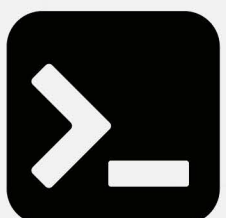
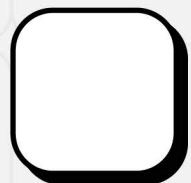


SPEEDRUN THE CODING INTERVIEW:

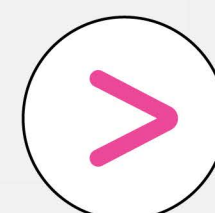
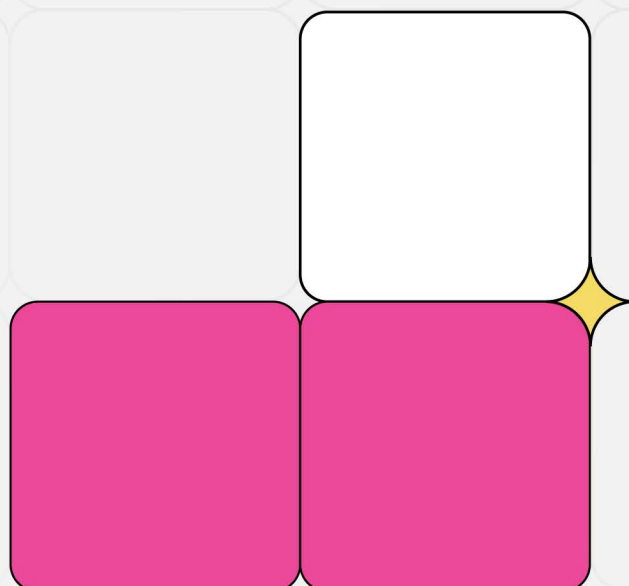
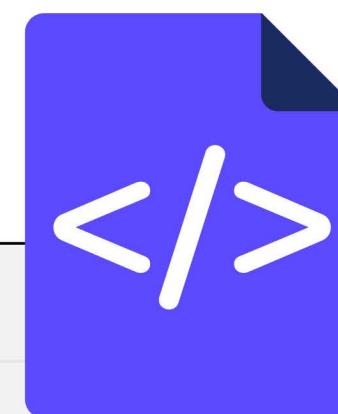
WHAT TO EXPECT

FROM



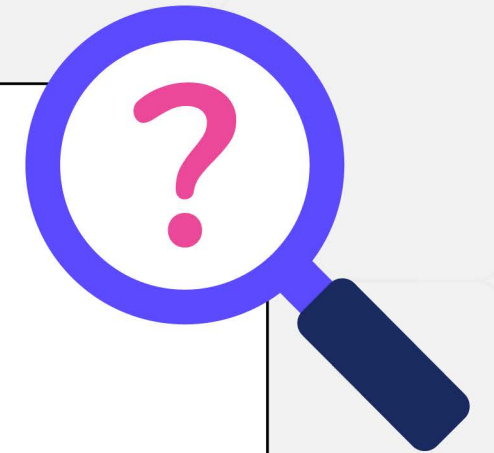
RELEVANT CODING PATTERNS TO REVIEW

- Modified Binary Search
- Stacks
- Custom Data Structures
- Hash Maps
- Cyclic Sort
- Top K Elements
- Union Find



MODIFIED BINARY SEARCH

EXAMPLE PROBLEM



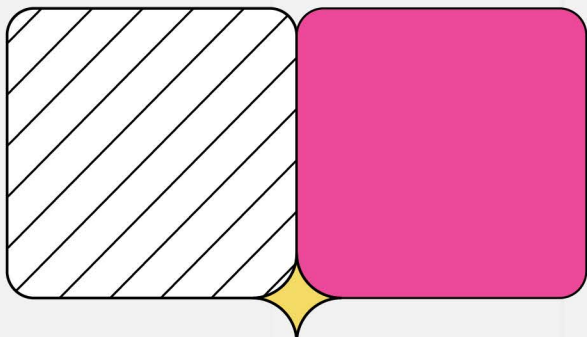
Random Pick with Weight:

