



Interview Questions : String in Python



Objective:

Develop a strong understanding of how strings work in Python, including their immutability, and practice manipulating string data using built-in functions and operations.



Beginner Level – Fundamentals

1. What is a string in Python? How is it different from other data types like lists?
2. How do you create a string in Python? Show single-quoted, double-quoted, and triple-quoted examples.
3. Are strings mutable or immutable in Python? Explain with an example.
4. What will be the output of the following?

```
s = "hello"
```

```
print(s[1])
```

```
print(s[-1])
```

```
print(s[1:4])
```

5. What is the difference between `len("hello")` and `"hello".__len__()`?
6. What is string slicing? Give an example that reverses a string.
7. How can you convert a number to a string?



Intermediate Level – Operations & Methods

8. List at least five common string methods and explain their use.

9. What is the output of the following code?

```
s = "Python is Fun"

print(s.upper())

print(s.replace("Fun", "Powerful"))
```

10. How do `split()` and `join()` work in Python? Provide examples.

11. How can you check if a string contains a specific substring?

12. What is the difference between `isalpha()`, `isdigit()`, and `isalnum()`?

13. What is the difference between `find()` and `index()` in strings?

14. Write a Python function that counts the number of vowels in a given string.

15. How do you remove whitespace from the beginning and end of a string?



Advanced Level – Problem Solving & Applications

16. Write a function to check if a string is a palindrome. Ignore spaces and case.

17. Write a function to find the most frequent character in a string.

18. What will be the output? Explain the behavior.

```
s = "Hello"

s[0] = "h"
```

19. How can you remove all special characters from a string using regex?

20. Write a function that replaces all spaces in a string with `-`, but only if there are more than 2 spaces.

21. What is the difference between `"a" * 5` and `"a" + 5`? Why does one work and the other throw an error?



Expert Level – Algorithmic Thinking & Edge Cases

22. Write a function that finds the first non-repeating character in a string.
23. How would you check if two strings are anagrams of each other?
24. Write a function to compress a string using counts of repeated characters.
 - Example: "aaabbc" → "a3b2c1"
25. Design a function that finds the longest substring without repeating characters.
26. Write a function to extract all email addresses from a string using regular expressions.
27. Given a long paragraph, count the frequency of each word, ignoring case and punctuation. Return a sorted result.
28. Explain how Python handles string interning. When can string comparison be optimized using `is` instead of `==`?
29. Write a function to validate a password. Conditions:
 - At least 8 characters
 - At least one uppercase letter
 - At least one lowercase letter
 - At least one digit
 - At least one special character (e.g. @#\$%)

30. Implement a mini templating engine:

```
template = "Hello {{name}}, welcome to {{platform}}!"
```

```
data = {"name": "Alice", "platform": "OpenAI"}
```

```
Output: "Hello Alice, welcome to OpenAI!"
```



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