6.851: ADVANCED DATA STRUCTURES, SPRING 2021
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Problem Set 10

Due: Thursday, April 29, 2021

Problem 10.1 [Succinct RMQ]. Design a succinct static data structure for the ± 1 *RMQ problem*: preprocess a static array of n integers, where adjacent entries differ by ± 1, into a data structure supporting constant-time queries to return the index of the minimum element in a given range. Your data structure should be *succinct*, meaning that it should use only $n + o(n)$ bits of space.

Hint: Use two layers of indirection, similar to how we did for succinct rank and select.