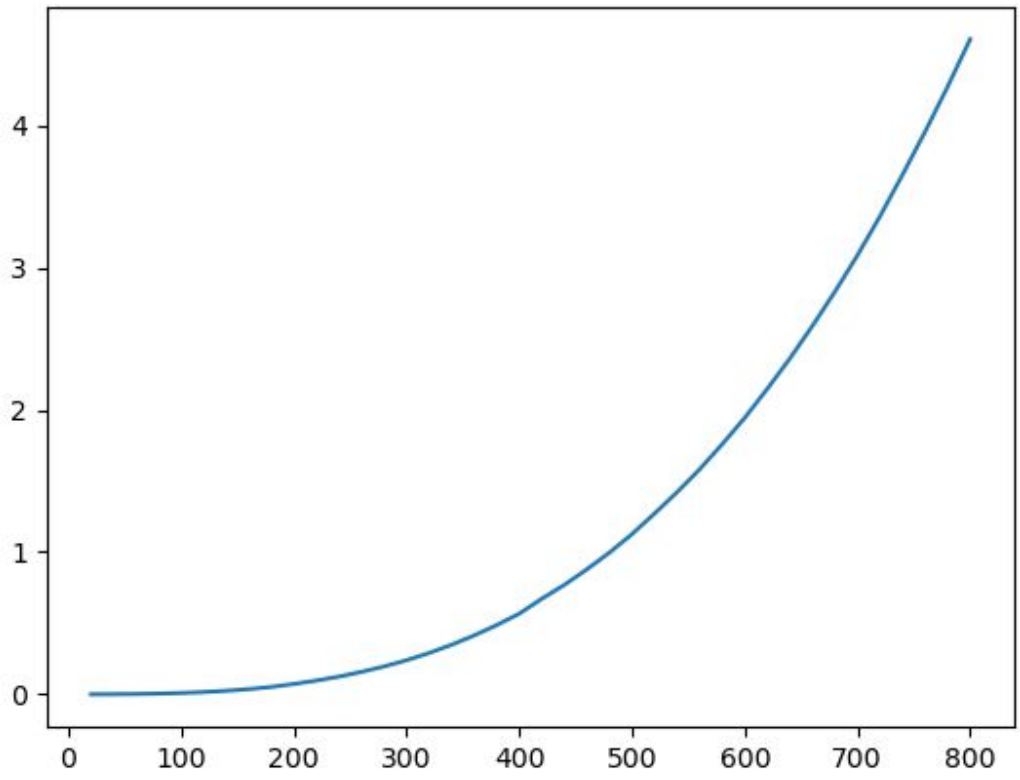
Benjamin Weisman
Noah Solomon

1a) What does the program/algorithm do?
The algorithm takes in a list and permutes it by checking to see if each index in the array is smaller than the next. It repeats this until the list is arranged from largest to smallest.

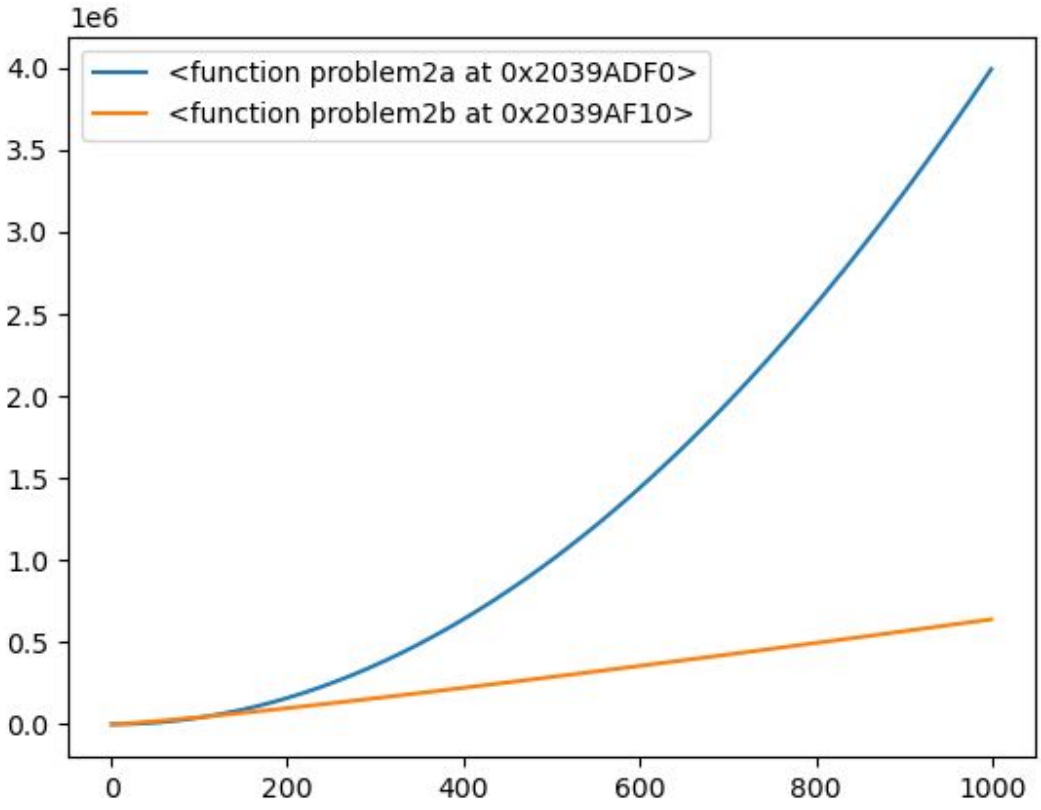
1b) How does the runtime of the algorithm scale on inputs of increasing size?

