

Quantum Computing for Computer Scientists

The quantum TAs are in a bind. Can you help them break down the problem and sort through this mess?

Eight Ph125 TAs each input their private schedules into the lab quantum supercomputer so they could use it to plan out who would run which review sessions during finals week. Unfortunately, nobody bothered checking the output until the night before, which consisted solely of the following table:

Total Number of TAs Scheduled for Each Review Session

Session	Monday	Tuesday	Wednesday
Morning	8	5	5
Early Afternoon	8	1	5
Late Afternoon	8	3	4
Evening	8	1	5
Late Night	8	7	6

The computer crashed when they attempted to re-run the scheduling program, and with IMSS nowhere in sight, the task falls to you, the sole CS major in the lab, to at least diagnose the problem.

Strangely enough, no matter what program you start, the computer ends up running a rootkit called Blockade.exe. You suspect you'll have to examine the logs for the latest scheduling run to untangle what the problem might be.

Scheduling Program Input Debug File

- 1) Everyone is required to participate in all sessions on Monday, and two pairs of TAs have the exact same schedule.
- 2) Two male TAs with the same schedule have classes in the late afternoon on Wednesday. Coincidentally, they have the same number of letters in their name.
- 3) The woman that Gordon sits next to in his Wednesday late afternoon class and the woman that is running review sessions on Tuesday early afternoon and evening are both single.
- 4) By coincidence, all of the female TAs have the same number of letters in their names.
- 5) Helen has no classes in the afternoon or evening on Wednesday.
- 6) Chris and Finley are in all 3 late-night sessions.
- 7) Other than the sessions on Monday, the only session that Avery and Bartholomew share is on late night Tuesday.
- 8) Eric has the same schedule as his girlfriend, but refuses to teach any sessions alongside his sister Helen (except on Monday).
- 9) Devon's schedule allows him to take a nap immediately after leading the morning session on Wednesday.
- 10) Chris, Finley, and Helen like to sit together at their Wednesday morning session.
- 11) Bartholomew's only afternoon classes are on Monday, and he has the (undisputed) lightest schedule on Wednesday.
- 12) Eric's Wednesday classes are never at the same time of day as his Tuesday classes.
- 13) Avery has as many classes on Monday as on Tuesday and Wednesday combined; Helen has

more.

14) Two men have arranged their classes so that their Tuesday schedule is identical to their Wednesday schedule.