```
# Function to display the word with the longest length
def longest_word(s):
    words = s.split()
    max_len = max(len(word) for word in words)
    longest_words = [word for word in words if len(word) == max_len]
    return longest_words

# Function to determine the frequency of occurrence of a particular character in the string
def char_frequency(s, char):
    return s.count(char)

# Function to check whether the given string is a palindrome or not
def is_palindrome(s):
    s = s.replace(" ", "").lower()
    return s == s[::-1]

# Function to display the index of the first appearance of the substring
def first_substring_index(s, substring):
    return s.find(substring)

# Function to count the occurrences of each word in a given string
def word_count(s):
    words = s.split()
    word_freq = {}
    for word in words:
        if word in word_freq:
            word_freq[word] += 1
        else:
            word_freq[word] = 1
    return word_freq

# Example usage
```

```
text = "Python programming is fun and rewarding. Programming in Python is fun."
char = 'g'
substring = 'fun'

print("Longest word(s):", longest_word(text))
print(f"Frequency of '{char}':", char_frequency(text, char))
print("Is palindrome:", is_palindrome(text))
print(f"Index of first appearance of '{substring}':", first_substring_index(text, substring))
print("Word count:", word_count(text))
```