O(n^2)

1c)



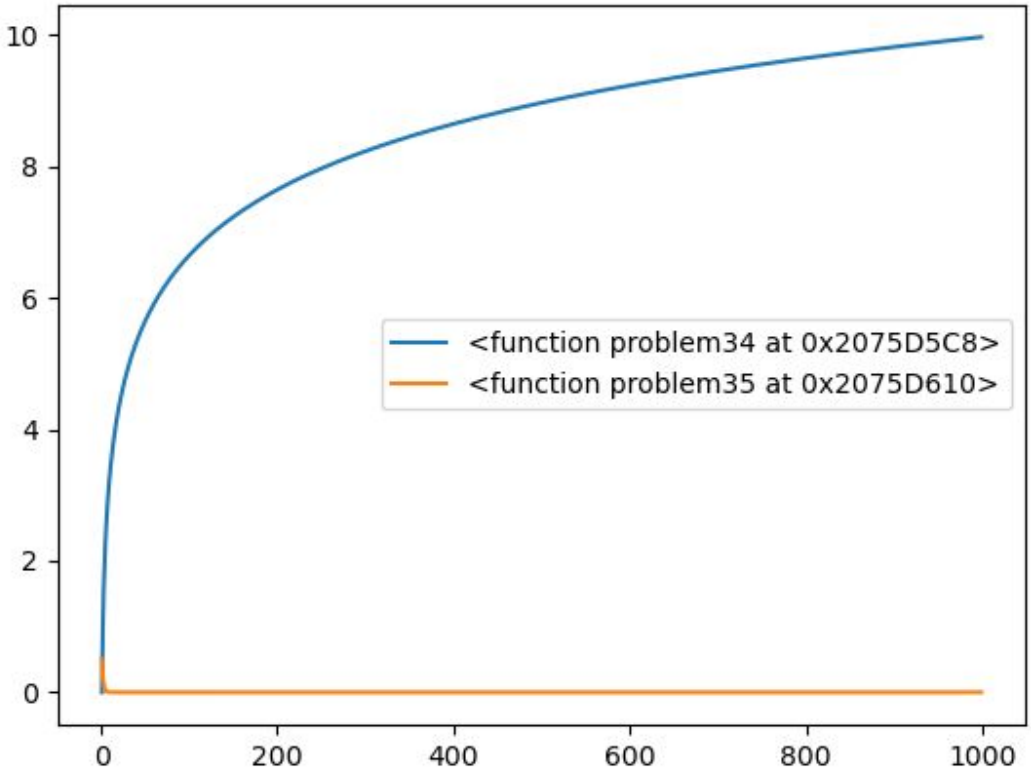
2a)

