Python String Assignment Question

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1) Question: Count the number of vowels in a given string.
Input: `"Hello World"`
Output: `3`

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2) Question: Reverse a given string.
Input: `"Python"`
Output: `"nohtyP"`

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3) Question: Check if a string is a palindrome.
Input: `"madam"`
Output: `True`

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4) Question: Remove all spaces from a string.
Input: `"Hello World"`
Output: `"HelloWorld"`

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5) Question: Count the number of words in a string.
Input: `"I love Python programming"`
Output: `4`

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6) Question: Find the frequency of each character in a string.
Input: `"apple"`
Output: `{'a':1, 'p':2, 'l':1, 'e':1}`

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7) Question: Find all positions of a particular character in a string.
Input: `"programming"`, character: `'g'`
Output: `[3, 10]`

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8) Question: Capitalize the first letter of each word in a string.
Input: `"python is fun"`
Output: `"Python Is Fun"`

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9) Question: Replace the first occurrence of a word in a string.
Input: `"the sky is blue"`, replace `'the'` with `'a'`
Output: `"a sky is blue"`

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10) Question: Remove all duplicate characters from a string.
Input: `"programming"`
Output: `"progamin"`

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11) Question: Count uppercase and lowercase letters.
Input: `"Hello World"`
Output: `Uppercase: 2, Lowercase: 8`

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12) Question: Swap the case of each character.
Input: `"Hello"`
Output: `"hELLO"`

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13) Question: Check if two strings are anagrams.
Input: `"listen"`, `"silent"`
Output: `True`

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14) Question: Remove a specific character from a string.
Input: `"hello world"`, remove `'l'`
Output: `"heo word"`

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15) Question: Split a string into characters.
Input: `"hello"`
Output: `['h', 'e', 'l', 'l', 'o']`

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16) Question: Find the longest word in a sentence.
Input: `"Python is powerful"`
Output: `"powerful"`

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17) Question: Remove all special characters.
Input: `"hello@123!"`
Output: `"hello123"`

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18) Question: Replace all vowels with `*`.
Input: `"hello"`
Output: `"h*ll*"`

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19) Question: Sort characters alphabetically.
Input: `"dcba"`
Output: `"abcd"`

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20) Question: Find the second most frequent character.
Input: `"aabbccc"`
Output: `'a'`

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21) Question: Check if a string is a valid email address.
Input: `"test@example.com"`
Output: `Valid`

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22) Question: Replace multiple spaces with a single space.
Input: `"Python is fun"`
Output: `"Python is fun"`

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23) Question: Convert string to list of words without split().
Input: `"I love Python"`
Output: `['I', 'love', 'Python']`

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24) Question: Print characters at even positions.
Input: `"Python"`
Output: `['P', 't', 'o']`

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25) Question: Print characters at odd positions.
Input: `"Python"`
Output: `['y', 'h', 'n']`

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26) Question: Check if string contains only digits.
Input: `"12345"`
Output: `True`

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27) Question: Count alphabets, digits, and special characters.
Input: `"Python@123"`
Output: `Alphabets:6, Digits:3, Special Characters:1`

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28) Question: Find all substrings of a string.
Input: `"abc"`
Output: `['a', 'ab', 'abc', 'b', 'bc', 'c']`

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29) Question: Reverse each word in a sentence.
Input: `"Hello World"`
Output: `"olleH dlroW"`

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30) Question: Convert the first character of each word to uppercase.
Input: `"python is fun"`
Output: `"Python Is Fun"`

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31) Question: Convert string to lowercase without lower().
Input: `"HELLO"`
Output: `"hello"`

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32) Question: Check if string starts and ends with the same character.
Input: `"level"`
Output: `True`

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33) Question: Replace each character with next ASCII character.
Input: `"abc"`
Output: `"bcd"`

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34) Question: Remove all punctuation from a string.
Input: `"Hello, World!"`
Output: `"Hello World"`

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35) Question: Find length of longest substring without repeating characters.
Input: `"abcabcbb"`
Output: `3`

