Division of two n- digit signed integers

Group 26:

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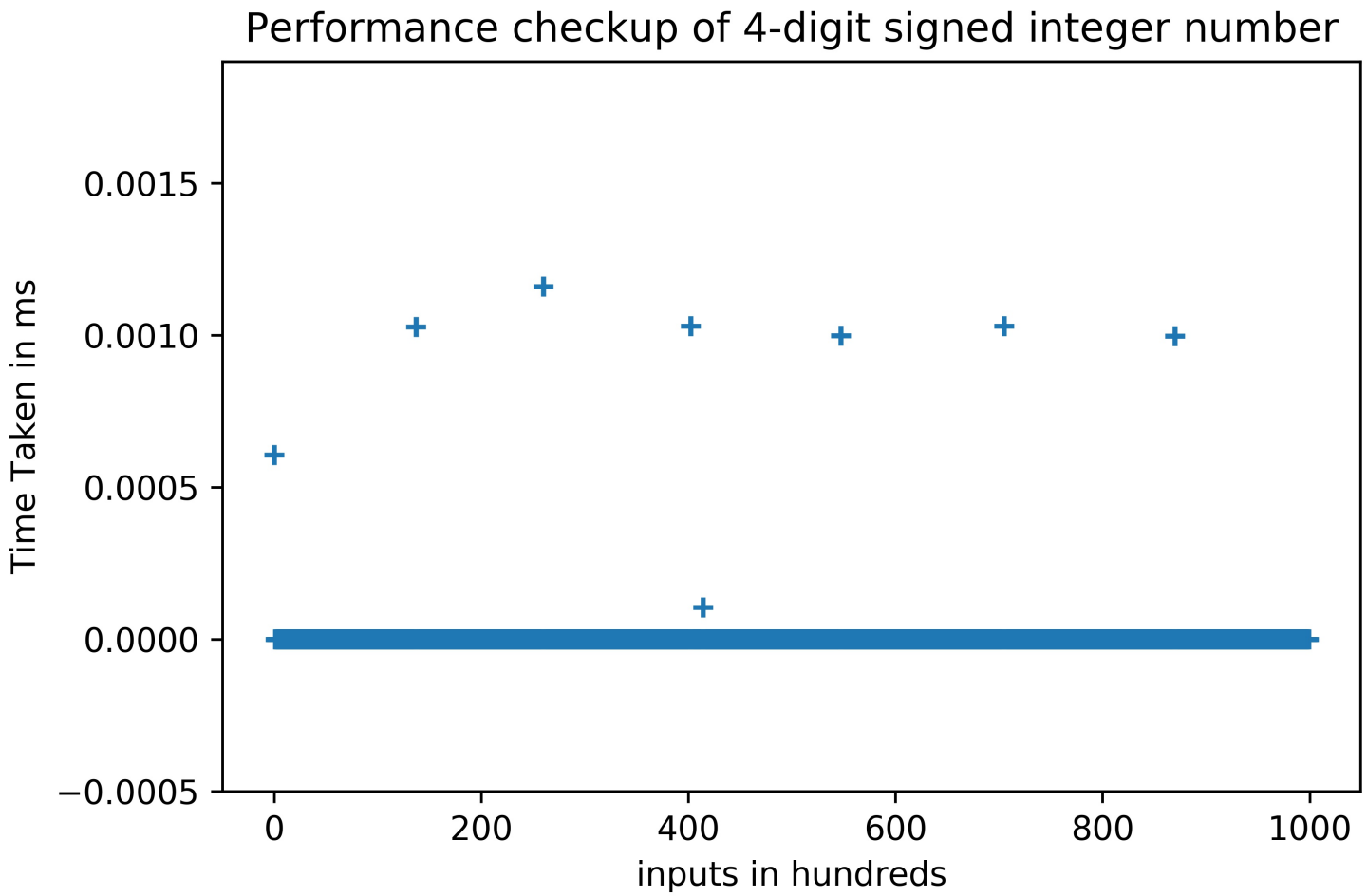
Pseudo code for the Division operator

