Q1 Write a program to count and display the number of capital letters in a given string.

```
s = input("Enter a string: ")
count = 0

for ch in s:
    if ch.isupper():
        count += 1

print("Number of capital letters:", count)
```

```
Enter a string: Vivan manghnani
Number of capital letters: 1
```

Q2 Count total number of vowels in a given string.

```
s = input("Enter a string: ")
vowels = "aeiouAEIOU"
count = 0

for ch in s:
    if ch in vowels:
        count += 1

print("Total number of vowels:", count)
```

```
Enter a string: Vivan Manghnani
Total number of vowels: 5
```

Q3 Input a sentence and print words in separate lines.

```
sentence = input("Enter a sentence: ")
words = sentence.split()

for word in words:
    print(word)
```

```
Enter a sentence: my name is vivan
my
name
is
vivan
```

Q4 WAP to enter a string and a substring. Print the number of times that the substring occurs in the given string (left to right traversal).

```
string = input("Enter main string: ")
substring = input("Enter substring: ")

count = 0

for i in range(len(string) - len(substring) + 1):
    if string[i:i+len(substring)] == substring:
        count += 1

print("Number of occurrences:", count)
```

```
Enter main string: ABCDCDC
Enter substring: CDC
Number of occurrences: 2
```

Q5 Given a string containing both upper and lower case alphabets. Write a Python program to count the number of occurrences of each alphabet (case insensitive) and display the same.

```
s = input("Enter a string: ")
s = s.lower()

count_dict = {}

for ch in s:
    if ch.isalpha():
        if ch in count_dict:
            count_dict[ch] += 1
        else:
            count_dict[ch] = 1

for key in sorted(count_dict):
    print(count_dict[key], key.upper())
```

```
Enter a string: ABaBCbGc
2 A
3 B
2 C
1 G
```

Q6 Program to count number of unique words in a given sentence using sets.

```
sentence = input("Enter a sentence: ")
words = sentence.split()

unique_words = set(words)

print("Number of unique words:", len(unique_words))
```

```
Enter a sentence: My name is vivan
Number of unique words: 4
```

Q7 Create 2 sets s1 and s2 of n fruits each by taking input from user and find: a) Fruits which are in both sets s1 and s2 b) Fruits only in s1 but not in s2 c) Count of all fruits from s1 and s2

```
n = int(input("Enter number of fruits in each set: "))

s1 = set()
s2 = set()

print("Enter fruits for Set 1:")
for i in range(n):
    s1.add(input())

print("Enter fruits for Set 2:")
for i in range(n):
    s2.add(input())


common = s1.intersection(s2)
print("Fruits in both sets:", common)


only_s1 = s1.difference(s2)
print("Fruits only in s1:", only_s1)



total_fruits = s1.union(s2)
print("Total unique fruits:", len(total_fruits))
```

```
Enter number of fruits in each set: 2
Enter fruits for Set 1:
apple
banana
Enter fruits for Set 2:
2
banana
Fruits in both sets: {'banana'}
Fruits only in s1: {'apple'}
Total unique fruits: 3
```

Q8 . Take two sets and apply various set operations on them: S1 = {Red, yellow, orange, blue} S2 = {violet, blue, purple}**bold text**

```
S1 = {"Red", "yellow", "orange", "blue"}
S2 = {"violet", "blue", "purple"}


print("Union:", S1.union(S2))


print("Intersection:", S1.intersection(S2))
```

```
print("S1 - S2:", S1.difference(S2))


print("S2 - S1:", S2.difference(S1))


print("Symmetric Difference:", S1.symmetric_difference(S2))
```

```
Union: {'violet', 'purple', 'Red', 'blue', 'yellow', 'orange'}
Intersection: {'blue'}
S1 - S2: {'Red', 'yellow', 'orange'}
S2 - S1: {'purple', 'violet'}
Symmetric Difference: {'purple', 'Red', 'yellow', 'orange', 'violet'}
```

Github link=https://github.com/vivanmanghnani46-beep/Python-experiments.git