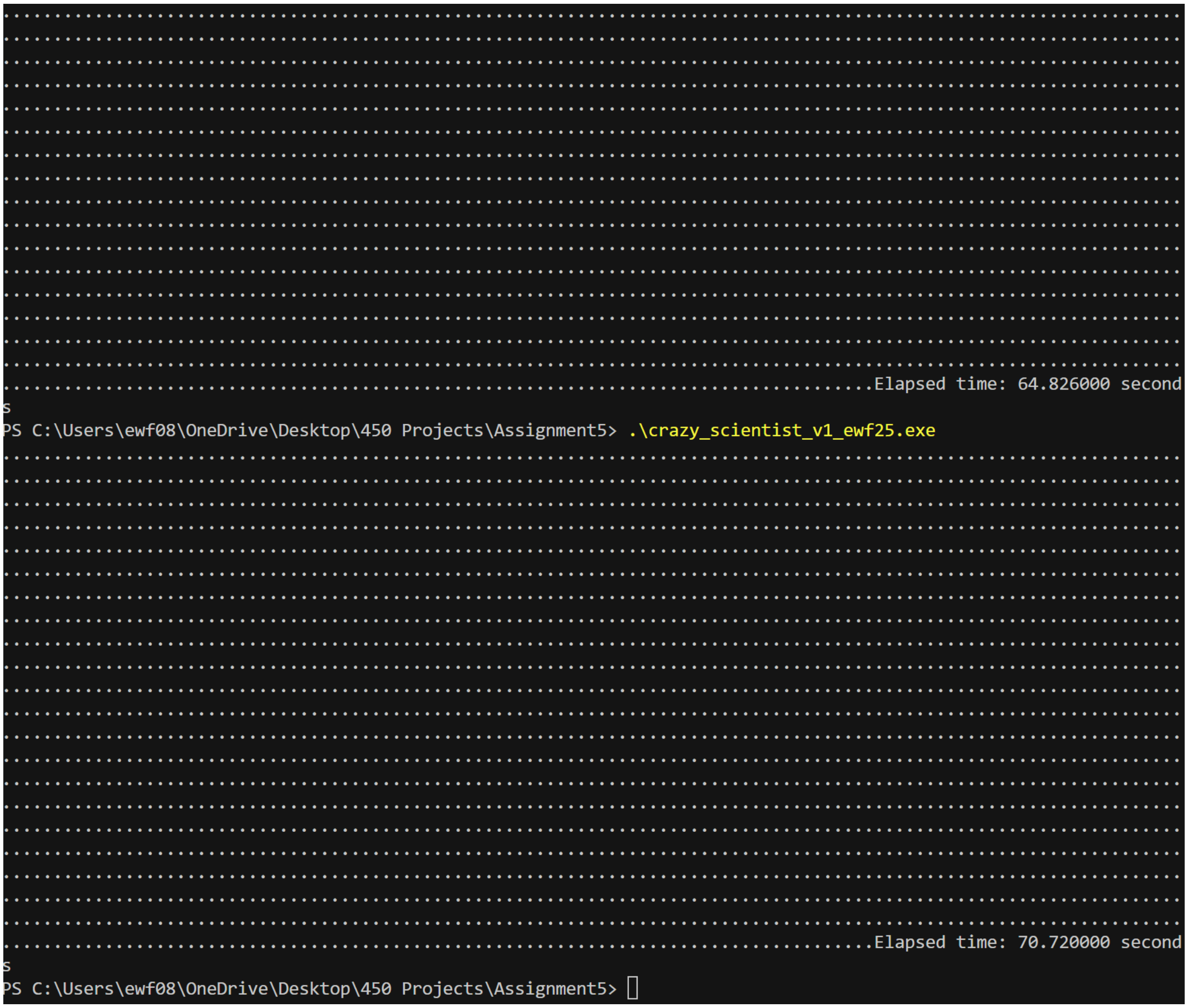
1.

