



# Greedy Algorithms


## Class 1

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# Agenda for today's class:

- What are Greedy Algorithms?
  - Kadane's Algorithm
  - 4 leetcode questions (Kadane's + buy/sell stock + jump game 1 and 2)
  - Pair trick in Priority Queue and Set + google interview que
  - Greedy on strings (lexicographically minimum/maximum) + 1 CF que
  - What's next?
- 




# What are Greedy Algorithms?

- Using the best possible move available at the moment without worrying about future.
  - Ex : What will you pick if you have a 1000 Rs. Note, a 100Rs Note and a 2000 Rs. Note provided you can pick only one note?
  - Ex : You are given 10 liters of water in a tank and you have to fill 4 bottles that have capacity of 1 liter, 1 liter, 2 liters and 9 liters.
    - Q1 -> maximize the number of bottles used.
    - Q2 -> maximize the quantity of water with minimum bottles.
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# Kadane's Algorithm

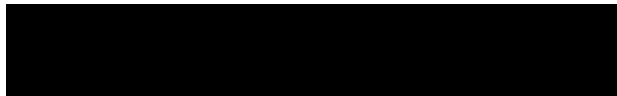
[Link](#) (Maximum sum subarray)

- Approach ->
  - Code ->
  - Proof of correctness ->
- 



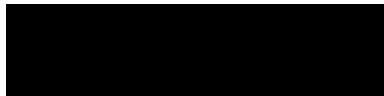
# 4 leetcode questions

- [Problem 1](#) ->

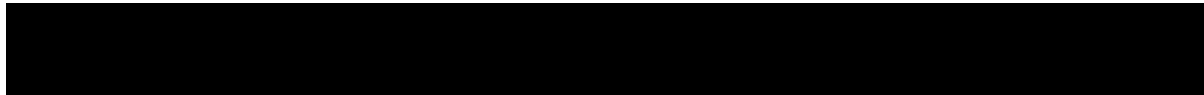


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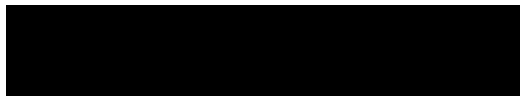
- [Problem 2](#) ->




- [Problem 3](#) ->



- [Problem 4](#) ->






# Pair trick in PQ and set + google interview que

- How to convert max heap to min heap without writing comparator.  
(**X**Don't use in interview)

## Google Interview question [Link](#)

- Approach ->
  - Code ->
  - Proof of correctness ->
- 



# What's next?

- Next class (23/10/2022) only problem solving on greedy.
  - Greedy involving ranges (job scheduling algo, etc.) to be done in next class as well.
  - Greedy on strings will also be done in next class.
  - Thank you 😊
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