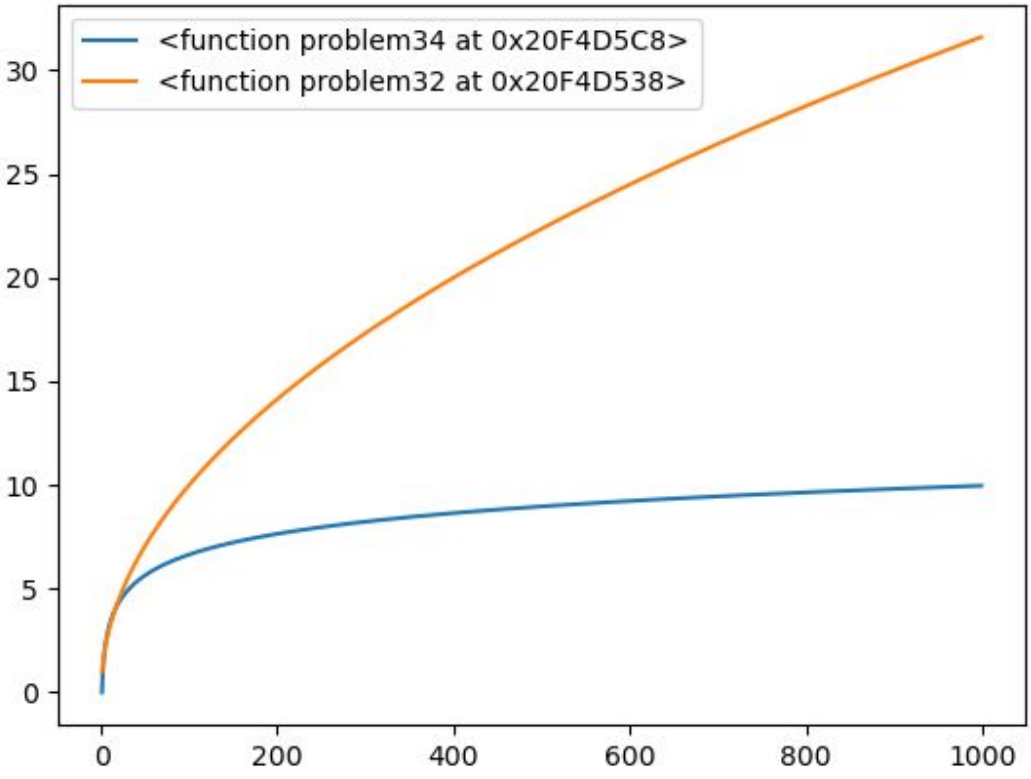


2b) intersects on 107.14465773

2c) $R_2(n) \in o(R_1(n)) \Rightarrow \forall \varepsilon > 0 \, \exists N \in \mathbb{N}$ s.t. $abs(R_2(n)) \leq \varepsilon R_1(n) \, \forall n \geq N$

3b) Each function is little o of the function before it.

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<function problem32 at 0x20F4D538>
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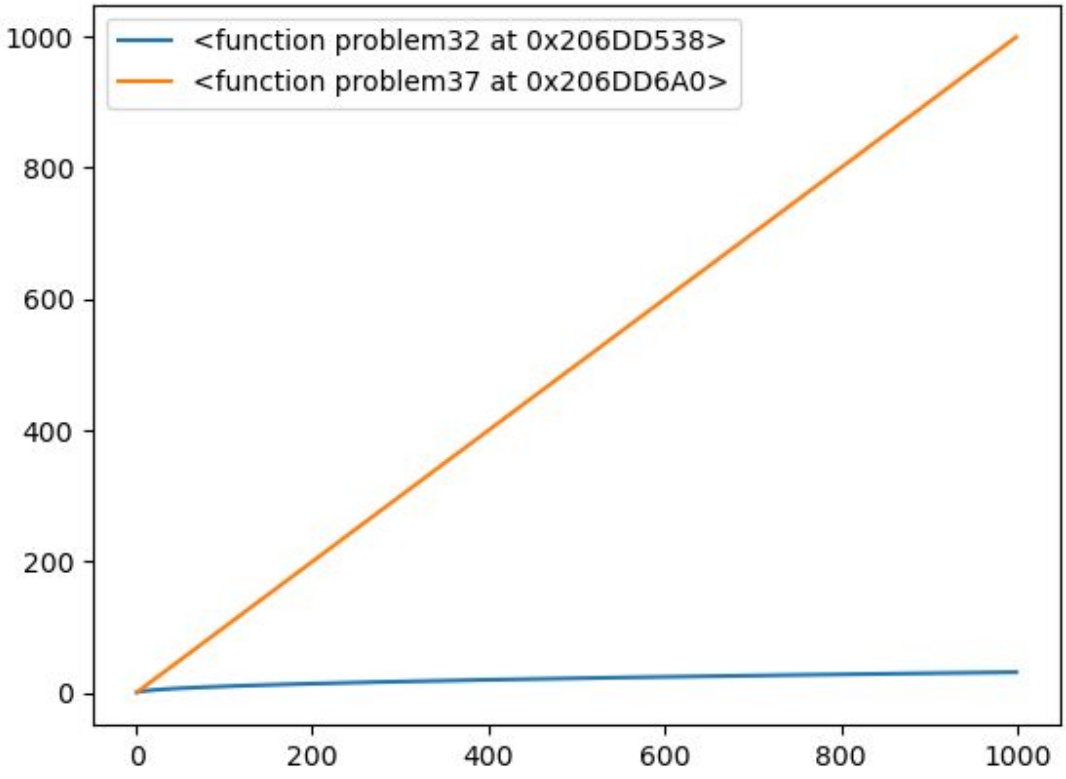
25
20
15
10
5
0
0
200
400
600
800
1000


