Problem 4 Oscillating subsequence

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Analysis:
Recurrence:

Algorithm 1:

Input:

Output:

1 ;   *//*

2

3 **for** *i = 2 to k* **do**

4   **for** $j = 0 to 1$ **do**

5

6 **return**

Runtime Analysis: To bound the running time

Proof of Correctness using induction:

Claim:

Base Case:

Inductive Case:

-If

-If

We have now exhausted the sample space,