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36) Question: Convert camel case to snake case.
Input: `"myVariableName"`
Output: `"my_variable_name"`

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37) Question: Check if one string is a rotation of another.
Input: `"abcd"` and `"cdab"`
Output: `True`

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38) Question: Count occurrences of each word.
Input: `"python is fun python"`
Output: `{'python':2, 'is':1, 'fun':1}`

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39) Question: Convert sentence to Pig Latin.
Input: `"python is fun"`
Output: `"ythonpay isay unfay"`

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40) Question: Format a string with variables.
Input: `name = 'Atul'`
Output: `"Hello, Atul!"`

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41) Question: Encode string using Caesar cipher (+3 shift).
Input: `"abc"`
Output: `"def"`

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42) Question: Merge two strings by alternating characters.
Input: `"abc"`, `"123"`
Output: `"a1b2c3"`

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43) Question: Find first non-repeating character.
Input: `"swiss"`
Output: `'w'`

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44) Question: Remove prefix and suffix.
Input: `"unhappy"` — remove prefix `'un'`
Output: `"happy"`

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45) Question: Replace multiple occurrences of substring.
Input: `"aaabaa"` — replace `'aa'` with `'c'`
Output: `"cba"`

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46) Question: Mask all characters except last 4.
Input: `"1234567890"`
Output: `"******7890"`

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47) Question: Check if a string is a valid Python identifier.
Input: `"var_name"`
Output: `True`

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48) Question: Find common characters in two strings.
Input: `"python"`, `"java"`
Output: `['a']`

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49) Question: Count frequency of each word in a string.
Input: `"python python code"`
Output: `{'python':2, 'code':1}`

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50) Question: Remove HTML tags from string.
Input: `"<p>Hello</p>"`
Output: `"Hello"`

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51) Question: Find the number of consonants in a string.
Input: `"Hello World"`
Output: `7`

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52) Question: Check if a string contains any special character.
Input: `"Hello@World"`
Output: `True`

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53) Question: Remove digits from a given string.
Input: `"abc123xyz"`
Output: `"abcxyz"`

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54) Question: Find the ASCII value of each character in a string.
Input: `"abc"`
Output: `[97, 98, 99]`

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55) Question: Extract numbers from a string and return them as a list.
Input: `"abc12xyz45"`
Output: `[12, 45]`

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56) Question: Replace all consonants in a string with #.
Input: `"Hello"`
Output: `"e##o"`

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57) Question: Get the middle character(s) of a string.
Input: `"Python"`
Output: `"th"`

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58) Question: Remove the last n characters from a string.
Input: `"Hello World"`, n = 5
Output: `"Hello"`

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59) Question: Count how many times a substring appears in a string.
Input: `"ababab"`, substring: `"ab"`
Output: `3`

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60) Question: Remove all vowels from a string.
Input: `"Education"`
Output: `"dctn"`

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61) Question: Check if a string is numeric (integer or float).
Input: `"123.45"`
Output: `True`

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62) Question: Find the longest palindrome substring in a given string.
Input: `"babad"`
Output: `"bab"` or `"aba"`

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63) Question: Replace numbers in a string with their word representation.
Input: `"I have 2 apples"`
Output: `"I have two apples"`

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64) Question: Find the word with the highest number of vowels in a sentence.
Input: `"Python is awesome"`
Output: `"awesome"`

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65) Question: Convert a list of words into a sentence.
Input: `["Python", "is", "fun"]`
Output: `"Python is fun"`

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66) Question: Remove leading and trailing special characters from a string.
Input: `"***Hello***"`
Output: `"Hello"`

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67) Question: Replace every second character in a string with `*`.
Input: `"abcdef"`
Output: `"a*c*e*"`

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68) Question: Extract only alphabets from a string.
Input: `"abc123!@#"`
Output: `"abc"`

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69) Question: Find words starting with a specific letter in a sentence.
Input: `"Python is perfect for programming"`, letter: `'p'`
Output: `['perfect', 'programming']`

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70) Question: Replace spaces in a string with hyphens.
Input: `"Python is awesome"`
Output: `"Python-is-awesome"`