

Lyft Cracker Sheet -

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Note: [To Use this sheet optimally go and watch the "Cracking the Lyft coding interview 🔥: The definitive prep guide" video on Debug Buzz Channel.

Link - <https://youtu.be/pC0ctmMBF1k>]

Q)

Alice has a set of buckets of various sizes, and an unlimited water supply. Her task is to measure an exact amount of water in one of the buckets.

Buckets are unmarked and she only knows their full capacity, which is always an integer e.g. 5 gallons.

Alice is allowed the following operations:

1. Fully fill a bucket.
2. Empty a bucket.
3. Pour bucket into another, up until the other bucket's capacity.

Note that Alice doesn't know how to measure water in any other way, e.g. she can't pour 1/2 of a bucket into another because her measurement would be inaccurate.

Example: buckets have capacity 3 and 5. Alice is asked to measure 4.

Let's denote buckets' contents by a tuple (a, b) where $0 \leq a \leq 3$ and $0 \leq b \leq 5$.

We start with $(0, 0)$ and can follow these steps:

1. Fill up the big bucket $(0, 5)$
2. Pour to the smaller one $(3, 2)$
3. Empty the small one $(0, 2)$
4. Pour water from big to small $(2, 0)$
5. Fill up the big one $(2, 5)$
6. Pour water from big to small $(3, 4)$

0_0

Your task is to help Alice determine the shortest sequence of steps that gets desired capacity.

Here she took 6 steps to get to 4 gallons of water.

Q)

Minimum window substring

Q)

<https://leetcode.com/problems/meeting-rooms-ii>

Q)

Return a list of pair of (meeting, room) showing which meeting will be held in which room.

E.g. given meetings `[[0,30],[5,10],[15,20]]`, answer should be `[[0, 0], [1, 1], [2, 1]]`.

Explanation: Meeting `[0, 30]` happens in Room-0, Meeting `[5,10]` happens in Room-1.

Room-1 gets freed at $t = 10$, so it is then used for Meeting `[15, 20]`

- The objective is to schedule all meetings with the least number of rooms
- If there are multiple rooms available, choose the one with least numerical value.
E.g. if rooms 2 and 3 are available, then pick room-2

Test Cases

input: `[[0, 30], [5, 10], [15, 20]]`

output: 2 rooms [meeting index, room number] -> `[[0, 0], [1, 1], [2, 1]]`

explained in the problem description

input: `[[4, 8], [5, 10], [6, 8], [9, 16], [15, 20]]`

output: 3 rooms -> `[[0, 0], [1, 1], [2, 2], [3, 0], [4, 1]]`

* Meeting 0 runs from 4 to 8 in room 0

* Meeting 1 runs from 5 to 10 in room 1.

* Meeting 0 is still running so room 0 isn't available, so take a new room, room 1.

* Meeting 2 runs from 6 to 8 in room 2.

* Meeting 0 and 1 are still running so rooms 0 and 1 aren't available, so take a new room, room 2.

* Meeting 3 runs from 9 to 16 in room 0.

* Meeting 0 and 2 are over, choose room 0 since its numerically lower

* Meeting 4 runs from 15 to 20.

* Meeting 0, 1 and 2 are over. Room 0 is occupied by meeting 3, so choose room 1

input: `[4, 6], [6, 8], [9, 16], [15, 20], [5, 10]`

output: 2 rooms -> `[[0, 0], [1, 0], [2, 0], [3, 1], [4, 1]]`

Q)

There are houses numbered from 1 to 1000. There are satellites positioned to cover the house broadcasting. Given two arrays L and R, $L[i]$ and $R[i]$ represents the house range where $L[i] < R[i]$. At any time, i satellite will cover houses between $L[i]$ and $R[i]$. Return minimum number of satellites to cover all houses or else return -1 if all houses are not covered.

Q)

You want to schedule a certain number of trips with a collection of several cabs.

Given an integer n representing a desired number of trips, and an array `cabTravelTime` representing your cabs and how long it takes each cab (at that index of the array) to make a trip, return the minimum time required to make n trips.

Assume that cabs can run simultaneously and there is no waiting period between trips.

There may be multiple cabs with the same time cost.

Examples

If $n=3$ and `cabTravelTime=[1,2]`, then the answer is 2. This is because the first cab (index 0, cost 1) can make 2 trips costing a total of 2 time units, and the second cab can make a single trip costing 2 at the same time.

`n=10`

`cabTravelTime=[1,3,5,7,8]`

- 7 trips with cab 0 (cost 1)
- 2 trips with cab 1 (cost 3)
- 1 trip with cab 2 (cost 5)

So, answer is 7 (there could be other combinations)

`n=3`

`cabTravelTime=[3,4,8]`

- 2 trips with cab 0 (cost 6)
- 1 trip with cab 1 (cost 4)

Time = 6

Q)

Design and implement Analog Clock with the hands ticking.

