COMP3121 21T2 Assignment 2 Q4

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The algorithm can be described as minimising the number of blocks in current stack by moving excess blocks into next stack, and meanwhile following the strictly increasing pattern. In other words, reduce the number of blocks in $A[i]$ to i by moving $A[i] - i$ blocks into next stack, repeat the process until there is no next stack. For example,

$$[4, 3, 2, 1] \tag{1}$$
$$[0, 7, 2, 1] \tag{2}$$
$$[0, 1, 8, 1] \tag{3}$$
$$[0, 1, 2, 7] \tag{4}$$

However, if $A[i]$ is less than i, which means such movement does not exist, hence return none, for example:

$$[0, 0, 1, 2] \tag{5}$$

Since each removal process costs $O(1)$, n stacks will cost $O(n)$ as overall time complexity for this algorithm.