1) 41 seconds
2) 59 seconds
3) 72 seconds
4) 50 seconds
5) 65 seconds
6) 51 seconds
7) 75 seconds
8) 71 seconds
9) 64 seconds
10) 70 seconds

This was pretty simple, you just had to make 2 different loops for each thread while one does one half and the other thread does the other half of the total size. Overall it was pretty fun although it was a little tricky at the start



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.....................................................................................Elapsed time: 64.826000 second
s
PS C:\Users\ewf08\OneDrive\Desktop\450 Projects\Assignment5> .\crazy_scientist_v1_ewf25.exe
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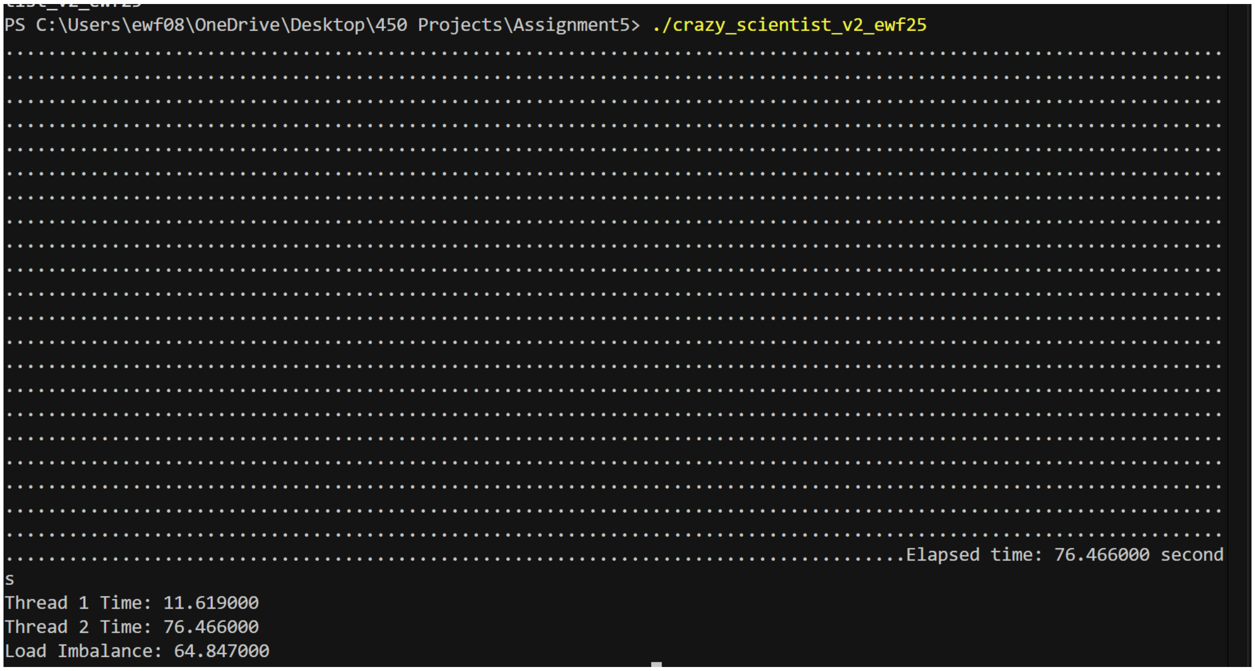
PS C:\Users\ewf08\OneDrive\Desktop\450 Projects\Assignment5> 
```

2. I started this one with separating the 2 threads and doing it manually but I thought something was wrong because it had taken so long so I decided to do it how you had said and it was still the same time



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PS C:\Users\ewf08\OneDrive\Desktop\450 Projects\Assignment5> ./crazy_scientist_v2_ewf25
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s
Thread 1 Time: 11.619000
Thread 2 Time: 76.466000
Load Imbalance: 64.847000
```
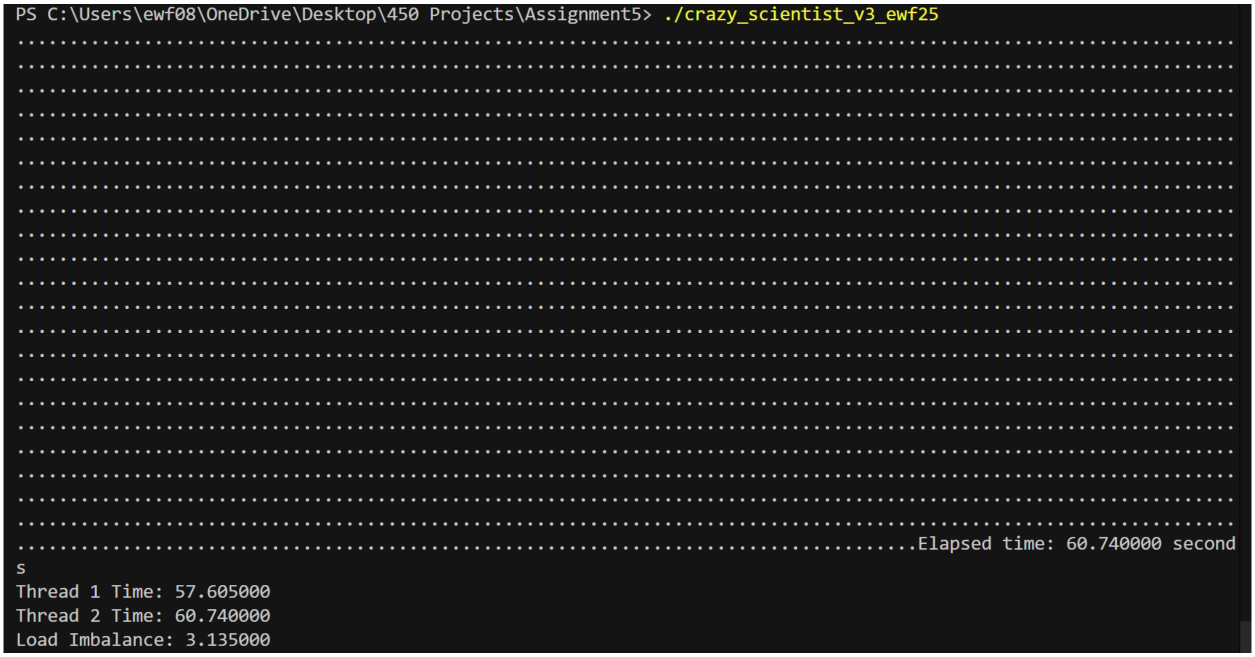

