Strings Coding Questions:

1. **Level 1: Basics**
   1. Print each character of a string on a new line.
   2. **Count the number of vowels in a string.**
   3. **Reverse a string** using:
      1. Slicing
      2. for loop
      3. built-in function reversed()
   4. **Check if a given string is a palindrome.**
   5. **Convert all lowercase letters to uppercase** without using .upper().
   6. **Count the number of words** in a given sentence.
   7. **Replace all spaces** in a string with -.
   8. **Find the first and last character** of a string.
   9. **Swap the first and last characters** in a string.
   10. **Concatenate two strings** without using +.
2. **Level 2: Intermediate**
   1. **Find frequency of each character** in a string.
   2. **Remove all special characters and digits**, keeping only alphabets.
   3. **Check whether two strings are anagrams.**
   4. **Remove duplicates** from a string while preserving order.
   5. **Count uppercase, lowercase, digits, and special symbols** separately.
   6. **Find all positions (indexes)** of a substring inside a string.
      1. Example: "banana", "an" → [1, 3]
   7. **Extract all digits** from a string and calculate their sum.  
      Example: "ab12c3" → 6
   8. **Check if a string contains only whitespace.**
   9. **Replace vowels with \*.**
   10. **Split a sentence into words and print them in reverse order.**  
       Example: "I love Python" → "Python love I"
3. **Level 3: Advanced / Developer-Oriented**
   1. **Find the longest word** in a sentence.  
      Input: "Machine Learning with Python" → Output: "Learning"
   2. **Check if two strings are rotations** of each other.  
      "abcde" and "deabc" → True
   3. **Count occurrences of each word** in a sentence.
   4. **Format a string** using placeholders and f-strings.  
      Example: name + age → "My name is Alice and I am 25 years old."
   5. **Write a function that returns all unique characters** in sorted order.  
      Example: "banana" → ['a', 'b', 'n']
   6. **Find the most frequent character** in a string.
   7. **Capitalize the first letter** of every word (without using .title()).
   8. **Remove extra spaces** from a sentence and make it clean.  
      Example: " Python is cool " → "Python is cool"
   9. **Mask all but the last 4 digits** of a phone or card number.  
      Example: "1234567890123456" → "\*\*\*\*\*\*\*\*\*\*\*\*3456"
   10. **Validate an email**: must contain "@", ".", and no spaces.
4. **Level 4: Challenges**
   1. **String Compression**  
      "aaabbcddd" → "a3b2c1d3"
   2. **Caesar Cipher Encoder** (shift each letter by +3).
   3. **Count palindromic substrings** in a string.
   4. **Word Frequency Histogram:**  
      Input: "data data code learn data code"  
      Output:
      1. data: 3
      2. code: 2
      3. learn: 1
   5. **Abbreviate a full name:**  
      "Elon Reeve Musk" → "E.R. Musk"
   6. **Check substring presence manually (without in).**
   7. **Remove all duplicate words** in a sentence.
   8. **Find the smallest and largest word** in a sentence.
   9. **Extract domain name** from an email.  
      "user@gmail.com" → "gmail"
   10. **Convert a CSV string to a list:**  
       "apple,banana,cherry" → ["apple", "banana", "cherry"]