Queue

Question - 01

Implement the enqueue, dequeue and peek functions using an array.

Question - 02

Implement the enqueue, dequeue and peek functions using a linked list.

Question - 03

Given a string s, find the first non-repeating character in it and return its index. If it does not exist, return -1.

Example:
Input: s = "programmingisfun"
Output: 0

Input: s = "pythonispopular"
Output: 1

Input: s = "aabb"
Output: -1

Question - 04

There are n people in a line queuing to buy tickets, where the 0th person is at the front of the line and the (n - 1)th person is at the back of the line.

You are given a 0-indexed integer array tickets of length n where the number of tickets that the ith person would like to buy is tickets[i].

Each person takes exactly 1 second to buy a ticket. A person can only buy 1 ticket at a time and has to go back to the end of the line (which happens instantaneously) in order to buy more tickets. If a person does not have any tickets left to buy, the person will leave the line.

Return the time taken for the person at position k (0-indexed) to finish buying tickets.

Example 1:
Input: tickets = [2,3,2], k = 2
Output: 6
Explanation:
- In the first pass, everyone in the line buys a ticket and the line becomes [1, 2, 1].
- In the second pass, everyone in the line buys a ticket and the line becomes [0, 1, 0].

The person at position 2 has successfully bought 2 tickets and it took 3 + 3 = 6 seconds.

Example 2:
Input: tickets = [5,1,1,1], k = 0
Output: 8
Explanation:
- In the first pass, everyone in the line buys a ticket and the line becomes [4, 0, 0, 0].
- In the next 4 passes, only the person in position 0 is buying tickets.

The person at position 0 has successfully bought 5 tickets and it took 4 + 1 + 1 + 1 + 1 = 8 seconds.

Question - 05

At a lemonade stand, each lemonade costs $5. Customers are standing in a queue to buy from you and order one at a time (in the order specified by bills). Each customer will only buy one lemonade and pay with either a $5, $10, or $20 bill. You must provide the correct change to each customer so that the net transaction is that the customer pays $5.

Note that you do not have any change in hand at first.

Given an integer array bills where bills[i] is the bill the ith customer pays, return true if you can provide every customer with the correct change, or false otherwise.

Example 1:
Input: bills = [5,5,5,10,20]
Output: true

Explanation:
From the first 3 customers, we collect three $5 bills in order.
From the fourth customer, we collect a $10 bill and give back a $5.
From the fifth customer, we give a $10 bill and a $5 bill.
Since all customers got correct change, we output true.

Example 2:
Input: bills = [5,5,10,10,20]
Output: false
Explanation:
From the first two customers in order, we collect two $5 bills.
For the next two customers in order, we collect a $10 bill and give back a $5 bill.
For the last customer, we can not give the change of $15 back because we only have two $10 bills.
Since not every customer received the correct change, the answer is false.

Question - 06

Given two strings s and goal, return true if you can swap two letters in s so the result is equal to goal, otherwise, return false.

Swapping letters is defined as taking two indices i and j (0-indexed) such that i != j and swapping the characters at s[i] and s[j]. For example, swapping at indices 0 and 2 in "abcd" results in "cbad".

Example 1:
Input: s = "ab", goal = "ba"
Output: true
Explanation: You can swap s[0] = 'a' and s[1] = 'b' to get "ba", which is equal to goal.

Example 2:
Input: s = "ab", goal = "ab"
Output: false
Explanation: The only letters you can swap are s[0] = 'a' and s[1] = 'b', which results in "ba" != goal.

Example 3:
Input: s = "aa", goal = "aa"
Output: true
Explanation: You can swap s[0] = 'a' and s[1] = 'a' to get "aa", which is equal to goal.

Question - 07

You are given an integer array deck. There is a deck of cards where every card has a unique integer. The integer on the ith card is deck[i].

You can order the deck in any order you want. Initially, all the cards start face down (unrevealed) in one deck. You will do the following steps repeatedly until all cards are revealed:

Take the top card of the deck, reveal it, and take it out of the deck.
If there are still cards in the deck then put the next top card of the deck at the bottom of the deck.
If there are still unrevealed cards, go back to step 1. Otherwise, stop.
Return an ordering of the deck that would reveal the cards in increasing order.

Note that the first entry in the answer is considered to be the top of the deck.

Example 1:
Input: deck = [17,13,11,2,3,5,7]
Output: [2,13,3,11,5,17,7]
Explanation:
We get the deck in the order [17,13,11,2,3,5,7] (this order does not matter), and reorder it.
After reordering, the deck starts as [2,13,3,11,5,17,7], where 2 is the top of the deck.
We reveal 2, and move 13 to the bottom. The deck is now [3,11,5,17,7,13].
We reveal 3, and move 11 to the bottom. The deck is now [5,17,7,13,11].
We reveal 5, and move 17 to the bottom. The deck is now [7,13,11,17].
We reveal 7, and move 13 to the bottom. The deck is now [11,17,13].
We reveal 11, and move 17 to the bottom. The deck is now [13,17].
We reveal 13, and move 17 to the bottom. The deck is now [17].
We reveal 17.
Since all the cards revealed are in increasing order, the answer is correct.

Example 2:
Input: deck = [1,1000]
Output: [1,1000]

Reference:

1. https://leetcode.com/tag/queue/