The goal of this problem is to implement the "Median Maintenance" algorithm using heap structure. The input is a list of the integers 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 x1,…,x^k. (So, if k is odd, then mk is ((k+1)/2)th smallest number among x1,…,x^k; if k is even, then mk is the (k/2)th smallest number among x1,…,x^k.)

You should type the sum of these 10000 medians, modulo 10000 (i.e., only the last 4 digits). That is, you should compute (m1+m2+m3+⋯+m10000)mod10000.

The input file(Median.txt) is a file containing a list of integers from 1 to 10000 in unsorted order.