Difficulty: 1/4 Interest: 2/4

Let U_n be the set of sequences of positive integers of length n such that no substring occurs twice.

$$(1,1,2,2,1,3,1) \in U_7$$
$$(1,2,1,2,3) \notin U_5 \text{ because } (1,2) \text{ occurs twice.}$$
$$(1,1,1) \notin U_3 \text{ because } (1,1) \text{ occurs twice.}$$

Figure 1: An example and two non-examples of sequences with no repeated substrings.

Question. What is the number of sequences in U_n where the sum of terms is minimized?

Related.

1. What is the minimum least common multiple of a sequence in U_n? How many such minimal sequences?
2. What is the minimum product of a sequence in U_n? How many such minimal sequences?
3. What if substrings are considered forward and backward?
4. What if only substrings of length greater k are considered?
5. What if any term can appear at most ℓ times?

References.

`https://oeis.org/A259280`