CS140 - Group 2

Due: Friday, 2/3 at 8pm

Please work on these questions at the start of your group's meeting time. Once you have something you're comfortable submitting (note that we are evaluating based on effort+participation, not correctness!) you can use the remainder of the hour (i.e. the time during which your group mentor will be available) however you'd like: you can ask conceptual questions, start to work on the assignment, etc.

One person in your group should upload the responses as a single file to gradescope (making sure to add all the other group members on the submission!). You do not need to typeset your responses in LaTeX; if you want to take a photo of your work and upload that as a single file that's fine (as long as it's readable!)

1. Runtimes

   The table below contains *actual* run times for 6 different algorithms. The input sizes ranged from 1000 to 32000 seen at the top of the table. For each of the algorithms, give the θ complexity of the algorithms based on the running times.

Algorithm	1000	2000	4000	8000	16000	32000
A_1	50	378	3,345	26,300	215,680	1,658,002
A_2	99	110	105	976	103	100
A_3	60	130	237	501	954	1999
A_4	1005	1095	1201	1289	1420	1540
A_5	5	21	84	311	1304	5280
A_6	10	22	50	108	245	533

2. Solving recurrences

   In class on Monday, we looked at three different methods for solving recurrences. On Slide 36, there are four recurrences that we didn't solve. Solve one or two of these.

3. Group participation

   Was everyone in the group at the meeting and, if not, who was missing? What did your group do to ensure that everyone felt comfortable participating and that no one felt excluded or lost?