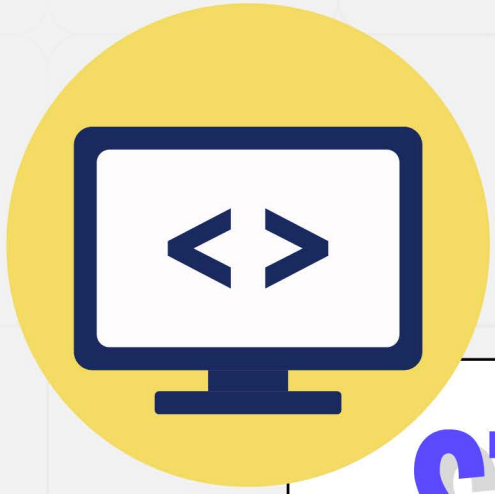
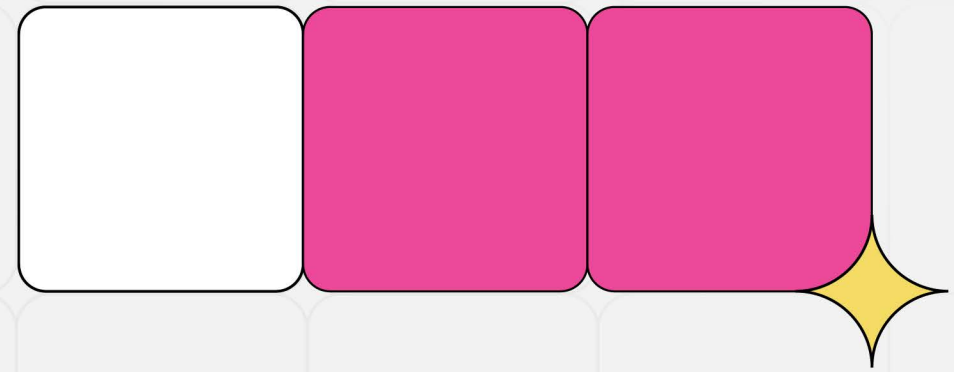
- Given an array of positive integers, **weights**, where **weights[i]** is the weight of the i^{th} index, the task here is to write a function, **Pick Index()**, which performs weighted random selection to return an index from the array.

Input

	[0]	[1]	[2]	[3]	[4]	[5]
weights	5	10	15	20	250	30

Index 4 has the highest weight, so its probability of being picked is higher than the other elements.





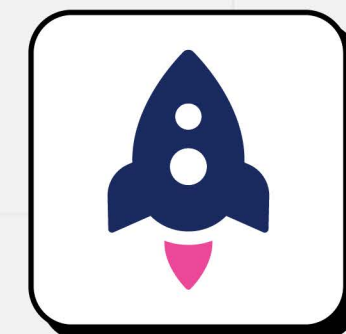
STACKS EXAMPLE PROBLEMS

Flatten Nested List Iterator:

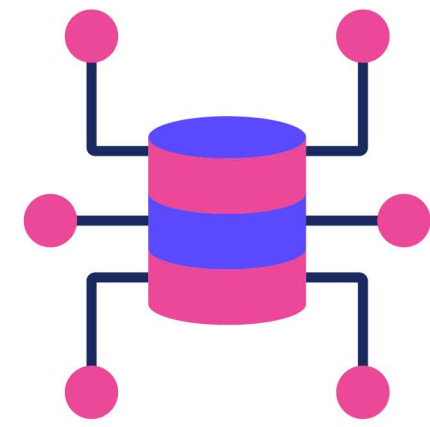
- Given a nested list of integers where each element is either an integer or a list whose elements may also be integers or other integer lists, implement an iterator to flatten the nested list.

Valid Parentheses:

- Given a string that may consist of opening and closing parentheses, your task is to check whether or not the string contains valid parenthesization.



CUSTOM DATA STRUCTURE EXAMPLE PROBLEM



Time-Based Key-Value Store:

- Implement a data structure that can store multiple values of the same key at different timestamps and retrieve the key's value at a certain timestamp. You'll need to implement the `TimeStamp` class.

Input

Set Value:

```
key = "Courses", value = "OOP", timestamp = 5
```

Get Value:

```
key = "Courses", timestamp = 7
```

Output

```
"OOP"
```



HASH MAP EXAMPLE PROBLEM

Logger Rate Limiter:

- For the given stream of message requests and their timestamps as input, you must implement a logger rate limiter system that decides whether the current message request is displayed. The decision depends on whether the same message has been displayed in the last **s** seconds.