Input : Two n-digit unsigned integers N and D

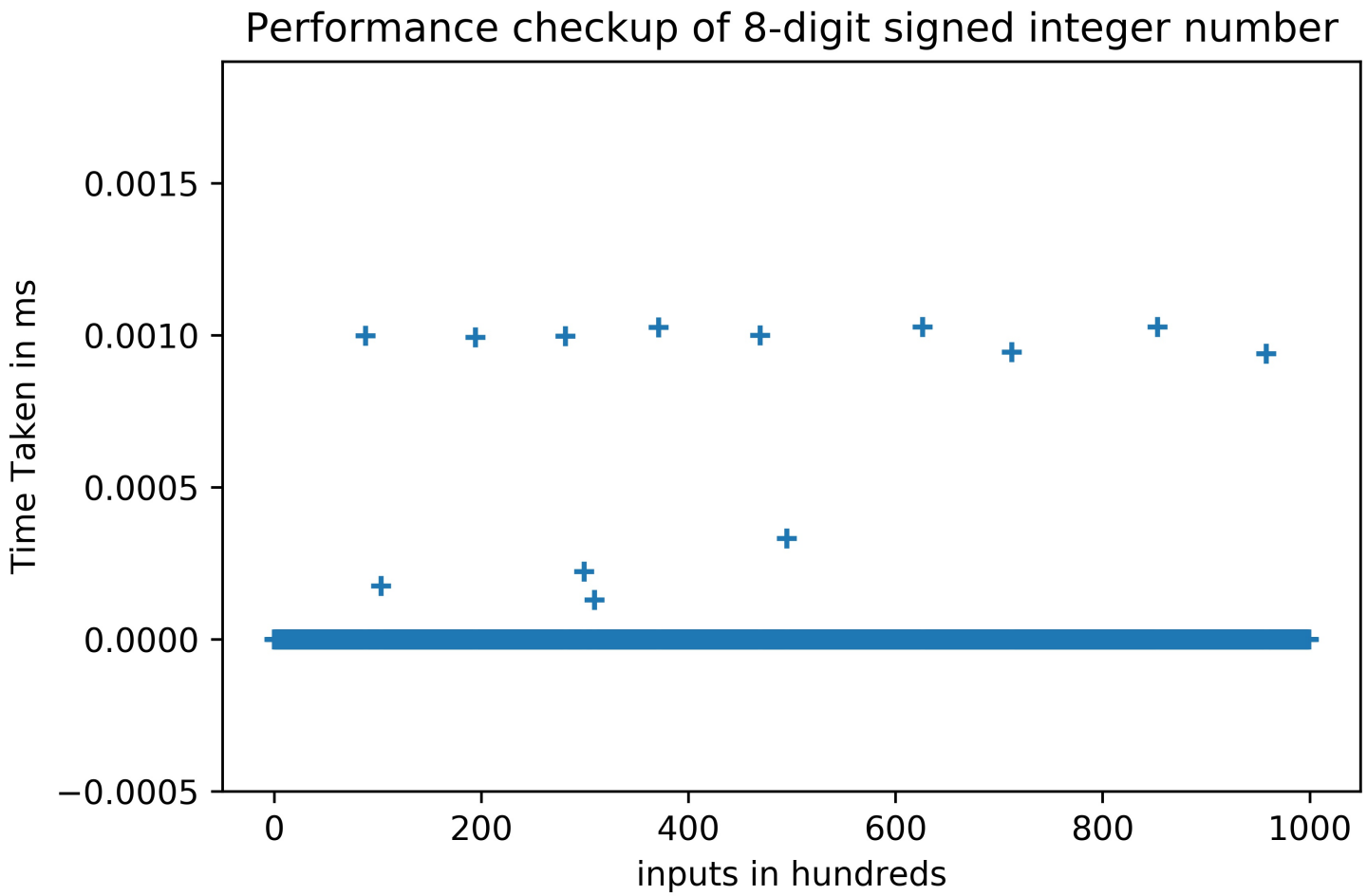
Output : A whole number

1. If N > D
2. Then Swap(N,D)
3. END
4. While N>=D
5. Then N=N-D
6. Q=Q-1
