

Programming Solutions

2. Plotting Character Frequency

```
1 import matplotlib.pyplot as plt
2 import string
3
4 def plot_letter_frequency(text):
5     letter_counts = {letter: 0 for letter in string.ascii_lowercase}
6
7     for char in text:
8         char_lower = char.lower()
9
10        if char_lower in letter_counts:
11            letter_counts[char_lower] += 1
12
13    letters = list(letter_counts.keys())
14    counts = list(letter_counts.values())
15
16    plt.figure(figsize=(12, 6))
17    plt.bar(letters, counts, color='skyblue')
18
19    plt.title('Frequency of Each Letter in the Text')
20    plt.xlabel('Letters of the Alphabet')
21    plt.ylabel('Frequency (Count)')
22
23    plt.grid(axis='y', linestyle='--', alpha=0.7)
24    plt.show()
25
26 sample_text = "the quick brown fox jumps over the lazy dog"
27 plot_letter_frequency(sample_text)
```

3. Recursive Reversal

```
1 def reverse_string(s):
2     if len(s) == 1:
3         return s
4     return s[-1] + reverse_string(s[:-1])
5
6 print(reverse_string("hello"))
7 print(reverse_string("ghana"))
```

4. Sum to K

See assignment 3.