

University of Waterloo
CS240, Spring 2021
Assignment 4 Post Mortem

Problem 1 [4+4+4=12 marks]

- For a), some students did not explicitly cover the case where the key is not in the array.
- For part b), some students provided a specific array instead of giving a general function or array.

Problem 2 [2+2+2+2+3+3=14 marks]

- Did not deduct points for this, but there is a special case for $k = 0$ in part e)
- Many tries were correct, but were difficult to read since the ordering didn't follow convention or was inconsistent. The solution's tries are good examples of easy-to-read tries.

Problem 3 [2+2+2=6 marks]

- For a), many students forgot to answer the second half of the question. Others didn't use the assumption given in the question.
- For part c), some students got a final answer of $O(\log n)$

Problem 4 [5+2=7 marks]

- For part a) , some students did not discuss the small difference between M being odd and even. Others did not discuss why the statement-to-be-proved was a problem.

Problem 5 [6 marks]

- Many students only used one hash table. Some solutions did not account for the possibility of a portfolio being assigned to multiple counter-parties.
- Without a hash of the portfolio ids, checking for duplicate portfolios is too costly time-wise (many students did not account for these duplicates).

Problem 6 [4+6+2=12 marks]

- For a), some students forgot to give an R value or did not justify their answer
- Parts b) and c) were difficult, and many students weren't on the right track
- For b), some students skipped/messed up some steps regarding the "big circle's" radius and the algebra/inequality as a whole and jumped straight to a conclusion of $\Omega(\sqrt{n})$.
- For c), many students had the main idea down, but made errors on some details such as stating $R = M$.