7. END
8. Return Q

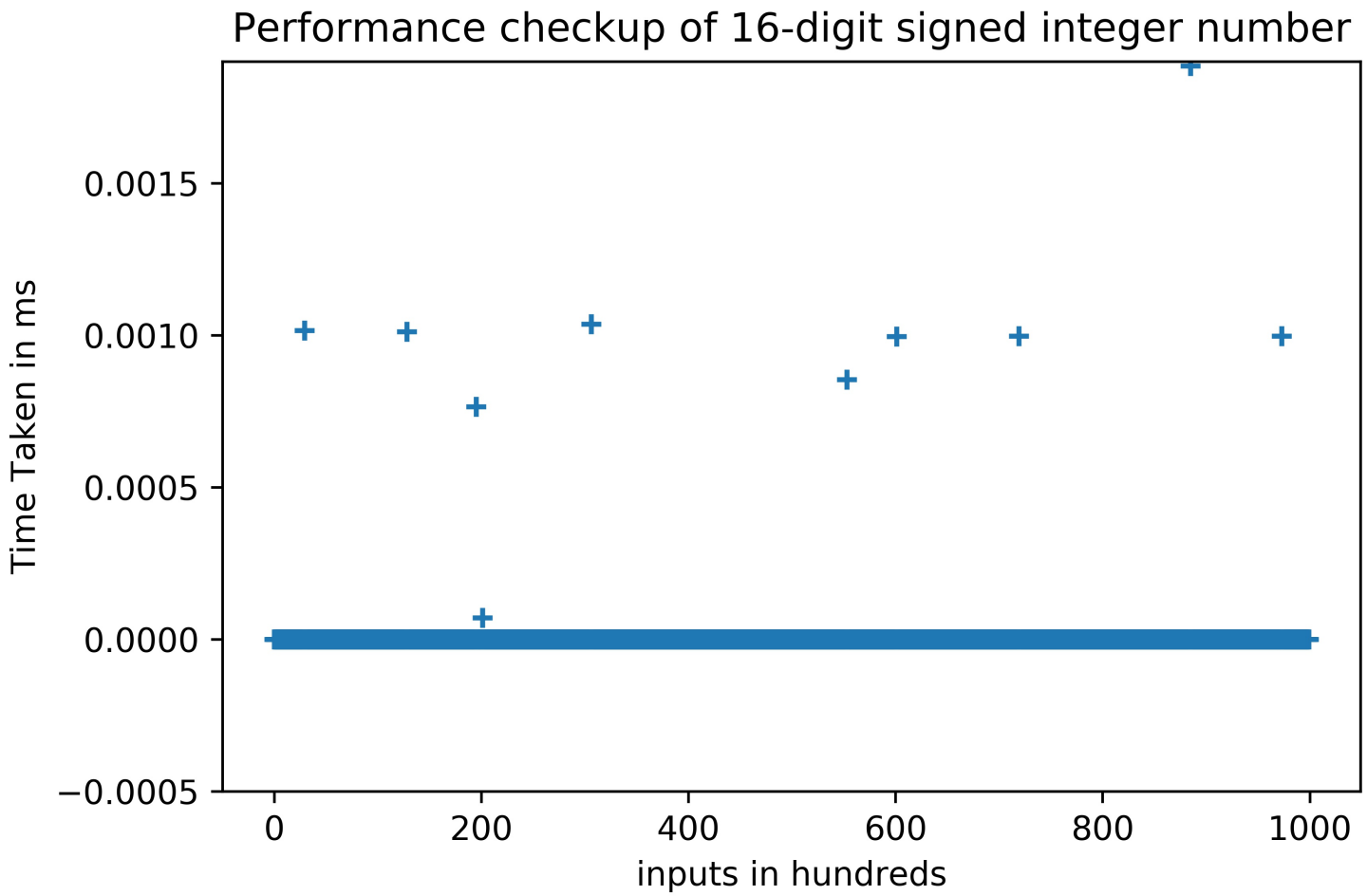
Average time is 0.000005 ms



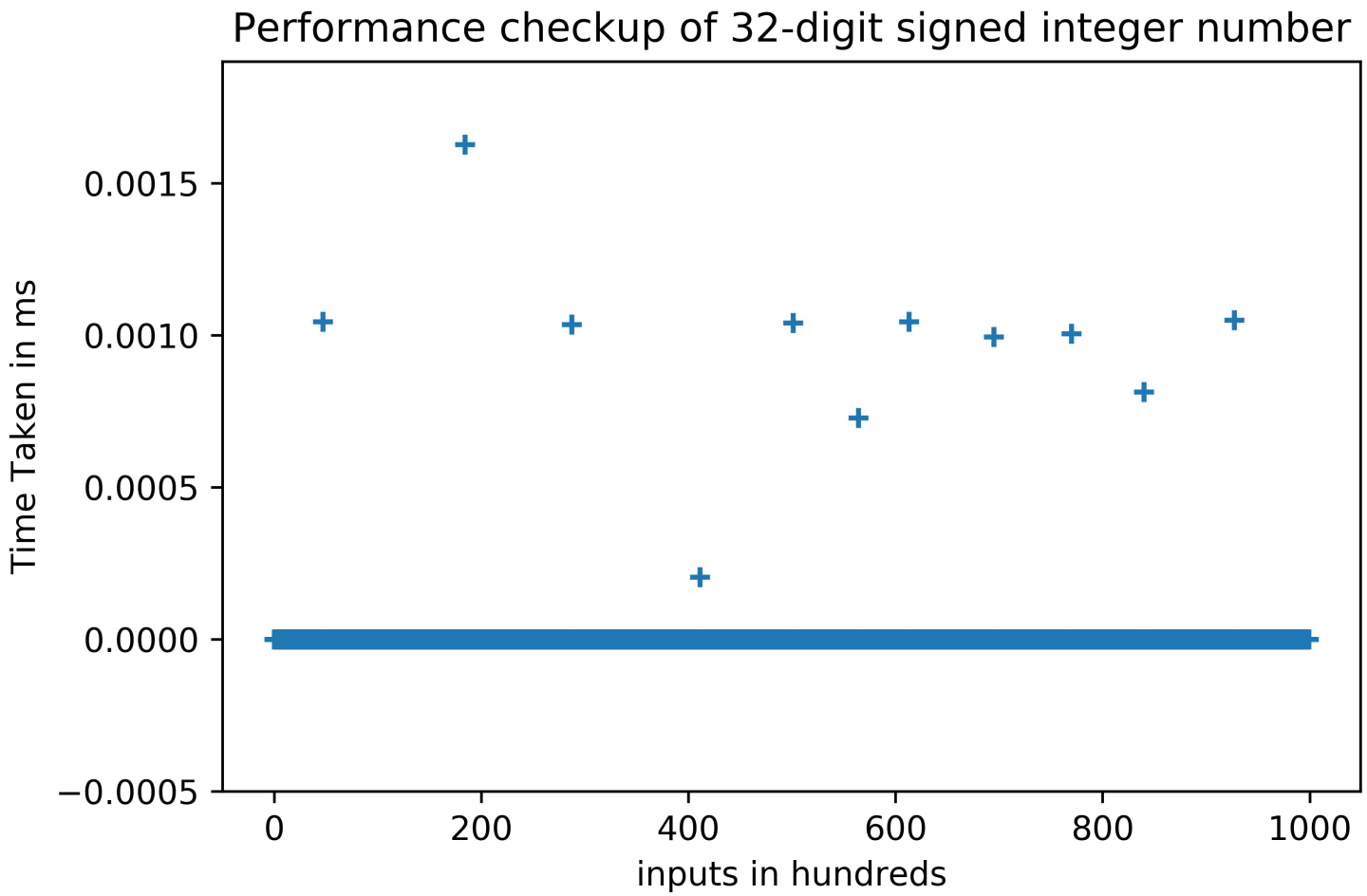
Average time is 0.000009 ms



