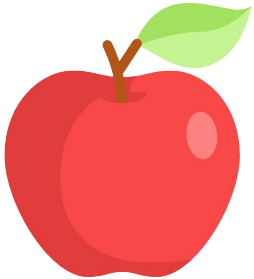
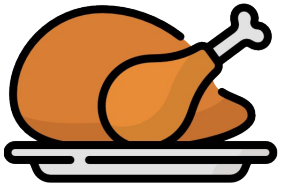
Dim Sum Problem

Task

1. You will see a sequence of numbers one by one.
2. Every time, you get to decide to take the number or not.
    a. Once you choose that number, you have to keep it.
    b. You also can’t choose a number after it has passed.
3. You want to pick the largest number possible.


Practice Run

You will see 5 numbers.

12

12	80

80

12	80	66

66

12	80	66	77

77

12	80	66	77	9

9

12	80	66	77	9

4	1	3	2	5

Actual Run

You will see 15 numbers.

?	?	?	?	?	?	?	?	?	?	?	?	?	?	?

64

64	115

115

64	115	91

91

64	115	91	95

95

64	115	91	95	159

159

64	115	91	95	159	175

175

64	115	91	95	159	175	75

75

64	115	91	95	159	175	75	178

178

64	115	91	95	159	175	75	178	100

100

64	115	91	95	159	175	75	178	100	22

22

64	115	91	95	159	175	75	178	100	22	30

30

64	115	91	95	159	175	75	178	100	22	30	65

65

64	115	91	95	159	175	75	178	100	22	30	65	85

85

64	115	91	95	159	175	75	178	100	22	30	65	85	29

29

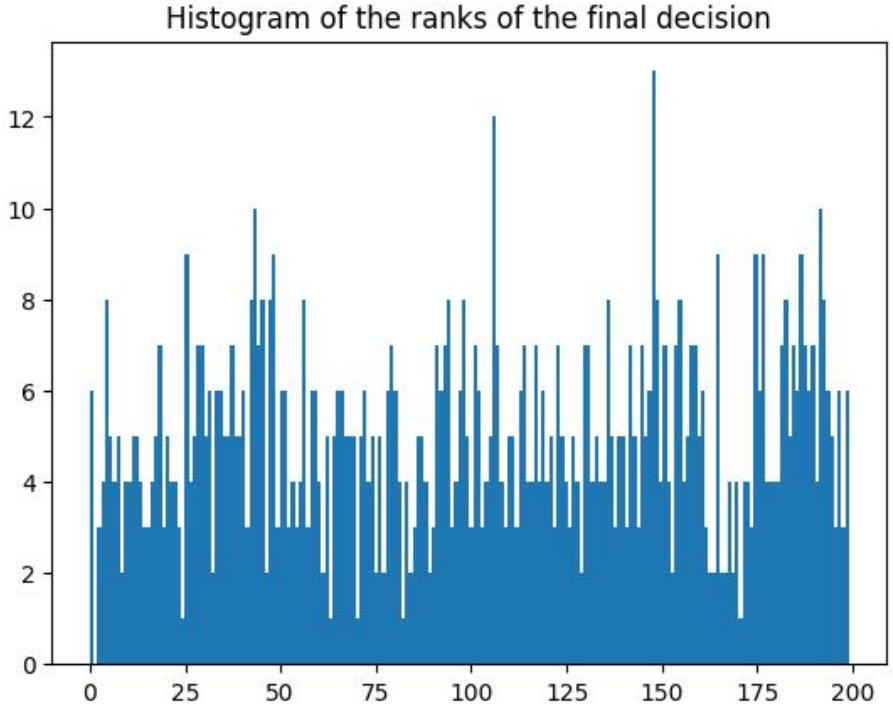
64	115	91	95	159	175	75	178	100	22	30	65	85	29	109

