

Bloomberg Cracker Sheet

- By Sunyul Hossen

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

Link - https://youtu.be/8Nr1SyRZ_OQ]

Q) 12th August, 2022

<http://leetcode.com/problems/merge-intervals/>

Q) 12th August, 2022

Given a buffer that contains multiple messages, parse the buffer and process each message.

When an exchange sends several messages over a TCP socket, they can be concatenated when performing the read. This is solved by parsing the buffer, and splitting in to multiple messages for each process call.

Please implement a packetize function that takes a constant char* and size_t:

```
void packetize(const char *data, size_t length);
```

This function can be a member function if necessary.

The packetize function should call a process function, with signature:

```
void process(const char *data, size_t length);
```

Given data buffer may contain incomplete packet, which may continue in the next call to packetize. At the same time, buffer may contain multiple packets as well, in which case all of the packets must be collected and process should be called for each one.

Q) 11th August, 2022

Given an integer k and number n -n is size of time.

time[i] contains the arrival time of a person at a queue.

A person can enter the queue if size<=k at a time.

A person leaves the queue after 1 time unit.

Return the total time units for all persons to enter the queue and leave.

ex

k-2

n-4

time-[4,3,3,3]

at time 3, 2 people enter and a third person can also enter as $\text{length}(\text{queue}) \leq k$

at time 4, one 3 leaves, 4 enters

at time 5- one 3 leaves

at time 6- one 3 leaves

at time 7- one 4 leaves, queue empty

ans-7

other testcase

k-2

n-4

time-[1,2,6,7]

ans-8

explanation

at time 1, 1 enter

at time 2, 2 enter 1 leave

at time 3- 2 leave

at time 4- nothing

at time 5- nothing

at time 6- 6 enter

at time 7- 7 enter, 6 leave

at time 8- 7 leave

Q) 9th August, 2022

Given a number, how many steps does it take to reach 1 given that:

If the number **is** even, divide it **by** two.

If the number **is** odd, triple it **and add** one.

Q) 29th July, 2022

<https://leetcode.com/problems/number-of-islands/>

Q) 29th July, 2022

https://www.youtube.com/watch?v=kx-XDoPjoHw&t=1351s&ab_channel=SystemDesignInterview

Q) 29th July, 2022

Welch Dictionary

Q) 27th July, 2022

There are several trades and trades have associated volumes as given below:

Trade Volume

A	200
B	1000
C	5
D	1
D	2
D	3

We have to perform below operations based on the requirement.

Operation 1: executeOrder(string trade, int volume)

-If we have new trade, it should be added in the records.

-If an existing trade comes with some volume, the new volume should be added in existing volume for that trade.

Operation 2: printTopNTrades(int N)

- this should print top N trades in descending order of their volumes.

In above example:

1. Operation 1: printTopNTrades(3)

- should print (B, 1000), (A, 200), (D, 6)

2. Operation 2: executeOrder("E", 300)

3. Operation 3: printTopNTrades(3)

- should print (B, 1000), (E, 300), (A, 200)

Q) 16th July, 2022

design a rule based alert system.

Rules can be configured like below:

1. If price of A stock goes higher than a threshold then send alert
2. If price of A stock goes lower than a threshold then send alert.

Q) 24th June, 2022

Marketdata prices are stored sequentially by day. Determine how many days it takes for the price to increase. If there is no increase, the default shall be -1. The interviewer specified a List is received, and the output must be an array of ints.

Q) 13th June, 2022

You have a stream of Stock ticker and stock volume coming in.

You need to design a function which returns the K most voluminous stocks

The function to return the most popular stock is used multiple times and needs to be very very efficient.

.....

Input Stream:

MSFT|400 IBM|1000 AAPL|500 AAPL|600 NFLX|1000 AMZN|700 GOGL|300

Result:

If there are two stock tickers with similar volume, you can return any of them in any order.

Return K = 4

AAPL|1100 NFLX|1000 IBM|1000 AMZN|700

OR

AAPL|1100 IBM|1000 NFLX|1000 AMZN|700

You can return it as a list of tuple:

[(AAPL, 1100), (IBM,1000)....]

AAPL, IBM

.....

Q) 28th May, 2022

A labyrinth of zeros and ones is given. Zero - "cannot pass", One - "can pass."

List all paths from top left to bottom-right corner. You can move only down or to the right.

Input: 2-dimensional array that contains the labyrinth.

