : 5
sangarees. : 5
category : 6
rival : 5
file, : 6
favour; : 5
word: 2861469
sentence: 328761
Para: 19441

Process finished with exit code 0
```

Time taken to count all words:



```
word: 2861469
Total time in 10 Threads: 291

Process finished with exit code 0
```