<function problem32 at 0x206DD538>
<function problem37 at 0x206DD6A0>
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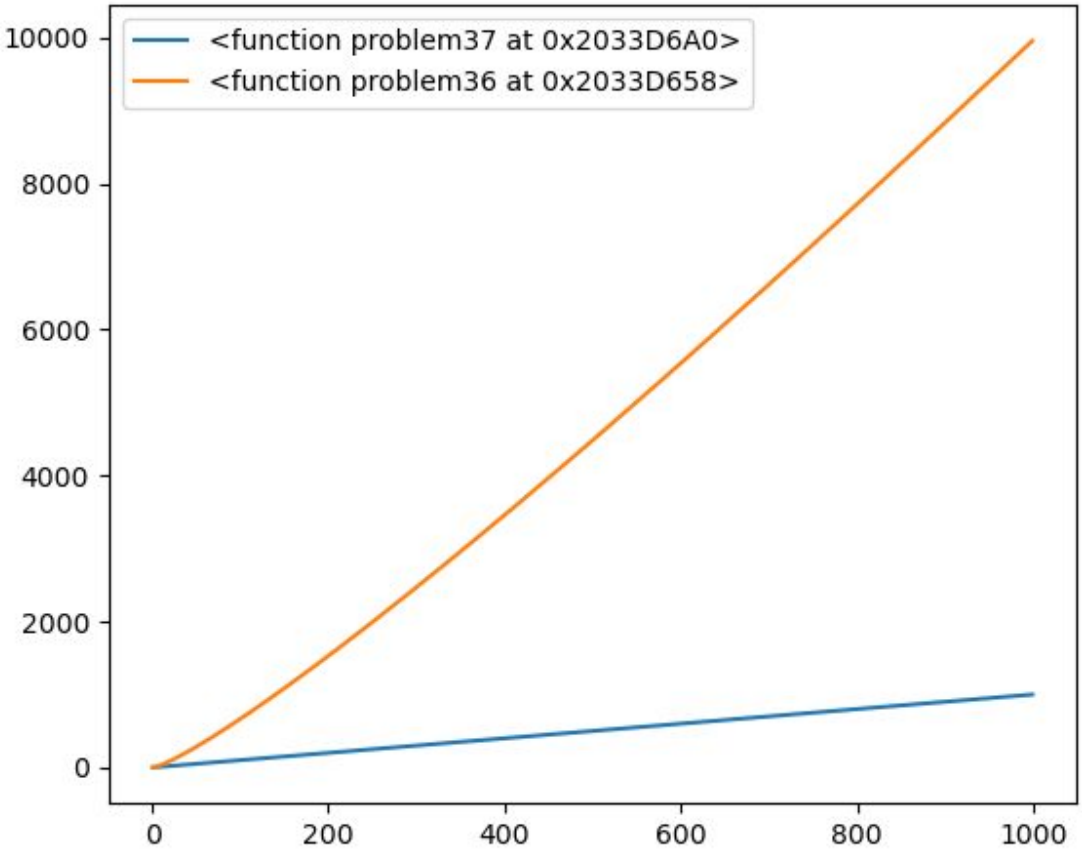
800
600
400
200
0
0
200
400
600
800
1000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<function problem36 at 0x2033D658>
