1. **Explain what it means when we say that a Python List is mutable, but a string is not. Be brief, but get the important ideas.**

    Once a string is initialized you cannot change an element in the string

2. **Give an example of a substitution cipher by searching the web or another source.**

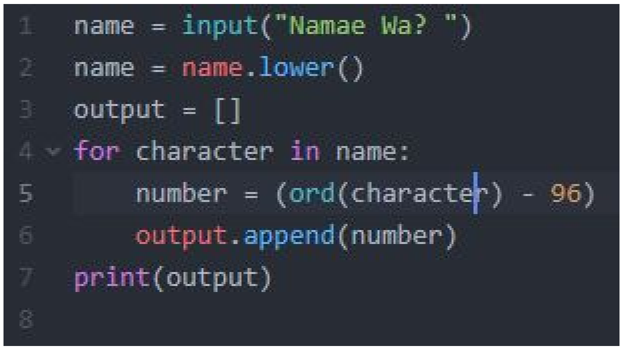
    A code block that can take information from other str and variables

    And print modified information or “splice” the information given

3. **Show the results of evaluating each of the following string expressions given that s1 = "spam" and s2 = "ni!"**
    a. a) "The knights who say, " + s2
        i. the knights who say, ni!
    b. b) 3*s1+2*s2
        i. spamspamspamni!ni!
    c. c) s1[1]
        i. p
    d. d) s1[1:3]
        i. pa
    e. e) s1[2]+s2[:2]
        i. ani
    f. f) s1 + s2[-1]
        i. spam!
    g. g) s1.upper()
        i. SPAM
    h. h) s2.upper().ljust(4)*3
        i. NI! NI! NI!
4. **Search the web or another source on the topic of public and private key encryption. Explain briefly why public key encryption is more useful for securing communication on the Internet than private (shared) key encryption.**
    a. You encrypt a message you send to someone else using their public key. When they receive it, they decrypt it using their private key. Of course this is the biggest fault line, once the private key is decrypted you have access to any inbound and outbound traffic.
5. **Create two numerology programs that computes the numeric value of a name, such as your own full name, by assigning a value for each letter and adding up all the letters. In the first program, assume that 'a'=1,**

'b'=2, 'c'=3,...'z'=26, spaces don't count and capitals have same values as the corresponding lowercase letters.

a.

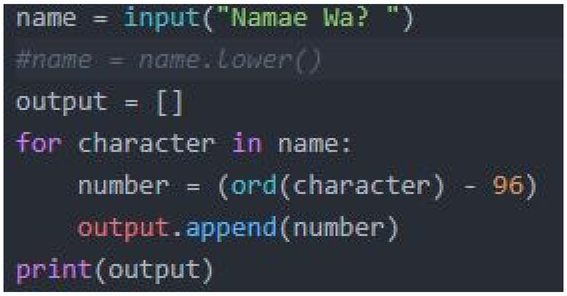


```python
name = input("Namae Wa? ")
name = name.lower()
output = []
for character in name:
    number = (ord(character) - 96)
    output.append(number)
print(output)

```

6. **Create a second numerology program. In this case, use the unicode value for each letter. In this case, spaces count and capitals have different values than lowercase letters.**

   a.



```python
name = input("Namae Wa? ")
#name = name.lower()
output = []
for character in name:
    number = (ord(character) - 96)
    output.append(number)
print(output)
```

7. **Assuming a name entered in is stored in a variable called *name*, what is a Pythonic way to read the third character from the end no matter how long the name is?**

   a. Just take the integer with the applied string and print it like

      i. print(int[-30])