Hack the Technical Interview: Algorithms Practice

Presented By

Problem One Interview Script: String Rotation

Instructions

1. While the candidate reads the problem and prepares their answer, review this sheet in its entirety.
2. Mark the start and stop time so that you keep track.

Time Allowed: _____

Start Time: _____

Stop Time: _____

Problem Statement

Write a function that takes in two string inputs, and returns true if they are a rotation of each other.

```
## input
rotate("ABCD", "BCDA")

## output
TRUE

## input
rotate("ABCD", "ACDB")

## output
FALSE
```

Parameters

- [Optional] You can choose to eliminate any built-in counting methods in the language your candidate is using. This would include, for example, `len()` in Python. It's okay if you don't know enough about the language this candidate is using; you can skip this optional parameter.

Questions the Candidate Might Ask

Note: if the candidate asks a question that isn't answered here, feel free to make a decision and stick to that.

- Are the strings always of equal length, as shown in the example inputs?
  Answer: The strings can be of different lengths.

- Is the string only ASCII characters or are Unicode characters included?
  Answer: For the purpose of this problem, assume ASCII characters only.

Questions the Interviewer Might Ask

Generic Questions

These are questions you could ask for any code challenge.

- What does this function need to do?
- How would you get started?
- What information do you need to store?

Guiding Questions

These are questions you can use to help the candidate if they get stuck.

- To solve this problem, you need to compare rotated strings to a target string? How would you rotate a string one time? How about two times?
  Answer: Given a string is a list, you can merge two slices of a string, depending on how much you want to rotate?
- Now that you've rotated a string once and twice, how do you generalize it to N-times, where N is the length of the string?
  Answer: Depending on the language, you can iterate over the length of the string or use recursion.

Hints

- Try looping over the string and returning upon success. Or use recursion if that's what you're more comfortable with, but then consider what the termination condition should be.

If you give them all these hints and they still don't have a solution, you can start pointing them in the right direction with a line or two of code from one of the solutions below.

Solutions

Solution #1

```
def rotate(string, candidate, stop=""):
      if string == candidate:
            return True
      if candidate == stop:
            #Tried all rotations
            return False
      if not stop:
            stop = candidate
      rot = candidate[1:] + candidate[0]
      return rotate(string, rot, stop)
```

Solution #2

```
def rotate(original, candidate):
      Return len(original) == len(candidate) and cadidate in origin*2
```