String-Based Real-Life Python Programs

1. Count vowels in a given string

```
text = "Hello World"
vowels = "aeiouAEIOU"
count = sum(1 for char in text if char in vowels)
print("Number of vowels:", count)
```

2. Check if a string is a palindrome

```
s = "madam"
print("Palindrome" if s == s[::-1] else "Not a palindrome")
```

3. Replace bad words in a user review

```
review = "The service was bad and slow"
cleaned = review.replace("bad", "***").replace("slow", "***")
print("Cleaned review:", cleaned)
```

4. Extract domain from an email

```
email = "user@example.com"
domain = email.split("@")[1]
print("Domain:", domain)
```

5. Capitalize first letter of each word in a sentence

```
sentence = "hello world from python"
capitalized = sentence.title()
print("Capitalized:", capitalized)
```

6. Count frequency of each word in a sentence

```
sentence = "hello world hello"
words = sentence.split()
freq = {word: words.count(word) for word in set(words)}
print("Word frequencies:", freq)
```

7. Reverse each word in a sentence

```
sentence = "hello world"
reversed_words = ' '.join(word[::-1] for word in sentence.split())
```

```
print("Reversed words:", reversed_words)
```

8. Find longest word in a sentence

```
sentence = "Python programming is fun"
longest = max(sentence.split(), key=len)
print("Longest word:", longest)
```

9. Remove punctuation from a sentence

```
import string
sentence = "Hello, world! Welcome."
clean = ''.join(char for char in sentence if char not in string.punctuation)
print("Cleaned sentence:", clean)
```

10. Encrypt a message using Caesar Cipher (shift 3)

```
text = "HELLO"
encrypted = ''.join(chr((ord(char) - 65 + 3) % 26 + 65) for char in text.upper() if char.isalpha())
print("Encrypted:", encrypted)
```