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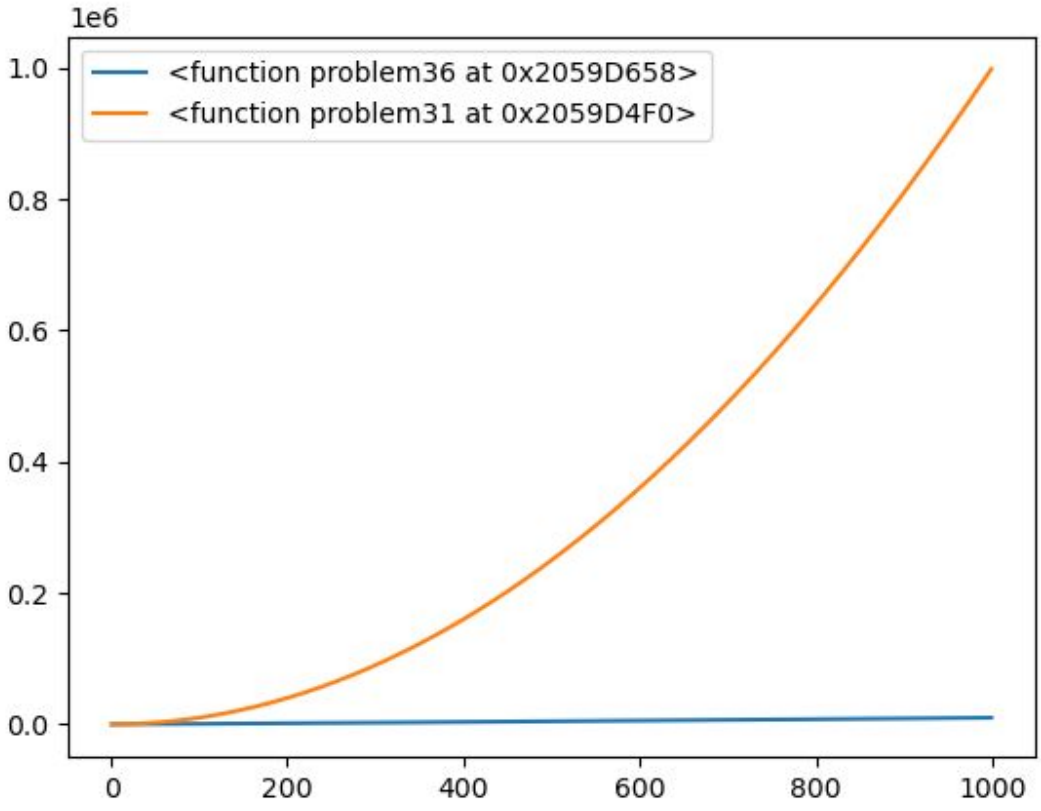
8000
6000
4000
2000
0
0
200
400
600
800
1000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1.0
0.8
0.6
0.4
0.2
0.0
0
200
400
600
800
1000
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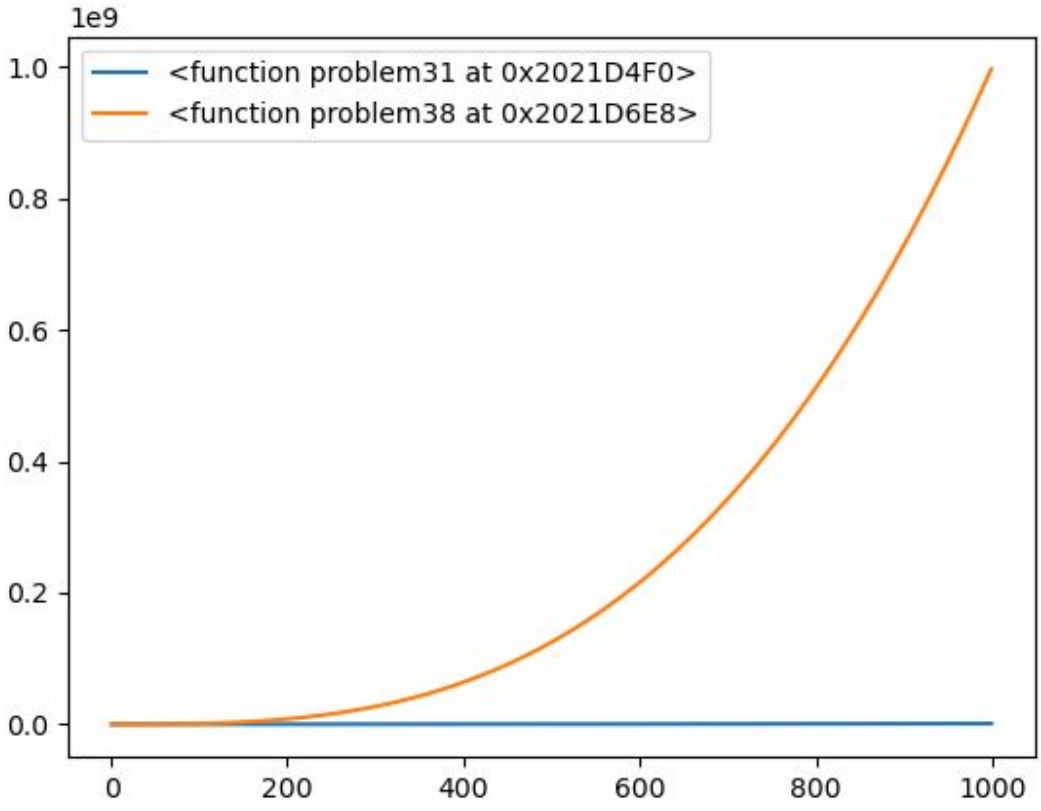
