Quiz

1.

Question 1 (1p t)

Imagine you want to build a segment tree over a sequence of 60 numbers. What will be its height (the number of layers)? Assume that the tree is as small as possible.

2.

Question 2 (1 pt)

Say we are building a segment tree over a sequence of n values. What is the best possible bound on the number of vertices in it?

$O(n)$

$O(n \log n)$

$O(n^2)$

$O(\sqrt{n})$

3.

Question 3 (1 pt)

We've built a segment tree of height 3 over a sequence a_0, a_1, a_2, a_3. Now, we've got a query "calculate the sum of the first three elements" (that is, $a_0+a_1+a_2$). What is the least number of vertices such that their sum is the answer to this query? Output the numbers of these vertices in any order, separate them with spaces. Assume that vertices in the tree are numbered as in the lecture: 1 is the root, 2 and 3 are its children, and so on.