Example:

Input = [[1,0,1], [1,1,1], [0,1,1]]

Input in 2D:

1 0 1

1 1 1

0 1 1

Output:

(0,0) (1,0) (1,1) (2,1) (2,2)

(0,0) (1,0) (1,1) (1,2) (2,2)

if impossible to reach bottom-right corner, print "No paths."

Q) 13th April, 2022

<https://leetcode.com/problems/binary-tree-vertical-order-traversal/>

Q) 13th April, 2022

<https://leetcode.com/problems/minimum-remove-to-make-valid-parentheses/>

Q) 7th April, 2022

Given a list of tuples `default_buckets` and a list of scores, compare each item in `scores` with every tuple in `default_bucket` and count how many fall under such buckets. Output has to be a dictionary with tuple as keys and the count as values.

```
default_bucket = [(300,400), (401, 500), (501, 600), (601, 700), (701, 800), (801, 900), (901, 1000)]
```

```
scores = [420, 410, 908, 700, 450, 310, 200, 555, 996, 1000]
```

```
output = {(300, 400): 2, (401, 500): 3, (501, 600): 1, (601, 700): 1, (901, 1000): 3}
```

eg: 420 is lt 500 and gt 401 so the count of (401, 500) increases by 1.

410 falls between 401 and 500 so count increments by 1.

450 falls 401 and 500 so count increments by 1. So the count for this tuple is 3 .

Q) 6th April, 2022

Employees rank Teams and teams rank employees, find the best matches

Emp1 : [Team2, Team1, Team3] (preferences in order)

Emp2 : [Team1, Team3, Team2]

.

.

.

Team1 : [Emp3, Emp2, Emp1] (preferences in order)

Team2 : [Emp2, Emp1, Emp3]

Q) 18th March, 2022

<https://leetcode.com/problems/gas-station/>

Follow up -

1. The car can go backwards
2. The solution is to return the maximum distance traveled, rather than simply a boolean

Q) 16th March, 2022

At the beginning I was asked questions about my recent project and why I wanna join Bloomberg. I had one question:

[[0,0,0,0,1,0,1,0],

[0,0,1,1,1,1,1,0],

[0,0,1,0,1,0,1,0],

[0,0,1,1,1,1,1,0],

[0,1,0,1,1,0,1,0]]

You need to find a number of lakes, so 0 which are surrounded with 1, if it touches the border, than it is ocean water

Q) 16th March, 2022

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

Q) 16th March, 2022

<https://leetcode.com/problems/flatten-a-multilevel-doubly-linked-list/>

Q) 16th March, 2022

<https://leetcode.com/problems/design-underground-system/>

Q) 16th March, 2022

<https://leetcode.com/problems/vertical-order-traversal-of-a-binary-tree/>

Bloomberg Interview Questions on Coding

1. If a rotationally sorted array is given, write a program code that finds a particular element.
2. Write a code to check whether a binary tree is a valid binary search tree.
3. Write a program that determines if the permutation of a string is a palindrome or not.
4. Write a program that can check if a given binary tree is balanced or not
5. You are given a string in a certain format of words. Create a program that will output the string characters in reverse.
6. Determine whether any two integers added together equal a given value.
7. The following input contains a two-dimensional array with all the elements of the array as unique positive integers. You should write a java program that will find all the arrays that do not have any element as zero.
8. You are given two linked lists. List A has integer values, and List B has integer values. Write a program that adds the two linked lists and returns their sum.
9. You're given the information to find the values at every level of a binary tree. Write a code that can do so.
10. Write a program that swaps the opposite nodes of a binary tree.
11. Write a code to find non-letter substrings that are palindromes.
Original: The number of palindromes in S is the square of the number
12. You're given a list of stock prices and a code (number from 0 to 16). Write a program or command to tell at what levels, buying and selling, you can find the maximum profit.
13. In an unsorted array with positive integers from 1 to n, there is an element where all numbers are between 1-n. Write a program to search for this element.
14. Write a program to validate a given IP address.

Bloomberg Interview Questions on Systems Design

- 1. What aspects would you consider while building a scalable software tool?**
- 2. How would you make sure your e-commerce system has low latency?**
- 3. What security aspects will you consider while setting up a database for financial entries?**
- 4. How would you build a chatbot service?**
- 5. Explain the design aspects to consider while building a scalable mobile application.**

Bloomberg Behavioral Interview Questions

- 1. Tell us what you learned from the most challenging project you worked on.**
- 2. Why do you think Bloomberg will help you advance in your career?**
- 3. How do you manage stressful situations at work?**
- 4. Tell us about a time when you disagreed with a superior.**
- 5. Tell us about a time when you had to make a big decision, but it wasn't the right decision to make.**