C++ Control Statements Problems (String Version)

Question 1: Character-to-Number Translation

Write a program that takes a string of characters as input and outputs the numerical sum of the ASCII values of all its characters. However, if a character is a vowel (`a, e, i, o, u`), subtract 10 from its ASCII value before summing.

Sample Input:

```
hello
```

Sample Output:

```
525
```

Question 2: Detect Alphabetic Pattern

Input a string. If all characters are lowercase alphabets in increasing order (e.g., `abcd`), print `"Increasing"`. If all characters are in decreasing order (e.g., `dcba`), print `"Decreasing"`. Otherwise, print `"No Pattern"`.

Sample Input:

```
abcd
```

Sample Output:

```
Increasing
```

Question 3: Word Length Evaluation

Input a string of characters (no spaces). Count how many times the word length is greater than its first character's ASCII value modulo 5. Print the count.

Sample Input:

```
abcde
```

Sample Output:

```
2
```

Question 4: Special String Game

Take a string input. For each consonant, calculate its ASCII value. If the ASCII value is divisible by 3, multiply it by 2; otherwise, divide it by 2. Print the sum of the resulting values for all consonants.

Sample Input:

```
hello
```

Sample Output:

```
177
```

Question 5: Convert Vowels to Codes

Write a program that replaces vowels in a string with specific numbers:

- `a -> 1`, `e -> 2`, `i -> 3`, `o -> 4`, `u -> 5`
  Any other character remains unchanged. Use control statements to implement this.

Sample Input:

```
apple
```

Sample Output:

```
1ppl2
```

Question 6: Hidden Palindrome Check

Take a string input. If the first three characters and the last three characters of the string (in reverse order) are identical, print `"Hidden Palindrome"`. Otherwise, print `"Not Palindrome"`.

Sample Input:

```
abcrabc
```

Sample Output:

```
Hidden Palindrome
```

Question 7: Two-Part String Transformation

Take a string input. If the string's length is even, print the characters in odd positions. If it's odd, print the reverse of the even-position characters.

Sample Input:

```
abcdef
```

Sample Output:

```
ace
```

Question 8: Character Categories

Input a string. Count how many characters fall into these categories:

- Uppercase letters
- Lowercase letters
- Digits
- Special symbols Print the counts in a formatted way.

Sample Input:

```
Hello123!@
```

Sample Output:

```
Uppercase: 1
Lowercase: 4
Digits: 3
Special: 2
```

Question 9: Rotating String

Take a string and an integer `k`. Rotate the string `k` times:

- For every rotation, move the first character to the end. Use a `for` loop for this.

Sample Input:

```
abcde 2
```

Sample Output:

```
cdeab
```

Question 10: Case Conversion Challenge

Input a string. Use only `if` statements to:

- Convert lowercase letters to uppercase.
- Convert uppercase letters to lowercase. Print the resulting string.

Sample Input:

```
HeLLo
```

Sample Output:

```
hEllO
```

Question 11: Character Triangle

Input a string of length greater than 3. Use nested loops to print:

Example (input = "code")

```
c\
co\
cod\
code
```

Sample Input:

```
code
```

Sample Output:

```
c
co
cod
code
```

Question 12: Even-Odd ASCII Counter

Input a string. Count how many characters have ASCII values that are even and how many are odd. Print both counts.

Sample Input:

```
abc
```

Sample Output:

```
Even: 1
Odd: 2
```

Question 13: First and Last Character Game

Take a string input. If the first and last characters are the same, count and print how many vowels exist in the string. Otherwise, count and print the consonants.

Sample Input:

```
abca
```

Sample Output:

```
Vowels: 2
```

Question 14: ASCII Sum Game

Input a string and a number `x`. Check whether the sum of ASCII values of all characters is divisible by `x`. Print `"Yes"` or `"No"`.

Sample Input:

```
abc 6
```

Sample Output:

```
No
```

Question 15: Matching Brackets

Input a string containing only characters `(` and `)`. Check if every opening bracket has a corresponding closing bracket. Print `"Balanced"` or `"Not Balanced"`.

Sample Input:

```
(()())
```

Sample Output:

```
Balanced
```

Question 16: Conditional Character Swapping

Input a string. If the string contains more than three vowels, swap the first character with the last character and print the result. Otherwise, print the original string reversed.

Sample Input:

```
hello
```

Sample Output:

```
oellh
```

Question 17: Consecutive Character Difference

Input a string. Calculate the absolute difference in ASCII values of consecutive characters. If the sum of these differences is even, print `"Even Differences"`. Otherwise, print `"Odd Differences"`.

Sample Input:

```
abc
```

Sample Output:

```
Even Differences
```

Question 18: Repeating Character Counter

Take a string as input. Count how many characters appear more than once in the string, without using arrays or maps. Print the count.

Sample Input:

```
aabbcc
```

Sample Output:

```
3
```

Question 19: Mirror Character Conversion

Input a string. For every character, replace it with its mirror in the alphabet:

- `a <-> z`, `b <-> y`, `c <-> x`, etc. Print the converted string.

Sample Input:

```
abcz
```

Sample Output:

```
zyxw
```

Question 20: Longest Character Streak

Input a string. Find and print the longest streak of consecutive repeated characters. For example:

Sample Input:

```
aabbcccaaa
```

Sample Output:

```
Longest streak is 3 (c)
```