

Revised September 2 at 9 AM to include a new question (#1) and some clarifications.

EECS 233 Homework 1

General requirements:

- Due at 11:00 PM on the posted due date.
- Include your name and network ID as a comment at the top of all of your programs.
- Create a typed document (.txt or .pdf) with answers to the questions.
- Upload your document and all .java files as a .zip file to Blackboard. Do not use other formats such as .rar.
- All work should be your own, as explained in the Academic Integrity policy from the syllabus.

Instructions: Revise the programs from the September 1 lecture (Example1, Example2, Example3, Example4) to show the run times for 5 trials and at least 9 equally spaced N values. Answer the questions that follow. Below is an example of how your output might appear, where each row contains run times for 5 trials, and each column uses a different N value:

79	78	82	72	44
220	228	294	198	152
332	328	332	337	332
587	599	584	624	589
923	962	915	952	910
1317	1346	1317	1314	1315
1820	1788	1797	1799	1791
2351	2357	2708	2409	2344
3006	2997	3032	2960	3013

Questions:

1. (NEW) What are the results for each of the programs? In your report, include the program name, and copy/paste the output.
2. Explain (in complete sentences) how each algorithm compares quantitatively. How much faster does the time grow for each algorithm as compared to the others? (NEW) “Quantitatively” means to explain with actual numbers. Don’t just say “a lot faster”. Generally correct answers will receive full credit. Explain in at least 3 sentences.
3. What do you notice about the results that might be unexpected? Explain in at least 2 – 3 sentences. (NEW) Any reasonable explanation will receive full credit.
4. Offer a possible explanation for the unexpected results in question (2) above. Explain in at least 2 – 3 sentences. Note that students are not expected to know the answer to this. Any reasonable explanation will receive full credit.

Notes: Questions 2 – 4 refer to all the algorithms as a group. Do not provide three answers for each algorithm. Times of 0 sec are not acceptable!

Grading Rubric:

Item	Points
Coding for 5 trials (5 points per program)	20
Coding for N values (at least 9) (5 points per program)	20
Using reasonable N values (5 points per program)	20
Question #1	10
Question #2	10

Question #3	10
Question #4	10
<i>Total</i>	100