109

64	115	91	95	159	175	75	178	100	22	30	65	85	29	109

12	4	8	7	3	2	10	1	6	15	13	11	9	14	5

Algorithm: take the first item



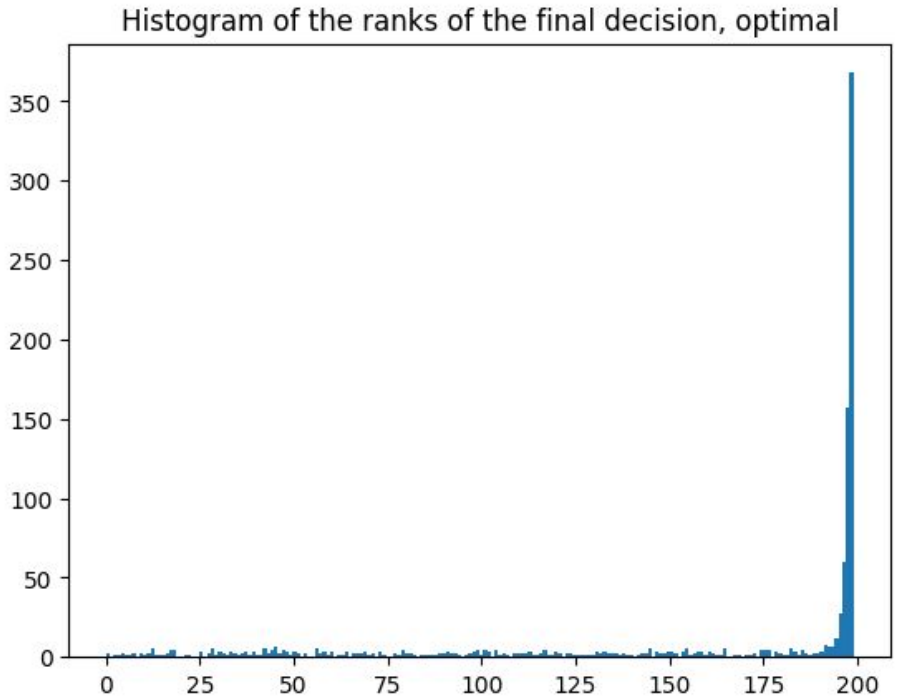
Experiment with algorithm:

- Run this algorithm 1000 times
- Each time, select 1 out of 200 items

Plot:

# of times each rank was selected

Algorithm: optimal algorithm



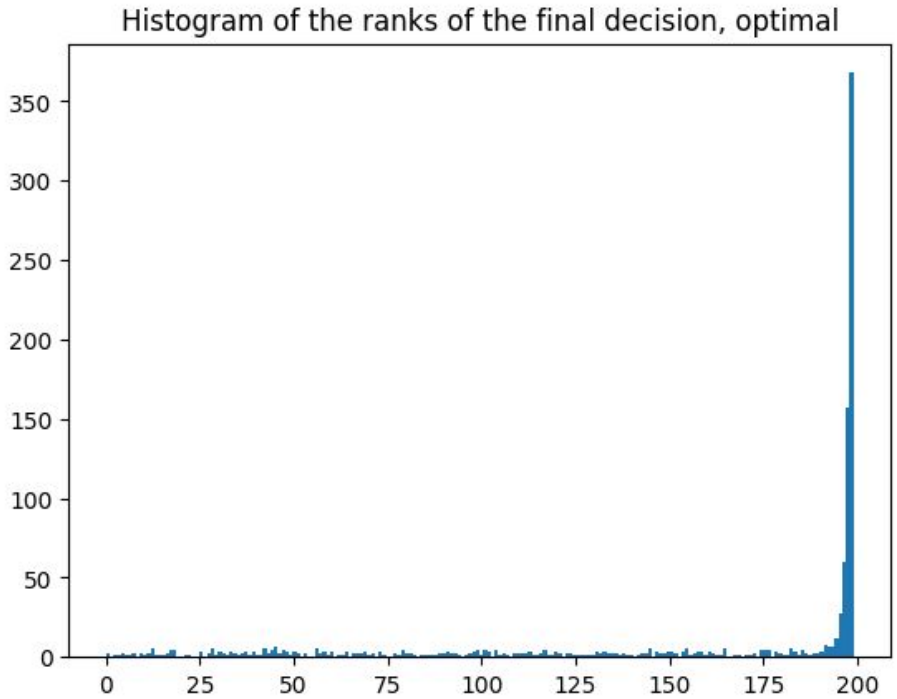
Experiment with algorithm:

- Run this algorithm 1000 times
- Each time, select 1 out of 200 items

Plot:

# of times each rank was selected

Algorithm: choose the first item better than the first half*



Experiment with algorithm:

- Run this algorithm 1000 times
- Each time, select 1 out of 200 items

Plot:

# of times each rank was selected

* look at the first N/e items