University of Waterloo
CS240 - Winter 2021
Assignment 2 Post Mortem

Problem 1  [2+4+4 marks]

• For part(a), many students forgot that the third largest can also be on level 2.

• For part(b), a few students thinks that the fix down would move elements one level down rather than trying until leaves.

• For part(c), many students forgot to provide correctness justification and runtime justification. Many students didn’t specify the condition that the left/right child exists. Some students said that s nodes would be checked, when it should be 3s.

Problem 2  [5 marks]

• Many students forgot to provide correctness justification and runtime justification.

• Some people did it as a quick sort algorithm, then split the list according to even and odd, this is actually a quite bad approach, since you can do this in one go of the array. There are a few who tried to only sort out the even entry and hope the rest of the list will sort itself out.

• Many student miss or get incorrect second round of partition.

Problem 3  [4+4 marks]

• For part(a), many students miss the base case. Some students don’t understand how coinflip affects the relation.

• For part(b), a few students leave it as a geometric sequence. Many students gave the theta bound instead of the exact formula.

Problem 4  [4+3 marks]

• For part(a), many students forgot the ceiling function. A few students tried to answer it without decision trees. Many students forgot to specify the base is 3.

• For part(b), many students wrote the wrong algorithm which returns counterfeit coins instead of genuine coin. A few students’ answers don’t match the answers in part(a).
Problem 5  [6 marks]

- Many students use R=10 and think that the radixsort complexity will be O(n).

Problem 6  [1+2+2+4+4 marks]

- For part(c), some students forgot that the it start counting by 0.

- For part(e), some students did not write the summation correctly. They used the recursive formula. Some students assumed i = j and they got the upper bound and lower bound wrong.