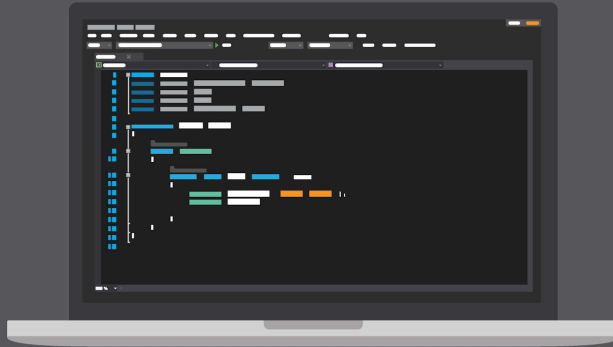Arrays / Algorithms , Logic
Runninghill technical assessment

Who are we

We are a group of passionate developers specialising in native mobile software, web apps and cloud back ends.

To find out more about us please visit our website below:

http://www.runninghill.co.za/

Timeline

This assessment should not take you longer than a day to complete , each question has a relative timeline for personal tracking

Pre-requisites:

● Foundational understanding programming , information technology and all the components necessary for writing , reading and problem solving using a coding language
● Basic understanding of algorithms and software design patterns.

Let's Begin:

● You will need a code editor capable of writing , compiling and executing code , given that our tech stack revolves around **web based technologies** , we would
recommend using **javascript** or **typescript** but you are welcome to use the
language you are comfortable with.
● Please read the questions carefully and solve the problem , extra points are awarded for cosmetics and flare but only if it solves the problem outlined in the question
● Please take screenshots of all code snippets and your results and label them according to the question they correspond to: e.g
    ○ *question1SourceCodeScreenshot.jpeg*
    ○ *question1ResultsScreenshot.jpeg*
● Please dont copy and paste someone else's code from the internet and label it as your solution , I'm a ninja and I will figure that out , your screenshots need to
demonstrate how **YOU** solved the problem and show the results **YOU** got.

Good luck and have fun and use this as a way to learn about common use cases

Question 1:

You are presented with the following string:
" Yash is a javascript ninja "

Please write a method/methods in order to do the following:
- Accept the string above as a parameter
- <u>Using an algorithm</u>, output the following string: "ninja a yash"

Timeline : 25 minutes

Question 2:

You are presented with the following paragraph:
"Lodash is a JavaScript library that helps programmers write more concise and maintainable JavaScript. It can be broken down into several main areas: Utilities - for simplifying common programming tasks such as determining type as well as simplifying math operations."

Please write a method/methods in order to do the following:
- Accept the paragraph above as a parameter
- Replace JavaScript with javascript
- Separate the paragraph into an array of sentences delimited by a full stop.
- Return and display the new array in the console

Timeline : 15 minutes

Question 3:

You are presented with the following strings:
"Army" and "Mary"

Please write a method/methods in order to do the following:
- Accept two strings
- Return true if they are anagrams of each other

Timeline : 25 minutes

Question 4:

You are presented with the following array:
```
const missingNumberList = [1,2,3,4,5,6,7,9,10];
```

Please write a method/methods in order to do the following:
- Accept the array above
- Find and output the missing number in the sequence

Timeline : 20 minutes

Question 5:

You are presented with the following array:
```
const duplicateNumberList = [1,4,3,4,5,7,7,8,9,10];
```

Please write a method/methods in order to do the following:
- Accept the array above
- Find and output the repeating numbers

Timeline : 20 minutes

Question 6:

You are presented with the following array:
```
const statsNumberList = [1,4,3,4,5,7,7,8,9,10];
```

Please write a method/methods in order to do the following:
- Accept the array above
- Find and output the **lowest number** , **the highest number** , **the median** , **the mode**

Timeline : 20 minutes

Question 7:

You are presented with the following information:

You've caught two of your fellow minions passing coded notes back and forth – while they're on duty, no less! Worse, you're pretty sure it's not job-related – they're both huge fans of the space soap opera "Lance & Janice". You know how much Commander Lambda hates waste, so if you can prove that these minions are wasting her time passing non-job-related notes, it'll put you that much closer to a promotion.

Fortunately for you, the minions aren't exactly advanced cryptographers. In their code, every lowercase letter [a..z] is replaced with the corresponding one in [z..a], while every other character (including uppercase letters and punctuation) is left untouched. That is, 'a' becomes 'z', 'b' becomes 'y', 'c' becomes 'x', etc. For instance, the word "vmxibkgrlm", when decoded, would become "encryption".

Test cases

Inputs:
(string) s = "wrw blf hvv ozhg mrtsg'h vkrhlwv?"
Output:
(string) "did you see last night's episode?"

Inputs:
(string) s = "Yvzs! I xzm'g yvorvev Lzmxv olhg srh qly zg gsv xlolmb!!"
Output:
(string) "Yeah! I can't believe Lance lost his job at the colony!!"

Please write a method/methods in order to do the following:
- Decode the inputs above to achieve the desired output based on the information provided
- Your solution should be able to work for any input provided that was encoded using the cipher mentioned

Timeline : 60 minutes