### Algorithm for substitution Cipher:

### Input:

1. A String of lower case letters, called Text.
2. An Integer between 0-25 denoting the required shift.

### Procedure:

1. Traverse the given text one character at a time .
2. For each character, transform the given character as per the rule, depending on whether we’re encrypting or decrypting the text. Return the new string generated.

```
#STEP 1: Take Inputs
text=str(input("enter the word:"))
shift=int(input("Enter the key: "))
result=''
```

```
     enter the word:abc
     Enter the key: 3
```

```
#STEP 2:  Traverse
for i in range(len(text)):
  char = text[i]
  print(char)
```

```
     a
     b
     c
```

```
#STEP 3 FOR all upper case shift as per input
text = "MAYUR"
shift = 3
result=''

for i in range(len(text)):
  char = text[i]
  print("Orignal char",char)
  result = result + chr((ord(char) + shift-65) % 26 + 65)
  print("Corresponding cipher",result[i])
  print("-------------------------")
print("Final Result",result)
```

```
     Orignal char M
     Corresponding cipher P
     -------------------------
     Orignal char A
     Corresponding cipher D
     -------------------------
     Orignal char Y
     Corresponding cipher B
```

```
-------------------------
Orignal char U
Corresponding cipher X
-------------------------
Orignal char R
Corresponding cipher U
-------------------------
Final Result PDBXU
```

```
# inbuilt function return an integer representing the Unicode code
value = (ord("b"))

# prints the unicode value
print (value)

# print the character
print(chr(value))

#A-Z : 65 to 90
#a-z : 97 to 122
```

```
98
b
```

```
value1 = (ord("X"))
print("Unicode code value of given char is ",value1)

print("---------------------------------------")

value2 = (ord("X")+3)
print("Unicode with shift of 3 ",value2)

print("---------------------------------------")

value2_1 = (ord("X")+3)
print("Char with shift of 3 ",chr(value2_1))

print("---------------------------------------")

value3 = (ord("X")+3-65)
print("Convert to base of capital letter ",value3)

print("---------------------------------------")

value4 = (ord("X")+3-65)%26
print("Taking Mod with 26 ",value4)

print("---------------------------------------")


value5 = (ord("X")+3-65)%26+65
print("Unicode code value of cipher char is ",value5)
print("---------------------------------------")
chr(value5)


#breaking
#(ord("A")+3-65) makes base 0
#
```

```
Unicode code value of given char is  88
---------------------------------------
Unicode with shift of 3  91
---------------------------------------
Char with shift of 3  [
---------------------------------------
Convert to base of capital letter  26
---------------------------------------
Taking Mod with 26  0
---------------------------------------
Unicode code value of cipher char is  65
---------------------------------------
'A'
```

```
#STEP 5 FOR all lower case shift as per input
text = "abc"
shift = 4
result=''
for i in range(len(text)):
  char = text[i]
  result = result + chr((ord(char) + shift-97) % 26 + 97)
print(result)
```

```
efg
```

```
#INPUTS
text = "ABC"
shift = 3

result=''
# traverse text
for i in range(len(text)):
  char = text[i]

  # Encrypt uppercase characters
  if (char.isupper()):
    result += chr((ord(char) + shift-65) % 26 + 65)

  # Encrypt lowercase characters
  else:
    result += chr((ord(char) + shift - 97) % 26 + 97)


print ("Text : " + text)
print ("Shift : " + str(shift))
print("Cipher : ", result)
```

```
Text : ABC
Shift : 3
Cipher :  DEF
```

## Final ENCRYPTED CAESAR TECHNIQUE

```
#A python program to illustrate Caesar Cipher Technique
def encrypt(text,s):
  result = ""
  # traverse text
  s=s
  print(s)
  for i in range(len(text)):
    char = text[i]

    # Encrypt uppercase characters
    if (char.isupper()):
      result += chr((ord(char) - s-65) % 26 + 65)

    # Encrypt lowercase characters
    else:
      result += chr((ord(char) - s - 97) % 26 + 97)

  return result

#check the above function
text=str(input("enter the word:"))
shift=int(input("Enter the key: "))
# print ("Text : " + text)
# print ("Shift : " + str(s))
print ("Cipher: " + encrypt(text,shift))
```

```
enter the word:ABC
Enter the key: 3
3
Cipher: XYZ
```

## DECRYPTION

```
def decrypt(text,s):


  # Cipher(n) = De-cipher(26-n)
  s=26-s
  print(s)
  result=""
  for i in range(len(text)):
      char=text[i]
      if(char.isupper()):
```

```
   if(char.isupper()):
     result=result+chr((ord(char)+s-65)%26+65)
   else:
     result=result+chr((ord(char)+s-97)%26+97)
 return result


word=str(input("enter the word:"))
d=int(input("Enter the key: "))

print("Encoded word in Caeser cipher is: ",decrypt(word,d))
```

```
enter the word:DEF
Enter the key: 3
23
Encoded word in Caeser cipher is:  ABC
```