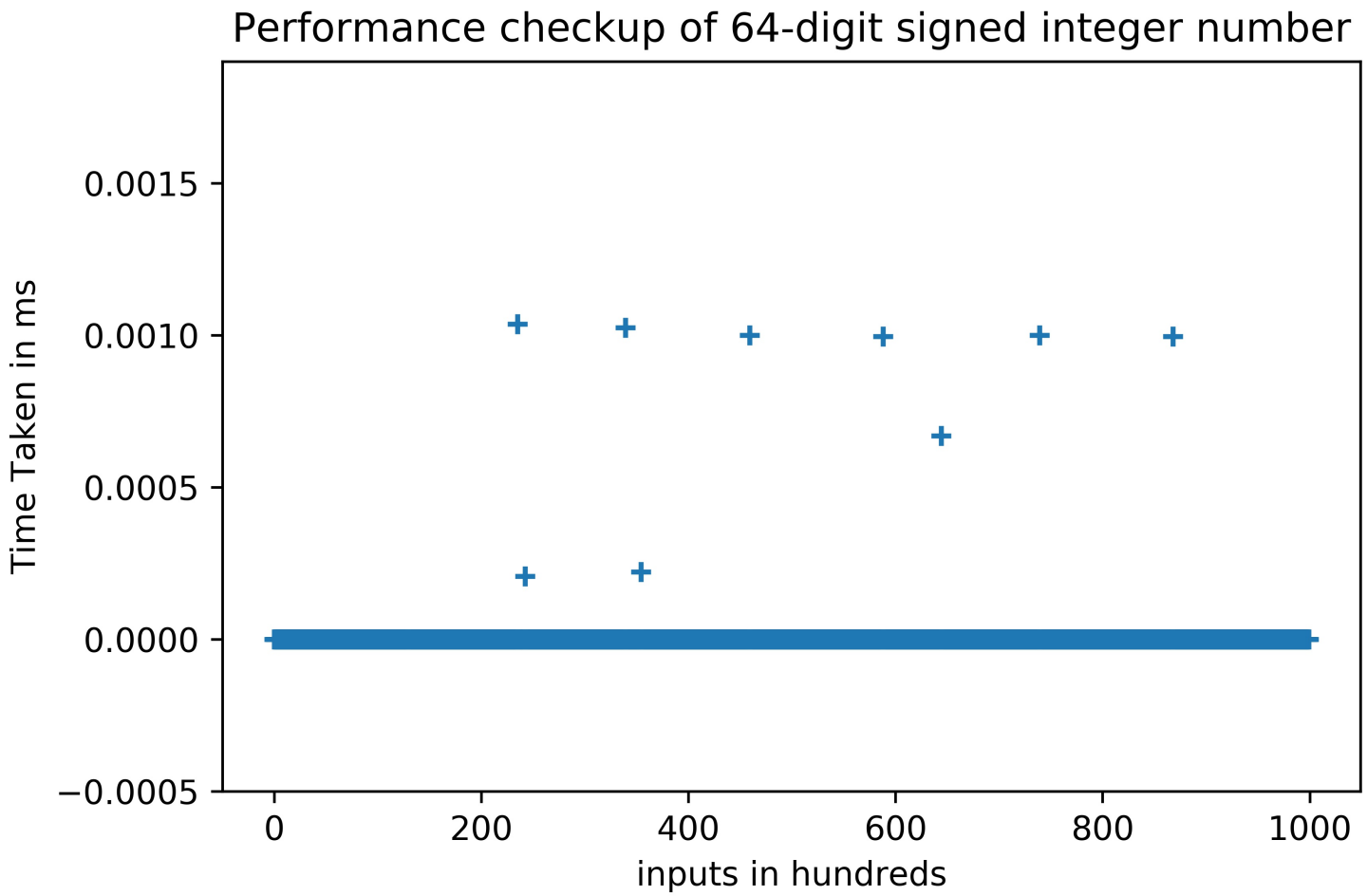
Average time is 0.000010 ms



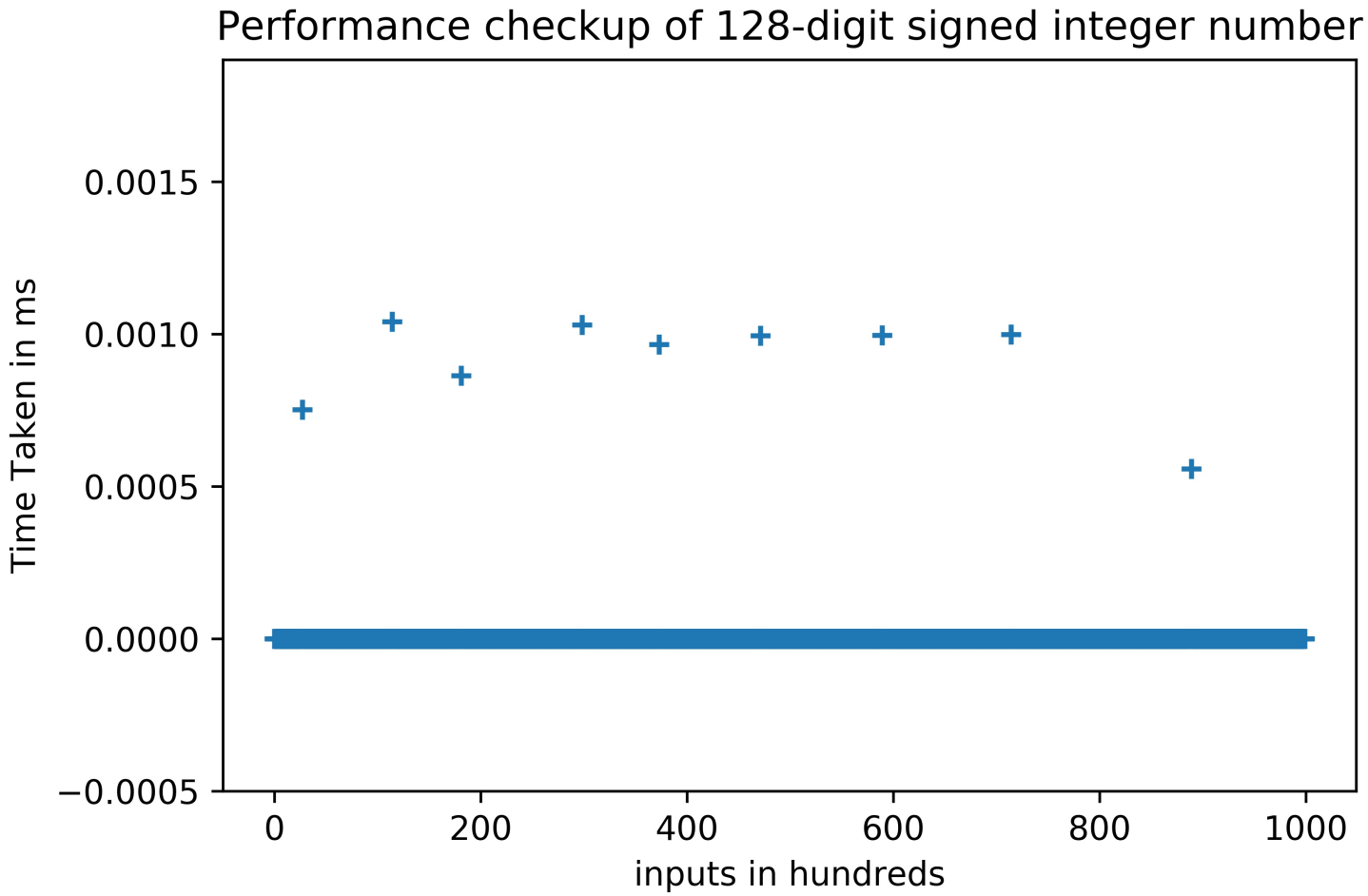
Average time is 0.00006 ms



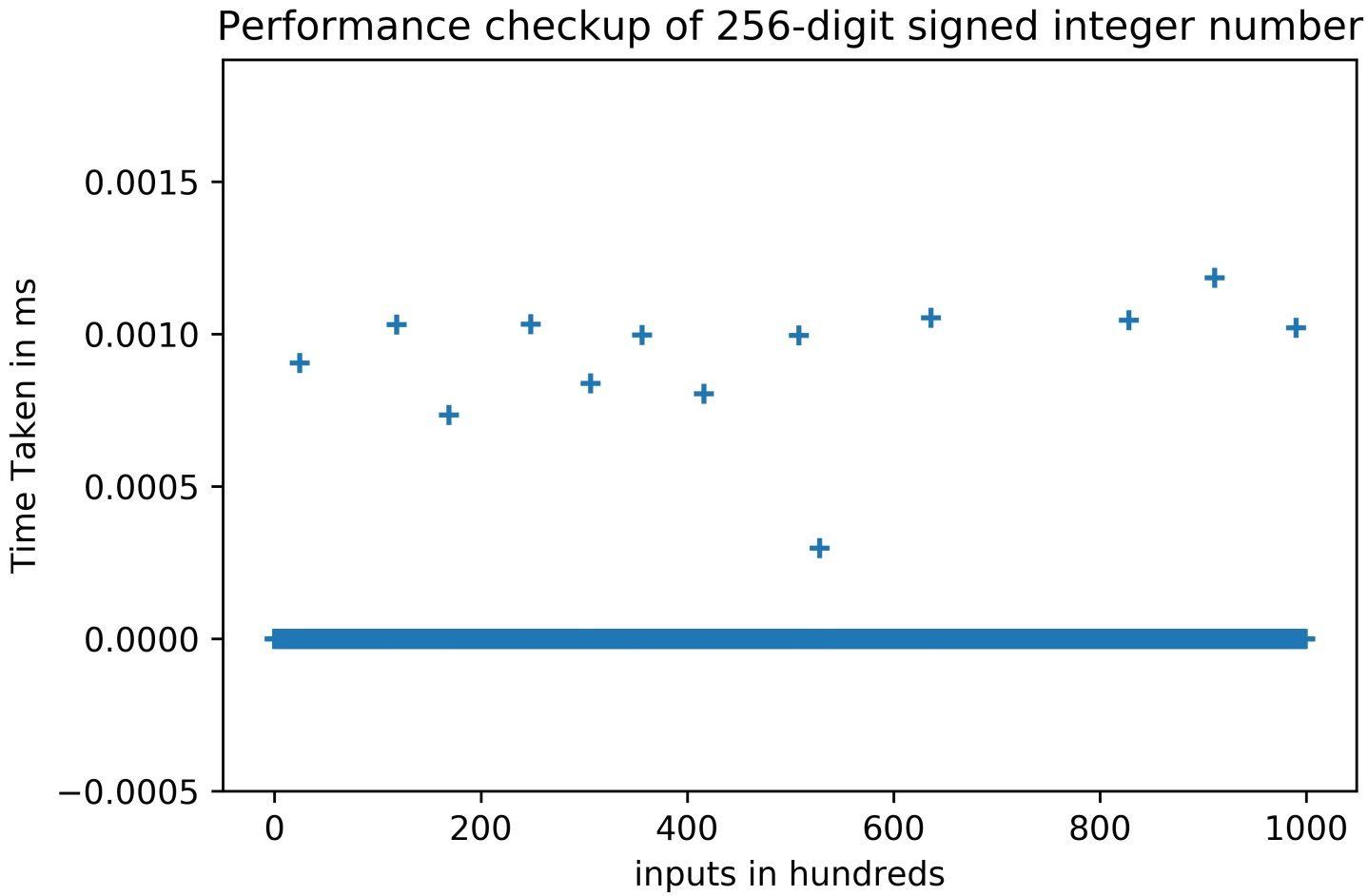