Input

requests
{ 1 : Hello world }
{ 2 : Good morning }

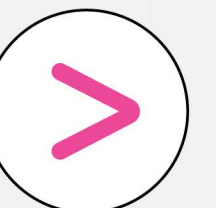
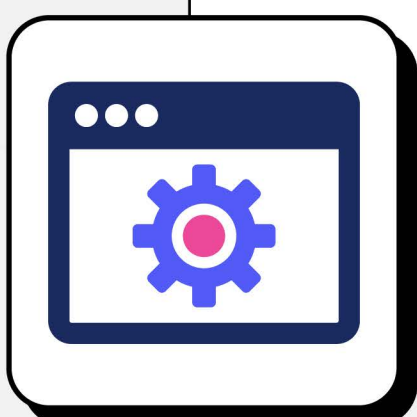
time_limit = 7

Output

TRUE

TRUE

As the time_limit is 7, the first incoming request will return **TRUE**. The message in the second incoming request is different from the message in the first request, hence it will also be accepted and **TRUE** is returned.



CYCLIC SORT EXAMPLE PROBLEM

First Missing Positive:

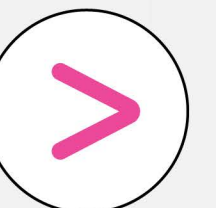
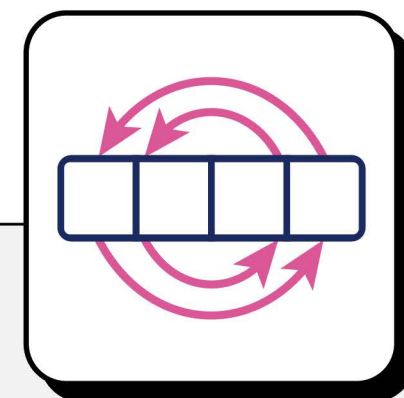
- Given an unsorted integer array, `nums`, return the smallest missing positive integer. Create an algorithm that runs with an $O(n)$ time complexity and utilizes a constant amount of space.

Input

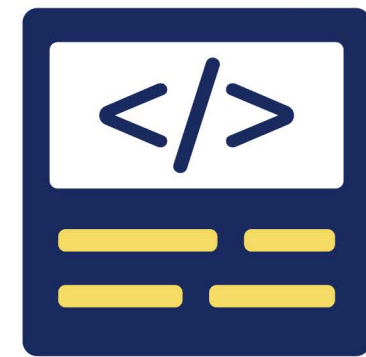
5	10	15	20
---	----	----	----

Output

3



TOP K ELEMENTS EXAMPLE PROBLEM



Kth Largest Element in an Array:

- Given an unsorted array, find the k^{th} largest element. We need to find the k^{th} largest element in the sorted order, not the k^{th} distinct element.

Input

$k = 9$

13	-21	12	22	-11	29	17	-16	24	19	-18
----	-----	----	----	-----	----	----	-----	----	----	-----

Output

Output	3
--------	---



UNION FIND EXAMPLE PROBLEM

Longest Consecutive Sequence:

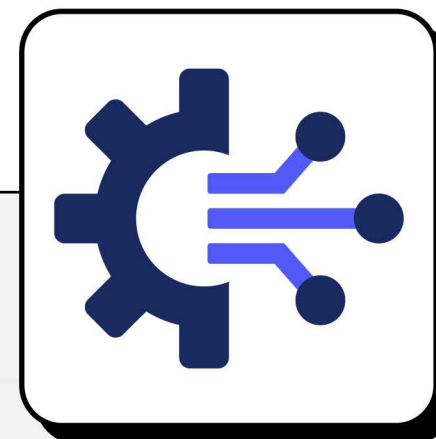
- Given an unsorted array, `nums`, your task is to return the length of the longest consecutive sequence of elements. The consecutive sequence of elements should have no missing elements in the sequence. The consecutive elements can also be present anywhere in the input array.

Input

nums	99	2	1	3	5
------	----	---	---	---	---

Output

Length is = 3



DON'T STOP HERE!

**GET HANDS-ON PRACTICE WITH
THESE PATTERNS AND EXAMPLE
PROBLEMS TO GET FULLY
PREPARED FOR THE NETFLIX
CODING INTERVIEW!**

GOOD LUCK, AND HAPPY LEARNING!