



Congratulations! You passed!

Next Item



1 / 1
point

1.

Download the following text file:

Median.txt

The goal of this problem is to implement the "Median Maintenance" algorithm (covered in the Week 3 lecture on heap applications). The text file contains a list of the integers from 1 to 10000 in unsorted order; you should treat this as a stream of numbers, arriving one by one. Letting x_i denote the i th number of the file, the k th median m_k is defined as the median of the numbers x_1, \dots, x_k . (So, if k is odd, then m_k is $((k+1)/2)$ th smallest number among x_1, \dots, x_k ; if k is even, then m_k is the $(k/2)$ th smallest number among x_1, \dots, x_k .)

In the box below you should type the sum of these 10000 medians, modulo 10000 (i.e., only the last 4 digits). That is, you should compute $(m_1 + m_2 + m_3 + \dots + m_{10000}) \bmod 10000$.

OPTIONAL EXERCISE: Compare the performance achieved by heap-based and search-tree-based implementations of the algorithm.