Average time is 0.000011 ms



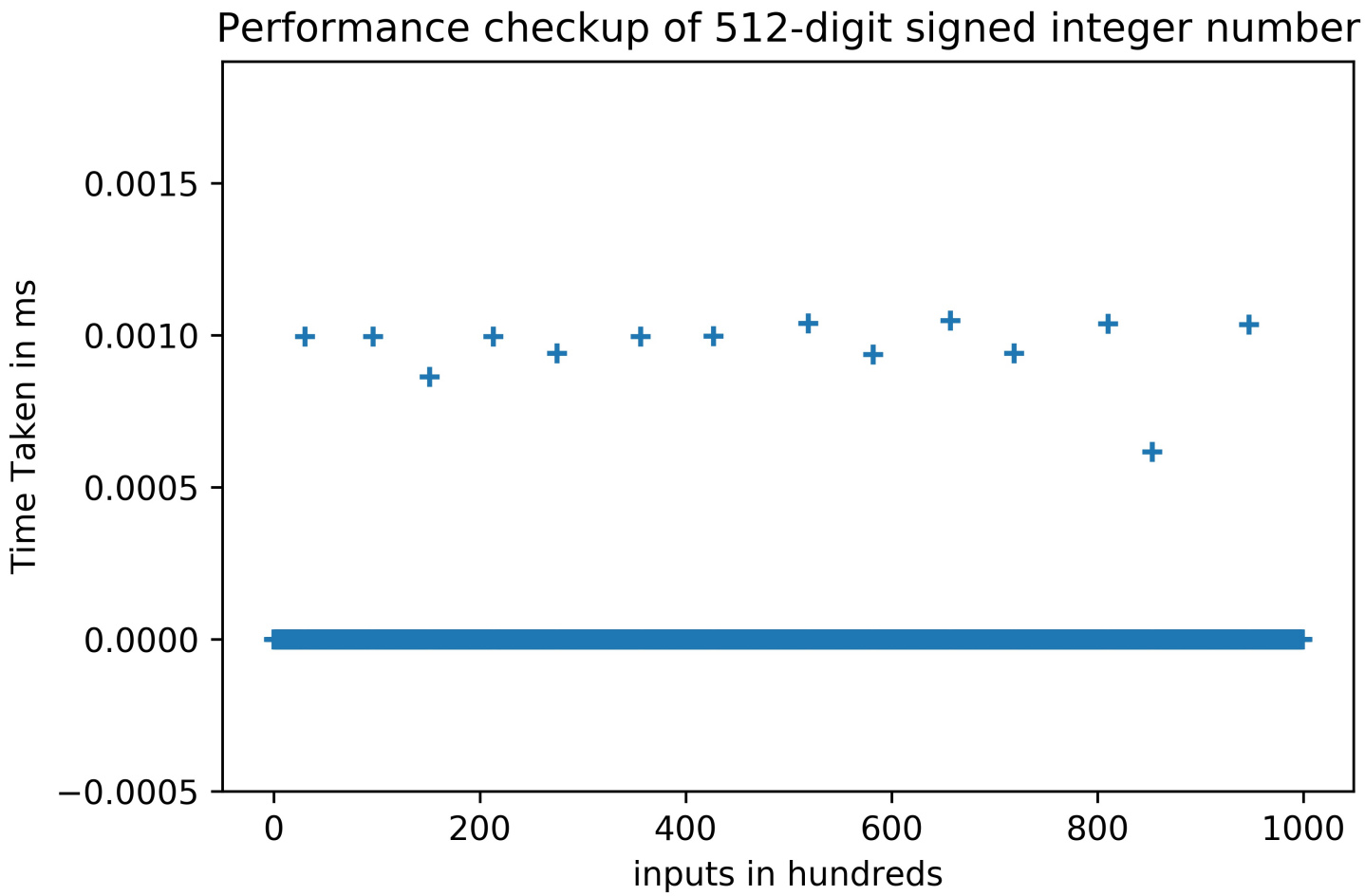
Average time is 0.000007 ms



Average time is 0.000010 ms

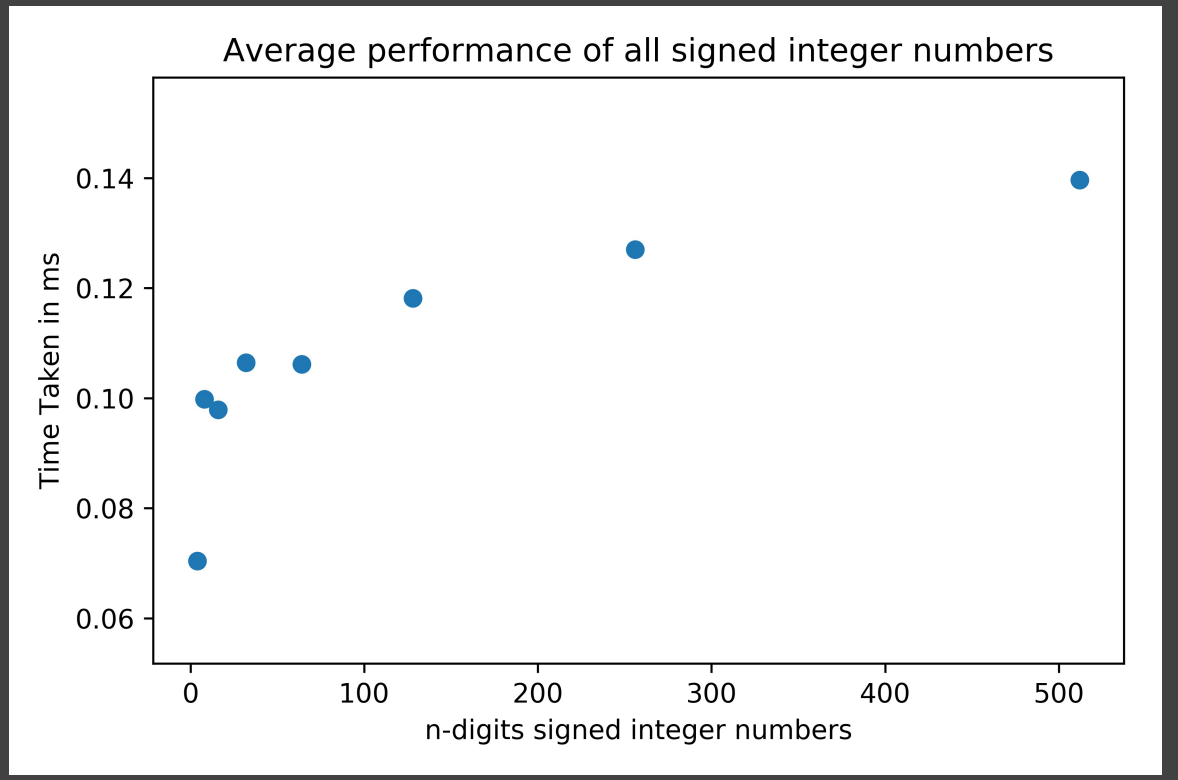


Average time is 0.000015 ms



Conjecture

- From the graph we can conclude that as the number of digits increases the time taken will also increase.
- Space complexity will remain as it because few variables are used.



Analysis of the code

- As the division function designed for the division algorithm consists of subtraction of two numbers and updating the value of quotient the time complexity is O(1).
- As the division function consists of 9 variables we can consider space complexity as O(1).

Github link

https://github.com/Anirudha-N/Programming-Assignment-1