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0.8
0.6
0.4
0.2
0.0
0
200
400
600
800
1000
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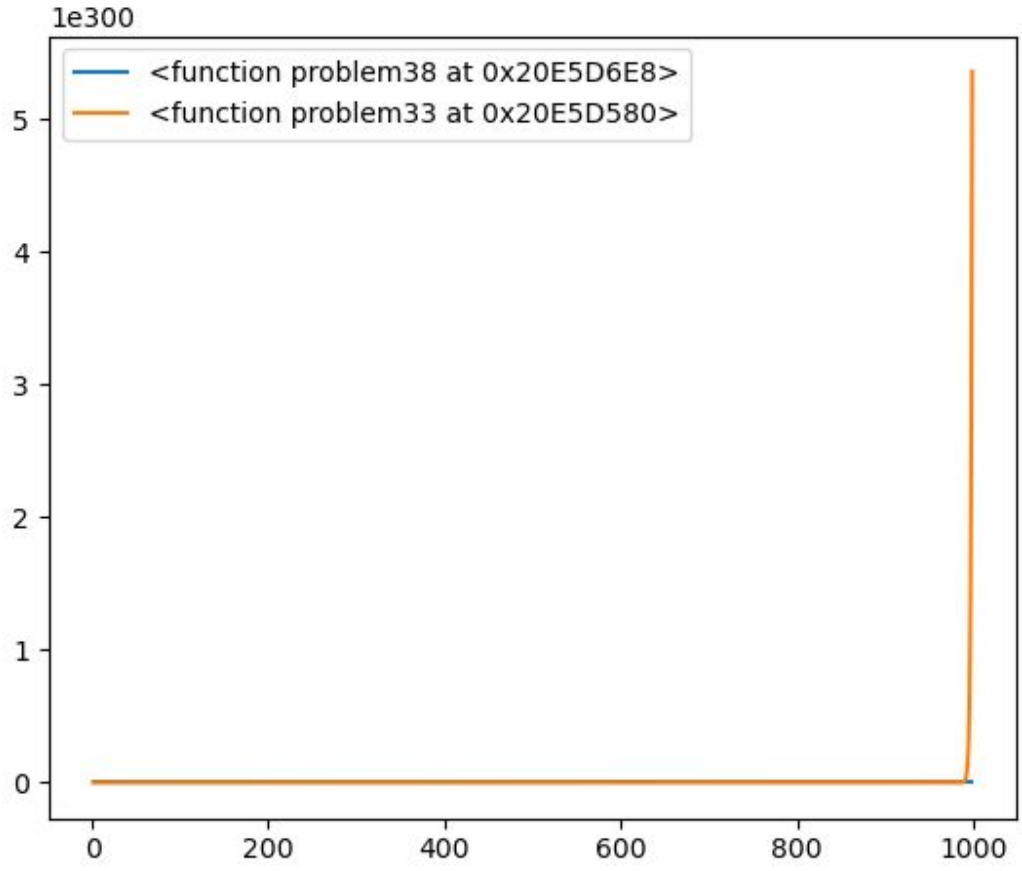
1e300
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3
2
1
0
0
200
400
600
800
1000