

## **Minimizing Positive Integer Sequences without Duplicate Substrings**

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Applications in data compression, molecular sequences, and human genome sequences have shown interest in the repetition of substrings, or the lack there of, within finite sequences. In this vein, we will look for minimal positive integer sequences, particularly finite sequences, containing no duplicate substrings. For our purposes, sequences will be minimal if the integer produced by a specified binary operation on the elements of the finite sequence is minimized. We will show how to construct sequences of length  $n$  which minimize the Least Maximum Integer (LMI), the Least Common Multiple (LCM), or the sum. Furthermore, we will provide a technique which seems to minimize the integer produced by any associative binary operation.