# CS140 - Group 2

Due: Friday, 9/13 at 10pm


http://pictures.4ever.eu/fun/cartoons/friday-the-12th-160910

Please work on these questions for no more than an hour. Once you have something you're comfortable submitting (note that we are evaluating based on effort+participation, not correctness!).

One person in your group should upload the responses as a single file to gradescope, making sure to add everyone who worked together in your group

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 $\theta$ 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 last Thursday we looked at three different methods for solving recurrences. On Slide 37, 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?