Q)

<http://leetcode.com/problems/intersection-of-two-arrays/>

Q)

Given two sorted iterators. Implement `IntersectionIterator` which returns only common elements in both iterators. If you are not familiar with iterators check similar questions.

```
public class IntersectionIterator implements Iterator<Integer> {
    public IntersectionIterator(Iterator<Integer> it1, Iterator<Integer>
it2) {
    }

    /**
     * Returns the next element in the iteration (common element in the two
iterators).
     */
    public boolean hasNext() {
    }

    /**
     * Returns true if the iteration has more elements (common elements in
the two iterators).
     */
    public Integer next() {
    }
}
```

Example 1:

```
IntersectionIterator it = new IntersectionIterator([1, 2, 4, 5, 6], [1, 3,
5]);
it.hasNext(); // true
it.next(); // 1
it.next(); // 5
it.hasNext(); // false
it.next(); // error
```

Example 2:

```
IntersectionIterator it = new IntersectionIterator([1, 2, 4, 5, 6], [3, 7,
8, 9]);
it.hasNext(); // false
```

Example 3:

```
IntersectionIterator it = new IntersectionIterator([1, 2, 3, 4], [1, 2, 3, 4]);
it.hasNext(); // true
it.next(); // 1
it.next(); // 2
it.next(); // 3
it.next(); // 4
it.hasNext(); // false
```

Q)

<https://leetcode.com/problems/unique-paths-ii>

Lyft System Design Interview Questions and Answers

This Lyft interview question is very open-ended. Cab-hailing apps can have any number of features. You ought to distill the question down to 2-3 core features. Then design a system around those first. You can add more features later. The primary features can be:

- User (Rider) and Driver Profile
- The rider can hail a ride. A rider can find a nearby driver, and the driver can give a ride.

To prepare for System Design Lyft interview questions, practice and watch system design mock interviews. It would be best if you got familiar with Google Draw before the interview.

Q2. How would you build a tourist-friendly bicycle rental app?

This Lyft interview question aims at analyzing your understanding of the primary requirements of a tourist-friendly app design. The following features can be incorporated into a tourist-friendly bicycle rental app.

- Create a multilingual app that prompts the user to choose a language after installation.

- Every bike will be fitted with a GPS device, and the bikes will be displayed to the user in a map view.
- Payment in advance - Set up a payment wallet, a credit card, or a debit card.
- Activate the bicycle - Scan the QR code to unlock the bike, start the trip automatically and record and display the rider's time.
- Safety - Each bike will have a helmet affixed to it.
- Parking spaces will be displayed to app users to guarantee that bikes are parked in densely populated city sections.

Q3. Design a dashboard as Lyft's product manager to monitor the app's health.

Software engineers have to primarily deal with Lyft application and structure. This Lyft interview question is commonly asked in Lyft system design interview rounds. The dashboard will include the following:

Buyer Side:

- Number of new downloads
- Number of new first users
- Number of total active users
- Total distance driven
- Funding

Driver Side:

- Number of new drivers onboarded
- Number of active drivers churn
- Distance driven per active driver
- Number of rides per active driver

Product-Related:

- Number of customer support calls/tickets
- Number of location sharing or safety feature usage rides
- Number of active drivers per MAU active user
- Number of app crashes

Q4. Create Lyft for deaf drivers.

- Drivers can text passengers before arrival, indicating their impairment and asking for their patience.
- If users wish to be dropped off somewhere different, they can send quick, personalized messages requesting that the driver drop them off somewhere else.
- When the driver's phone receives a message from a passenger, it will vibrate, and the screen will blink for a few seconds to grab the driver's attention.
- Passengers can spot the car using a brightly colored blinker and the license plate number.

Lyft Interview Questions on Coding and Programming

Lyft Interview Questions on Array

1. For a given array containing positive integers, write a code to return the sum of the elements of the array.
2. For a given array of size N, write a code to print the reverse of the array.

Lyft Interview Questions on Strings

1. Write a code to reverse the string without disturbing the individual words for a given string S.
2. Write a code to remove successive duplicate characters recursively for a given string S.

Lyft Interview Questions on Algorithms

1. For a given Directed Acyclic Graph, write a program that finds the topological sorting in the graph.
2. Write a program to perform its vertical traversal for a given binary tree.

Lyft Interview Questions on Data Science

1. How would you effectively represent data with multiple dimensions?
2. Using multiple regression, how would you validate a model you created to generate a predictive model of a quantitative outcome variable?

Behavioral Lyft Interview Questions for Practice

1. Determine the root reason for a 10% drop in rides?
2. What drives your interest in this position at Lyft?
3. Assume Lyft is considering entering the delivery market. What strategy should it take to this concept?
4. How can there be enough drivers to handle the number of deliveries at any particular time and location?
5. Build a car-sharing network for persons with disabilities?
6. Lyft plans to introduce Shared Saving rides. What criteria will you take into account when determining passengers willing to pay? What experiments will you conduct to put your notions to the test?
7. Create the Lyft app for the visually impaired.
8. The ride scheduling capability is one of the ideas added to your backlog. Analyze this scheduling feature from a product standpoint and suggest whether to move on with the implementation stage.
9. What are your relevant previous experiences for the role?
10. How would you handle team members who do not work up to their full potential?
11. Do you care about impact and action-oriented solutions?
12. How do your experiences align with Lyft's values?

