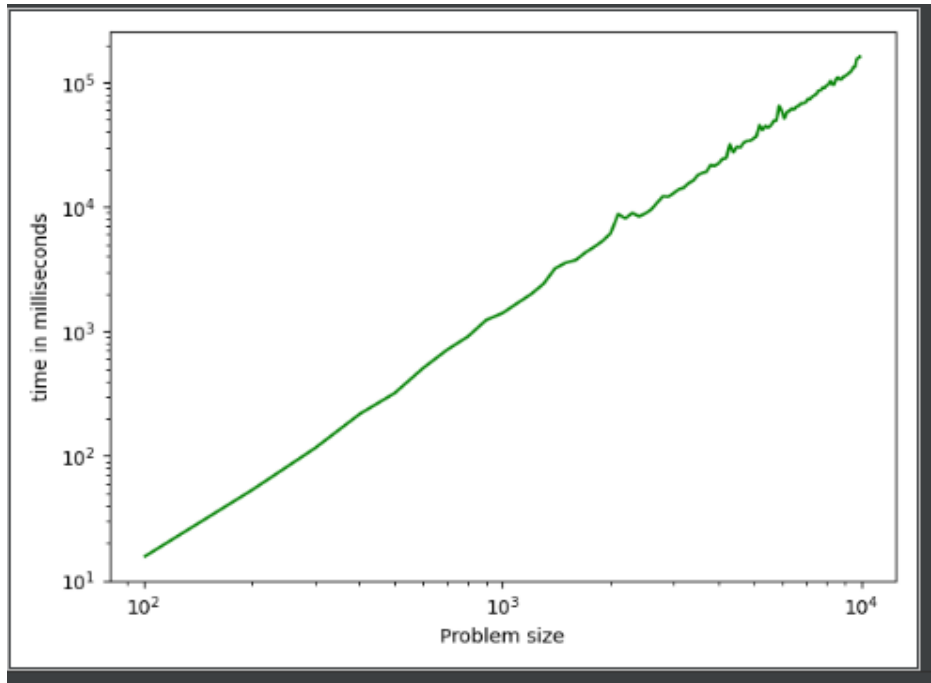


Q6: Timing Study for Sequence 1 and Sequence 2



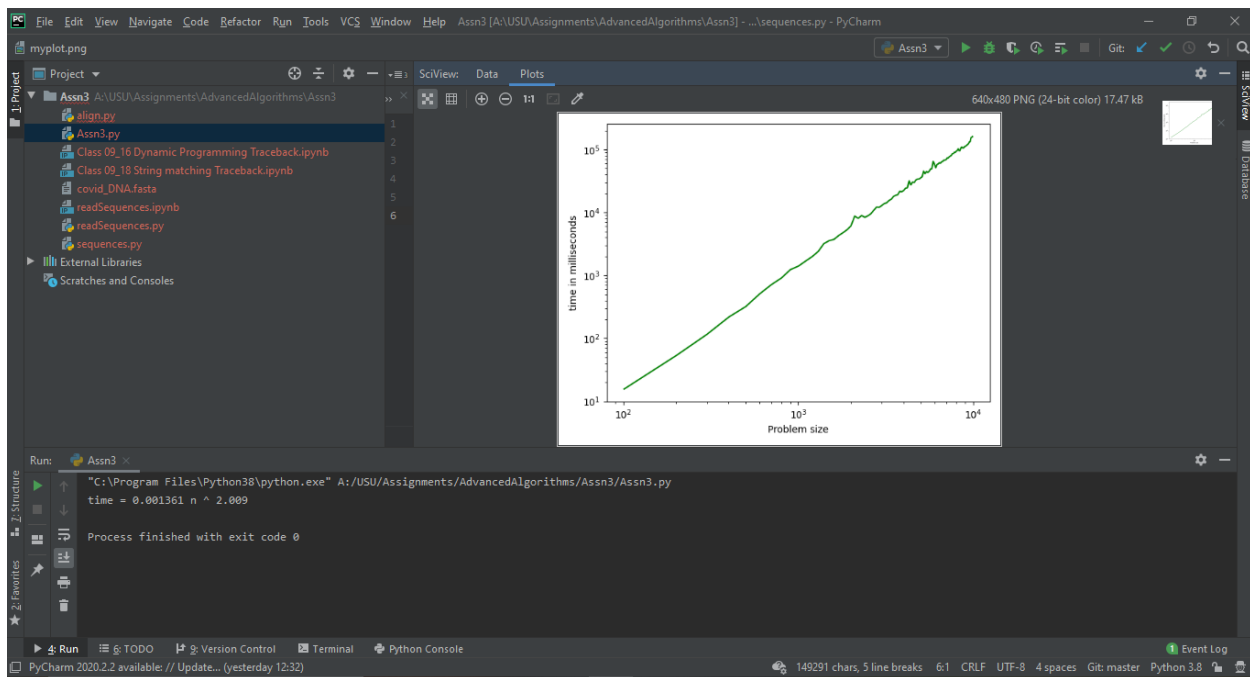
time = $0.001361 n^{2.009}$

Time for 10000 characters = $0.001361 \cdot (10000^{2.009}) = \mathbf{147.86}$ seconds

If we estimate this for 30000 characters.

Time = $0.001361 \cdot (30000^{2.009}) = \mathbf{1343}$ seconds (approximately)

Time gets increased by 9 times.



Q7: Table for matching the first five sequences with all the other sequences.

Results: matchDP(A,B):

A	B	Score
Sequence 1	Sequence 2	24551
Sequence 1	Sequence 3	24502
Sequence 1	Sequence 4	24629
Sequence 1	Sequence 5	24962
Sequence2	Sequence 4	24913
Sequence 3	Sequence 2	24956
Sequence 3	Sequence 4	24864
Sequence 5	Sequence 2	24580
Sequence 5	Sequence 3	24531
Sequence 5	Sequence 4	24672
Sequence 1	Sequence 1	25000
Sequence 2	Sequence 2	25000
Sequence 3	Sequence 3	25000
Sequence 4	Sequence 4	25000
Sequence 5	Sequence 5	25000

Q8: For the matching and output file my code works fine, however colab takes forever to run long sequences. Even a small network failure leads to restart in execution so I'm submitting both .py files and. ipynb files.

Colab file has many small test cases.

I have submitted alignment for 50 chars and 100 chars, 500 and 800 all these ran so I moved to 30000. It is taking a lot of time so if it complies, I will email the file separately.