Programming Assignment #3

Quiz, 1 question

1/1 point (100%)

✓ **Congratulations! You passed!** Next Item

1. Download the following text file:

1 / 1 point

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 ith number of the file, the kth median m_k is defined as the median of the numbers $x_1, \ldots, x_k$. (So, if k is odd, then m_k is $((k+1)/2)$th smallest number among $x_1, \ldots, x_k$; if k is even, then m_k is the $(k/2)$th smallest number among $x_1, \ldots, x_k$.)

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
$(m_1 + m_2 + m_3 + \cdots + m_{10000}) \bmod 10000$.

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