3. I noticed that the time is significantly shorter and that T1 has much more work to do. Like it makes up 99% of the total time. All you have to do is switch it to dynamic scheduling due to its definition of how it works.



```
PS C:\Users\ewf08\OneDrive\Desktop\450 Projects\Assignment5> ./crazy_scientist_v3_ewf25
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s
Thread 1 Time: 57.605000
Thread 2 Time: 60.740000
Load Imbalance: 3.135000
```
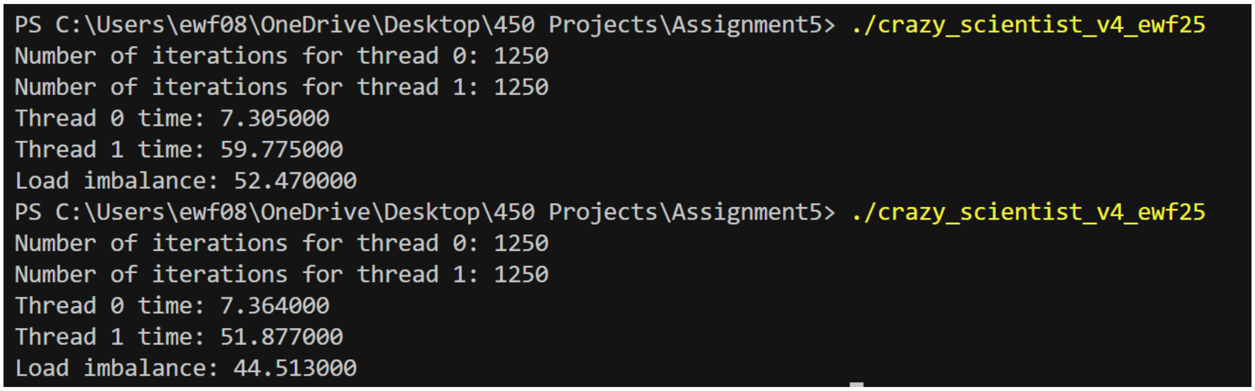

4. This one is even faster than 2 and 3. I also noticed that it prints each thread when it ends. I think its faster just due to the scheduling. With dynamic theres overhead on when there is grabs and with static one of the threads has to wait until the other finishes. With pthreads theres 2 that are going at all times



```
PS C:\Users\ewf08\OneDrive\Desktop\450 Projects\Assignment5> ./crazy_scientist_v4_ewf25
Number of iterations for thread 0: 1250
Number of iterations for thread 1: 1250
Thread 0 time: 7.305000
Thread 1 time: 59.775000
Load imbalance: 52.470000
PS C:\Users\ewf08\OneDrive\Desktop\450 Projects\Assignment5> ./crazy_scientist_v4_ewf25
Number of iterations for thread 0: 1250
Number of iterations for thread 1: 1250
Thread 0 time: 7.364000
Thread 1 time: 51.877000
Load imbalance: 44.513000
```

Question	Total Time average	Individual Time average t1 t2
1	NA	
2	84.9 seconds	T1 = 12.5 seconds t2 = 84.9 Load Imbalance = 72
3	47.5 seconds	T1 = 44.3 seconds t2 47.5 seconds Load Imbalance = 2.6
4	48 seconds	T1 = 6.6 t2 = 48 seconds load imbalance = 41 seconds